Revista de la Universidad del Zulia

Fundada en 1947
por el Dr. Jesús Enrique Lossada

Ciencias de la Educación

Año 12 N° 35
Noviembre - 2021
Tercera Época
Maracaibo-Venezuela

NÚMERO ESPECIAL

REVISTA DE LA UNIVERSIDAD DEL ZULIA

Portada:

   Concepto gráfico: Laura González

   Diagramación final: Reyber Parra

Revista de la Universidad del Zulia
Tercera Época

Contenido

Pacto Educativo Global y Fraternidad en Venezuela

Gerardo R. Salas Cohen*

RESUMEN

La nueva época a la que asistimos nos exige un cambio educativo y con ello nuevos paradigmas. La convocatoria hecha por el Papa Francisco para realizar un *Pacto Educativo Global* puede ser una guía para interpretar la realidad educativa venezolana. Tomando como escenario nuestro sistema educativo y, siguiendo la propuesta del Papa, este trabajo sugiere la apertura de espacios de encuentros en los que quepan todos los credos, opciones de vida y modos de organizar la sociedad, instituciones, organizaciones, Estados y tendencias de nuestro país. Un esfuerzo mancomunado de este tipo, requiere también un camino de vida basado en la *Fraternidad* como principio y categoría cultural que expresa la realidad estructural del ser humano. Una nueva antropología, un nuevo *humanismo solidario*, una actitud de apertura y de servicio hacia los demás como pilar de la cultura del encuentro, dirigido especialmente a los más necesitados para tenderles la mano, es el resultado esperado.

PALABRAS CLAVE: Educación; Iglesia; Pacto Educativo Global, Fraternidad, Venezuela.

Global Educational Pact and Fraternity in Venezuela

ABSTRACT

The new era we are witnessing requires an educational change and with it: new paradigms. The call made by Pope Francis to carry out a Global Educational Pact can be a guide to interpret the Venezuelan educational reality. Taking our educational system as a scenario and, following the Pope's proposal, this work suggests the opening of meeting spaces in which all creeds, life options and ways of organizing society, institutions, organizations, States and tendencies of our country can fit. A joint effort of this type also requires a way of life based on Fraternity as a principle and cultural category that expresses the structural reality of the human being. A new anthropology, a new humanism of solidarity, an attitude of openness and service towards others as a pillar of the culture of the meeting, aimed especially at those most in need to reach out to them, is the expected result.

KEY WORDS: Education; Church; Global Educational Pact, Fraternity, Venezuela.

*Profesor de la Facultad de Filosofía y Teología de la Universidad Católica Cecilio Acosta, Maracaibo-Venezuela. ORCID: https://orcid.org/0000-0002-4703-5855. E-mail: gerarsalascohen@gmail.com

La actual emergencia humanitaria compleja aunada a la pandemia por Covid-19 se presentan como un gran desafío para el siglo XXI en Venezuela. Si se considera además que, a las dificultades sanitarias se suman las económicas, políticas y sociales, la urgencia por encontrar soluciones, es inminente. En el ámbito educativo, según la *OCHA* (2021) en el país: "El año escolar terminó sin un retorno a las aulas debido a la COVID-19, lo que significó que los estudiantes vieran afectada su preparación académica, especialmente en zonas rurales y comunidades donde hay fallas de servicio eléctrico y de conexión a internet".

Nuestro sistema educativo está mostrando cada vez más su desarticulación; del "quédate en casa" pasamos luego a la "educación multimodal" por medio de la implementación de aulas virtuales alojadas en plataformas digitales. Sin tener la posibilidad de una transición que ofreciera la formación para el desarrollo de las competencias pertinentes, la experiencia evidenció la falta de preparación de los docentes para utilizar las nuevas tecnologías, así como la imposibilidad de acceso por parte de los estudiantes a los recursos tecnológicos, creando una brecha significativa entre los que tienen posibilidades y oportunidades de acceso y los que no las tienen. Desorientados los padres y representantes ante la situación y, presionados por la necesidad de trabajar para comer, improvisar para resolver las tareas escolares o migrar, el proceso terminó dejando por fuera o ahuyentando a la población estudiantil.

Si bien el Ministerio del Poder Popular para la Educación lanzó recientemente el *Plan Inicio de Clases Seguro y Progresivo*, cuyos ejes son: las condiciones de bioseguridad, mesas de infraestructura y refacciones de instalaciones educativas, la vacunación al personal educativo y trabajadores relacionados y mejoramiento de capacidades docentes, como dice el Papa Francisco (2019:2): "es necesario unir los esfuerzos por una alianza educativa amplia para formar personas maduras, capaces de superar fragmentaciones y contraposiciones y reconstruir el tejido de las relaciones por una humanidad más fraterna.".

La brevísima descripción anterior, es una muestra local de lo que ocurre también a nivel global. Los Jefes de Estado y de Gobierno, Ministros y Representantes, reunidos con motivo del 18º período de sesiones de la Conferencia General de la Organización de las Naciones Unidas para el Desarrollo Industrial (ONUDI), en la conocida *Declaración de Abu Dabi* (2019:3) reconocen que: "la erradicación de la pobreza en todas sus formas y dimensiones, incluida la pobreza extrema,... así como la lucha contra el cambio climático y la

degradación ambiental y sus efectos… se encuentran entre los mayores desafíos mundiales de nuestra época."

La educación es solo un aspecto del complejo entramado que conforma e incide en la existencia humana, esto significa que no solo puede generar un cambio, sino que, para que ese cambio sea efectivo, requiere del acuerdo y apoyo de otros factores del entramado que intervienen directa e indirectamente, tales como: la cultura, la sociedad, la política, la economía, la religión y todas las instituciones.

La nueva época a la que asistimos nos exige un cambio educativo y con ello: nuevos paradigmas, entonces, el primer paso para buscar alguna repuesta a la situación presente sería revisar nuestro modo de comprender la realidad para percatarnos y asimilar que todo cambió. La idea de la globalidad, pasa por una toma de conciencia sobre la interconexión entre las partes que conforman el mundo, todo lo que hacemos de manera particular tiene una consecuencia colectiva y viceversa, es por ello que, nada escapa de lo global, hoy día constatamos estamos cada vez más esa interconexión con los otros, con el mundo, la naturaleza y el universo y, al estar todo interconectado, las soluciones no pueden ser individuales y unilaterales, sino de manera mancomunada.

En este contexto, el *Pacto Educativo Global*, convocado por el Papa Francisco, es un intento por abrir un espacio para el diálogo mundial entre todas las personas de buena voluntad a fin de construir juntos, un nuevo modelo cultural, es decir, tomar conciencia sobre el cambio que debe realizarse en el modelo de desarrollo humano a partir del cual se respete la dignidad humana para superar la pobreza y la desigualdad. En esta propuesta caben todos los credos, opciones de vida y modos de organizar la sociedad, instituciones, organizaciones, Estados y tendencias.

Ahora bien, un esfuerzo mancomunado requiere también un camino de vida basado en la esperanza, la solidaridad y la fraternidad. Se trata pues de emprender juntos un itinerario de vida, construir nuevos paradigmas capaces de responder a los desafíos y emergencias del mundo contemporáneo. Este cambo integral, no es solo para una de las partes, por ejemplo, en el caso que nos ocupa: la educación, la escuela, los contenidos de las materias, los pensa, las estrategias, competencias , desempeños, recursos, etc., sino para todos los actores que coexisten con ella en el mundo: la familia, la sociedad, los modelos políticos, económicos,

instituciones religiosas, universidades, de ahí la necesidad de disponerse para superar las limitaciones políticas, económicas, sociales, culturales y religiosas.

En la propuesta del *Pacto Educativo Global* la clave es que la educación sea siempre un acto de esperanza que, desde el presente, mire al futuro. Se trata de una esperanza constructiva, en palabras del Papa Francisco (2019:2):

> "...una educación que sea portadora de una alianza entre todos los componentes de la persona: entre el estudio y la vida; entre las generaciones; entre los docentes, los estudiantes, las familias y la sociedad civil con sus expresiones intelectuales, científicas, artísticas, deportivas, políticas, económicas y solidarias. Una alianza entre los habitantes de la Tierra y la "casa común", a la que debemos cuidado y respeto. Una alianza que suscite paz, justicia y acogida entre todos los pueblos de la familia humana, como también de diálogo entre las religiones."

La propuesta de un itinerario integral supone pues, un proceso plural y multifacético capaz de involucrarnos a todos en respuestas significativas, donde la diversidad y los distintos enfoques se puedan armonizar en la búsqueda del bien común y la capacidad para crear una armonía. En este sentido, no hay verdades absolutas, recetas, lugar para posiciones sesgadas para actitudes cerradas, por el contrario, se requiere disposición, apertura, escucha y diálogo permanente. Se requiere del trabajo armonioso de todas las partes, nadie puede correr sin mirar a otros lados, nadie puede quedar afuera.

En el caso de las universidades, es preciso emprender tareas conjuntas, iniciar la búsqueda de aliados, emprender un camino de formación permanente, para que de la reflexión y el diálogo surjan acciones concretas que permitan poner en el centro a la persona, desechando la cultura del descarte, escuchando a los niños y jóvenes, fomentando la participación de los jóvenes y la familia (en todas sus manifestaciones) como primera e indispensable educadora. Así mismo, buscar otras formas de entender la economía, la política, el crecimiento y el progreso al servicio de la persona y la familia humana desde una perspectiva de la *economía integral*.

Para llevar adelante el *Pacto Educativo Global*, algunas condiciones son necesarias, por ejemplo: garantizar el acceso a la educación, mirar juntos, unir el esfuerzo de todos, pasar del "yo, me, mi, conmigo" al "*juntos*" aceptando y respetando las diferencias con el propósito de crear la aldea de la educación con cultura de encuentro, como lo refiere el Papa Francisco

(2019:2), aludiendo a un proverbio africano: "para educar a un niño se requiere de una aldea entera".

Una acción concreta es introducir la *Amistad social* o *Fraternidad*, como el principio que expresa la realidad estructural del ser humano en los procesos educativos; categoría cultural que funda y guía paradigmáticamente el pontificado de Francisco, al respecto, en *Instrumentum Laboris* (2020:4) expone:

"Introducirla en los procesos educativos, significa reconocerla como un dato antropológico de base, a partir del cual injertar todas las "gramáticas" principales y positivas de la relación: el encuentro, la solidaridad, la misericordia, la generosidad, pero también el diálogo, la confrontación y, más en general, las diversas formas de reciprocidad."

El camino propuesto no es corto ni fácil, es más bien opuesto a esa *rapidación* de la que habla el Papa Francisco, para mostrar cómo nuestra identidad va perdiendo su consistencia y nuestra estructura psicológica se desintegra ante una mutación incesante que contrasta la natural lentitud de la evolución biológica. La educación también afronta la *rapidación*, que encarcela la existencia en el vórtice de la velocidad tecnológica y digital, cambiando continuamente los puntos de referencia.

La creación y conformación de una *Aldea de la educación* como la propone el Santo Padre Francisco, servirá para establecer redes de relaciones humanas abiertas, así como redes inter y transdisciplinarias entre los diversos campos del saber, la interculturalidad entre las sociedades, el diálogo interreligioso, variadas maneras de hacer política y economía en la que pueda prevalecer la unidad sobre el conflicto.

Por utópico e ingenuo que parezca, un primer paso a realizar es iniciar una búsqueda de compañeros de viaje en el camino de la educación, respetando la diversidad y desechando la cultura del descarte y, como dice el Papa Francisco, tener: a) la *valentía* de *colocar a la persona en el centro*, b) la *valentía* de *invertir las mejores energías con creatividad y responsabilidad* y, c) la *valentía* de *formar personas disponibles que se pongan al servicio de la comunidad*.

Una nueva antropología, un nuevo *humanismo solidario*, una actitud de apertura y de servicio hacia los demás como pilar de la cultura del encuentro, dirigido especialmente a los

más necesitados para tenderles la mano, es el compromiso hacia el que intenta orientarnos el *Pacto Educativo Global*.

Referencias

Declaración de Abu Dabi. 18º Período de Sesiones de la Conferencia General. *Industria 2030 - Innovar. Vincular. Transformar Nuestro Futuro*. Resolución GC.18/Res.1. Abu Dabi, Emiratos Árabes Unidos, 3-7 de noviembre de 2019. Nº 1

Instrumentum Laboris Pacto Educativo Global, 2020. https://www.educationglobalcompact.org/resources/Risorse/instrumentum-laboris-sp.pdf

Oficina de las Naciones Unidas de Coordinación de Asuntos Humanitarios (2021). Venezuela–Junio–Julio 2021. Informe de situación en: https://reports.unocha.org/es/country/venezuela-bolivarian-republic-of/ Descargado el: 13 oct. 2021

Papa Francisco (2015). Carta Encíclica *Laudato Si: sobre el cuidado de la casa común*. https://www.vatican.va/content/francesco/es/encyclicals/documents/papafrancesco_2015052 4_enciclica-laudato-si.html

Papa Francisco (2019). Mensaje del Santo Padre Francisco para el lanzamiento del Pacto Educativo. Boletín de la Santa Sede, jueves 12.09.2019. https://www.vatican.va/content/francesco/es/messages/pontmessages/2019/documents/pap a-francesco_20190912_messaggio-patto-educativo.html

Dimensión ética como límite de lo técnicamente posible. Los retos de la educación humanizante

Angela María Rincón Martínez*
Ena Cecilia Obando Peralta**
Vladimir Rodríguez Cairo ***
Frisa María Antonieta Aliaga Guevara****

RESUMEN

Este artículo analiza los límites de las técnicas empleadas para la producción de bienes y servicios; por esto, plantea la corresponsabilidad como principio ético capaz de relacionar adecuadamente a quienes conforman cultura. En tal sentido, el objetivo principal es vincular la dimensión ética a la generación de mercancías que la sociedad amerita sin vulnerar la continuidad de la vida como posibilidad. Por tanto, involucra las acciones sociales frente a la naturaleza y comunidad. Así, el propósito es condicionar las acciones sociales a la responsabilidad que los seres humanos se merecen. Los resultados subrayan la necesidad de normar la coexistencia de tal manera que la disposición solidaria permita los consensos para que las confluencias acontezcan de tal manera que sean cónsonas con la condición de dignidad inherente a la existencia. A su vez, la educación necesaria dispone las estrategias y métodos para humanizar las mediaciones de las comunidades en favor de reconocer las dimensiones y contingencias de la razón humana, tejiendo convivencia; se trata de forjar la razón sensible como cimiento de nuevos saberes. El método de investigación empleado es bibliográfico desde el enfoque racionalista deductivo.

PALABRAS CLAVE: Cultura; Tecnología; Ciencia; Educación.

*Universidad Privada Antenor Orrego, Trujillo-Perú. ORCID: https://orcid.org/0000-0003-4208-951X. E-mail: arinconm1@upao.edu.pe

**Universidad Privada del Norte, Trujillo-Perú. ORCID: https://orcid.org/0000-0001-5734-676. E-mail: ena.obando@upn.pe

***Universidad Nacional Mayor de San Marcos-Lima. ORCID: https://orcid.org/0000-0001-9971-0405. E-mail: vrodriguezc@unmsm.edu.pe

****Universidad César Vallejo-Trujillo-Perú. ORCID: https://orcid.org/0000-0003-3655-6740. E-mail: faliagag@ucvvirtual.edu.pe

Ethical dimension as a limit of what is technically possible. The challenges of humanizing education

ABSTRACT

This article analyzes the limits of the techniques used for the production of goods and services; for this reason, it raises co-responsibility as an ethical principle capable of adequately relating those who make up the culture. In this sense, the main objective is to link the ethical dimension to the generation of goods that society deserves without violating the continuity of life as a possibility. Therefore, it involves social actions in front of nature and community. Thus, the purpose is to condition social actions to the responsibility that human beings deserve. The results underline the need to regulate coexistence in such a way that the solidary disposition allows consensus so that the confluences occur in such a way that they are in harmony with the condition of dignity inherent in existence. In turn, the necessary education provides the strategies and methods to humanize the mediations of the communities in favor of recognizing the dimensions and contingencies of human reason, weaving coexistence; it is about forging sensible reason as a foundation for new knowledge. The research method used is bibliographic from the deductive rationalist approach.

KEYWORDS: Culture; Technology; Science; Education.

Introducción

Una de las primeras reacciones que el hombre manifiesta frente al mundo que le contiene es el asombro. Esto se debe a la sensación de empequeñecimiento que se siente ante una realidad basta, compleja, disímil; donde una multitud de eventos y haberes conforman los sistemas que se interrelacionan. El hombre se descubre ante una inmensa serie de relaciones que exceden con creces la capacidad de entender el mundo que la intuición arroja. En tal sentido, se vale de los medios, mecanismos, procesos, inferencias y deducciones que la racionalidad presenta como oportunidades ante el mundo.

La racionalidad como capacidad de entender las características del mundo emerge en un momento especial de la evolución humana, como entidad que busca interpretar la naturaleza de los fenómenos que ocurren. Desde la comprensión, elaborar modos de vida que le permitan la

sobrevivencia; más allá, la subsistencia en condiciones que permitan perdurar y acceder a altos grados de comodidad.

En el asombro, el hombre descubre que no está solo. Ser hombre muy lejos está de ser una entidad exclusiva, limitada, totalmente independiente del mundo, de la realidad: de otros. El ser humano se revela como imbricación, construcción, elaboración, tejido con otros, muchos otros. Así, pensar, razonar el mundo, pasa necesariamente por muchos procesos de relación con otros.

Ser es ser con otros; así, razonar es una capacidad que se ejerce en conjunto. Entonces, acaecen dos espacios de razonamiento precisos, delimitados a primera vista. En una primera instancia está el espacio subjetivo como un lugar que se identifica en la intimidad de cada uno de los seres que piensan. Ahí ocurren, se relacionan, se contrastan, resumen, sintetizan los razonamientos internos. Luego de ocurrir diversos y diferentes haberes cognitivos cada ser humano tiene haberes que afirmar, compartir.

Seguidamente, lo que se afirma en el espacio interior es arrojado al lugar común. Ahora, se identifica otro lugar de enunciación: el espacio de las intersubjetividades. Aquí confluyen los pareceres, las reflexiones que la subjetividad construye. Ocurren iguales procesos cognitivos, hay contraste, confrontación, inferencias, deducciones a partir de las ideas. Paso seguido, se producen uniones que validan específicos saberes; los cuales ocurren en determinados nichos sociales.

En eso, se identifica la confirmación en conjunto como el medio a través del cual se legitima lo que se conoce. La ciencia se da como encuentro de pareceres, de razonamientos, de apreciaciones. Estos juicios se generan gracias al operar de la subjetividad ante las impresiones que los fenómenos colocan en la consciencia. Así, se tejen cuerpos teóricos basados en los encuentros de valoraciones que la realidad imprime en el espacio interno.

Se ratifica que existe un mecanismo a través del cual es posible inferir premisas basándose sobre la realidad: La razón. Y, que el cuerpo teórico que se teje: -la ciencia-, tiene relación concomitante con los fenómenos que operan en el espacio que en conjunto se reconocen como realidad.

Por lo cual, la ciencia se afirma como cuerpo teórico que ofrece premisas con grado tal de confiabilidad que le otorga cualidad de utilidad. Y, es precisamente la traducción que hace de la

realidad la que legitima el haber que presenta. La ciencia se precia de ser veraz porque es capaz de traducir en conceptos las inferencias que los razonamientos realizan de la alta diversidad de fenómenos que suceden en el mundo.

La ciencia brinda los saberes que a la sociedad le es recomendable asistir cuando se desean realizar operaciones que transformen las condiciones de vida. Se trata de conocimientos que se atienden siempre y cuando se diseñan estrategias que restringen los problemas que enfrentan las comunidades. Así, las operaciones necesarias para que la técnica sustente mejores formas de vida necesitan del saber científico. Los acueductos, las vacunas, las carreteras asfaltadas, las redes eléctricas y computacionales, los antibióticos y desparasitantes; por ejemplo, se tratan de haberes técnicos que permiten cimentar formas de vida mucho más cómodas, fundamentando sus procedimientos y organizaciones en las premisas que la ciencia ofrece.

Frente a los haberes técnicos que la ciencia posibilita, los optimismos se producen; sin embargo, frente a estos se admiten dos falencias. Una se relaciona con las maneras de legitimar los saberes; otra insiste en los límites de lo posible. La realidad se presenta a modo de un entramado complejo de relaciones, teje diversos y diferentes niveles y complejidades entre los haberes que componen el mundo. Para Ladrière (1984: 162):

> La transformación del dato en su verdad, verdadero objetivo del proceso crítico, se realiza en la instauración del sistema. Lo que constituye el sistema como sistema es la conexión, comprendida no en el sentido de una simple conexión de hecho sino en el de una concatenación necesaria.

La complejidad del sistema se constriñe cuando se intenta aprender a través del monismo epistémico que legitima la ciencia positivista. En cuanto, se necesitan aperturas epistémicas que autoricen otros enfoques, racionalidades que apoyen diferentes vías de acceder a interpretaciones de la realidad. Los enfoques racionalista-deductivo y vivencial justifican la coordinación de entidades de saberes que ofrecen conocimiento útil como apertura sensible al mundo. Subraya Morin (1984: 83).:

> La racionalizaciónes una lógica cerrada y demencial que cree poder aplicarse a lo real, y cuando lo real se niega a aplicarse a esta lógica, se le niega o bien se le introducen forceps para que obedezca, sistema éste de campo de concentración. La

racionalización es demencial, y sin embargo tiene los mismos ingredientes que la razón. La única diferencia es que la razón debe estar abierta y acepta, reconoce, en el universo, la presencia de lo no racionalizable, es decir, la parte de lo desconocido o la parte del misterio.

Emerge así, la necesidad de reconocer otras maneras de racionalidad que rebasen los términos del enfoque empirista. Se presenta la *razón sensible* como categoría que contiene concretas nociones que amplían considerablemente las compresiones de la realidad.

Pensar a través de la razón y razonar a través de los sentidos sensibles, implica, pues, otro tipo de racionalidad que nos es la de las deducciones-reducciones logicistas de la experiencia objetiva del conocimiento. Este otro tipo de razón que bien puede considerarse como sensible se atribuye la comprensión del sentido desde la perspectiva estética de sus connotaciones. O sea, es una racionalidad (…) propia de la hermenéutica simbólica que considera la sensorialidad de los sentidos la fuente de la comprensión del contexto del sentido a través de los símbolos e imágenes artísticas. Esta especie u orden de los sentidos de la sensibilidad, nos permiten descubrir el mundo de las sensaciones como experiencias del pensar que se organizan cognitivamente como voliciones, valencias, del sujeto de la experiencia que es capaz de abrirse a su presencia motivacional y expectante (Márquez-Fernández, 2021:43).

Estos permisos dejan reconocer un aspecto de suma importancia respecto a la necesidad de multiplicar la vida en condiciones de habitabilidad. La *razón sensible* arroja saberes legitimados a través del mecanismo que exige producir vida acorde con la dignidad que esta contiene. En tal sentido, las *praxis* humanas se aprueban según esta condición. Se reconocen los límites técnicos de la ciencia como delimitación de lo posible.

Junto a esto, la educación se presenta como la estrategia humanizante por excelencia. En tal sentido, todo proyecto que procura la convivencia pasa necesariamente por disponer las herramientas pedagógicas en virtud de educar como acto de humanización. Esto, destaca el hecho que las sociedades posibles son realizables al ser lugares donde los seres humanos reconocen las características, recursos, habilidades que contienen con la finalidad de conformar lugares habitables.

Entonces, la educación informa ciertamente sobre las características del mundo físico, las diversas expresiones de los fenómenos al expresar realidad. Junto a esto, identificar los límites

de lo posiblemente técnico. Este reconocimiento es dado porque la pedagogía es capaz de humanizar las convivencias al adiestrar en valores. La disposición solidaria y compasiva hacia los otros permite desvincular imposiciones con la finalidad de otorgar habitabilidad al mundo. La educación posible expresa *razón sensible* como estrategia para la habitabilidad común del mundo.

Por consiguiente, la *razón sensible* exige que las prácticas humanas sean valoradas según la capacidad de reproducir vida habitable en cuanto presenta situaciones justas y equitativas. En este sentido, se identifica la pertinencia de las acciones técnicas. No todo es posible porque la vida contiene dignidad. Junto a esto, la capacidad humana de pensar las complejas relaciones que componen la realidad significa el justo mecanismo que el sistema contiene para sustentar su persistencia a lo largo del tiempo.

> Por ello emerge la necesidad de pensar desde el punto de vista de la complejidad, pero no en atención a una simple demanda metodológica, sino de cara a la asunción ya inescapable de que el mundo y el universo, en definitiva lo real, son intrínsecamente complejos. De modo que la complejidad no es un adjetivo, es un sustantivo, es la propia trama, naturaleza y contenido de lo real. (Fernández, 2007:128).

Se advierten y denuncian las hegemonías como imposiciones que intencionalmente cercenan la *razón sensible* para desdibujar los límites de lo posible. Se trata de denunciar la desfragmentación que a la razón limitan para desdibujar los haberes que atentan contra la vida como multirrelación compleja de sistemas.

En este sentido, el principal objetivo de la investigación vincula la dimensión ética a la producción de bienes y servicios, con la finalidad de identificar los límites de lo técnicamente posible. Así, se presenta la corresponsabilidad como habilidad que permite formas de convivencia que no degraden los nichos ecológicos y las relaciones humanas. Junto a esto, destacamos la importancia de la educación como vía expedita para concientizar a los seres humanos en la importancia de condicionar los modos de relación humana a principios éticos que permitan formas de vida equitativa, cónsonas con la dignidad implícita en la vida.

1. Las aperturas que articulan ciencia

¿Qué es ciencia? La ciencia como término genérico envuelve una multitud de disciplinas que se precian de informar verazmente sobre las operaciones que suceden en la realidad.

Las ciencias dan por sentado dos haberes. Que existe uno o varios métodos que al emplear se obtiene conocimiento cierto; por otro lado, que el mundo se presenta con ciertas regularidades, precisiones, repeticiones, causalidades, que pueden identificarse claramente con la finalidad de realizar afirmaciones que suelen constatarse en la facticidad.

> La estructura de la realidad es tal que permite la aplicación de nuestras construcciones conceptuales. Nos damos cuenta, sin embargo, de que todas las leyes científicas no representan más que abstracciones e idealizaciones que expresan ciertos aspectos de la realidad. Toda ciencia es una imagen esquematizada de la realidad, en el sentido de que determinada construcción conceptual está inequívocamente vinculada a ciertos rasgos de orden de la realidad; precisamente como los planos de un edificio no son el edificio, ni lo representan en modo alguno cabalmente, con la disposición de los ladrillos y las fuerzas que los retienen juntos, lo cual no es óbice para que exista una correspondencia equitativa entre lo trazado en el papel y la auténtica construcción de piedra, metal y madera.(Ludwig Von Bertalanffy, 1986:85).

Se asume que la realidad está constituida por determinadas repeticiones, constantes físicas sobre los cuales los métodos deben operar con la finalidad de afirmar certezas. La biología con sus diversas disciplinas adquiere certezas de las constantes físicas que anuncian los fenómenos. Así, de ciertos pesos, dimensiones, espacios, sabores, se deducen las constantes que funcionan en el mundo.

> La realidad, concebida de un modo nuevo, se presenta como un tremendo orden jerárquico de entidades organizadas que va, en superposición de numerosos niveles, de los sistemas físicos y químicos a los biológicos y sociológicos. La unidad de la ciencia no es asegurada por una utópica reducción de todas las ciencias a la física y la química, sino por las uniformidades estructurales entre los diferentes niveles de la realidad. (Ludwig Von Bertalanffy, 1986: 90).

En el mundo se descubren eventos constantes, exactitudes, ajustados y exactos órdenes que le dan a la ciencia una de sus más preciadas cualidades; la capacidad de predecir. Taxativamente la ciencia constituye un cuerpo de saber útil porque es capaz de predecir eventos; al considerar un número determinado de variables es capaz de anunciar determinadas

precisiones. Esto, porque dentro de limitadas circunstancias los seres humanos descubren el mundo regular, constante, equilibrado.

Gracias a la capacidad de predecir a las ciencias le es posible colocar tratamientos para cada dolencia en busca de alivio; puede recomendar precisiones y cantidades que evitan que los puentes colapsen, es capaz de introducir obsolescencia programada en un producto. Las premisas que componen cada cuerpo conceptual facilitan operar en el mundo, al reducir las dispersiones, los accidentes, los infortunios consecuentes de habitar un mundo que nada se puede afirmar con certeza de él.

En tanto, se deduce del mundo las regularidades que en él funcionan; a su vez, se organizan los métodos técnicos que facilitan obtener saber justo. Se trata de entidades procedimentales que puestos en funcionamientos arrojan saber. La ciencia moderna nace con el optimismo de sustentar sus saberes gracias al operar de un exclusivo método. El monismo epistémico que caracteriza la modernidad se da como universalización de una organización de procedimientos preestablecidos.

El método que los científicos validan como universal distingue determinadas fases. Observa el mundo, los eventos se registran minuciosamente; de estos se dilucidan ciertas inferencias que permiten establecer premisas, la hipótesis es confrontada al experimentar sobre la realidad, las reacciones son apuntadas con la finalidad de aprobar o desacreditar la primera inferencia. Así, de la ratificación de la premisa se deduce un nuevo saber al proponer otra premisa a constatar en la realidad con diferente experimentación. Menciona Morin (1984:34):

> En efecto, las teorías científicas dan forma, ordenan y organizan los datos verificados sobre los que se fundan, y por ello mismo son sistemas de ideas, construcciones del espíritu que se aplican a los datos para adecuárseles. Pero, continuamente, nuevos medios de observación o de experimentación, o una nueva atención, hacen surgir datos desconocidos, invisibles. A partir de ahí, las teorías dejan de ser adecuadas y, si no es posible ampliarlas, se hace necesario inventar otras nuevas. De hecho, «la ciencia es más cambiante que la teología» (...) En efecto, la teología tiene una estabilidad muy grande porque se funda en un mundo sobrenatural inverificable, mientras que lo que se funda en el mundo natural siempre es refutable.

De esta manera, el cuerpo que conforma cada ciencia sucede del tejido de las confirmaciones o cancelaciones de las propuestas hechas. Premisas que son confrontadas con las

regularidades que funcionan en la realidad. Todos los instrumentos que la ciencia se precia de desarrollar no son más que ampliaciones de los sentidos.

Por lo cual, el saber se encuentra afirmado porque se observa, se pesa, se mide, se prueba el mundo. La ciencia se precia de exactitud y veracidad porque comprueba, tiene la capacidad de constatar; justa y ciertamente: ve. Es la capacidad de observar las regularidades la que le permite a la ciencia afirmar ser veraz.

Entonces, sobreviene el optimismo metódico que las ciencias exhiben. El positivismo de las ciencias fácticas se cimenta en el optimismo de contar con un cuerpo procedimental que al ser constatado con la dimensión fáctica del mundo deduce saber. Pero, ante esta confianza salta el hecho que no todos los fenómenos que en el mundo suceden son susceptibles de ser constatados a través del método que legitima el saber de estas ciencias.

Muy contrario al parecer de muchos optimistas positivistas, en la realidad suceden otros eventos que son incapaces de ser aprendidos por el método promovido por la modernidad científica. Por más que se fuerce, se intente, se insista, mucho de lo presentado por la realidad es inconmensurable al monismo epistémico. Desear, querer, amar, rivalizar y odiar. Estas sensaciones, sentimientos, impulsos caracterizan no poco del perfil psicológico individual y social.

Ante tal incapacidad del monismo epistémico de las ciencias fácticas, otros saberes se tejen. Junto al enfoque empírico que caracteriza las investigaciones fácticas, aparece el enfoque racionalista-deductivo y vivencial como legitimación de otros saberes que se precian también de ser ciertos, veraces, en consecuencia: útiles.

A los estudios de sistemas fácticos se anteponen otros tipos de estructuras cognitivas, de disciplinas. Los razonamientos humanísticos se fundamentan en el mismo optimismo que los procedimientos empíricos: Ostentar la cualidad de ofrecer conocimiento cierto, veraz y comprobable. Pero, el monismo epistémico se quiebra porque la realidad evade los límites que las ciencias imponen. Se tejen otros saberes; más precisamente, otras racionalidades.

Sucede que las disciplinas que estudian los sistemas humanos ofrecen saber que se precia de ser comprobable, por tal circunscrito a la realidad; seguidamente, de igual manera tiene la

capacidad de predecir. Pero, los razonamientos que admiten presentarse a modo de método deben estructurarse de tal manera que sean adecuados a la naturaleza de la situación en estudio.

Se identifica que los métodos que se emplean con la finalidad de obtener saber del mundo deben modelarse según la naturaleza de lo que se observa. El enfoque racionalista-deductivo sirve como herramienta para pensar, analizar, razonar las situaciones que en la realidad se evidencian. Pero, claramente privilegia el momento de racionalidad como entidad que legitima lo que se afirma.

En este caso quien investiga observa la realidad, pero junto a esto confronta los razonamientos del decir que los otros presentan. Seguidamente se admiten las palabras como sustancias que transmiten razonamientos, como entidades que autorizan las nociones y categorías que se legitiman. Se advierte contra el principio de autoridad como primera falencia que puede invalidar las afirmaciones en cuanto valederas.

Es destacable el hecho que quien reflexiona los sucesos sociales se encuentra irreductiblemente contenido por las axiologías legitimadas en la cultura que habita; desde estos marcos conceptuales reflexiona el mundo que habita. Explica esto la justificación acérrima que Aristóteles hace a la esclavitud, afirmación que a cualquier pensador hoy causa aversión.

Posteriormente, ante toda deducción racionalista-deductiva el ser humano se sitúa frente a una peculiar y determinada aprobación del mundo; específicamente, lo que se afirma se hace desde los permisos que las contenciones culturales colocan en las afirmaciones. Pero, estas subjetividades lejos están de invalidar lo afirmado por quien investiga. Esto sólo destaca el hecho de las particularidades, las características y contrastes que se presentan entre los diversos enfoques de investigación.

A su vez, el enfoque vivencial se debe a la naturaleza y situación de los análisis que se dan. Este enfoque privilegia los esfuerzos comprensivos que se hacen al habitar situaciones específicas. El ser humano está ante el hecho que quien vive el mundo tiene mucho que afirmar de las circunstancias por otros habitadas; y, estas afirmaciones adquieren validez en cuanto traducción veraz de lo que se afirma. Las palabras –en ese sentido- se presentan con la pretensión de traducir fidedignamente lo que en la realidad sucede.

Las investigaciones organizadas desde el enfoque vivencial ofrecen cuerpos teóricos que de sí afirman ser ciertas. Es el método predilecto de las investigaciones sociológicas y antropológicas. Refleja las apreciaciones derivadas de quienes habitan precisas situaciones y de su experiencia tienen algo que ofrecer. En tanto, se descubren los desdibujamientos del monismo epistémico que impone los marcos conceptuales positivistas. No existe una exclusiva realidad; mucho menos la admisión universal del método que se impone como único mecanismo a través del cual se legitima el saber.

Por supuesto que pueden comprobarse los periodos y lugares habitados por las comunidades; por ejemplo, estudiando sus vasijas se determina de qué se alimentaban. Junto a estas precisiones, también tienen mucho que contar las experiencias, sensaciones de quienes han residido en determinadas sociedades. Así, se construye un aspecto ontológico relevante que elude la exclusividad metódica: La realidad es disímil, dúctil, variable.

Así como no existe un exclusivo modo de ser humano, comunidad y sociedad, es altamente reduccionista la pretensión de traducir, captar la alta complejidad que la realidad ofrece tras el operar de un exacto método. La física aborda – por ejemplo- la condición fáctica de la realidad. Pero, la compleja condición del escenario elude con creces los límites y precisiones del método empírico.

El principio de explicación de la ciencia clásica eliminaba al observador de la observación. La microfísica, la teoría de la información, la teoría de sistemas, vuelven a introducir al observador en la observación. La sociología y la antropología exigen situarse *hic et nunc*, es decir, tomar consciencia de la determinación etnosociocéntrica que, de partida, hipoteca toda concepción de la sociedad, de la cultura, del hombre. El sociólogo debe preguntarse continuamente cómo puede concebir una sociedad de la que forma parte. El antropólogo contemporáneo ya *se* dice: «*¿Cómo puedo, yo, portador inconsciente de los valores de mi cultura, juzgar una cultura llamada primitiva o arcaica? ¿Qué vale nuestros criterios de racionalidad?*»A partir de ahí comienza la necesaria autorrevalorización del observador, que se pregunta: «‹¿quién soy?›»,‹ ¿dónde estoy?,. El yo que aquí surge es el yo modesto que descubre que su punto de vista es necesariamente parcial y relativo. Así, vemos que el propio progreso del conocimiento científico necesita que el observador se incluya en su observación, que el concepto se incluya en su concepción, en suma, que el sujeto se vuelva a introducir de forma autocrítica y autorreflexiva en su conocimiento de los objetos. (Morin (1984: 47).

Los saberes que se tejen a través de los enfoques racionalistas-deductivo y vivencial ayudan a acceder a conocimientos útiles. Más allá, y empleando el término adecuado: conocimiento científico, en cuanto la presencia de una entidad conceptual que presenta premisas veraces, valederas; correlatos de la realidad.

2. La *razón sensible* como límite de lo posible

Se evidencian los permisos que deben accederse para que la ciencia articule cuerpos de saberes amplios en tanto atienden a la diversidad, complejidad de la realidad. Por tanto, se afirma el hecho que la racionalidad lejos está de ser solamente las inferencias que de las comprobaciones físicas de los fenómenos. Se admite la *razón sensible* a modo de ampliación de las formas de conocer.

> Será, pues, tarea de la razón sensible crear las posibilidades del gusto y placer por la vida a partir del reconocimiento e identidad de los sujetos frente al mundo sensorial e imaginario del que forman parte. La posibilidad-probabilidad de este otro conocimiento del mundo en su sensibilidad natural e histórica, es el propósito de la razón sensible, como esfuerzo recuperativo de los saberes de la razón (y no tanto de la racionalidad de la razón). La auténtica humanización del hombre a través de sí y de la naturaleza, parte de la condición simbólica y mítica que procura crear a través de su pasión por la vida, una trascendencia. (Márquez-Fernández, 2021:44).

La categoría *razón sensible* habilita cuerpos conceptuales que el método epistémico que legitima la ciencia fáctica no puede acceder. Refiere al hecho que la descripción del mundo que desde las comprobaciones se realizan es incapaz de articular axiología pertinente. De ahí que, la minuciosa descripción que de las condiciones físicas de la realidad puede hacer el método científico nada afirma sobre los límites de la acción humana.

A las descripciones fácticas de la condición material de la existencia le resulta relativamente fácil determinar la suma de componentes para presentar alimentos poco nutritivos saborizados artificialmente. Pero es incapaz de pronunciar saberes sobre la pertinencia de llenar los mercados de alimentos con baja capacidad alimenticia. En consecuencia, queda indemne ante el aumento de la desnutrición y muerte infantil.

Más allá, los procedimientos técnicos permiten deforestar en muy pocas horas todos los bosques del mundo con la finalidad de colmar los anaqueles de muebles, lámparas y bisuterías.

Pero, nada asevera sobre la pertinencia de este proceder. En consecuencia, rinde ante los intereses que se suman cuando las exigencias del mercado priman sobre los límites de lo posible.

Seguidamente, los altos niveles de ganancias ostentados por quienes controlan la técnica, al desconocer los límites de lo posible, precarizan los espacios habitables; los seres humanos dispondrán la negación a la vida en espacios muy reducidos. Se ajustará la alimentación requerida por la suma de los trabajadores del mundo para que le sea posible sobrevivir a jornadas de más de dieciséis horas de trabajo por día; nada se mencionará sobre las situaciones de esclavitud a la que se someten los inmigrantes, los desposeídos, a quienes quitaron las tierras cultivables.

Cuando el mercado coloca los límites de lo posible se amplían sustancialmente las lesiones que a la dignidad humana se le hace. Entonces la ciencia se hace saber acrítica, maleable, francamente manejable según los rendimientos monetarios que los procedimientos técnicos ofrecen. Los recursos que permiten la vida se convierten en la alcancía de quienes controlan lo posible. Debe atenderse el hecho que:

> El antropocentrismo es heredero del logos occidental, que justifica la explotación del medioambiente para satisfacer las necesidades humanas. La acumulación de capital se articula con un discurso utilitarista, basado en los intereses humanos sobre el bien común, el buen vivir y la permanencia de la vida en el planeta. Es así como la civilización occidental concibe la naturaleza con un bien, donde el hombre pierde esa relación espiritual y ancestral con ella, deja de ser parte de la misma, convirtiéndose en un medio para alcanzar el progreso (Mejía González et al., 2021: 64-65).

En consecuencia, la ambición y las enajenaciones necesariamente se abren de las circunscripciones de la racionalidad. La suma de urgencias y miserias contemporáneas obliga a identificar los límites de lo posible para que la vida siga sucediendo.

> El modelo de sociedad actual caracterizado por la violencia, la sobre-explotación de los recursos naturales, la acumulación y el crecimiento cuantitativo de las riquezas en manos de unos pocos, siempre en detrimento de las mayorías empobrecidas ha ocasionado una ruptura en las relaciones sociales y en las relaciones del ser humano con el ambiente (Guanilo Pareja et al., 2021: 344).

El mundo dista de ser mercancía, y no existe prosperidad ni vida posible sustentada sobre la rapacidad; por lo menos no vida en condiciones dignas. Así, la epistemología posible:

Se esfuerza en abrir y desarrollar por doquier el diálogo entre orden, desorden y organización para concebir, en su especificidad, en cada uno de sus niveles, los fenómenos físicos, biológicos y humanos. Se esfuerza en la visión poliocular o poliscópica, en la que, por ejemplo, las dimensiones físicas, biológicas, espirituales, culturales, sociológicas, históricas de lo humano dejan de ser incomunicables. El principio de explicación de la ciencia clásica tendía a reducir lo conocible a lo manipulable. Actualmente, hay que insistir con fuerza en la utilidad de un conocimiento que pueda servir para ser reflexionado, meditado, discutido, incorporado por cada uno en su saber, su experiencia, su vida (Morin, 1984:48).

Ante estas aseveraciones, sigue caracterizar la *razón sensible*. En primer lugar, salta el hecho que se trata de un modo de abordar la realidad con la pretensión de abarcar haberes mucho más amplios de aquellos que al monismo epistémico de las ciencias fácticas le es posible distinguir. Esta razón autoriza enfoques racionalistas-deductivos y vivenciales. Se propone componer relatos que abarquen la realidad de las contingencias; posibilita hacer afirmaciones veraces: presentar cuerpos de saberes que autorizan formas de vida dignas.

A su vez, estas autorizaciones tienen el propósito de identificar los límites de lo posible. Saber la permisibilidad dada ante los procedimientos que la técnica puede realizar. Reconoce el hecho diáfano que si se consume la totalidad de los recursos que permiten la vida, esta ya no será posible. Y mucho más allá de la condición de sustentabilidad de la vida, se trata de razonamientos axiológicos en cuanto considera la condición de dignidad inherente a la vida.

Las justificaciones de la dignidad autorizan las estrategias que permiten la vida. Ante la obviedad no pocas veces la objetividad de las ciencias fácticas esconde la intencionada indiferencia ante la diversidad de formas de vida humana. "Cualquier identificación o descripción de un fenómeno lo es a partir de determinado sistema social de representación/interpretación; la pretensión de captar el fenómeno en sí y objetivamente lleva implícito el sistema de valoraciones desde el que se lo identifica" (Magariños de Morentin, 2020:6).

Desconocimiento visiblemente justificado ante los intereses que intenta esconder; se trata de develar la condición humana. Y esto se enfrenta con el hecho cierto de que la totalidad de haberes que a la técnica le es posible hacer, no todo le está permitido. En *Los Hermanos Karamazov*, Dostoyevski coloca ante el dilema: *Si Dios no existe todo está permitido*. La condición de realidad

enfrenta al ser humano a la situación que, aunque sea posible técnicamente realizar una suma considerable de actos, todos no están permitidos pues la vida contiene dignidad.

Lejos está la condición de dignidad de ser un permiso dado arbitrariamente, remotamente está de ser una opción; menos una alternativa a escoger a capricho. Se trata del reconocimiento que los seres humanos realizan al mundo en sus deseos de continuar vivos. El reconocimiento de la condición de dignidad implícita en la vida trata sobre la principal condición límite que determina la posibilidad de continuidad.

La *razón sensible* vincula dos haberes humanos, que visiones interesadas han desarticulado. La razón como capacidad de pensamiento, reflexión que traduce la realidad; se trata de la posibilidad humana de realizar inferencias y deducciones de la impresión que los fenómenos hacen en la conciencia. Específicamente, la racionalidad media en común las apreciaciones con la finalidad de presentar cuerpos de saberes que se precian de legitimidad al poseer mayor reconocimiento.

Junto a los hechos, la *razón sensible* imbrica los haberes que los fenómenos merecen en la consciencia, pero esta dimensión remite a un saber que da cuenta sobre la corresponsabilidad que los seres humanos poseen unos con otros. Así, se descubre como específica situación humana la solidaridad y compasión. Los hechos de corresponsabilidad lejos están de tratarse de reconocimientos arbitrarios; se trata de la capacidad humana de tejer formas de vida habitables al ser más justas y equitativas.

> Razonar sentimentalmente es diferente a razonar racionalmente. Es pensar desde la imaginación y la fantasía, la ilusión y la metáfora, la realidad trans-física de las ideas sensibles. La emoción es causa primera del pensar sensible. Ella le da origen y lo fecunda, lo impregna de historias y destinos. Es vivir esa otra mundanidad del mundo, donde el mundo sentido y re-sentido se transforma en una libertad para ser y hacer-nos de una manera mucho más libre y autónoma. Sin restricciones ni fronteras cognoscitivas. Pensar sentimentalmente es una expectación abierta a la realidad en su dimensión estética y dramática, donde la pasión que es la Vida es una convivencia por el placer de sentir los afectos del sentimiento (Márquez-Fernández, 2021:15).

La vinculación entre eventos de razón y hechos sensibles alertan sobre los límites de lo posible. Salta la realidad que todo sistema hegemónico es abiertamente castrante de la condición humana al desatender la relación entre razón y sensibilidad; privilegiando los sucesos de razón,

nubla la capacidad de advertir los límites de las acciones. Ante esto, justificando la corresponsabilidad ética, Maturana (2006:77). escribe:

> Para que exista un sistema social debe darse la recurrencia en las interacciones que resultan en la coordinación conductual de sus miembros, es decir, debe darse la recurrencia de interacciones cooperativas. De hecho, si hay recurrencia de interacciones cooperativas entre dos o más seres vivos, el resultado puede ser un sistema social, si tal recurrencia de interacciones pasa a ser un mecanismo mediante el cual estos realizan su *autopoiesis*. La recurrencia de interacciones cooperativas es siempre expresión del operar de los seres vivos participantes en un dominio de acoplamiento estructural recíproco y durará tanto como éste dure.

La *razón sensible* no es un saber lacrimoso, melodramático y meloso; señalamientos que fácilmente pueden hacerse desde los sesgos cognitivos que contienen quienes niegan los límites que a la técnica le es posible hacer. Por lo tanto, cuando se argumenta sobre *razón sensible* se piensa sobre los hechos de corresponsabilidad que los seres humanos tienen como individuos y seres sociales. Se trata de tejer los derechos humanos desde la solidaridad y fraternidad para que se quiebren los egoísmos del derecho exclusivo del propietario, con la finalidad de ampliar los permisos a la convivencia que las comunidades humanas se permiten. En tal sentido:

> La tercera generación de derechos se manifiesta con la recepción de los derechos de la solidaridad, los derechos colectivos y participativos que hacen a hombre y su entorno y la convivencia. Tal los derechos a la paz, desarrollo económico, al ambiente sano, al patrimonio cultural, el acceso a la justicia y la protección a los derechos del consumidor, la libre determinación de los pueblos que amplía las bases de la legitimación de los gobiernos, etc. Este proceso se advierte en la segunda mitad del siglo XX, donde se trata de garantizar la satisfacción de las necesidades futuras (de la actual y las futuras generaciones) que expresan los valores de la fraternidad y la solidaridad que buscan preservar y asegurar la calidad de vida de todos los habitantes del planeta (Aquino Britos, 2018:147,148).

Pueden identificarse tres niveles axiológicos de compromiso humano. Un nivel que se relaciona con el cuidado de sí como responsabilidad primigenia, está relacionada con las formas de trato que se da a las diversas circunstancias; tiene que ver con la conservación saludable de sí, tanto en sentido psíquico como físico. La siguiente relación es con otros seres humanos, se vincula estrechamente con el ejercicio de la política como *praxis* que dispone los medios para

permitir maneras de vivir como correlatos de la dignidad que quienes están involucrados se reconocen.

> El ser humano es constitutivamente social. No existe lo humano fuera de lo social. Lo genético no determina lo humano, sólo funda lo humanizable. Para ser humano hay que crecer humano entre humanos. Aunque esto parece obvio, se olvida al olvidar que se es humano sólo de la manera de ser humano de las sociedades a que se pertenece. Si pertenecemos a sociedades que validan con la conducta cotidiana de sus miembros el respeto a los mayores, la honestidad consigo mismo, la seriedad en la acción y la veracidad en el lenguaje, ése será nuestro modo de ser humanos y el de nuestros hijos. Por el contrario, si pertenecemos a una sociedad cuyos miembros validan con su conducta cotidiana la hipocresía, el abuso, la mentira y el autoengaño, ése será nuestro modo de ser humanos y el de nuestros hijos (Aquino Britos, 2018:80).

El tercer nivel destaca las relaciones que los seres humanos desarrollan con la vida no humana; implica acciones ecológicas como sustento, ocupación y cuidado de la existencia. Este nivel es especial en cuanto se reconoce vida, por tanto, dignidad en quienes carecen de consciencia para reconocerse tal. Pero, se descubre que el cuidado de la vida no humana además de reproducir los recursos que favorecen la producción de la vida, a su vez, involucra prácticas que implican el cuidado de sí.

Subraya el hecho que no existe cuidado de sí valedero que inmiscuya reducciones en la calidad de vida que los no humanos desarrollan. La ecología se presenta entonces como reconocimiento de dignidad a otras maneras de vida que favorece invariablemente las formas humanas de vivir. Así, destaca el hecho que los límites de las prácticas humanas tratan sobre la necesidad de reproducir vida digna.

> El hombre no es sólo un animal político; es, antes y sobre todo, un individuo. Los valores reales de la humanidad no son los que comparte con las entidades biológicas, con el funcionamiento de un organismo o una comunidad de animales, sino los que proceden de la mente individual. La sociedad humana no es una comunidad de hormigas o de termes, regida por instinto heredado y controlada por las leyes de la totalidad superordinada; se funda en los logros del individuo, y está perdida si se hace de éste una rueda de la máquina social. En mi opinión, tal es el precepto último que ofrece una teoría de la organización: no un manual para que dictadores de cualquier denominación sojuzguen con mayor eficiencia a los seres humanos aplicando científicamente las leyes férreas, sino una advertencia de que el Leviatán de la organización no debe engullir al individuo si no quiere firmar su sentencia inapelable (Ludwig Von Bertalanffy, 1986:57).

Las maneras de relacionar, interactuar, vincular los tres niveles antes descritos con la complejidad de sistemas que relacionan la realidad, involucran corresponsabilidad ética como entidad que reproduce vida sustentable y digna. Esto permite evidenciar los desfavores que a este planteamiento hace todo sistema hegemónico; pues, como forma contra humana de articular existencia se preocupa por borrar los límites de lo posible, para que los hechos que sacrifican vida digna ocurran.

Los sesgos cognitivos son tales porque desconocen, no consideran, niegan o disminuyen la corresponsabilidad de los seres humanos con la vida. Estos sesgos favorecen la explotación de los recursos que sustentan los sistemas que permiten vivir. Se trata de cortar, disminuir, empequeñecer la racionalidad como medio de reconocer las responsabilidades de los seres humanos a sí mismos, los otros y la vida no humana; para que los medios que permiten la vida sean sacrificados en beneficio de la reproducción de los intereses egoístas. Debe atenderse al hecho que: "La civilización occidental se expande con un modelo desarrollista, que justifica la colonización y el sometimiento de los pueblos; ideologiza, enajena y cercena la identidad individual y colectiva" (Mejía González et al., 2021: 59).

Estos egotismos son desfragmentados por la *razón sensible*. Estos propósitos nos colocan frente a la pregunta ¿Cómo hacer que los complejos sistemas que se correlacionan permanentemente puedan autorregularse éticamente para que haya equilibrio? Se trata específicamente de ¿Cómo introducir regulación axiológica dentro de las intrincadas imbricaciones que operan en la realidad? Estas interrogantes presentan el hecho que los sistemas deben autorregularse éticamente para que la subsistencia sea posible. En las correlaciones que se establecen entre los componentes debe mediar la corresponsabilidad como principio moderador de los acontecimientos. Salta el hecho que:

> La complejidad es interpretar la naturaleza en su anudamiento de contradicciones, paradojas, orden y desorden, desintegración y autoorganización al mismo tiempo. Es en este enjambre de problemas donde fracasó ruidosamente la ciencia convencional con sus precarios paradigmas de reducción-disyunción que aísla a los objetos, insulariza a la ciencia y pretende unificar lo diverso mediante la medición. En este sentido, es preciso aceptar sin mayores traumas que el principio clásico de explicación que excluía el azar ha colapsado. Luego, se impone reconocer el desorden, la dispersión y las contradicciones que habitan en el corazón mismo de la física. Ello

no es un error del pensamiento ni un pensamiento extravagante, sencillamente es lo propio de la complejidad, encarar el conocimiento sobre la base del complexus, de lo que está tejido en conjunto, comunicación entre el objeto y el entorno, entre cosa observada y observador (Fernández, 2007:133).

Todo lo anterior pone en evidencia dos eventos. El ser humano constituye el momento de consciencia dentro de la realidad. Se trata del hecho obvio que las muchas operaciones que funcionan dentro de los sistemas tienen el momento de consciencia específicamente en el ser humano. En el hombre reside la capacidad que la realidad tiene de autorreflexionarse, de autopensarse. En tal medida, es el ser humano quien puede regular éticamente los sistemas que interactúan.

La construcción racional del conocimiento, indistintamente su naturaleza, procede del único ser racional que es capaz de conocer a partir de hipótesis, teorías y métodos, las condiciones y las transformaciones de la vida del mundo natural e histórico que le rodea: éste es, el hombre (Márquez-Fernández, 2011:2).

Al ser el hombre la exclusiva entidad que dentro del complejo sistema real demuestra consciencia -como autopensamiento- es el único ser que puede construir axiología como normalización de los muchos eventos que se suceden. Hasta ahora se ha demostrado que las diversas interrelaciones demuestran múltiples conductas; pero en el ser humano se circunscribe la posibilidad de construir reflexión ética como autorregulación del sistema.

Los seres humanos como responsables de las formas de vida que se ofrecen, tienen la responsabilidad de coordinar convivencia de tal manera de las maneras sean cónsonos con la dignidad que se reconocen. Se trata de la capacidad que las sociedades tienen de apropiarse responsablemente de las acciones que se deben. De esta manera lograr la producción de bienes y servicios sin que esta atente contra la continuidad de la vida.

Por consiguiente, son las coerciones éticas las que se presentan como imposiciones exteriores sobre los sistemas como anulación de las axiologías, dado que en la consciencia humana la realidad presenta los pensamientos que norman los sucesos que son susceptibles de ser racionalizados.

Y es que frente a un crecimiento a costa del deterioro del medio ambiente, existe la necesidad de buscar un equilibrio entre consumo y ecología. Esta búsqueda, en mi

opinión, pasa por desarrollar nuestras capacidades: críticas, creativas y de conciencia ecológica, por averiguar por nosotros mismos "*cuánto es suficiente*" para obtener la máxima calidad de vida posible sin perjudicar la calidad de vida de las generaciones venideras y/o antes de que la Naturaleza nos diga ¡basta! (Monzó Marco, 1996).

Por esto, las regulaciones éticas que coartan la explotación técnica de la realidad lejos están de ser concesión arbitraria que se le hace a la realidad. Se trata de contingencias que los sistemas que pueden ser mejorados a lo largo del tiempo contienen. Porque el pensamiento ético que los seres humanos realizan ante las diversas dinámicas que se relacionan en el macrosistema llamado realidad, trata de entidades que la evolución coloca para autorregular los eventos en favor de acciones que mejoren las contingencias. Relata Maturana (2006:77):

> Es decir, hay lenguaje –y en mi opinión así surge evolutivamente en algún momento hace más de tres millones de años en la historia de nuestro linaje- cuando los participantes de un dominio lingüístico usan palabras (coordinación conductual primaria) al coordinar sus acciones sobre las distintas circunstancias que sus coordinaciones conductuales primarias configuran, las que así aparecen por primera vez señaladas como unidades independientes, esto es, como objetos. De esto resulta, por una parte la producción de un mundo de acciones y objetos que sólo tienen existencia y significado en el dominio social en que surgen y, por otra, la producción de la autoobservación, que nos lleva a distinguirnos como objetos a nosotros mismos y a nuestras circunstancias, en la reflexión que constituye la autoconciencia como fenómeno que también tiene existencia y sentido sólo en el dominio social.

Consiguientemente, debe destacarse el hecho que la capacidad de autorreflexión que la consciencia humana hace de la realidad trata sobre el momento específico de regulación de los sistemas en favor de conducir las prácticas para la reproducción de la vida en condiciones que garanticen los haberes que permiten subsistencia. Se desestima el caos y desorden como eventos implícitos a los sistemas. En este caso, las acciones demostrarían falta de precisiones, de regulaciones y contingencia que le imposibilitaría a la ciencia predecir, legitimar saberes comprobados en la realidad.

Así como se comprueban variadas regulaciones que operan dentro de los sistemas que correlacionan la realidad, se evidencian las frecuencias que permiten predecir y legitimar las premisas, en favor de construir cuerpos teóricos veraces. Es posible identificar el pensamiento

ético como especial contingencia que busca, en primer término, mantener la subsistencia y realizar vida en mejores condiciones dignas a lo largo del tiempo.

Pensar éticamente las relaciones que componen lo real permite mejorar los ordenamientos que acontecen. Aquí la condición de mejora se encuentra estrechamente relacionada con la continuidad de ocurrencia a lo largo del tiempo; y, con las condiciones que los hechos acaecen. El pensamiento ético identifica los límites de las acciones humanas en cuanto estrategia que la realidad coloca para garantizar las condiciones que multiplican la vida.

Schopenhauer destaca que la vida quiere seguir viviendo, lo que acentúa la reflexión ética como mecanismo que la evolución presenta a modo de autorreflexión en favor de la permanencia, continuidad de las contingencias que componen la realidad (Schopenhauer, 2009). Caso contrario, el caos, el desorden establecerían las irregularidades que por un lado imposibilitarían la ciencia como conocer útil. También, provocaría las degradaciones, impulsaría el consumo y depredación que pronto anularían la capacidad de replicarse, multiplicarse que los sistemas que componen la vida exhiben.

Debido a esto, los rompimientos y desvinculaciones éticas que las hegemonías imponen dentro de los sistemas, son violaciones a la capacidad de autopensamiento o autorregulación. Las estrategias hegemónicas son acciones que cercenan la capacidad de multiplicación de los sistemas que la vida presenta. Por esto, se trata de mecanismos que cortan las posibilidades de vida en condiciones de dignidad, valiéndose de exigencias y manipulaciones que limitan la capacidad reflexiva que las consciencias demuestran.

Las hegemonías se valen de varios mecanismos que suspenden la autorreflexión como normalización que dentro de los sistemas operan; en procura de emplear los recursos que garantizan la continuidad de la vida en función de la expresión de puntuales egoísmos. Los esfuerzos se orientan para anular el autopensamiento que legitima las prácticas humanas, con la estrecha finalidad de permitir acciones que contravienen la vida.

Destaca el hecho que las hegemonías se valen de múltiples estrategias que cortan la reflexión crítica como capacidad intrínseca a la vida. Suceden las alineaciones y enajenaciones para subsumir la racionalidad a las exigencias que legitiman los modos contrahumanos de ser.

Efectivamente, se anulan los hilos que asocian comunidad, se coartan los mecanismos que permiten la correspondencia ética; se anula la corresponsabilidad.

A su vez, la razón se escinde de la dimensión sensible. Las hegemonías como atentados contra la continuidad de la vida, necesariamente desliga la *razón sensible*. La posibilidad de ubicarse en los lugares que los otros habitan con la finalidad que la compasión resalte las injusticias y que la solidaridad mueva a las acciones que corrijan los sacrificios en el sistema, se impiden al separar la capacidad sensitiva de los hechos de razón. Se trata de garantizar los derechos humanos al estar basados en el reconocimiento de la dignidad implícita en la vida. Porque:

> La mejor forma degarantizar esos derechos es contar con gobiernos democráticos y participativos basados en la igualdad y la solidaridad, en el marco de la tolerancia y el respeto de la naturaleza que obliga a una responsabilidad común y compartida (Aquino Britos, 2018: 153).

Contra este tipo de articulación humana se atenta cuando sobreviene la razón como suceso inhumano al desconocer los límites de lo técnicamente posible. La razón insiste en la objetividad al permitir los procedimientos que abiertamente atentan contra la sobrevivencia de los sistemas que la vida interrelaciona. La desconsideración ética frente a la naturaleza, como inmensa imbricación de sistemas, permite estrategias de explotación de los recursos que evidentemente quiebra la continuidad de la vida. Escribe Maturana (2006:74).:

> Es constitutivo de un sistema social el que sus componentes sean seres vivos, ya que sólo se constituye al conservar éstos su organización y adaptación en él, en el proceso integrado. Por esto, cualquier intento de caracterizar al sistema social de una manera que no reconozca que la conservación de la vida de sus componentes es condición constitutiva de su operar, se equivoca y especifica un sistema que no genera los fenómenos propios del sistema social. Así, por ejemplo, un conjunto humano que no incorpora la conservación de la vida de sus miembros como parte de su definición operatoria como sistema, no constituye un sistema social.

Es esta evidencia la que se desconoce cuándo se imposibilita la corresponsabilidad compartida por los seres que poseen capacidad reflexiva de los hechos. Las enajenaciones contemporáneas ocurren porque se cercenan las reflexiones que en la consciencia suceden. Este corte se debe a la suma de varios mecanismos alienantes que en las sociedades humanas se

presentan. La propaganda incesante, la mediocridad reinante en la educación cuando esta no forma en las competencias éticas que permiten la intersubjetividad a modo de humanización, la desinformación que brindan los medios de comunicación; son sólo algunos de los mecanismos que se valen las hegemonías para imposibilitar la *razón sensible* como compromiso humano ante la vida.

Ahora bien, pueden ser destacadas las diferencias entre una educación al servicio de la depredación del mundo y otra que provoca humanidad. Lejos está la educación de ser realidad desvinculada de las maneras en las cuales los seres humanos conforman sociedades. La educación se presenta como el método a través del cual los seres humanos se dan a conocer los basamentos que organizan las convivencias; también, capacitar en formas de convivencia.

En este sentido, la caracterización que de la sociedad se hace implica analizar los sustentos teóricos de la pedagogía que en las comunidades suceden. A su vez, considerar que las mejores prácticas educativas ameritan configurar los recursos pedagógicos para concientizar a los seres humanos en precisas virtudes; conocer los límites racionales de lo técnicamente posible, saber que la convivencia amerita instruirse en la corresponsabilidad ética para asumir los retos de la vida que se comparte.

Las prácticas deshumanizantes solicitan razón acrítica, desensibilizada, separada de la condición humana. Por consiguiente, insiste en la objetividad como pretexto para sacar las reflexiones éticas de los hechos educativos. Al imposibilitar reflexionar las maneras en las cuales los seres humanos en común habitan el mundo y las responsabilidades que con este se tiene, se permite la manifestación de la técnica como depredación de la realidad.

Las sociedades alienadas son incapaces de reflexionar éticamente los límites de lo posible; sirven a una razón inhábil de humanizar porque está al servicio de la máxima producción de mercaderías sin atender la realidad. Evidentemente, trata sobre una pedagogía que al insistir en la objetividad del saber científico es incapaz de considerar los compromisos éticos humanos. Las pedagogías alienantes desconocen la ética como sustento de la convivencia.

Ante la educación alienante se confronta humanización cuando los recursos que dispone la pedagogía se organizan para favorecer la convivencia: por lo cual, la capacidad humanizante

acontece en la medida que se impulsa el pensamiento crítico; reflexión sustentada en la *razón sensible* porque considera las condiciones reales de la existencia.

La ética como urgencia de las convivencias sucede al ser el mundo lugar compartido; subraya la condición que la libertad es realización humana en la medida que se habilitan las convivencias. Esto quiere decir que la educación permite humanización porque insiste en reflexionar los hechos comunes para impulsar habitabilidad.

Se enfrentan los totalitarismos que obvian los límites de lo técnicamente posible para que acontezca el consumo de los recursos disponibles, sin considerar la cancelación de la vida que esto conlleva. Se trata con educación humanizante, porque ejerce *razón sensible* como reflexión compartida de la vida.

Las sociedades futuras son posibles porque a través de la educación se ejerce *razón sensible* a favor de identificar las técnicas que impulsan habitabilidad del mundo. Se cancelan los silencios, las acríticas que las imposiciones ameritan, para ejercer la *razón sensible* como reconocimiento de lo técnicamente posible. Significa que humanizar es otorgar los permisos que reconocen la dignidad que el otro contiene.

Acaece la racionalidad como sustento de los cálculos medio-fin en favor de los sacrificios de la vida. Entonces, los sistemas en correlato se desvinculan, se escinden, se separan; se descontinúa la vida. La desconsideración ética de los hechos de vida permite los mecanismos que sacrifican los sistemas en favor de intereses egoístas. La razón como permiso sensitivo ante la vida, reivindica la ética como regulación que los sistemas ameritan para la sobrevivencia a lo largo del tiempo.

Consideraciones finales

Se aprehende la *razón sensible* como estrategia que facilita la reproducción de la vida en condiciones de dignidad. Es necesario religar las desvinculaciones impuestas entre racionalidad y sensibilidad que las hegemonías impulsan con el propósito de cortar las identificaciones de lo técnicamente posible; lo cual tiene el propósito de permitir legitimar procedimientos que abiertamente contravienen la continuidad de las inmensas relaciones que la vida imbrica.

Se imponen las reflexiones que disminuyen la distancia e integran la reflexión ética de los hechos de razón con la finalidad de reconocer los límites de lo técnicamente posible. Se concibe la ciencia en cuanto cuerpo de saber legítimo que se admite porque identifica las diversas estrategias permitidas para que la vida suceda de manera digna. Este reconocimiento plantea que las *praxis* humanas consideran las exigencias ecológicas como corresponsabilidad con los eventos que producen vida; a su vez, reivindica las relaciones consigo mismo y la otredad. La coordinación de los niveles de corresponsabilidad hace saber que ser responsable ante todo otro es de muchas maneras hacerse responsable de sí, insistir en el cuidado de sí como coordinación de los medios que consienten la continuidad de la vida.

Las hegemonías son tales porque cancelan la capacidad reflexiva como mecanismo que organiza intersubjetividad. En consecuencia, la *razón sensible* se enfrenta con los mecanismos enajenantes que se aplican. Esto porque se reconoce una obviedad ética que los mecanismos contrahumanos intenta excluir.

La vida sucede como correlaciones, imbricaciones permanentes y dinámicas de muchos sistemas. Junto a esto se reconocen las regulaciones, la normación fenoménica que en la realidad sucede; esto hace posible la ciencia como cuerpo de saber que ofrece conocimiento valedero. Junto a estos hechos acaece la ética como predilecto suceso que distingue y construye las consciencias humanas. Trata esto sobre un momento muy especial de la evolución de la vida, pues la capacidad de pensamiento permite la ética como mecanismo de sustento y mejora que el sistema vida reproduce. En tal sentido, la "idea primordial es sumar esfuerzos para establecer prioridades con la finalidad de brindar soluciones globales que propicien una vida armoniosa entre los seres vivos. Todos esenciales para la existencia de la vida en la tierra" (Guanilo Pareja et al., 2021: 346).

En la capacidad reflexiva humana la vida se piensa a sí misma, los eventos éticos corresponden a mecanismos formativos de legalidad en procura de la vida como demostración de bienestar. A la sazón, las hegemonías tienen el propósito de coartar la capacidad reflexiva que la vida demuestra como sustento de las mejores formas de acontecer.

Los límites de las *praxis* técnicas muy lejos están de ser concesiones arbitrarias, de poco valor que a la realidad se le hace; se trata de estrictas precisiones que tienen que considerarse

para que la multiplicación de los sistemas que involucra sea posible sobre los basamentos de la subsistencia. En tanto, si se violentan los límites de lo posible se cancela la posibilidad de sobrevivencia.

Junto a esto, la *razón sensible* valida otros procedimientos de investigación que transcienden los cercos con los cuales el monismo epistémico restringe la investigación científica. Se habilitan los enfoques racionalista-deductivo y vivencial como métodos capaces de interpretar fidedignamente el acontecer. El espacio del laboratorio valida estrategias cognitivas muy útiles ante ciertas precisiones, pero, las imbricaciones, relaciones, interacciones, dinámicas que las relaciones de sistemas presentan rebasa con creces las exactitudes de lo puramente concreto.

Así hacer ciencia suma otras maneras de proceder. Desde las disciplinas humanísticas se piensan, razonan y explican saberes útiles cuando demuestran alto nivel de veracidad. También hay conocer comprobable en cuanto es contrastado con la capacidad que demuestra de multiplicar vida en condiciones de dignidad. Por tanto, es posible denunciar las reducciones que victimizan las cualidades humanas. Desde esta perspectiva la condición de reproducir vida digna se convierte en el basamento que legitima los saberes.

Sustentar la *razón sensible* involucra eliminar las reducciones cognitivas que el monismo epistémico legitima, con la finalidad de presentar cuerpos teóricos útiles para las organizaciones sociales humanizantes. También, identificar los límites de lo posible como axiología que impulsa la vida habitable porque reproduce justicia y equidad.

Vincula necesariamente las prácticas educativas con la *razón sensible*, pues los recursos pedagógicos se prestan como exclusiva manera de expresar una razón plural, abierta, crítica. La educación dispone los medios para hacer del hombre un ser ético; esta condición se circunscribe a la corresponsabilidad como norma de convivencia.

La corresponsabilidad identifica los límites de lo técnicamente posible en un mundo finito, junto al hecho que los lugares habitables son tales porque expresan humanidad. La educación irreductible humaniza porque concientiza los derechos y deberes que los seres humanos tienen en comunidad, demuestra la finalidad de limitar la violencia al lograr consensos.

La *razón sensible* permite identificar los compromisos éticos que autorizan las técnicas de producción social. Habilita en pensamiento crítico al impulsar las reflexiones que permiten la convivencia. Refiere una educación que desvincula los silencios, la copia, la calca, la incesante repetición de pensamientos y comportamientos impuestos. Reconoce e impulsa la pluralidad de la condición humana, desvincula las amenazas y castigos de prácticas alienantes.

La educación como entrenamiento para competir queda derogada en procura de conocer que siempre se es junto y para otros; que no existe manera de vida digna si la otredad no la habitan también. Es educación que informa sobre las características del mundo físico y las formas de operar con ellas, por supuesto; pero, bajo la condición y amparo que da el saber que toda práctica involucra la corresponsabilidad como permiso de esta.

Justamente aquí la *razón sensible* presta las herramientas que humanizan los hechos educativos: otorga el lugar privilegiado que ocupa la ética en las pedagogías adecuadas. Entonces, la educación sucede como humanización al fortalecer el pensamiento crítico, impulsa los reconocimientos humanos que habilitan los diálogos para que los acuerdos sucedan.

Es educación que humaniza porque enseña las tácticas de la convivencia, el reconocimiento que los aportes culturales que los otros ofrecen, la tolerancia como encuentro entre las diferencias, la escucha a modo de atención hacia las voces, el diálogo que favorece los encuentros culturales. A la par, supeditar las prácticas sociales a la condición de reproducir vida digna.

Cancela las aulas como adoctrinamiento cultural, enfrenta las imposiciones que solicitan los silencios. Anima descubrir en conjunto el mundo para conformar conocimientos al servicio de dignas formas de vida. Significa esto supeditar la producción de bienes y servicios a la condición finita del mundo. Entonces, validar modos de producción que no involucren la depredación de los recursos; al contrario, producir bienes materiales en la misma medida que se reproducen los haberes que posibilitan la producción. Junto a esto, manifestar convivencias cimentadas sobre la solidaridad como condición humana.

Lejos de las utopías desarrollistas, la pedagogía sensibiliza la convivencia al identificar lo técnicamente posible; hace conocer que si algo se pueda hacer necesariamente no es realizable. Resalta que es técnicamente posible acabar con la vida en el planeta en cuestión de segundos;

pero la práctica es irrealizable al considerar los permisos que la *razón sensible* otorga. La urgente educación hace saber que sólo hay posibilidad de vida cuando los humanos se reconocen como seres que comparten la capacidad de sentir el mundo; desde esta condición es posible validar las prácticas sociales.

Referencias

Aquinos Brito, Armando (2018). La 4ª Generación de Derechos. La democracia constitucional como meta-garantía. Una mirada desde Argentina, En. Derecho Político Temas de Ayer y Hoy. Jornadas Preparatorias. Posadas. Asociación Argentina de Derecho Político (AADP).

Fernández, A. (2007). *Problemas Epistemológicos de la Ciencia: Crítica de la Razón Metódica*. Ediciones El Salvaje Refinado. Estados Unidos de América.

Guanilo Pareja, C. G.; Pareja Pera, L.; Guanilo Paredes, C. E. (2021). Pensamiento Ecológico Latinoamericano y su Aporte a un Nuevo Modelo Educativo. *Revista de Filosofía*. Nº 97. 2021-1., pp. 341-353

Ladrière, J. (1984). *La Ciencia y la Filosofía*. La Science, la Philosophie et la Foi, in *L´articulation du Sens*. t.1. Cap. VI. Cerf. Paris.

Ludwig Von Bertalanffy (1986). *Teoría General de los Sistemas.* Fundamentos, desarrollo, aplicaciones. Fondo de Cultura Económica. México.

Magariños de Morentin, J. (2020). *Esbozo Semiótico Para una Metodología de Base en Ciencias Sociales*. file:///C:/Documents%20and%20Settings/OSVALDO/Mis%20documentos/Downloads/----%20%20%20%20%20LUZ%20%20%20EPISTEME%20%20%20%20%20Art.%20Margarios%20de%20Morentis%20(V.larga).htm. Recuperado el día 22 de abril de 2021.

Márquez-Fernández, A. (2011). Ciencias Humanas y Humanidades de las Ciencias. Universidad del Zulia. *Maracaibo. Venezuela.*

Márquez-Fernández, A (2021). *Pensar con los Sentimientos: Razón, escucha, diálogo, cuerpo y libertad*. Universidad Católica Cecilio Acosta. Centro de Filosofía para Niños y Niñas (CENFIN). Maracaibo. Venezuela.

Maturana, H. (2006). *Desde la Biología a la Psicología*. Universal Editorial. EL Mundo de las Ciencias. Santiago, Chile.

Mejía González, L; Cujía Berrio, S; Liñán Cuello, Y. (2021). Desarrollo Sostenible: Crítica al Modelo de Civilización Occidental. *Revista de Filosofía*. Nº Especial. 2021 pp. 55-73.

Monzó Marco, J. (1996). El Pensador Sistémico. Vol. I. Artículos 1995-2005. Valencia. Venezuela.

Morin, E. (1984). *Ciencia con Consciencia*. Anthopos Editorial del Hombre. Barcelona. España.

The role of instilling moral values in primary schoolchildren

Olha P. Tretiak*
Liudmyla I. Melenets**
Viktoriia M. Shcherbyna***
Olena V. Poliakova****
Larysa V. Kravchuk*****

ABSTRACT

The aim of this study was a comprehensive coverage of the effectiveness of instilling moral values in the education of primary schoolchildren for their further update. The following tools were used for the collection and processing of statistical data: scientific literature review, survey results, questionnaires for parents, generalization of theoretical and empirical data, diagnostic methods (direct and indirect pedagogical observation, unfinished sentence technique, game activity, icon exercises, analysis of moral and ethical situations, independent characteristics), statistical methods of calculation. The online utility Text Analyzer was used to process open responses from parent questionnaires. The introduction of individual, group, as well as training forms of work, discussion, feedback techniques, games and art methods into the educational process of primary school has provided positive changes in instilling moral values in students. The interaction of family and school contributed to the development and improvement of parents' pedagogical knowledge and skills. The levels of moral values in primary schoolchildren in experimental groups after the completion of the formative stage of the experiment significantly exceed the indicators of control groups.

KEYWORDS: education; moral values; justice; dignity; responsibility; communication.

*Candidate of Pedagogical Sciences, Associate Professor of the Department of Preschool and Primary Education, Institute of In-Service Education, Borys Hrinchenko Kyiv University, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0002-1160-055X. E-mail: olh389tretiak@gmail.com

**Candidate of Pedagogical Sciences, Associate Professor of the Department of Preschool and Primary Education, Institute of In-Service Education, Borys Hrinchenko Kyiv University, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0003-0246-2674. E-mail: liudmelenets@ukr.net

***Candidate of Political Sciences, Associate Professor of the Department of Preschool and Primary Education, Institute of In-Service Education, Borys Hrinchenko Kyiv University, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0003-0103-2197. E-mail: vktshcherbyna4@yahoo.com

****Senior Lecturer of the Department of Preschool and Primary Education, Institute of In-Service Education, Borys Hrinchenko Kyiv University, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0002-1152-2045. E-mail: overpoliakova@gmail.com

*****Senior Lecturer of the Department of Preschool and Primary Education, Institute of In-Service Education, Borys Hrinchenko Kyiv University, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0002-2066-2912. E-mail: kravchuklar@ gmail.com

El papel de inculcar valores morales en los escolares de primaria

RESUMEN

El objetivo de este estudio fue una cobertura integral de la efectividad de inculcar valores morales en la educación de los niños de la escuela primaria para su posterior actualización. Se utilizaron las siguientes herramientas para la recolección y procesamiento de datos estadísticos: revisión de literatura científica, resultados de encuestas, cuestionarios para padres, generalización de datos teóricos y empíricos, métodos de diagnóstico (observación pedagógica directa e indirecta, técnica de oración inconclusa, actividad de juego, ejercicios de iconos, análisis de situaciones morales y éticas, características independientes), métodos estadísticos de cálculo. El recurso en línea Text Analyzer se utilizó para procesar respuestas abiertas de cuestionarios para padres. La introducción de formas de trabajo individuales, grupales y formativas, la discusión, las técnicas de retroalimentación, los juegos y los métodos artísticos en el proceso educativo de la escuela primaria ha proporcionado cambios positivos en la formación de valores morales en los estudiantes. La interacción de la familia y la escuela contribuyó al desarrollo y mejoramiento de los conocimientos y habilidades pedagógicas de los padres. Los niveles de valores morales en escolares de primaria en grupos experimentales después de la finalización de la etapa formativa del experimento superan significativamente los indicadores de los grupos de control.

PALABRAS CLAVE: educación; valores morales; justicia; dignidad; responsabilidad; comunicación.

Introduction

Education and upbringing have, in one way or another, a moral dimension. The central goal of the education of both past centuries and present education is instilling moral values in children. The interaction of factors influencing attitudes toward oneself and others is complex, but even simple brief adult interventions in the educational process can also be effective. The older generation offers the world to the younger one, and invites the latter to communication by various means and technologies. The formation of the moral sphere of primary schoolchildren has become the object of study of modern philosophers, psychologists and educators. Problems of humanistic morality are studied by modern domestic philosophers (Kremen, 2010; Ladichenko, 2009). Psychological and pedagogical studies of structural and dynamic features of the moral sphere of primary schoolchildren were analysed in the works (Bekh, 2012; Savchenko, 2009), because the foundations of worldview are actively formed in this age period. The problem of laying the foundations of

moral culture through knowledge and self-development was studied by Ebersbach and Brandenburger (2020). The study of Willemse et al. (2018) is of scientific value, as it deals with the joint interaction of teachers and parents in the education and upbringing of pupils. The opinion of researchers Marin et al. (2018) about effective forms and methods of work of teachers and parents is noteworthy. The works of Splitter (2020) deal with the study of the problem of interpersonal relationships of pupils.

However, despite the attention of scholars to this problem, there is limited knowledge and theoretical justification of the importance of the role of instilling moral values in primary schoolchildren. Therefore, the topicality of this problem, its pedagogical significance requires special research.

1. Literary review

There is a current escalation of personal disputes caused by the ever-increasing "wealth gap" between and within countries, the impact of globalization, the growing financial crisis, the mass movement of refugees fleeing war, oppression and climate change. Such events bring to the surface a problem of the inconsistency of ways in which ordinary people "see" themselves in relation to others and themselves (Splitter, 2020). The orientation of Ukrainian society to democratic values and humanistic morality necessitates the development of effective models and pedagogical conditions for instilling moral values in primary schoolchildren. This problem is especially acute today, in the context of hostilities in eastern Ukraine, when human life is devalued, there is a threat of terrorist attacks, moral ideals are broken, the struggle for the integrity of the country in ongoing. The initial conceptual principles of education of moral values in the youth of Ukraine were confirmed in the provisions of the Laws "On Education" 2017, "On Complete General Secondary Education" 2020, the Programme "New Ukrainian School" in the approach to values (Bekh et al., 2019), Concepts of Instilling Humanistic Values of Comprehensive School Pupils (Bekh et al., 2005), etc.

The new Ukrainian school must cultivate not only responsibility for oneself, but also for the development and well-being of the country and all mankind (Verkhovna Rada of Ukraine, 2016).

Thus, the problem of moral education is relevant and needs empirical research (Ruyter, 2019), as well as a purposeful moral and characteristic goal of education —promote the realization of generally accepted moral values (Lyesmaya et al., 2020).

Therefore, we consider it pedagogically important to study the importance of moral education in the education of primary school children in order to further improve the overall level of good breeding.

2. Methods and materials

This study was quantitative; it lasted from September 2018 to December 2020 and involved 486 primary schoolchildren, 54 teachers, 284 parents. It consisted four stages: 1st — preparatory or theoretical; 2nd — summative; 3rd — formative; 4th — control. The empirical part of the study was based on: 1) a summative experiment, which aimed to outline the problems and difficulties in instilling moral values in primary schoolchildren; 2) formative experiment, where a goal was set to introduce methods of instilling moral values in primary schoolchildren; 3) the control stage of the study involved testing of primary school teachers who worked in control and experimental groups, as well the comparison of the results obtained in the summative experiment. In addition, a survey of parents was conducted in order to comment on the changes they noticed in their children regarding the manifestation of justice, dignity, responsibility. Figure 1 shows the organizational structure of the study.

2.1. Data collection tools

Methods of generalization of empirical data, diagnostic questionnaires of students and questionnaires of parents and teachers, direct and indirect observation were used to fulfil research objectives.

In order to clarify the importance of moral education in primary schoolchildren and to determine the state of instilling moral values of primary schoolchildren, 486 pupils of grades 2-4 were involved. The experimental group (EG) included 249 pupils, the control (CG) consisted of 237 primary schoolchildren.

Figure 1. Organisational structure of the research
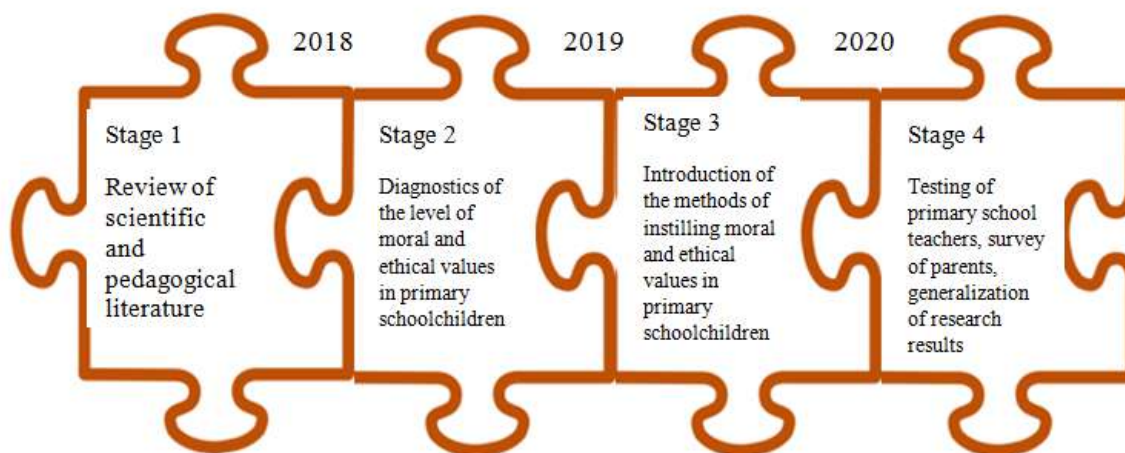
The choice of criteria and indicators of the levels of moral values was due to the definition of the concepts of criteria and indicators developed by researchers (Pavelkiv, 2005; Savchin, 2005). We identified three interrelated criterial components — cognitive, emotional and motivational, behavioural and activity.

Thus, we assumed that the diagnostic methods we identified, as well as criteria and indicators can contribute to an objective and effective diagnosing of the phenomenon under study — the level of moral values instilled: responsibility, justice, dignity in primary schoolchildren (Appendix D).

2.2. Sampling

In order to conduct a summative experiment, 249 schoolchildren were selected to the experimental groups (EGs), 237 primary schoolchildren, their parents and teachers of educational institutions of Kyiv were selected to the control groups (CGs). In total, 84 diagnostic examinations, including repeated ones, were performed during the empirical study.

3. Results

In order to find out the level of understanding of the concepts of "dignity", "responsibility", "justice" by primary schoolchildren, we conducted a survey of pupils. The obtained results of the questionnaire showed that the majority of participants (including 261

students — 53.7% out of 486) chose the right definitions from among the proposed statements, while 225 students - 46.3% have superficial knowledge about respect for human dignity, unclear understanding of the semantics of the concept of "moral and ethical values".

When comparing children's responses with observational data, we can see that moral values are not always embodied in a moral act or moral behaviour. In our opinion, there are two main reasons. The first reason is the lack of "moral exercises", immature moral behaviour skills, which indicates that knowledge of moral values has not reached the level of moral behaviour. The second reason is the lack of understanding of the need to act in accordance with moral values. Children know that there are moral rules, but they do not have enough idea why they should be followed. Not much schoolchildren realise that it is necessary to be kind to others not because adults demand it (they will punish or praise), but in order to give others the opportunity to rejoice and get pleasure from it themselves. Children lack knowledge about ethical laws, their nature and significance in life.

So, it is not necessary to cultivate an "authoritarian conscience" — do it morally, because you will be punished, but it is necessary to cultivate a "humane conscience" — a friendly attitude to other people, because that's what life in society and in the world is based on.

In order to study the level of formation of moral values, we used the Big Five personality traits techniques. According to this method, the schoolchildren were asked to name five qualities that they respect themselves for, and five qualities that they would like to get rid of.

All answers of the participants can be divided into two groups. These are moral qualities of an individual (sociability, honesty, selflessness, etc.), and qualities that are not related to the moral sphere (strength, beauty, intelligence, wealth, etc.). The results show that children value beauty, strength, intelligence, courage, humour, camaraderie, cunning in themselves the most. The qualities they would like to get rid of are laziness, anger, greed, cowardice, timidity, and stupidity. It is worth noting that such qualities as responsibility, dignity, justice, were little mentioned by children.

The importance of this task was to make junior pupils think about the question: "What am I, what qualities do I have?" and "What do I want to be so that I am respected?"

A written survey was followed by to find out the reasons and motives for choosing one or another quality. For example, the question "Why do you want to be strong?" was often

answered: "To be able to stand up for myself", "To make others afraid". Very few explained this by saying that the said quality is necessary in order to protect the weak, unprotected. This technique revealed that most children focus on the desire to have "practical" pragmatic qualities. The desires of children are aimed at obtaining material and other benefits and advantages, while they do not have a deep understanding of the high moral qualities.

We assume that immature ethical knowledge, lack of life experience, little experience of examples of moral values, high morality can lead to the impoverishment of the spiritual world of growing children. Their ideas reflect only the urgent needs of life, which convinces us of the need for appropriate communication to expand children's knowledge of such moral values as justice, responsibility, dignity.

Table 1 presents the results of understanding of justice by junior pupils as a property of man in his/her attitude to other people, obtained using the method of "How many of whom?"

Table 1. The result of establishing the understanding of justice by junior pupils in the worldview of schoolchildren (author's development).

	Many just people		Many just people and I		Few just people		Few just people and I		Total
	Number	%	Number	%	Number	%	Number	%	
2nd grade	3	3.8	68	86.1	8	10.1	0	0	79
3rd grade	3	3.6	58	69.9	17	20.5	5	6.0	83
4th grade	3	3.4	54	62.1	20	23.0	10	11.5	87
Total	9	3.8	168	70.9	45	19.0	15	6.3	237

The applied method "How many of whom?" to determine children's just/fair treatment of others and themselves allows us to conclude that it is necessary to carry out purposeful work on instilling such a moral value as justice in children: revealing to the children the positive aspects of people around them, the ability to see and understand good in action, put themselves in place of another person, the desire to come to the aid, the upbringing of the child's desire to treat members of society, peers justly-fairly.

We considered that the analysis of test methods and questionnaires on the understanding of moral values and observance of moral rules by pupils actually requires the

use of additional methods, in particular — pedagogical observation and conversation. During 2018-2019, we conducted the observation of pupils which allowed us to supplement and verify the results. We observed participant's behaviour both in class and in extracurricular activities. The method of observation was aimed at studying the peculiarities of the manifestations of junior students' sense of responsibility, dignity, fair treatment of themselves and their peers. During the observation, the behaviour of children was recorded both in life and in the course of solving moral situations: shows kindness, compassion, justice, indifference, aggression, adequacy of reaction; frequency of kindness; whether the child acts voluntarily or under pressure, shows respect for himself/herself and shows respect for others.

Pedagogical observation showed that not all teachers arrange conversations with pupils, discuss a case, find out the reasons and explain the norms and rules of moral behaviour in class or during the break. In the classroom, where the teacher constantly draws children's attention to the good deeds of one of the children and conducts a conversation in connection with misunderstandings that arise from time to time between children, students are more conscious of their actions and moral behaviour, a favourable psychological atmosphere is formed in the class team.

The survey which involved 54 teachers of schools confirmed the topicality of the research and the need for its practical development. The obtained empirical data showed an insufficient level of professional readiness of teachers to instil moral values in children. The survey showed that 52.4% of teachers need to improve their competence in instilling universal moral values in modern primary schoolchildren.

It should be noted that only a small proportion of teachers (17.8%) master modern methods of instilling moral values in primary schoolchildren. Most teachers mentioned traditional methods: conversations on ethical topics, reading and discussion of works of art, problematic moral and ethical situations were rarely mentioned, explaining it by the lack of time and the necessary informational, diagnostic and methodological developments to work with junior pupils. It can be argued that instilling moral values in primary schoolchildren is not systemic but spontaneous, one of the reasons for this — insufficient teacher training, in particular — mastery of modern methods of involving children in obtaining moral knowledge.

Reflecting on how it would be possible to form moral values in junior pupils and looking for ways to solve this problem, teachers expressed a desire to attend relevant

trainings, seminars, get new information, consult with scientists, learn about modern pedagogical technologies. At the same time, teachers did not overlook the influence of the media and the Internet on the formation of moral values in primary schoolchildren. The explanation for this is found in the crisis phenomena in Ukrainian society, which do not contribute to the positive development of society as a whole and the younger generation in particular. We asked teachers (54 people) to answer the following question: "What modern technologies would you like to master in order to ensure the effective outcome of instilling moral and ethical values in primary schoolchildren?" Figure 2 shows the quantitative indicators of answers to this question.
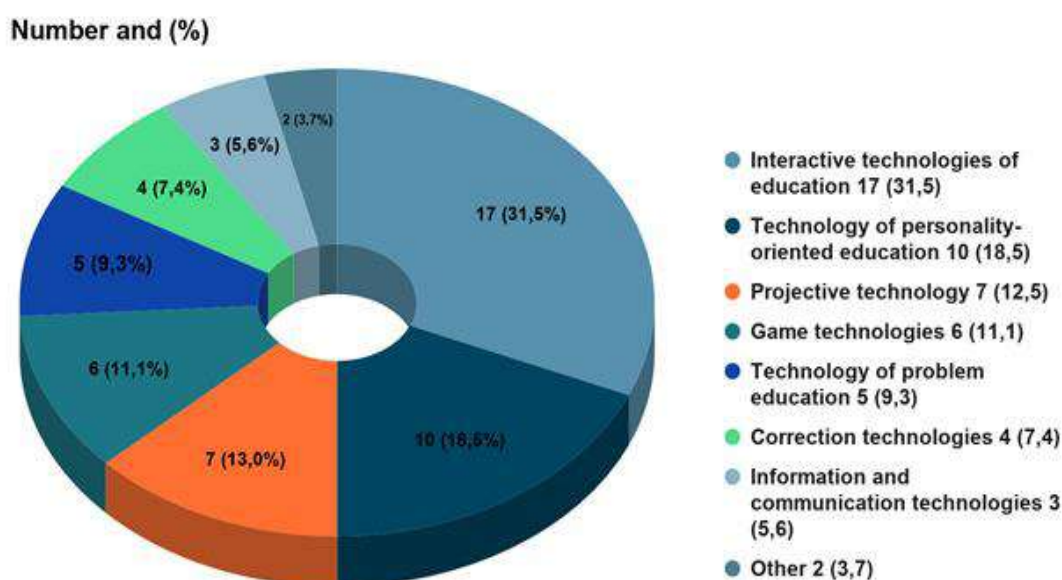
Figure 2. Quantitative indicators of responses of teachers on the subject of mastering the technologies of instilling moral values in primary schoolchildren

The results of the survey shown in Figure 2 suggest that teachers would be more likely to master interactive (31.5%) and personality-oriented technologies (18.5%) when instilling moral values in primary schoolchildren. It is quite understandable that the primary school teachers are more interested in game technologies (11.1%), which is explained by the specifics of primary school age. A small number of teachers showed interest in human-centred technologies (3.7%), but could not clearly present their essence in an individual interview.

As a rule, school teachers rely in their practice on their own experience, being guided not by the facts of research, but by their feelings, ideas, assumptions, associations, likes or dislikes, and so on.

According to scholars, the practical school of morality is the family, and the basis of upbringing is its healthy microclimate, where children are brought up by personal example of parents in the spirit of dignity and responsibility (Savchenko, 2009). We believe that the child's behaviour in other social groups depends on the example of family relationships. One of the disadvantages of family upbringing is the underestimation by parents of the importance of daily communications with both children and in the presence of children. Sometimes, forgetting about the presence of children, parents condemn acquaintances, the quality of the event or swear harsh words (Savchenko, 2009). The upbringing of moral values seems "to be left to its own devices". Parents themselves are sometimes not ready to show a positive attitude towards others. And the relationship of parents with each other is not an example of tolerance.

In order to find out the development of moral values in the family, we conducted a survey of parents of pupils in grades 2-4. Analysis of the survey data, individual conversations with parents shows that the vast majority of parents are aware of the importance of instilling moral values in their children and often conduct conversations on moral topics (79.4%). Parents value the health, success of the child in learning, the well-being of the family, in particular, children, the most in their lives. More attention is paid to the formation of "business" qualities of the child that affect success — diligence, determination, neatness, self-discipline, etc. Such moral qualities as politeness, honesty, kindness to others are ranked second.

The pedagogical conditions that ensured the effective instilling of moral values in primary schoolchildren were: preparation of teachers for instilling moral values in primary schoolchildren; development and implementation of methods of instilling moral values in primary schoolchildren; ensuring the interaction of the school with the family in instilling moral values in primary schoolchildren.

These pedagogical conditions ensured the effectiveness of the research. The practical significance of the obtained results presented below is the introduction of methods of pedagogical diagnosis of instilling moral values in primary schoolchildren; appropriate content, forms and methods of organization and implementation of the educational process

in primary school (programmes: "Instilling Moral Values in Primary Schoolchildren", elective course for teachers "Secrets of Moral Values", training for teachers "Man-to-Man Attitude", and for parents — "Pedagogical Messages"). Table 2 presents the results of our study on the development of moral values by primary schoolchildren.

Table 2. The results of acquiring moral values by primary schoolchildren (author's development).

Completion of tests	At the beginning of the experiment (%)	At the end of the experiment	
		Control groups (%)	Experimental groups (%)
Completed on their own	23.2	21.7	32.8
Turned to the teacher for help	49.3	45.9	62.7
Failed	27.5	32.4	4.5
Total:	100	100	100

The data in Table 2 indicate a significant difference in knowledge between students of the experimental and control groups, which indicates the effectiveness of our method (Fopel, 2010; Gavrish & Linnik, 2014). The children had difficulties in understanding human dignity at the beginning of the experiment, while after a comprehensive work they defined dignity as a moral quality that a person develops independently (10.1%), which is the basis of civilized human relations (10.2%), a positive attitude to another person (9.1%), respect for each person regardless of wealth, nationality and religion (8.7%), recognition of the rights and freedoms of each person (7.3%), personal responsibility (7.6%), willingness to help others (7.3%), to resist immorality (6.7%).

According to children, dignity makes it impossible to offend others (6.2%), treat others unfairly (5.6%), execute instructions dishonestly (4.9%), deception (4.5%), exploiting (4.5%), humiliation (4.2%), contempt (4.2%), indulgence in weaknesses (3.8%), neglect of moral principles (3.4%). At the same time, children would like adults not to talk to them in high tones (2.9%), not to ignore their thoughts (2.5%), not to divulge their secrets

(2.2%), not to pick on (1.8%), not to compare with other pupils (1.7%), not to impose but share their views (1.5%), not to make negative predictions for the future when criticizing (1.3%).

A total of 249 pupils from the experimental groups were interviewed, which is 100%. Table 3 presents the results of our study to identify the levels of instilled moral values in primary schoolchildren by cognitive criteria.

Table 3. The results of establishing the levels of moral values in primary schoolchildren by cognitive criterion, % (the author's development).

Levels	2nd grade pupils				3rd grade pupils				4th grade pupils			
	Beginning of work		End of work		Beginning of work		End of work		Beginning of work		End of work	
	EG	CG	EG	CG	EG	CG	EG	CG	EG	CG	EG	CG
High	4.2	4.6	17.2	6.3	7.4	6.3	21.5	8.9	7.9	6.7	23.1	9.6
Medium	54.2	54.6	68.6	49.5	46.7	46.8	70.1	49.1	48.3	51.9	70.3	52.7
Low	41.6	40.8	14.2	44.2	45.9	46.9	8.4	42.0	43.8	41.4	6.6	37.7
Total:	100	100	100	100	100	100	100	100	100	100	100	100

The data in table 3 show that the difference between the number of primary schoolchildren with a high level of moral values in terms of cognitive criterion is 17.2-4.2=+13.0 (2nd grades), 21.5-7.4=+14.1 (3rd grades) and 23.1-7.9=+15.2 (4th grades) of experimental groups; and 6.3-4.6=+1.7 (2nd grades), 8.9-6.3=+2.6 (3rd grades) and 9.6-6.7=+2.9 (4th grades) of control groups. With a medium level: 68.6-54.2=+14.4 (2nd grades), 70.1-46.7=+23.4 (3rd grades) and 70.3-48.3=+22.0 (4th grades) of experimental groups and 49.5-54.6=- 5.1 (2nd grades), 49.1-46.8=+2.3 (3rd grades) and 52.7-51.9=+0.8 (4th grades) of control groups.

With a low level of 14.2-41.6=−27.4 (2nd grades), 8.4-45.9=-37.5 (3rd grades) and 6.6-43.8=-37.2 (4th grades) of experimental groups and 44.2-40.8=+3.4 (2nd grades), 42.0-40.8=+1.2 (3rd grades) and 37.7-41.4=-3.7 (4th grades) of control groups. The results of our study to identify the levels of moral values in primary schoolchildren by emotional and motivational criteria are presented in Table 4.

Table 4. The results of establishing the levels of moral values in primary schoolchildren by emotional and motivational criteria, % (author's development).

Levels	2nd grade pupils				3rd grade pupils				4th grade pupils			
	Beginning of work		End of work		Beginning of work		End of work		Beginning of work		End of work	
	EG	CG	EG	CG	EG	CG	EG	CG	EG	CG	EG	CG
High	7.4	7.6	16.1	7.9	9.2	10.0	21.3	12.1	10.9	9.6	23.1	14.2
Medium	54.2	55.6	75.4	57.2	52.6	53.3	68.7	48.7	69.4	53.9	69.9	53.2
Low	38.4	36.8	8.5	34.9	38.2	36.7	10.0	39.2	19.7	36.5	7.0	32.6
Total:	100	100	100	100	100	100	100	100	100	100	100	100

The data in Table 4 show positive changes in the emotional and motivational sphere of primary schoolchildren in experimental groups, where appropriate methods were introduced, which provided a significant increase in the number of children with high and medium levels and a decreased number of children with low levels of moral values by emotional and motivational criterion. There were insignificant changes in the control groups of the 2nd grade, and in the 3rd-4th grades, despite a slight increase in the number of children with a high level, there was a tendency to decreasing number of children with a medium level and increased group with a low level. This is explained, on the one hand, by the development of children's emotional sphere, and on the other — by entering adolescence with its inherent crisis phenomena experienced by 4th grade pupils, which requires appropriate educational efforts of important adults in instilling moral and ethical values. The results of our study to identify the levels of moral values in primary schoolchildren by behavioural criteria are presented in Table 5.

Indicators by behavioural and activity criteria confirm the effectiveness of the introduced methods of "Short Intervention" at the formative stage of the study, as well as allow noting minor changes in the behaviour of primary schoolchildren in the control groups. It is noteworthy that the number of children with a high level of moral values by behavioural criteria among 2nd grade pupils is much less than among students of 3rd-4th grade. This is due to the insignificant life experience of children of this age, and indicates the need for further moral exercise. The most noticeable are the shifts in the groups with medium and low levels, groups with high levels have the potential for growth. In all these groups, qualitative

changes took place due to the movement of low-level children to medium-level groups, and medium-level children — to high-level groups, which is evidence of the effectiveness of the experimental work. The results of our study to establish the distribution of primary schoolchildren by levels of moral values at the beginning of the observational experiment are presented in Table 6.

Table 5. The results of establishing the levels of moral values in primary high schoolchildren by behavioural criteria, % (author's development).

Levels	2nd grade pupils				3rd grade pupils				4th grade pupils			
	Beginning of work		End of work		Beginning of work		End of work		Beginning of work		End of work	
	EG	CG	EG	CG	EG	CG	EG	CG	EG	CG	EG	CG
High	6.4	6.5	14.5	7.1	7.8	7.5	21.2	9.7	8.3	8.4	23.1	10.6
Medium	54.2	53.1	70.2	53.9	47.4	49.8	71.3	48.9	50.0	49.0	70.0	48.8
Low	39.4	40.4	15.3	39.0	44.8	42.7	7.5	41.4	41.7	42.6	6.9	40.6
Total:	100	100	100	100	100	100	100	100	100	100	100	100

Table 6. The results of establishing the distribution of primary schoolchildren by levels of moral values at the beginning of the summative experiment, % (author's development).

Levels	Control groups (CGs)			Experimental groups (EGs)		
	2nd grade	3rd grade	4th grade	2nd grade	3rd grade	4th grade
High	6.2	7.9	8.2	6.0	8.1	9.0
Medium	54.4	50.0	51.6	54.2	48.9	55.9
Low	39.4	42.1	40.2	39.8	43.0	35.1
Total:	100	100	100	100	100	100

The results of establishing the distribution of primary schoolchildren by levels of moral values at the end of the formative experiment are presented in Table 7.

Comparative analysis of the obtained indicators at the beginning and at the end of the experimental work allowed identifying changes in the levels of moral values in primary schoolchildren. As a result of the work carried out in the experimental groups, 18.6% of primary schoolchildren were classified as high against 7.4% at the beginning of the

experiment. The dynamics of changes in the levels of moral values in primary schoolchildren and the generalized results are presented in Figure 3.

Table 7. The results of establishing the distribution of primary schoolchildren by levels of moral values at the end of the formative experiment,%.

Levels	Control groups (CGs)			Experimental groups (EGs)		
	2nd grade	3rd grade	4th grade	2nd grade	3rd grade	4th grade
High	7.1	10.2	11.5	15.9	21.3	23.1
Medium	53.5	48.9	51.6	71.4	70.1	70.1
Low	39.4	40.9	36.9	12.7	8.6	6.8
Total:	100	100	100	100	100	100

According to the results of the formative stage of the experiment, the share of primary schoolchildren with a high level of moral values increased as follows: 9.9% of 2nd grade pupils, 13.2% of 3rd grade pupils and 14.1% of 4th grade pupils. As for the group of primary schoolchildren with a medium level, it increased by 17.2% in the 2nd grade, by 21.2% in the 3rd grade, and by 14.2% in the 4th grade pupils. The number of children with low levels decreased by 27.1% in the 2nd grade, by 34.4% in the 3rd grade and by 28.3% in the 4th grade of the experimental groups. In the control groups there was a slight difference in the indicators.

Summing up the results of the experimental work, teachers noted its important role for modern school and education of primary school children (57.8%), the urgent need for such methods and guidelines that would reorient the educational process of primary school from authoritarian to humanistic education (48.9%), the importance of the work for personal growth and professional development of primary school teachers (47.2%), their compliance with modern programmes and educational standards (38.4%), the creation of effective pedagogical conditions at school (35.3%) , the need to ensure the continuity of such education in secondary school (29.5%) and the dissemination of the experience of teachers who participated in the experimental work (19.8%). A total of 54 teachers were interviewed, which is 100%.
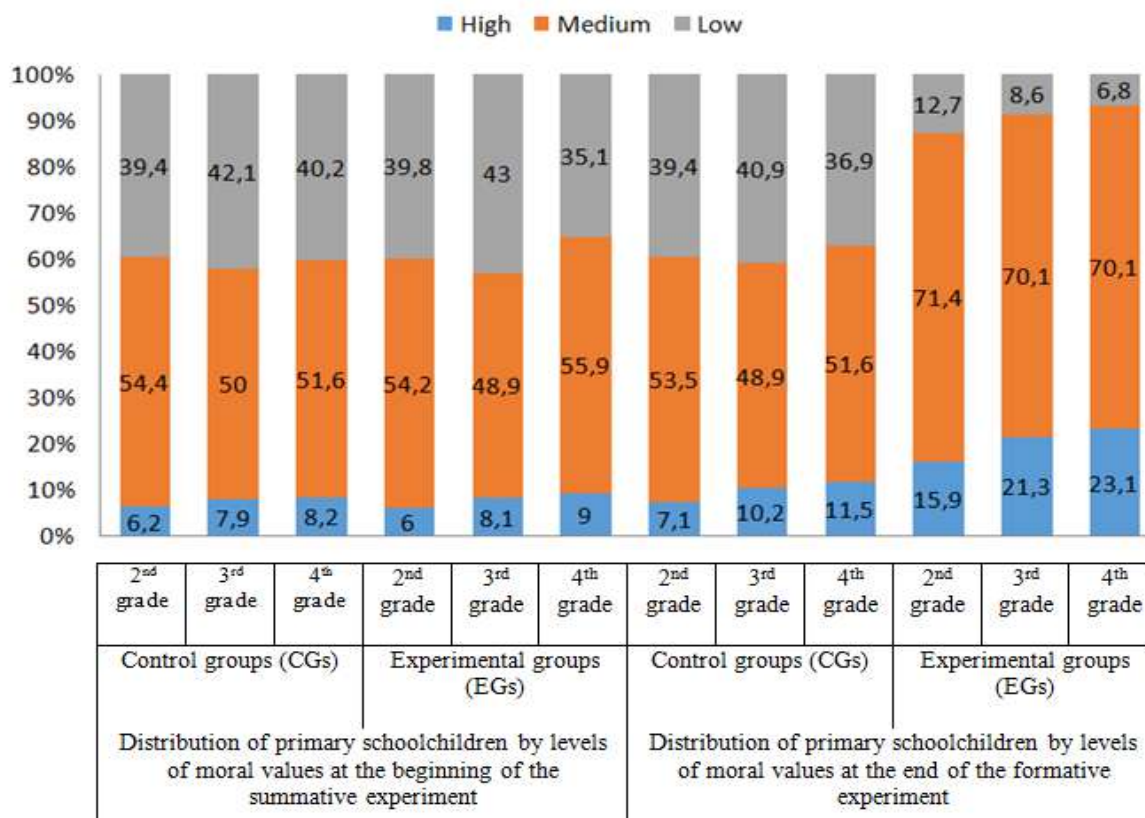
Figure 3. Dynamics of changes in the levels of moral values in primary schoolchildren, %

Parents also assessed the experimental phase of work as effective, in particular, one that helped them better understand their children (41.7%), harmonize family relationships (36.4%), timely correct problems in education that could lead to unwanted results (20.5%), pay attention to extremely important things concerning the future of their children (21.7%), realize their parenthood as a responsibility for the results of raising their children (19.9%), expand their pedagogical horizons (25.2%), master the secrets of modern upbringing of children in the family (19.8%), find like-minded teachers and other parents (11.8%), be more actively involved in the school life of their children (18.5%), be first of all the example in relation to surrounding people (16,7%), not to allow brutality, gossip, indifference in relation to surrounding people (14,5%). In addition, parents expressed a desire to continue to work closely with teachers (24.6%), attend various classes for parents on a regular basis (22.1%), participate with children in charitable activities (18.2%), involve children to group work aimed at educating moral values (15.6%), receive individual consultations during individual meetings or via e-mail (14.5%), be aware of all pedagogical innovations for parents (10.8%), etc.

The obtained results convincingly prove that the pedagogical conditions of instilling moral values in primary schoolchildren are effective and can be used in the educational process of primary school. The measurements carried out after the completion of the formative stage of the experiment testified to the positive changes in the criteria and indicators that we defined, which allows us to conclude that our proposed content, forms and methods of instilling moral values in primary schoolchildren are reasonable.

4. Discussion

Foreign and domestic scholars show interest in the problem of instilling moral values in children, trying to study this phenomenon in various fields and manifestations.

Scientific approaches to the influence of ethical education on the basic moral values of an individual in modern conditions were developed by Nieuważny et al., (2021). This problem is presented by Fowers (2021) as a study of an integrated, interdisciplinary field of activity. Considering metamoral cognition, Bajovic and Rizzo (2021) consider correctional and developmental work important and effective to bridge the gap between emotional and moral development of personality. Mesquita (2021) considers moral values as a code of internal behaviour and the principles on which the individual builds his life and makes decisions.

We agree that moral values are standards that help a person determine what is right and wrong, good and bad. This understanding is necessary in order to make honest and just decisions in daily life. What we and all scientists have in common is the idea that morality is one of the most important and complex areas of research. American scientists (Gilligan et al., 2019) studied this problem by involving 32 heads of medical institutions from different US states, and tried to develop quality and effective aid for children and youth taking into account the prospects of positive children's and youth leadership.

Other American researchers (Skinner et al., 2019) conducted research in the field of palliative and hospice medicine, and concluded that moral values are grouped around life events, family, support system, health.

The ideas of instilling moral values (Aldridge, 2019) on a sound justification of moral standards and directive education contradict our views.

Conceptual ideas, psychological mechanisms of moral values are revealed in the study of moral self-consciousness of a growing personality (Bekh et al., 2019), which determines

modern approaches and directions of instilling moral values in primary schoolchildren. Bekh's understanding of the concept of "moral values" is presented through the prism of modern challenges in pedagogy. The researcher appreciates the role of the teacher in the education of moral values in students. After all, the child treats certain people positively, some others — neutrally, the rest — negatively, explaining his/her reluctance to contact certain people as "unworthy of attention", "dangerous", "unacceptable".

Kyrychok points out that moral values are manifested in the constant observance of humanistic principles, norms and requirements in relations with people, as well as in the altruistic nature of experiences and feelings. Studying the semantic values of the growing personality, Zhurba et al. (2008) note that the formation of a child's idea of moral values begins not with the interaction itself and not with the dictionary definition of the word, but with the communicative context. Chorna provides a valuable understanding of the problem of instilling moral values in pupils based on the best features of schoolchildren, faith in their abilities; supporting the child's aspirations and always giving him/her a chance to do better, while not comparing or contrasting pupils (Zhurba et al., 2008).

The main ideas of our study are confirmed by the provisions of the Programme "Instilling Humanistic Values in Pupils of 1st—9th grades" (Zhurba et al., 2008) and the Programme "New Ukrainian School" in the step towards values (Bekh et al., 2019), where instilling moral values is reflected in the main objectives and goals, which involves mastering the elements of applied ethics, forming the ability to understand the moral world of others and the ability to interact with them.

This research contributed to the study of the problem of the state of instilling moral values in primary schoolchildren. The study carried out by Bekh (2012) on the ethical and value aspects of the problem of dignity, responsibility, justice as educational categories of personality was the core for us was According to this study, moral values are understood as the recognition of a person as the highest value. In moral values, the ideas of justice, respect for dignity, responsibility are synthesized in the relevant systems.

We share the opinion of researchers Willemse et al., (2018) that partnership with parents is a mandatory basic competence of teachers. Marin et al. (2018) agree that 'school should be an open environment for parents and children'. In our study, we relied on the key components of the concept of the New Ukrainian School, where a pedagogy of partnership is the pedagogy based on partnership between a pupil, teacher and parents (New Ukrainian

School, 2016). Foreign researchers argue that such cooperation should be constant (Marin et al., 2018). In our opinion, the upbringing of children of primary school age should take into account their insignificant social and moral experience, increased emotionality, vulnerability, impulsiveness and immediacy of the child's behaviour, desire to constantly expand the circle of communication, plasticity of moral behaviour, propensity to educational influences. We believe that the higher the level of moral values in the education of primary schoolchildren, the higher the level of their good breeding.

4.1. Research limitations.

Participation of only pupils of the 2nd, 3rd, 4th grades from two schools in Kyiv is the main limitation in this study. Among others, we can consider the form of ownership of educational institutions, the number of teachers who participated in the experiment, and the duration of advanced training programmes of primary school teachers.

Conclusion

Thus, the pedagogical conditions of instilling moral values in primary schoolchildren are substantiated and experimentally tested (preparation of teachers for instilling moral values in primary schoolchildren; introduction of methods of instilling moral values in primary schoolchildren; ensuring interaction of school with family in instilling moral values in primary schoolchildren).

The efficiency of the introduced pedagogical conditions of instilling moral values in primary schoolchildren is proved by quantitative and qualitative changes. Indicators of the level of moral values in primary schoolchildren in experimental groups after the formative stage of the pedagogical experiment significantly exceed the indicators of control groups and the corresponding indicators obtained at the summative stage of the study, therefore these results may be of direct importance for teachers interested in improving the level of moral values in primary schoolchildren.

The study did not cover all aspects of the problem of instilling moral values in primary schoolchildren. Further research is needed on the problems associated with extrapolating the results to other age groups, taking into account the peculiarities of their development and the challenges currently posed in the field of child upbringing.

Acknowledgement

References

Aldridge, D. (2019). The Moral Contract, Sympathy and Becoming Human: A Response to Michael Hand's A Theory of Moral Education. *Journal of Philosophy of Education*, *53*(4), 636-641. https://doi.org/10.1111/1467-9752.12394

Bajovic, M., & Rizzo, K. (2021). Meta-moral cognition: bridging the gap among adolescents' moral thinking, moral emotions and moral actions. *International Journal of Adolescence and Youth*, *26*(1), 1-11. https://doi.org /full/10.1080/02673843.2020.1867206

Bekh, I. D., Hannusenko, N., & Chorna, K. (2005). The concept of educating humanistic values of secondary school students. *Ukrainian religious studies: Thematic issue: «Morality, religion, education»*, *4* (36), 265-281.

Bekh, I. D. (2012). *Personality in the space of spiritual development: a textbook*. Kyiv: Akademvydav.

Bekh, I. D., Aliksienko, T. F., Kyrylenko S. V., Kyrychenko, S. V., Koretska, I. V., Ostapenko, O. I., & Zhurba, K. O. (2019). The Program "New Ukrainian school in the approach to values". Retrieved from https://ipv.org.ua/wpcontent/uploads/2018/09/%D0%BF%D1%80%D0%BE%D0%B3%D1%80%D0%B0%D0%BC%D0%B0-02-08-2018_%D0%86%D0%9F%D0%92%D0%9D%D0%90%D0%9F%D0%9D.docx

Ebersbach, M., & Brandenburger, I. (2020). Implementing distributed practice in statistics lectures: benefits for retention and transfer. *Journal of Applied Research in Memory and Cognition*, *9*, 532-541. https://doi.org/10.1016/j.jarmac.2020.08.014

Fopel, K. (2010). *How to teach children to cooperate? [psychological games and exercises]*. Moscow: Genesis.

Fowers, B. J. (2021). Introduction to the special issue: Research in morality as an integrated, interdisciplinary domain of inquiry. *Journal of Moral Education*. Retrieved from https://www.tandfonline.com/doi/full/10.1080/03057240.2020.1868415

Gavrish, N. V., & Linnik, O. O. (2014). *Philosophy for children. Interesting lessons for younger students: a method way*. Kiev: Slovo.

Gilligan, M. C., Osterberg, L. G., Rider, E. A., Derse, A. R., Well, A. B., Litzelman, D. K., Dunne, D. W., Hafler, J. P., Plews-Ogan, M., Frankel, R. M., & Branch, W. T. (2019). Views of institutional leaders on maintaining humanism in today's practice. *Patient Education and Counseling*, *102*(10), 1911-1916.

Kremen, V. H. (2010). *Philosophy of human-centrism in the educational space*. Kyiv: Tovarystvo «ZnanniaUkrainy».

Ladichenko, V. V. (2009). *Humanistic foundations of the organization of state power* [Doctoral dissertation]. Kiev: Institute of Legislation of the Verkhovna Rada of Ukraine.

Lyesmaya, D., Musthafa, B., & Sunendar, D. (2020). Local wisdom value's-based literacy education learning model in elementary school. *Journal of Physics: Conference Series, 1470*(1), 012030. Retrieved from https://iopscience.iop.org/article/10.1088/1742-6596/1470/1/012030

Marin, D. C., Bocos, M., & Calin, C. V. (2018). Effective methods of strengthening the school-family partnership during the preparatory grade. *The European Proceedings of Social & Behavioural Sciences EpSBS, XLI*, 101-107.

Mesquita, A. M. (2021). Value formation on concrete subject educational process. *Interaction in Psychology, 24*(3), 375-384.

Nieuważny, J., Nowakowski, K., Ptaszyński, M., Rzepka, R., & Araki, K. (2021). Does change in ethical education influence core moral values? Towards history- and culture-aware morality model with application in automatic moral reasoning. *Cognitive Systems Research, 66*, 89-99.

Pavelkiv, R. V. (2005). *Development of moral consciousness and self-awareness in primary school age* [Doctoral dissertation]. Kyiv: G. S. Kostyuk Institute of Psychology, Academy of Pedagogical Sciences of Ukraine.

Ruyter, D. D. (2019). Does a Theory of Moral Education Need the Input of Empirical Research? *Journal of Philosophy of Education, 53*(4), 642-648. https://doi.org/10.1111/1467-9752.12395

Savchenko, O. (2009). *Educational potential of primary education*. Kyiv: Bohdanova A.M.

Savchin, M. V. (2005). Psychological analysis of the problem of moral consciousness and self-consciousness of the individual. *Pedagogy and Psychology of Vocational Education, 4*, 115-131.

Skinner, S., Bonnet, K., Schlundt, D., & Karlekar, M. (2019). Life Story themes: a qualitative analysis of recordings from patients approaching the end of life. *American Journal of Hospice & Palliative Medicine, 36*(9), 753-759.

Splitter, L. J. (2020). Who am I? Transforming our understanding of identity and moral education. *Education Sciences, 10*(1), 9. Retrieved from https://www.mdpi.com/journal/education/special_issues/Moral_Education_and_Identity

Verkhovna Rada of Ukraine. (2016). On approval of the Concept of realization of the state policy in the field of reforming of general secondary education "New Ukrainian school" for the period till 2029. Retrieved from https://zakon.rada.gov.ua/laws/show/988-2016-%D1%80#Text

Willemse, T. M., Thompson, I., Vanderlinde, R., & Mutton, T. (2018). Family-school partnersnips: a challenge for teacher education. *Journal of Education for Teaching, 44*(3), 252-257.

Zhurba, K., Kyrychok, V., Kukhar, I., & Chorna, K. (2008). Programme "Instilling Humanistic Values in Pupils of 1st-9th grades". *Klasnyi kerivnyk,* 17-18.

Annexes

Appendix **A** Questionnaire for teachers

Welcome, dear colleague! Please take part in our survey.

Full name...

School... Grade......Date...........

Teaching experience..................

1. How do you understand the concept of "moral values"? ....
....

2. What methods and means do you most often use in the educational process to instil moral values in pupils of grades 2-4? .... 3. What age features should be paid special attention to when forming the moral values in primary schoolchildren?

4. How, in your opinion, it is possible to involve a family in work on instilling moral values? ....

5. What do you think your pupils value the most: at home - .... in their peers - ....

6. What innovative technologies should be used in the educational process of primary school in order to effectively instil moral values in pupils? ....

7. What methodological assistance would you like to receive to improve your skills on this issue?........................

Thank you for facilitating the research!

Appendix B: Questionnaire for parents

Welcome, dear parents! Please take part in our survey.

1. In what form does your child study? ....

2. How often do you talk to your child about moral issues? ....
....

□ often □ when there is an opportunity □ rarely

3. What do you value most in your child's life? ....

4. Do you think it is necessary to instil moral values in your children? Why?...........................

5. In your opinion, does primary school instil moral values in pupils? How?..............

6. Is enough attention in the educational process of primary school paid to instilling moral values in primary schoolchildren? ....

7. Evaluate the manifestation of your child's qualities on a five-point scale:

    a) respect for human dignity __

    b) justice __

    c) responsibility __

    Thank you for participating

Appendix C: Questionnaire for pupils

    Please take part in our survey and answer the questions!

    School.........Form......Date..................

1. Do you apologize to your classmate if you inadvertently offend him/her?

□ often □ rarely □ never

2. Are you on duty at the teacher's request, if it is not your turn today?

□ often □ rarely □ never

3. Do you give way to adults if you go very tired in public transport (bus, trolleybus)?

□ often □ rarely □ never

4. Do you consider yourself a fair person?

□ often □ rarely □ never

5. Do you honestly admit your guilt?

□ often □ rarely □ never

6. a) Name the five qualities for which you respect yourself ....

b) Name the five qualities you would like to get rid of...

7. Who is a positive example for you in attitude to others?

□ Mom □ Grandpa □ Acquaintance

□ Dad □ Teacher □ Movie/cartoon characters □ Grandmother □ Friend □ Heroes of works of art

    Thank you for your help!

Appendix D: Criteria and indicators of moral values in primary schoolchildren

Components / Values	Criteria			Diagnostic techniques
	Cognitive	Emotional and motivational	Behavioural and activity	
	Indicators			
				The Big Five personality traits technique. Methodology "How many of whom?" Methods of incomplete sentences. Methods of positive and negative qualities. Methodology of associative relations. Methodology "Moral and Ethical Situations".
Dignity	Understanding that man is the highest value of society. Knowledge of the inadmissibility of verbal and physical violence, aggression against people. Knowledge of human rights, rights of a child, pupil, team member. The idea of respect for man and honour.	The desire to show respect for the person. Exactingness in relation to oneself and others. Emotional experience of self-worth. Showing interest in another person's actions. The desire to follow the rules of conduct. Feelings of joy and sorrow of others, empathy. Positive acceptance of oneself and others (4th grade). Non-aggressive communication.	Recognition of the right of everyone. Ability to evaluate oneself objectively (self-criticism) and others. Ability to show respect for other people and for oneself. Ability to defend one's dignity. Attempts to comfort others, selflessly help others. Condemnation and non-participation in mobbing.	Methods of generalized independent characteristics. Survey. Observation. Conversation. Icons. Games

Justice	Understanding of the concepts of justice, honesty. Knowledge of the rules of behaviour and communication at school, at home, on the street, in public places.	The desire to treat everyone fairly, for good, regardless of one's own preferences.	Never cheats. Opposes violence, evil, injustice.	
Responsibility	Understanding of the essence of the use of concepts : sense of responsibility, responsible behaviour, take responsibility, act responsibly.	Being responsible for his/herobligations both at home and at school. Realizes the duty in the act. Demanding of oneself and others.	Performs his duties without reminders, promptings or rewards. Fulfils promises, is able to predict the consequences of one's own actions, the degree of acceptable behaviour.	

Professional training of Economics students in higher educational institutions through the development of entrepreneurial climate

Nadiia Yu. Pikulina*
Dmytro M. Samoilenko**
Yuliia H. Horiashchenko***
Kostyantin S. Zhadko****
Yuliia S. Nikitchenko*****

ABSTRACT

Professional economic education in Ukraine requires significant reforms because of thriving to integrate into the world economic space, which is impossible without the education of highly professional staff. The development of the entrepreneurial climate in the higher educational institution (HEI) by training the ability to work in a team and the general culture of doing business is an important task. It is specialized economic education that should lay the foundation for the dynamic economic development of the country. Methods used: survey, remote collection and processing of information (GOOGLE Forms), self-actualization test (SAT) (determining the level of general cultural competencies), study of value orientations (according to M. Rokych), methods of personal adaptation to a new professional environment (according to L.V. Yankovskyi), cultural and value orientations test (L.H. Pochebut). According to the study, students are convinced that entrepreneurial skills can be acquired. Students called self-organization the main competence for doing business. It was found that 50% of students have a low level of readiness for teamwork. Only 21% of respondents showed a high level of readiness for teamwork. It was found that special pedagogical conditions for creating an entrepreneurial climate can improve the level of higher economic education.

KEYWORDS: business education; economics education; professional training; entrepreneurs; management education.

*Candidate of Economics Sciences, Associate professor, Department of Economics and Social and Labor Relations, Faculty of Economics, Business and International Relations, University of Customs and Finance, Dnipro, Ukraine. ORCID: https://orcid.org/0000-0002-2363-3105. E-mail: nadiia.hope.p@gmail.com

**Postgraduate student, Department of Entrepreneurship and Economy of Enterprise, Faculty of Economics, Business and International Relations, University of Customs and Finance, Dnipro, Ukraine. ORCID: https://orcid.org/0000-0001-7681-5511. E-mail: kafedre@gmail.com

***Candidate of Economics Sciences, Associate professor, Department of Entrepreneurship and Economy of Enterprise, Faculty of Economics, Business and International Relations, University of Customs and Finance, Dnipro, Ukraine. ORCID: https://orcid.org/0000-0001-7020-1412. E-mail: juliagoryaschenko@gmail.com

****Doctor of Economics Sciences, Professor, Department of Entrepreneurship and Economy of Enterprise, Faculty of Economics, Business and International Relations, University of Customs and Finance, Dnipro, Ukraine. ORCID: https://orcid.org/0000-0002-2650-1431 . E-mail: zhakon@meta.ua

*****Candidate of Technical Sciences, Associate Professor, Department of Environmental Management and Entrepreneurship, Faculty of Economics, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0003-1487-641X. E-mail: julia_ns@ukr.net

Formación profesional de estudiantes de Economía en instituciones de educación superior mediante el desarrollo del clima emprendedor

RESUMEN

La educación económica profesional en Ucrania requiere reformas significativas debido a la posibilidad de integrarse en el espacio económico mundial, lo cual es imposible sin la educación de personal altamente profesional. El desarrollo del clima empresarial en la institución de educación superior (IES) mediante la formación de la capacidad de trabajar en equipo y la cultura general de hacer negocios es una tarea importante. Es la educación económica especializada la que debe sentar las bases del desarrollo económico dinámico del país. Métodos utilizados: encuesta, recopilación y procesamiento de información a distancia (GOOGLE Forms), test de autorrealización (SAT) (determinación del nivel de competencias culturales generales), estudio de orientaciones valorativas (según M. Rokych), métodos de adaptación personal a un nuevo entorno profesional (según LV Yankovskyi), prueba de orientaciones culturales y de valores (LH Pochebut). Según el estudio, los estudiantes están convencidos de que se pueden adquirir habilidades emprendedoras. Los estudiantes llamaron a la autoorganización la competencia principal para hacer negocios. Se encontró que el 50% de los estudiantes tiene un bajo nivel de preparación para el trabajo en equipo. Solo el 21% de los encuestados mostró un alto nivel de preparación para el trabajo en equipo. Se encontró que las condiciones pedagógicas especiales para crear un clima empresarial pueden mejorar el nivel de educación económica superior.

PALABRAS CLAVE: educación empresarial; educación económica; formación de economistas; clima empresarial; cultura empresarial.

Introduction

The study is topical in the modern society, which is actually a transitional state from industrial to post-industrial one, where the education in general and higher education in particular has become a factor in the dynamic socio-economic development of the country. The mechanism of higher education is developing and transforming under the new conditions of globalization and democracy (Logosha et al., 2019). Higher education is becoming a very important social institution, so its whole system needs new approaches (Marques et al., 2018). On the one hand, it is necessary to theoretically substantiate the essence, functions, role of higher education as an institution in the modern economy and society, on the other — to improve the mechanism of higher education.

Indeed, education is one of the most effective and intensive ways for a person to enter the world of science and culture. A person learns cultural values in the course of education. The world educational space is also developing impetuously. Education is a process of translating culturally designed patterns of behaviour and activities, as well as permanent forms of social life at the same time. In this regard, the dependence of the development of individual countries on the level and quality of education, culture and qualifications of citizens is becoming increasingly clear (Hazen et al., 2017).

The spiritual in a person is manifested through his/her "rooting into" culture. It is in the process of teaching and education that it acquires socio-cultural norms that have historical significance for the development of civilization, society and humanity. Therefore, the urgent needs of social demands must be taken into account in determining the goals and objectives of economic education. In turn, the content of economic education may be limited by the standards of the region, country, the entire world, that take into account the nature of human interaction with cultural values, the extent and degree of their assimilation and creation (Mukesh et al., 2020).

Education manifests itself as a practice of socialization and unity of generations. In different socio-political conditions (and in the period of reforms), a quality economic education is a stabilizing factor between the new social ideas and ideals of previous generations embodied in the historical tradition. The modern economic education performs a stabilizing function and promotes human adaptation to new conditions in the context of radical changes in ideological beliefs, social ideas, ideals and the existence of people in general (Annan-Diab and Molinari, 2017).

In the critical moments of history, it is necessary to ensure the consistency of cultural and historical tradition, preserving the identity of the people and the system of established values. Preservation of the above components facilitates their integration into the system of labour values as elements of the macro-society. At the same time, tradition plays a decisive role in the processes of education of the new generation. The system of economic education embodies the state of trends and prospects for society. So, the economic education is, on the one hand, characterized as preparing the generation for independent living, while on the other hand it lays the foundations for future society and forms the image of a man in the future. Preparation for life means the development of socially accepted way of life, mastering

various forms of life, the development of human spiritual potential for creation and creativity (European Commission, 2018).

The development of a system of market relations requires a transformation of thinking. Education as a social institution solves the problem of training members of society with economic thinking, requiring new approaches to learning. It applies best pedagogical experience and determines the use of non-traditional forms, methods and tools of teaching and education, as well as the new forms of activity of the subjects of the educational process, which carry the features of both learning and work (Bergmann et al., 2018).

The most effective form of activity is based on the model of interactive learning, which assumes that the subject of learning in the educational process acts as its object, too. Interactive methods contribute to the development of competence, teach democracy, communication, critical thinking and decision-making. Interactive learning technologies are based on cognitive (or traditional), socio-role and behavioural approaches (Table 1).

Table 1. Basic didactic concepts of modern educational technologies

Approach	The main point of the approach	Ways to implement the approach
Cognitive (or traditional)	It is aimed at the development of theoretical thinking; acquisition of knowledge of the basic economic and professional concepts and theories by students; development of basic skills of analysis, generalization, classification and characteristics of phenomena and patterns of economic life of society	Forms and methods of work, the subject of which is the reproduction of the studied material with different methods of adding impetus to traditional classes
Socio-role	It is aimed at mastering the role positions of the subjects in the structure of socio-economic relations, professional self-determination and the formation of business qualities of the individual. All economic phenomena and patterns are considered from the point of view of certain subjects of economic processes	Various active teaching methods and changes in traditional roles and behaviours in the audience
Behavioural	It is aimed at the development of students' competencies for adequate response and decision-making in problematic situations	Solving practical problems; simulation modelling of the organization of joint professional activity; presentation of projects

Source: developed by the authors based on Skinner (2018).

Cognitive (or traditional) approach is aimed at the development of theoretical thinking and cannot provide a high level of motivation to study the material of the subject and effective interaction of participants in the educational process. In professional training, it is effective only for students with high self-motivation and conscious professional self-determination (Cohen and Robinson, 2018).

The socio-role approach is aimed at mastering the role positions of the subject in the structure of socio-economic relations, and creates conditions for professional self-determination and the development of business qualities of the individual. Its effectiveness is based on the student's at least general idea of the essence and content of particular role functions (Ciliberto et al., 2021).

Behavioural approach is aimed at the development of students' decision-making competencies, and the use of game forms creates the opportunity to master the relevant activities and at the same time gain expertise of "experiencing" it, forming their own attitude to it (Kahu, 2013). Behavioural approach allows implementing the principle of conscious learning and forming a practical experience of their own professional activities, it disciplines, increases self-esteem, creates a positive emotional background (Cui, 2021).

So, recourse to the analysis of the process of economic education (as a process of accumulation of knowledge, training) is evidence of attention, which indicates a desire to take into account objective economic phenomena — real economic processes caused by scientific and technological revolution, and expressed in modern social production (Siswanto et al., 2021).

There are two groups of entrepreneurial competencies depending on the level of their implementation and impact on the competitiveness of the individual:

- Staff competencies necessary for the business entity to implement the strategy and to achieve the main objectives. Corporate development of competencies (caused by the coherent and common private socio-economic interests of all actors, the willingness of the organization to commit to creating the necessary conditions to maintain competitive advantage in the market in order to achieve goals and fulfil the mission;

- Professional characteristics of a particular individual (autonomous, private level) (Cui et al., 2021).

Autonomous development of competencies is the satisfaction of private interests of individual labour units in the development and improvement of their competitive advantages

in the labour market by increasing knowledge, skills, abilities (Bratianu et al., 2020). A number of researchers also distinguish informational, communicative and project competencies among entrepreneurial competencies, which are expressed in the following characteristics: readiness for effective communication; readiness to use information resources; readiness and ability to apply design methods in practical life; the ability to independently identify the problem, find ways and means to solve it; readiness to self-organize one's own activities; the ability to control oneself in an extraordinary, extreme situation and effectively manage this situation (Elorinne et al., 2017).

Requirements for the structure of entrepreneurial competencies and the general perception of entrepreneurship in society are volatile and change over time. For example, the perception of entrepreneurship depends on the availability of favourable conditions for starting a business, the general level of entrepreneurial knowledge and skills, as well as the level of so-called "fear of failure" (Table 2).

Table 2. Ten important skills needed for business to thrive

Name of skills	In 2015	In 2021
Solving complex problems	1	1
Ability to coordinate actions with other employees	2	5
Human resource management	3	4
Critical thinking	4	2
Ability to negotiate	5	9
Quality control	6	-
Emotional intelligence	-	6
Focus on service delivery	7	9
Ability to make decisions based on analytics	8	7
Ability to listen	9	-
Creativity	9	3
Cognitive flexibility	-	10

Source: developed by the authors based on Skinner (2018).

The aim of the article was to study the essence of the institution of higher economic education, to develop theoretical and methodological background of its transformation and strategic development priorities in the context of knowledge economy, and substantiation of practical recommendations on effective economic education through the development of entrepreneurial climate in Ukraine.

The aim involved the following research objectives:

1. Research of the level of readiness of economics students for team work.

2. Identifying the level of general cultural business competencies and research of important elements of doing business for students.

1. Literature Review

Over the last 6 years, the priorities of entrepreneurial skills have changed, with the ability to solve complex problems coming first in importance, which certainly means that businesses need support from the state, because they face a fairly large pool of problems that require a solution (Drobyazko et al., 2019).

A number of domestic and foreign scientists deal with the issue of training economics students. Sutia et al. (2020) consider the issue of the advantages of methods of comparative analysis in several areas in their works. Sherkat and Chenari (2020) evaluate the effectiveness of entrepreneurship education in the universities of Tehran province based on the model of entrepreneurial intentions Shah et al. (2020) deal with the deterrent role of entrepreneurship education in the formation of entrepreneurial intentions. Rubinstein (2017) identifies the problem of remarks on the economic rules of Danny Rodrick. The problem of professional training of economics students for the development of the national economy in the context of European integration is covered in the article by Pokatayeva et al. (2020). The interaction of entrepreneurship education and national cultures in entrepreneurship is the subject of an article by Oo et al. (2018). In her article, Novytska (2021) studies the formation of professional competence of economics students in studying mathematical subjects. Nabi et al. (2017) consider the impact of entrepreneurship education on higher education in their article. The work of Maula and Stam (2020) dealt with improving the accuracy of qualitative research of entrepreneurship. The impact of corporate education in Sweden's three leading compulsory schools is studied in Lackéus and Sävetun (2018).

2. Methods

2.1 Research Design

Research on the professional training of economics students through the application of personal-activity approach to the professional culture for the development of entrepreneurial activity was conducted in 3 stages:

1. The choice of methods that allow identifying the effective way of the development of professional culture of economics students in HEIs, and determining its real state.

2. Conducting research in four HEIs of Kyiv.

3. Collection and processing of the data obtained, their analysis, identification of the dependence between the phenomena of interest. Drawing conclusions about the existing relationship between a high level of professional culture of economics students in universities, stages and the development of a system of general cultural and professional competencies of students involved in research.

2.2. Sample

Students of higher educational institutions were considered as a general population. The study involved 944 students of HEIs of Kyiv: Ukrainian State University of Finance and International Trade (HEI 1), Ukrainian State University of Finance and International Trade), National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (HEI 2), Kyiv National University of Technologies and Design (HEI 3), Kyiv University of Management and Entrepreneurship (HEI 4)) of the 3rd and 4th years of bachelor's degree and 2nd year of master's degree. The respondents involved 624 women (66.1%) and 320 men (33.9%). The distribution my majors was as follows: there were 491 students majoring in Management, 405 students majoring in Economics, and 48 students majoring in Business Informatics. Such a sample allows analysing the issue under study more carefully. A high level of representativeness of the obtained results is achieved.

A statistical study poses a requirement that the error of representativeness with a probability of 0.95 does not exceed 10%, so the coefficient of variation is 0.3. An online survey was conducted to ensure the safety of respondents in connection with quarantine restrictions. The survey was conducted electronically (Singleton et al., 2017).

The following methods were selected to identify and evaluate indicators that indicate the level of professional culture of economics students in HEIs:

- self-actualization test (SAT) (determining the level of general cultural competencies);

- study of value orientations (according to M. Rokych);

- methods of personal adaptation to a new professional environment (according to L.V. Yankovskyi);

- cultural and value orientations test (L.H. Pochebut).

Such a sample allows covering a sufficient number of respondents to ensure a high level of validity of the results. The main limitations of the study can be the sample consisting of students of HEIs of Kyiv only. This, in turn, does not distort the reliability of the results obtained because the sample is formed in such a way as to cover all the strata of students studying in the average HEI of Ukraine.

2.3. Methods

1. The study was conducted using the following diagnostic methods: questionnaires, surveys, interviews.

2. The method of finding the average level of teamwork in students was determined by Formula 1.

$$AL = (l + 2m + 3h) / 100, \tag{1}$$

where l, m, h is the percentage of students who have low, medium and high levels of readiness for teamwork, respectively.

3. The difference between the averages at the end and beginning of the experiment G shows the absolute increase in AL, which was calculated by Formula 2.

$$G (AL) = AL (final) — AL (initial), \tag{2}$$

where AL (initial) — the initial AL value;

SP (final) — the final AL value.

4. The efficiency ratio (ER) shows the efficiency of the experimental work, calculated by Formula 3.

$$ER = AL (experimental\_group) / AL (control\_group), \tag{3}$$

where AL (experimental_group) — the average level in the experimental group;

AL (control_group) — the average level in the control group;

5. Qualitative increase in the level of readiness of students for teamwork, the statistical significance of the experiment is assessed using Pearson's chi-squared test:

$$\chi^2 = \frac{1}{N_1 N_2} \sum_{i=1}^{c} \frac{(N_1 O_{2i} - N_2 O_{1i})^2}{O_{1i} + O_{2i}} \tag{4}$$

where N_1 – the number of students in the experimental group;

N_2 — the number of students in the control group;

O_{1i} — the number of students in the experimental group who are at the ith level of readiness for teamwork;

O_{2i} — the number of students in the control group who have the ith level of readiness for teamwork;

C — the number of levels ("i") (Stevenson and Josefy, 2019).

2.4. Instruments

Google Forms were used for the survey. Data entry and processing was performed in SPSS Statistics 17.0. All data are given in relative (% of the number of respondents) values.

3. Results

The capabilities of one person in performing any work are limited. Thus, a team of like-minded people is always able to interact more and more effectively, but there are risks of interpersonal conflicts, which can be avoided if team members have a high level of readiness for teamwork. The ability to carefully and attentively treat the feelings of team members is the most important factor for teamwork and making informed and correct decisions aimed at determining the common opinion of all team members. These decisions are often difficult because of the heterogeneity of the team, its members have different temperaments and emotional states, which can lead to misunderstandings and conflict situations. To avoid such acute moments, students must be able to feel the moods, desires and opinions of their colleagues, thus increasing the effectiveness of the student team.

According to the results of the survey among students, there is a clear understanding that they will definitely need business skills and relevant entrepreneurial competencies (86% of students) in order to carry out professional activities (Figure 1).

At the same time, students generally believe that entrepreneurial abilities are those abilities that can be assimilated in the learning process, which confirms the need to develop this area and create special educational programmes for students (Figure 2).

When assessing the importance of competencies for doing business (Figure 3), it was found that students consider IT competencies, the ability to negotiate, generate ideas and create presentations the most important competencies for doing business.

Figure 1. Opinion of potential entrepreneurs about the need for entrepreneurial competencies in employment.

The need to acquire entrepreneurial skills

- Entrepreneurial skills will be needed
- Entrepreneurial skills will be partially needed
- Entrepreneurial skills will not be needed

14%

31%

55%
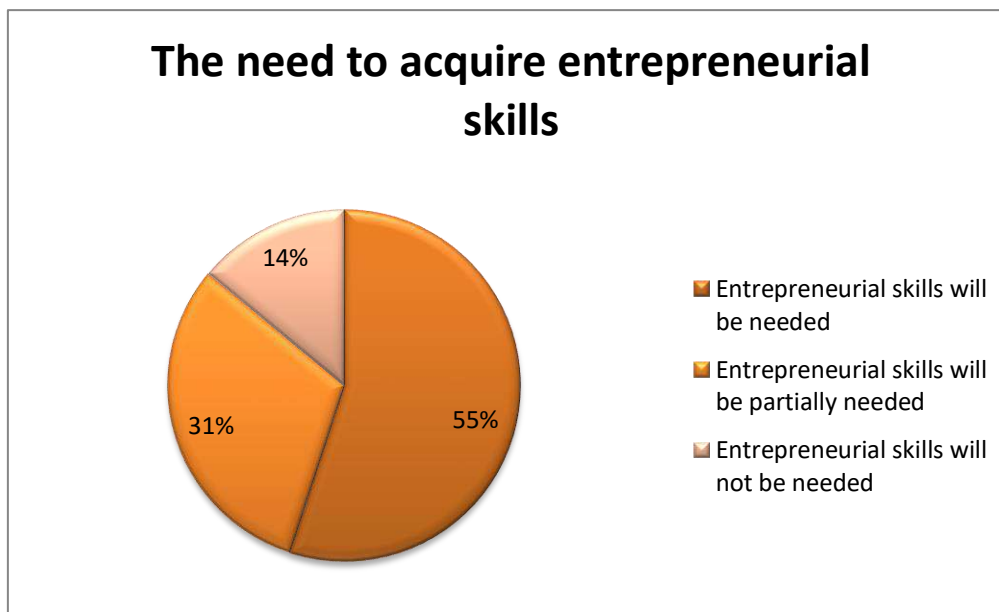
Source: authors

Figure 2. Opinion of potential entrepreneurs about the development of entrepreneurial abilities

Entrepreneurial abilities

- The are innate qualities
- They are acquired qualities

30%

70%
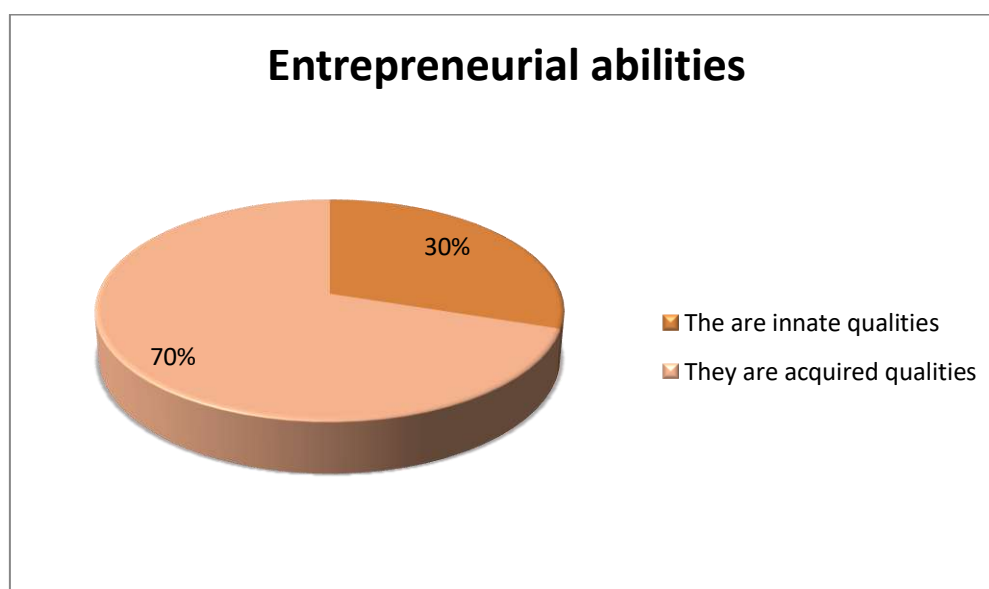
Source: developed by the authors based on the survey results

Some students distinguished self-organization within the additional competencies. Respondents considered competencies related to solving problems through professional and social interaction, creativity, leadership, idea generation, and innovation to be of little

importance (Table 3). This is due to the fact that students do not have the skills to start their own business, underestimate the skills that contribute to business development (especially creativity), distinguishing more organizational issues: how and what to do to implement a business project. At the same time, all respondents in one way or another recognize the need for business programmes of subjects in the field of management. Marketing and Sales Management (96), Economics and Business Security (154) obtained the largest number of answers among the basic subjects.

Figure 3. Outline of the importance of entrepreneurial competencies
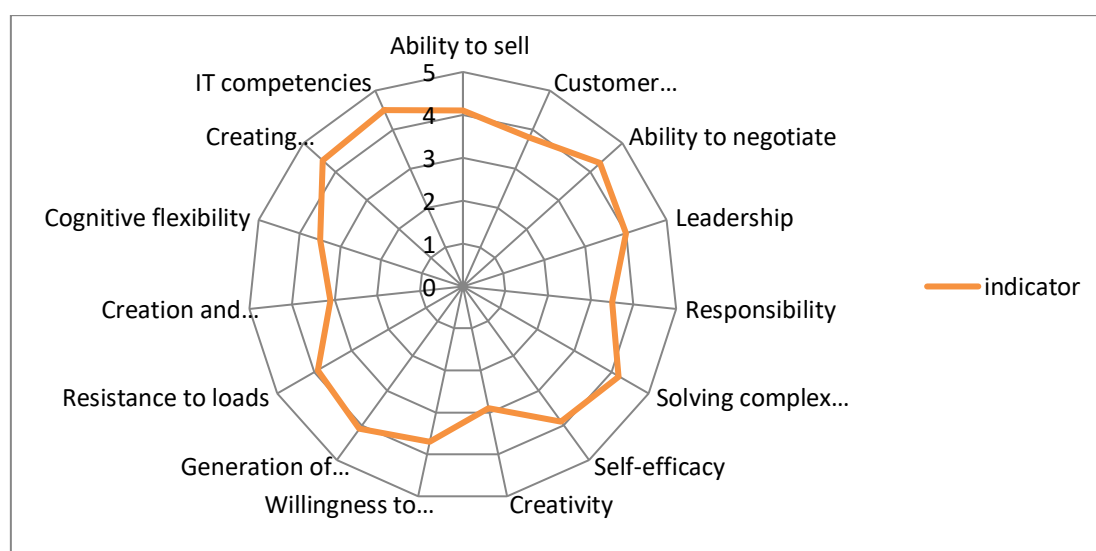
Source: developed by the authors based on the survey results

Table 3. Indicators of the level of professionally significant personality traits in students of experimental and control groups at the beginning and at the end of the experiment

Personality traits	Summative stage		Formative stage	
	Experimental group	Control group	Experimental group	Control group
Sociability	50%	49%	90%	54%
Goodwill	62%	68%	85%	71%
Authenticity	61%	56%	77%	68%
Openness	67%	61%	92%	71%
Initiative	71%	43%	89%	53%
Tact	50%	66%	92%	72%
Flexibility	50%	43%	86%	55%

Source: authors.

Obviously, we can speak about the development of professional culture only when there is an effective interaction between teachers, social partners and students. Analysis of activities conducted with students who have undergone an experimental system of education, showed that many of them have developed a fairly high level of professionally significant personality traits necessary for successful performance of the entrepreneur's role.

The index of general satisfaction with communication between students and representatives of social partners increased (a colour test was conducted) as a result of the application of modelling the real business environment. Comparative analysis of the obtained data revealed a higher increase in indicators in the experimental group (total increase by 3-4 conventional units). The differences between the initial and final measurements in the experimental group are significant — 30 - 40%, and in the control group — statistically insignificant.

This fact allows us to conclude about the more intensive development of professionally significant personality traits of students in the experimental group. As the data in Table 4 show, there is a certain relationship between the process of the development of professionally significant personality traits of a future entrepreneur and a high level of professional culture.

Table 4. Indicators of the scope of practical application of professionally significant personality traits of students of experimental groups

TRAITS	AREAS OF PRECTICE							
	In studies		In practice		With friends		At home	
	Yes	No	Yes	No	Yes	No	Yes	No
Sociability	87%	13%	100%	-	96%	7%	100%	-
Goodwill	100%	-	100%	-	71%	27%	94%	4%
Authenticity	79%	22%	100%	-	94%	9%	100%	-
Openness	76%	22%	73%	26%	90%	8%	71%	23%
Initiative	74%	25%	96%	-	95%	5%	81%	17%
Tact	90%	8%	100%	4%	81%	17%	90%	9%
Flexibility	95%	6%	90%	8%	75%	22%	81%	16%

Source: authors.

A significant increase in the level of professionally significant qualities in students was recorded in the analysis of their professional activity during the internship. The supervisors of the internship, who conducted the analysis, noted the high initiative, friendliness, sociability, tact of students in communicating with staff; pointed to the ability of students to understand and respond quickly to changing situations of professional communication; drew attention to the ability of students to show authenticity, openness and frankness. These data show that the professionally significant personality traits of students were developed in the process of their interpersonal relationships with teachers and other participants in the process of developing a professional culture. These qualities go beyond the professionally significant environment of HEIs and are applied in other spheres of their activity.

Such qualities as sociability, initiative, empathy, tact, friendliness and flexibility are the most pronounced in different situations of interaction in the process of professional activity and training. According to students, authenticity, immediacy, frankness are better manifested in informal communication than in the relationship with the teacher and in practice. This indicates that students, in relation to other participants in the pedagogical process, still retain role stereotypes of behaviour, while in other situations they go beyond the usual communication. It is likely that they simply change their social status (teacher, student, internship supervisor, friend, family member), on which a greater or lesser manifestation of certain personality traits qualities depends. Facing with such problems in research makes realize that the teacher and the student is the interconnected system in which the state of one determines the state of the other.

Thus, the actualization and stimulation of interaction of teachers, social partners and economics students determines their own professional and personal development, as well as harmonizes their relationship with a professionally significant environment and, consequently, increase the impact on professional culture. The considered tendencies explain influence of various kinds of interpersonal relations on actualization and development of the personality that, in turn, influences process of adaptation of students to mastering of a profession and to professional activity of the economist in graduates (Figure 4).

Figure 4. The results of the summative experiment in groups by the level of readiness for teamwork of students of different HEIs
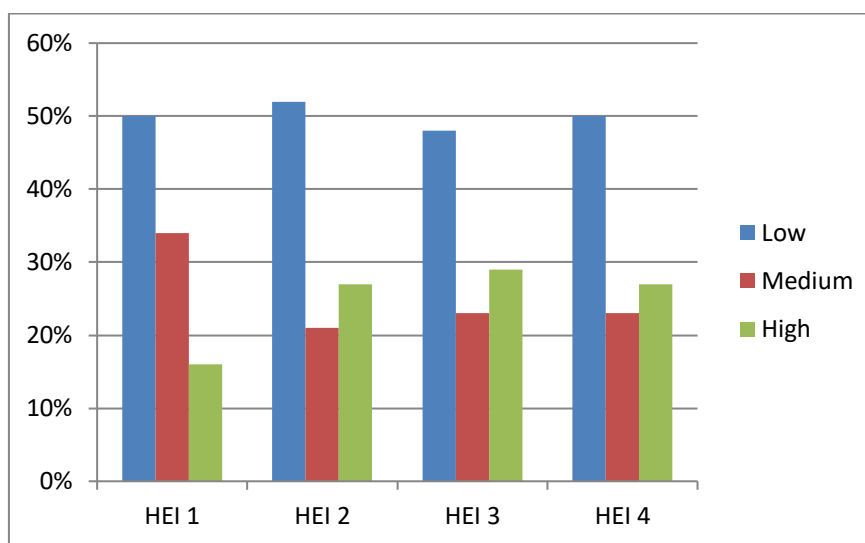
Source: authors.

In the course of the research, answering the questions of diagnostic tests, students agreed with the relevance of knowledge about this type of interaction and noted the need for teamwork in the current labour market. It was found that 50% of students have a low level of readiness for teamwork. They note the lack of experience of teamwork, fear of teamwork due to difficulties in establishing contact with their peers and lack of flexibility in communication.

In a student group, some students can do their job alone, they are closed and not talkative, they are difficult to rely on in matters that require teamwork. There were 29% of respondents with an average level of readiness for teamwork, which indicates that the students are able to engage in a teamwork only under the teacher's control, who sets the rules for each student — a team member? and controls the course of teamwork. Such a team can work effectively only if these conditions are met. Only 21% of respondents showed a high level of readiness for teamwork. These students understand the peculiarities of this interaction and can easily use teamwork in professional training.

Analysis of the results of the chi-squared test showed that the summative experiment confirms the null hypothesis, according to which all groups (three experimental and one control) had no significant differences, as the value of $\chi2_{studied}$ is smaller than $\chi2_{critical}$. (P=0.9996) (Table 5).

Table 5. The value of the χ^2 when comparing groups by level of students' readiness for teamwork

HEIs	Value of χ^2 studied	Value of χ^2 critical	Number of the degrees of freedom	P
1, 2, 3, 4	0.28	12.58	6	0.9996

Source: authors.

The analysis of the results obtained in the formative experiment to increase the students' level of readiness for teamwork showed the following results shown in Figure 5.

Figure 5 shows that the largest increase in the number of students with a high level of readiness for teamwork in HEI 3 (24%). This is 7% more than in HEI 1, 6% more than in HEI 2, and 20% more than the increase obtained in HEI 4. Comparison of the obtained data on the low level of readiness for teamwork shows that the highest values are also observed in the third experimental group (HEI 3) at 28%.

Figure 5. Increase in the level of readiness for teamwork of students of technical universities (in %) in groups: a formative experiment

	HEI 1	HEI 2	HEI 3	HEI 4
Low	-25%	-26%	-28%	-4%
Medium	8%	9%	-4%	0%
High	17%	18%	24%	4%
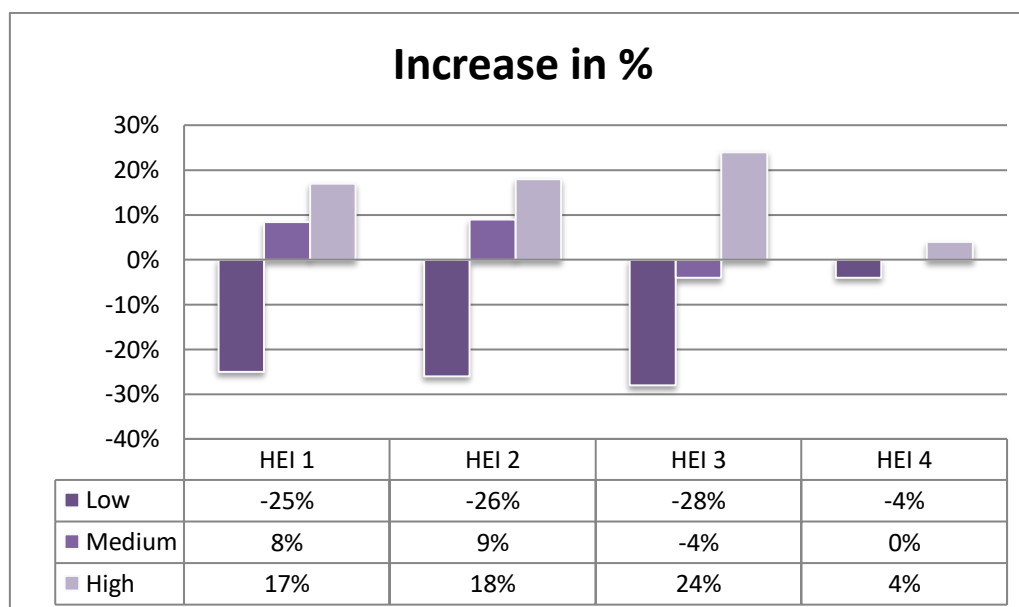
Source: authors.

According to the results of the calculation presented in Table 6, the null hypothesis (H$_0$) was proved in the first and second experimental groups,. This suggests that the implementation of individual combinations of pedagogical conditions is not statistically

significant. The alternative hypothesis (H$_i$) was confirmed in the third experimental group, because $_{\chi2studied}$> $\chi2_{critical}$ (6.35> 5.99,), P <0.05 (P = 0.042), which indicates a non-accidental phenomenon of changing the level of readiness of students of technical university for teamwork in the implementation of the structural-functional model and set of pedagogical conditions.

Table 6. The value of the χ^2 when verifying H$_o$

HEI	Value of $\chi^2_{studied}$	Value of $\chi^2_{critical}$	P	Statistical significance
1 and 2	2.58		0.274	Not significant
2 and 3	2.41	5.99	0.296	Not significant
3 and 4	6.35		0.043*	Significant

Source: authors.

These results can be re-obtained in similar circumstances. The study and the results obtained during the experiment allow concluding about the achievement of the aim of the study.

4. Discussions

The methodology of research of the need for entrepreneurial education for potential entrepreneurs was tested on a sample of students of HEIs (944 people). Entrepreneurial potential was found in 43% of students. The needs of potential entrepreneurs in current skills, first of all, necessary for work in modern conditions of digitalization and variability of business environment are determined. These findings confirm the data of the study by Shah et al. (2020), and differ from the data of the study Novytska (2021), which notes that future entrepreneurs see the greatest need in the development of communication skills. A number of social and creative competencies are still underestimated by students because they do not have the skills to start their own business and business communication experience. This is confirmed by research of Pokatayeva et al. (2020). Respondents attach more value to organizational issues: how and what to do to implement a business project. Such conclusions do not contradict the results of the study by Lackéus and Sävetun (2018), in which IT competencies are of the greatest value. The study showed that students consider traditional teaching methods more effective. These data contradict the works of Cui (2021) and

Siswanto et al. (2021) in which the use of modern non-traditional methods is an important factor in successful training. This suggests that students who obtain higher education are focused mainly on lectures and seminars, so they expect practice from business education programmes. Cui et al. (2021) also cite the high expectation of gaining practical skills from business education in their study.

The survey method showed its effectiveness in achieving the aim and fulfilling the objectives. Students as representatives of intellectual potential for entrepreneurship have a positive attitude to the need to increase entrepreneurial competencies. Such conclusions also coincide with the data presented in the studies of Bergmann et al. (2018) and Bratianu et al. (2020). This happens even if they have innate abilities. Students believe that such competencies can be obtained through training both in the form of inclusion of business subjects in the main programmes of higher education, and in the form of training in additional programmes of business education. Maula and Stam (2020) come to such conclusions in their research.

The importance of basic and specialized business subjects is confirmed. At the same time, when implementing entrepreneurship education programmes, it is necessary to focus on traditional forms, as well as modern educational and information technologies, actively involving them in conducting classes. These results contradict the data of the study by Sherkat and Chenari (2020), which notes the need to move to non-traditional educational forms. The needs for current skills are identified: organization of startups, promotion of business on the Internet, business security, etc., which are required by potential business entities to work in the modern conditions of digitalization and variability of the business environment.

The theoretical consequences of the study are the justification of the need to model the development of the business climate in the training of economics students. The practical consequences of the study are the formation of a system of educational and cognitive tasks for developing skills necessary for doing business in economics students. This can help improve the development of professional competencies of future specialists.

The main limitations of the study are the difficulty of identifying the results of the study due to the limited ability to involve more HEIs from different regions of Ukraine. It was difficult to test the research materials in the real educational process because of quarantine restrictions posed by the COVID-19 pandemic.

Conclusions

The study is topical because of the need to improve modern economic education in Ukraine. Global processes are creating new and new challenges for developing countries, so the labour market needs highly qualified specialists in the field of economics and business. Criteria-diagnostic tools for assessing the level of readiness for teamwork, criteria and indicators for assessing the level of readiness of students for teamwork have been identified and tested. Cognitive criterion that determines the level of knowledge of students in the field of teamwork (indicators: completeness of knowledge about the goals and features of teamwork, team relationships; completeness of knowledge about team roles and team building techniques). Operational criterion that determines the level of students' competencies in teamwork (indicators: empathy in teamwork; tolerance in teamwork; possession of reflected skills in teamwork; mastery of group cohesion; mastery of team planning and teamwork skills; skills to work with team members). Axiological criterion that determines the level of students' value attitude to teamwork (indicators: the manifestation of skills to defend the team's interests; awareness of team role and responsibility for the task; awareness of the value and common purpose of teamwork).

The reliability of the experimental data was verified through Pearson's chi-squared test. The research can be useful for both students and teachers seeking to improve economic education in Ukraine. Of course, this study does not cover all aspects of this problem. Further research can focus on the development of the readiness of students of HEIs for teamwork in other areas of training, as well as the development of electronic educational resources for teachers of HEIs for diagnostics and organization of teamwork of students to improve professional training.

References

Annan-Diab, F., Molinari, C. (2017). Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable development goals. The International Journal of Management Education. 15(2), 73-83. DOI: https://doi.org/10.1016/j.ijme.2017.03.006

Bergmann, H., Geissler, M., Hundt, C. Grave, B. (2018). The climate for entrepreneurship at higher education institutions. Research Policy, 47(4), 700–716. DOI: https://doi.org/10.1016/j.respol.2018.01.018

Bratianu, C., Hadad, S., Bejinaru, R. (2020). Paradigm shift in business education: a competence-based approach. Sustainability, 12(4), 1348. DOI: https://doi.org/10.3390/su12041348

Cohen, J., Robinson, C. (2018). Enhancing teaching excellence through team-based learning. Innovations in Education and Teaching International, 55(2), 133-142. DOI: https://doi.org/10.1080/14703297.2017.1389290

Ciliberto, C., Szopik-Depczyńska, K., Tarczyńska-Łuniewska, M., Ruggieri, A., Ioppolo, G. (2021). Enabling the Circular Economy transition: a sustainable lean manufacturing recipe for industry 4.0. Business Strategy and the Environment, 12 (Ahead of print). DOI: https://doi.org/10.1002/bse.2801 (accessed 21.09.2021).

Cui, J. (2021). The Impact of entrepreneurship curriculum with teaching models on sustainable development of entrepreneurial mindset among higher education students in China: the moderating role of the entrepreneurial climate at the institution. Sustainability, 13(14), 7950. DOI: https://doi.org/10.3390/su13147950

Cui, J., Sun, J., Bell, R. (2021). The impact of entrepreneurship education on the entrepreneurial mindset of college students in China: The mediating role of inspiration and the role of educational attributes. The International Journal of Management Education, 19(1), 100296. DOI: https://doi.org/10.1016/j.ijme.2019.04.001

Drobyazko, S., Potyshniak, O., Radionova, N., Paranytsia, S., Nehoda, Y. (2019). Security of organizational changes via operational integration: ensuring methodology. Journal of Security and Sustainability Issues, 9(1), 1595-1612. DOI: http://doi.org/10.9770/jssi.2019.9.1(8)

Elorinne, A. L., Arai, N., Autio, M. (2017). Pedagogics in home economics meet everyday life. In: E. Kimonen, R. Nevalainen (Eds.) Reforming teaching and teacher education (pp. 145-168). Rotterdam, Sense. DOI: https://doi.org/10.1007/978-94-6300-917-1_6

European Commission. (2018). Council recommendation on key competences for lifelong learning. Official Journal of the European Union, 61(189), 1-3. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604(01)&rid=7

Hazen, B. T., Bradley, R. V., Bell, J. E., In, J., Byrd, T. A. (2017). Enterprise architecture: A competence-based approach to achieving agility and firm performance. International Journal of Production Economics, 193, 566-577. DOI: https://doi.org/10.1016/j.ijpe.2017.08.022

Kahu, E. R. (2013). Framing student engagement in higher education. Studies in Higher Education, 38, 758-773. DOI: https://doi.org/10.1080/03075079.2011.598505

Lackéus, M., Sävetun, C. (2018). Assessing the impact of enterprise education in three leading Swedish compulsory schools. Journal of Small Business Management, 57, 33-59. DOI: https://doi.org/10.1111/jsbm.12497

Logosha, R., Bondarenko, V., Samokhval, O., Pavelkiv, R., Petrenko O. (2019). Entrepreneurship education of future economists in the process of preparation. Journal of

Entrepreneurship Education. 22(6), 1-7. http://socrates.vsau.edu.ua/repository/getfile.php/23285.pdf

Marques, C. S., Santos, G., Galvão, A., Mascarenhas, C., Justino, E. (2018). Entrepreneurship education, gender and family background as antecedents on the entrepreneurial orientation of university students. International Journal of Innovation Science, 10(1), 58-70. DOI: https://doi.org/10.1108/IJIS-07-2017-0067

Maula, M., Stam, W. (2020). Enhancing rigor in quantitative entrepreneurship research. Entrepreneurship Theory and Practice, 44(6), 1059-1090. DOI: https://doi.org/10.1177/1042258719891388

Mukesh, H. V., Pillai K. R., Mamman, J. (2020). Action-embedded pedagogy in entrepreneurship education: an experimental enquiry. Studies in Higher Education, 45(8), 1679-1693. DOI: https://doi.org/10.1080/03075079.2019.1599848

Nabi, G., Liñán, F., Fayolle, A., Krueger, N., Walmsley, A. (2017). The impact of entrepreneurship education in higher education: a systematic review and research agenda. Academy of Management Learning & Education, 16, 277–299. DOI: https://doi.org/10.5465/amle.2015.0026

Novytska, L. (2021). Formation of professional competence of future economists in the process of studying mathematical disciplines. The Scientific Heritage, 62(4), 32-42. DOI: https://doi.org/10.24412/9215-0365-2021-62-4-32-42

Oo, P.P., Sahaym, A., Juasrikul, S. (2018). The interplay of entrepreneurship education and national cultures in entrepreneurial activity: a social cognitive perspective. Journal of International Entrepreneurship, 16, 398-420. DOI: https://doi.org/10.1007/s10843-018-0229-4

Pokatayeva, O., Diachenko, M., Kravchenko, V. (2020). Problem of professional training of future economists for development of national economy under conditions of European integration. Baltic Journal of Economic Studies, 6(5), 148-154. DOI: https://doi.org/10.30525/2256-0742/2020-6-5-148-154

Rubinstein, A. (2017). Comments on economic models, economics, and economists: Remarks on economics rules by Dani Rodrik. Journal of Economic Literature, 55(1), 162-172. DOI: https://doi: 10.1257/jel.20161408

Shah, I. A., Amjed, S., Jaboob, S. (2020). The moderating role of entrepreneurship education in shaping entrepreneurial intentions. Economic Structures, 9, 19. DOI: https://doi.org/10.1186/s40008-020-00195-4

Sherkat, A., Chenari, A. (2020). Assessing the effectiveness of entrepreneurship education in the universities of Tehran province based on an entrepreneurial intention model. Studies in Higher Education, 45(3) (Ahead of print). DOI: https://doi.org/10.1080/03075079.2020.1732906

Singleton, R., Straits, B. C., Straits, M. N., McAllister, R. J. (2017). Approaches to Social Research, 6th edition. Oxford, Oxford University Press, 672 p.

Siswanto, E., Kardoyo, Rustono, Raharjo, T. J., Samsudi, Sumaryanto, T., Yulianto, A. (2021). Teaching factory financial management in vokasional school. European Journal of Molecular & Clinical Medicine, 7(3), 5691-5707. https://ejmcm.com/pdf_5963_f6f59b325f3dfa8ca7358d00088794b6.html

Skinner, C. (2018). Digital Human: The Fourth Revolution of Humanity Includes Everyone. New York, Wiley, 400 p.

Stevenson, R. M., Josefy, M. (2019). Knocking at the gate: The path to publication for entrepreneurship experiments through the lens of gatekeeping theory. Journal of Business Venturing, 34(2), 242–260. DOI: https://doi.org/10.1016/j.jbusvent.2018.10.008

Sutia, S., Riadi, R., Fahlevi, M., Istan, M., Juhara, S., Pramono, R., Purwanto, A., Purba, J. T., Munthe, A. P., Juliana. (2020). Benefit of benchmarking methods in several industries: a systematic literature review. Systematic Reviews in Pharmacy, 11(8), 508-518. DOI: https://doi.org/10.31838/srp.2020.8.72

The value of conscious paternity as a priority direction in the vocational training of social workers

Evgenia Durmanenko *
Svitlana Cherneta **
Iryna Bychuk ***
Maryna Voloshenko ****
Yaroslav Tbinskiyi *****

ABSTRACT

The objective of the research consisted in establishing and experimentally testing the methodology of formation of the value of conscious parenting in future specialists of social work, for its transformation into professional and evaluative orientation. Methods of analysis, systematization and generalization of ideas and scientific approaches, specification of practical tasks, the pedagogical experiment and pedagogical diagnostic methods were used to study the real state of the problem and achieve the objective of the research. As a result, based on the authors' interpretations of the main concepts investigated, a model for transforming the personal value of conscious parenting into a professional and value orientation has been suggested. A workshop has been suggested as an effective way of working. The authors established that the optimization of the process of formation of the value of conscious parenthood in social workers and its transformation into professional and value orientation, depends on the modification of the educational process in the institution of higher education through innovative processes, content and use of interactive forms and methods.

KEY WORDS: parenting; value; professional training; Social workers; orientation.

* Department of Theory and Methods of Preschool Education of Lutsk Pedagogical College, Lutsk, Ukraine. ORCID: https://orcid.org/0000-0003-1993-5028. Email: ariew60@gmail.com

** Department of Social Work and Pedagogy of the Higher School of Lesya Ukrainka Volyn National University, Lutsk, Ukraine. ORCID: https://orcid.org/0000-0002-9939-7591. Email: svetlanachernetasu@gmail.com

*** Department of Social Work and Pedagogy of the Higher School of Lesya Ukrainka Volyn National University, Lutsk, Ukraine. ORCID: https://orcid.org/0000-0003-4838-3939. Email: irabychuk@gmail.com

**** Department of Psychology and Social Work of Odessa Polytechnic State University, Odessa, Ukraine. ORCID: https://orcid.org/0000-0003-0940-3829. Email: marusia_vl@ukr.net

***** Welness Center «ATMAN», Rivne, Ukraine. ORCID: https://orcid.org/0000-0002-5402-6797. Email: centeratman@gmail.com

El valor de la paternidad consciente como dirección prioritaria en la formación profesional de los trabajadores sociales

RESUMEN

El objetivo de la investigación consistió en fundamentar y probar experimentalmente la metodología de formación del valor de la paternidad consciente en futuros especialistas del trabajo social, para su transformación en orientación profesional y valorativa. Se utilizaron métodos de análisis, sistematización y generalización de ideas y planteamientos científicos, especificación de tareas prácticas, el experimento pedagógico y métodos de diagnóstico pedagógico para estudiar el estado real del problema y lograr el objetivo de la investigación. Como resultado, a partir de las interpretaciones de los autores de los principales conceptos investigados, se ha sugerido un modelo de transformación del valor personal de la paternidad consciente en orientación profesional y valorativa. Se ha sugerido un taller como forma eficaz de trabajo. Los autores establecieron que la optimización del proceso de formación del valor de la paternidad consciente en los trabajadores sociales y su transformación en orientación profesional y valorativa, depende de la modificación del proceso educativo en la institución de educación superior a través de procesos innovadores, contenido y uso de formas y métodos interactivos.

PALABRAS CLAVE: crianza; valor; entrenamiento profesional; trabajadores sociales; orientación.

Introduction

Demoralization of modern social values, changes in the age model of childbearing, adolescent motherhood and the decline of healthy childbearing in Ukraine and, on the contrary, late motherhood or in general refusal of childbearing (childfree) in different countries of the world actualize the problem of forming the value of conscious paternity.

Today, the family is no longer the only one environment that raises a child. Influences of various factors play an important role in forming personality, in forming its qualities, life positions. Modern youth often prepares for future family life and parenthood by resolving material issues and pays little attention to the psychological and pedagogical aspect of paternity, and most importantly – a conscious attitude to future paternity.

The activity of various social institutions is an important factor in the purposeful formation of the values of marriage, family, and future paternity of young people. Current practice shows the lack of theoretical and practical scientific works in the formation of professional competence of social workers to implementation of an educational influence

on clients in order to form the values of family and paternity. Therefore, the objective of the article is to substantiate and experimentally test the method of forming the value of conscious paternity in specialists of social work and its transformation into their professional and value orientation.

Parenthood is the result of individual choice of women / men, which have been coordinated with other life projects. The reflection of modern parenthood suggests that people plan to have a child, based on their life intentions, choosing the optimal time for this, entering this event at certain stages of your life, such as: completion of studies, achievement of material well-being, career position, etc. (Chernova, Shpakovska, 2010: 3). Again, the reflection and planning of fatherhood determine the so-called "deferred (postponed) motherhood / fatherhood". The average age of women giving birth for the first time was 29 years, according to the Organization for economic cooperation and development, in 2020. In European countries, children are born earlier in Bulgaria, Romania, Latvia, Estonia, Poland (25-27 years), and later in Italy, Spain, Switzerland, Luxembourg, and Greece (30-31 years) (Family database OECD, 2020).

The urgency of the problem of training specialists of social work to forming conscious parenthood (planning and birth of children, their upbringing and development) is also emphasized by the results of the European social research, according to which the late age for childbirth is 41,6 (ranging from 39,1 in Hungary to 43,8 in Austria). The actual share of mothers who are consciously planning maternity and give birth at the age of 40 was 1,6% in Ukraine, compared with 7,3% in Italy and almost 5,0% in Spain, Ireland, and Greece. Significantly less than in other European countries, women aged 45-49 give birth in Ukraine (an average are two women per 10,000), while in Greece this figure is 15, in Ireland - 13, in Italy - 11 (Aksyonova, 2014: 2).

Traditionally, social workers of Europe countries and the world face the same tasks and problems in the process of their practical activity: professionally to defend the interests of young people and citizens who cannot do it on their own and need help; to show personal interest in the organization of control of protection of the person; to organize and support stimulation of youth to development of constructive activity, own forces with use of personal reserves; to take preventive measures and independently to offer assistance; to

influence local and central authorities in order to improve the social protection of citizens, etc.

However, as practice shows, finding ways to prepare young people for marriage, for future parenthood and awareness of it as a personal value remains problematic. An important role in this process belongs to social work specialists, one of the priority directions of which is the formation of the conscious parenthood of clients. Therefore, it is necessary to develop and implement new approaches to the training of students in general, and forming conscious parenthood as a professional and value orientation in particular.

1. Literature Review

The problem of training social workers for professional activities has been and is the subject of research by a number of foreign and Ukrainian scientists. For example, analyzing the issue of forming conscious parenting, we note the ideas for the formation of parental attitudes of T. Gordon to be very popular in the United States and other countries, whose model of family upbringing is called "Parent Effectiveness Training", which, in our opinion, are really useful for millions parents all over the world. T. Gordon states that "Whether you're the parent, you know that parenting can be challenging–even overwhelming at times". On its basis, the Russian psychologist Yu. Gippenreiter presented her modification of this model, which also emphasized the need to prepare parents for the upbringing of the child (Aleksandrova et al, 2002). In the opinion of authors, the specified program should be learned by current and future social workers to help young parents and people, who are planning to have a kid.

Canadian researcher of the field of parent-child relationships E. Schaefer considers the classification of parental attitudes towards the child by the continua Love-Dislove and Autonomy-Dependence and accordingly identifies the following main educational spaces: love-autonomy; love-dependence; hostility-dependence and hostility-autonomy, which are characterized by such dominant styles of education as democratic, over-protection, authoritarian and ignoring. The most optimal in upbringing, according to the author, is the system "Autonomy-Love", when parents, accepting the child as she is, create conditions to meet her needs and interests, encourage the child's independent behavior, unobtrusively and purposefully teach her to make independent decisions on issues that are related to her life – learning, choosing friends, spending time, etc. (Schaefer, 2012).

In the context of preparing young people for marriage, E. Bern expresses the opinion that the easiest way to form fatherhood is to repeat the line of life of parents, with girls repeating the fate of the mother, and boys repeating the fate of the father, or other significant adults if the family was incomplete or the parents were present in the child's life sporadically. The scientist proves that if parents do not perform their functions effectively, then their children will not be ready for the conscious parenthood. It is very important that a young boy or a girl under 18 (the period when (according to E. Bern), the "parental scenario" is fixed) be able to rethink the "parental scenario" and consciously choose their own line of behave both in future work and in family life (Bern, 1992).

Based on the concept of attitudes of V. Myasishchev, the structural components of forming conscious parenting in future specialists of social work, we distinguish: motivational, value, cognitive, activity and personal components (Myasishchev, 1995).

Scientific interest in terms of forming conscious fatherhood is the views of E. Eidemiller, who considers fatherhood and conscious fatherhood as a complex organized social and psychological phenomenon, which includes a set of value orientations, attitudes and expectations, parental feelings, positions of responsibility and style of family upbringing, and is analyzed in relation to the individual and personal characteristics of a man or woman, to family system in a whole (as a single marital plan of value orientations, parental positions, feelings, etc.), in relation to parental families and the system of society. According to the scientist: "Fatherhood is the realization of spiritual unity with the marital partner in relation to their children, which is an integral psychological formation of personality" (Eidemiller, 2007). Thus, as it is evidenced by the analysis, fatherhood according to E. Eidemiller is an integral psychological formation of personality and is defined as the awareness of spiritual unity with partners regarding the full development of their own child.

Already G. Filippova emphasizes that fatherhood is part of the personal sphere of women and men, namely, systemic formation, which includes needs, values, motives and ways of their realization, and also system of child-parent interaction (Filippova, 2005). The basis of parenthood is the conscious attitude of the spouses to their role as father/mother, which is formed under the influence of the model of the relationship of their own parents and affects the quality of life of the whole family. The effective realization of parenthood

begins with the manifestation of feeling of love for the child, which provides the basis for the formation of a full-fledged personality, the disclosure of its potential, the laying of humanistic foundations and moral virtues. In view of this, G. Chapman and R. Campbell note that the basis of conscious fatherhood is love, which must be unconditional, because true love does not determine the conditions. Parents should show their love for the child for the fact that she is, has filled their lives with joy of her presence, and in no case make the manifestation of this feeling in dependent on the child's behavior (Chapman and Campbell, 2016). Therefore, future parents should start preparing for parenthood with an analysis of their own personality, because the harmony of the inner world of parents is the key to effective implementation of the parental position and instilling spiritual, moral, universal values of life for children.

Thus, taking into account the views of scientists, conscious parenthood is understood as the ability of a person to consciously make a choice for the birth, care, education, upbringing and development of a healthy child that is based on personal mastery of cognitive, value and behavioral components of this phenomenon.

In the context of our study, we will focus on the analysis of the value component that combines awareness of parenthood as an existential value, the absolute value of each future specialist of social work, his socially significant value orientations for future parenthood (harmonious relationship with the child and the marriage partner, focus on the compliance with parental functions that are based on such moral values as trust, devotion, kindness, love, etc.) and education of the specified qualities in clients in the process of professional activity.

Namely, the priority of the axiological approach in the training of future specialists that scientists emphasize (V. Antoniuk, N. Alendar, O. Bartkiv, O. Honcharuk, O. Durmanenko), emphasizing the values of professional activity of the specialist (Antoniuk et al, 2021: 11, 4).

The basic views of our study are O. Bartkiv and Ye. Durmanenko, who define the value orientations of future specialists as a stable system of personal and professionally perceived personal values, which are, firstly, guidelines for professional activity, secondly, the motivator of professional self-improvement (professional self-education and self-

development) and, thirdly, the regulator of professional-value position and professional-value formation (Bartkiv and Durmanenko, 2017: 2).

Analysis of the views of scientists shows that the problem under research is not new and has been partially studied. However, scientists do not pay attention to the axiological approach to the training of future social work specialists in the context of forming conscious parenthood in clients.

2. Methodology

At the stage of problem statement, its theoretical analysis and comprehension methods of analysis of scientific literature, systematization and generalization of scientific ideas and positions, specification of practical tasks for research and experimental work, as well as methods of pedagogical diagnosis to study the state of formation of the value component of conscious parenting in future specialists of social work.

The analysis of scientific achievements shows that the researched problem is partly studied. However, the realities of everyday life confirm the lack of studying the issues of forming conscious parenthood as a personal and professional value. In fact, this prompted the authors of the article to develop an experimental method of forming the value of conscious parenthood and its transformation into a professional and value orientation of future social workers.

According to our assumption, the formation of the value of conscious parenthood in future social work specialists will be more effective and adequate to the requirements of the State Standard in the specialty 231 Social Work (Standard of Higher Education in the specialty 231 Social Work, 2019) and needs of today, if the educational process of higher education institutions will be integrated innovative forms and methods of teaching and education, which will not only motivate students to learn and enhance their cognitive activity, but also the formation of their professional competence as the ability to successfully perform their professional functions in general and in particular in terms of forming conscious parenthood in their clients.

The content of the experimental methodology is consistent with the State standard of higher education, with the content of the educational and professional program, which is a normative document, which regulates the regulatory, competence, qualification,

organizational, educational and methodological requirements for the preparation of masters in the field of knowledge 23 Social work specialty 231.

The main tasks of the experimental methodology were the formation of thorough and conscious systemic knowledge about parenthood as a phenomenal personal phenomenon; stable positive emotional attitude to parenthood; conscious parenthood as a personal value; conscious transformation of professional value into a holistic system of professional value orientations in students-future specialists of social work.

The basis of realization of the experimental methodology is based on principles that are interconnected and consistent with the basic principles of interaction with the child during the first years of her life (International Child Development Program, 2012).

Authors of experimental methods, analyzing the results of scientific achievements of modern scientists (O. Bartkiv, O. Vasylchenko, E. Durmanenko, E. Eidemiller, R. Campbell, O. Smalko, K. Fopel, G. Chapman, E. Schaefer and others), as well as opportunities for innovative interactive forms and methods of organizing the educational process, identified those that should be used in higher education in working with students to ensure the effectiveness of the process of forming the value of conscious parenthood and its transformation into a professional value orientation in future specialists of social work.

The student club "Conscious parenthood", which operates in a higher education institution in accordance with the statute and work plan (1) a public organization that unites people of a certain circle, professions for joint recreation, entertainment, sports, etc .; 2) cultural and educational organization at the enterprise, institution) was chosen as the form of organization of educational work on the formation of personal value of conscious parenthood. About a hundred students from different faculties are involved in the activity of club. However, the experimental method involves 67 respondents of different courses and forms of education – future specialists of social work, as the main emphasis of the authors is on the transformation of the personal value of conscious parenthood in the professional and value orientation of the individual.

The algorithm of formation of professional and value orientation in future specialists of social work is unified: the purpose of activity is clearly and concretely outlined, four consecutive-logical and interconnected stages of the organization of activity are allocated: motivational (why is it?), theoretical (what is it?), practical (is application in practice, in

action?) and effective (what is the result of activity?). Let's note that visiting the club is voluntary and club activity have self-organizing nature. Various interactive methods of work were used at all stages. Thus, in theory, problematic lectures with the involvement of relevant specialists (physicians, lawyers, psychologists, etc.) proved to be effective.

The most productive was the practical stage, which involved the formation of applied skills, in particular, communication skills, skills of interaction with the client, with the establishment of trust with him and so on. Conversations, trainings, master classes were important at this stage. A special role is given to workshops, as intensive measures in which their participants learn, primarily through their own active work.

Experimental work has confirmed the effectiveness of the workshop in the formation of conscious parenthood as a professional and value orientation of future specialists of social work, as its holding provided activity and sociality of participants, and dynamics of training. Dynamic learning, according to K. Fopel, involves relaxation of attention as the creation of positive emotions, trust in cooperation; immersion in complex experience, ie awareness of the task, which should be solved in interaction with others and choose own style of interaction; active assessment of one's own experience, reflection and self-assessment of one's own activity (Fopel, 2000).

For example, we give an approximate fragment of the workshop on "We are in the family", which aims to form positive practices of gender interaction (Vasylchenko, 2012). In particular, the following exercises are offered to relax attention and create a positive microclimate: "Impressions" in which members share their perceptions of each other according to gender and feelings they feel and "Break into the circle", which is mobile, because women, holding hands, stand in a circle, and men try to get into it (places can be changed). Under such circumstances, a sense of belonging to the group is formed, its cohesion increases.

Exercises "Three levels of trust" and "Trust walk" are offered for club members in order to immerse themselves in the complex experience. The first one allows you to feel the trust of boys and girls to each other; they are divided into two subgroups, from different genders. One-half of the participants stand in a circle, close their eyes and take each other's hands. Participants from the second subgroup are located behind them. The game offers three levels of trust: the first – those who are inside, fall outside, others keep them at a

certain distance. The second stage is similar, but no longer holding hands. The third level of trust – the participants in the inner circle with their eyes closed turn 180 degrees and fall face out. Participants in the outer circle can change places.

In order to make the club members aware of their feelings and deepen trust between them, the exercise "Trust Walk" is conducted, according to the rules of which its members are divided into pairs "man – woman", choosing the least familiar people as partners. One is chosen as a guide and the other is blindfolded. For some time (up to 5 minutes) the guide silently directs the partner so that he avoids obstacles and can touch an interesting object to the touch. At the end of the time the partners change places, there is an exchange of impressions.

Active evaluation of one's own experience is formed during the exercise "Living hands", which evokes in participants different feelings: from hostility (rivalry) to feelings of intimacy and sympathy. Blindfolded young people sit on the chairs one against one. Instructions from the group leader (speaks gently, but convincingly): "Direct your energy into your hands and "reach out" to your partner in front of you to get to know him through his hands. Remember, you should do this in silence. Then let your hands: "get acquainted"; "sympathize"; "dance"; "argue"; "put up with"; "say goodbye" etc." (Vasylchenko, 2012). Participants discuss the feelings that arose at different stages of the game.

The lesson ends with the exercise "Compliment", the purpose of which is to form in students the ability to see the positive qualities of another person of the opposite gender. They sit in a large circle. Everyone carefully examines the partner of the opposite gender, who is sitting on the left, identifying his most positive characteristics; voices them, that is, makes a compliment. Then in a circle, participants compliment the partner, who is sitting on the left. During the discussion, others listen carefully to the speaker. Everyone wants to evaluate his partner objectively, mentally comparing him to himself.

The suggested workshop allowed the participants to summarize the knowledge that have been gained at the lectures about responsibility, interaction, organization of partner interaction, styles of competition, cooperation in joint activities, trust between people; as well as to form their own attitudes to these concepts and acquire practical skills to be guided by them in life and in the course of planning, creating a future family and the birth and upbringing of children.

The given fragment convincingly proves that the workshop is an effective polylogical form of the organization of interaction and, especially, in the process of the investigated problem.

At the effective stage of formation of conscious parenthood as a professional and value orientation of future specialists of social work, a number of psychodiagnostic methods, observations, conversations were used, creative works were analyzed – the mini-works, etc. for the determination of the real state of its formation.

The results of experimental and research work on the formation of the value of conscious parenthood in future specialists of social worker.

Future specialists of social work, 67 people, were involved in participation in experimental methodology. The average age of the subjects was 20,4 years, the youngest respondent was 18, the oldest one was 34 years old. The research involved 48 women (including 39 – married) and 19 men (including 12 – married). Among all subjects: 44 people, who have children: 12 of them have 2 or more children; 32 of them have 1 child; 12 people are waiting for the birth of a child; 11 people have the birth of a child only in the plans.

A pedagogical experiment (ascertaining, forming and control stages) was conducted, qualitative and quantitative analysis of the results of which allowed determining the features of researched process and outline the main directions of its optimization, for the studying of the effectiveness of the proposed experimental method of forming conscious parenthood as a professional and value orientation of future specialists of social work.

The algorithm of the experiment was the same at all its stages: determination of criteria, indicators of the formation of the value of conscious parenthood as a component of professional and value orientations of future specialists of social work and methods of their diagnosis; research of levels of formation by manifestation (frequency, intensity, activity) of certain indicators (elementary, average and sufficient levels); analysis of the obtained results and their interpretation.

Based on the structure of the phenomenal phenomenon of the conscious parenthood, the criteria for studying the state of the formation of its value component are: emotional and need attitude to the child; parental attitudes, roles and their consistency with family values and personal values.

Methods for diagnosing indicators of certain criteria are presented in the table 1.

Table 1: Methods of diagnosing the state of formation of the value of conscious parenthood in future specialists of social work

Criteria	Indicators	Methods of diagnosing
Emotional and need	Attitude to motherhood; attitude to the future child; the need for children; emotional contact and attention to the child.	Questionnaire to study maternal attitudes (QMA); methodic of the PARI (parental attitude research instrument the PARI); «Work»; «Unfinished story»; the questionnaire «Attitude towards the future child»); methodic «Your need for children».
Role	Distribution of roles in the family; parents' attitude to various aspects of family life (to fulfilling the family role); consistency of role distribution with family values.	Methodic PARI (Study of parental attitudes (parental attitude research instrument PARI); methodic of determining the consistency of family values and role attitudes (expectations) in a married couple (ROP); associative experiment.
Value	Formation of values; hierarchy of values in the value sphere of personality.	Methodic "Value orientations"; diagnosis of the real structure of value orientations of the individual.

3. Results and Discussion

We present the results of the control stage of the pedagogical experiment in the article.

The method of MAQ (maternal attitude questionnaire) was used to identify the level of formation of attitudes towards motherhood as a holistic system of conscious positions of women (Volkova, 1990), which provides women with a choice of ten features that reflect current aspects of motherhood, which are respectively divided into three levels and characterize the modality, intensity and stability of the attitude. The respondents (48 people) were distributed as follows according to the number of points: 9-18 points (the elementary level) – 4 persons (8,3%); 19-35 points (the average level) – 32 persons (66,7%) and 36-45 points (the sufficient level) – 12 persons (25,0%).

Methodic PARI (parental attitude research instrument) made it possible to assess the specifics of family relationships, in particular in relation to the child (Karelin, 2007). We analyzed the responses of respondents to 15 signs that are divided into three groups

(expressing optimal emotional contact, excessive emotional distance with the child, excessive focusing on the child), which characterize the relationship between parents and children. The results of this methodology showed that the slightly higher average levels in the scales "Optimal emotional contact" and "Excessive focus on the child" are obvious (the average value is 60, while the maximum value is 79; the minimum value is 42 that indicates a high level of expression of this indicator. According to the second scale, the average value is 103 with a minimum of 55 and a maximum of 138 (the maximum value of this indicator according to the methodic is 180). Therefore, the obtained results indicate a lower level of manifestation of this indicator compared to the first. Analysis of the results of the research on the scale "Excessive emotional distance" is 31, and it shows the average value of this indicator.

Thus, in relation to parenthood, respondents have more pronounced indicators of conscious parenthood, such as optimal emotional contact and excessive concentration on the child.

Investigating the level of forming the value of conscious parenthood of future specialists of social work on the basis of emotional needs, respondents were asked to write works on the following topics: "I am like a father (mother)", "Portrait of my child", "My family" (Vasylchenko, 2012). The experts differentiated the written works on three levels according to the relevant features (the general emotional background of the text, the presence of positive / negative assessments of the child, the allocation of time plans in communication and interaction with the child): an elementary level is 8 (11,9%) respondents; an average level is 42 (62,7%); a sufficient level is 17 (25,4%).

With the help of projective modeling of the situation (the method of "Unfinished story") important components of the interaction between parents and children have been studied. Thus, concluding the story, the parents projected their attitude to the child (or to the future child). The stories featured typical problem situations in the family, where its members were forced to make choices. Similarly, as in the previous case, the experts diagnosed three levels of formation of value of conscious parenthood according to this criterion: an elementary level is 7 (10,4%) respondents; an average level is 45 (67,2%); a sufficient level is 15 (22,4%).

The ideas of a man and a woman about the desired distribution of roles between them in the process of implementation of family functions using the methodic of determining the consistency of family values and role attitudes (expectations) in a married couple (ROP) have been diagnosed according to the role criterion for the research of the level of formation of the value of conscious parenthood in future social workers (Karelin, 2007). Respondents were offered 36 questions-statements, which reflect the man's / woman's attitude of importance of external social activity (including professional, public) for the stability of marital and family relations; the attitude of the man / woman to the importance of the emotional and psychotherapeutic function of marriage; to the research of the role in raising children, etc. One of the seven scales is one that measures a man's / woman's attitude toward responsibilities of parents. The generalization of the respondents' answers to the questions-statements made it possible to determine the levels of forming the value of conscious parenthood according to the role criterion: 9 (13,4%) people have an elementary level; 51 (76,1%) people have an average level; 7 (10,5%) people have a sufficient level.

It was also appropriate to use the above-mentioned methodic PARI (parental attitude research instrument PARI) at this stage of the experimental work, which made it possible to assess the specifics of family relations, the peculiarities of the organization of family life in the context of the role distribution (Karelin, 2007). 8 of the 23 aspects-characteristics describe the attitude of a man / woman to the family role, including the upbringing of children. The analysis of the obtained results showed the average level of formation of the value of conscious parenthood according to this indicator – 53 (with a minimum of 32 and a maximum of 100).

The use of an associative experiment allowed to reveal the respondents' ideas about their role (sexual, gender, parental, professional, etc.) (Vasylchenko, 2012). In particular, club members were asked to write their associations with the following word: "woman", "mother", "husband" and "father". The analysis of the experts' results confirmed the average level of formation of the value of conscious parenthood in the researched group.

The final step was the determination of the level of formation of the value of conscious parenting in future specialists of social work according to the actual value criterion. The authors applied the diagnosis of the real structure of value orientations of the

individual for studying the implementation of value orientations of the individual in the real conditions of the livelihood (Halian, 2009). Club members were offered types of values: pleasant pastime, rest; high financial status; search and enjoyment of the beautiful; help and mercy to other people; love, family, birth and upbringing of children; cognition of the new in the world, nature, and human; high social status and people management; recognition and respect from people and influence on surrounding; social activity for the achievement of positive changes in society; communication; health. The severity of each of them was assessed on a 6-point scale. The set of values of love, family, birth and upbringing of children was chosen by 44 people (65,7%).

The express-diagnostics of social values of a person was hold for the research of social values of future specialists of social work, which made it possible to identify personal, professional, social, and psychological orientations. The analysis of the obtained results has shown that the majority of respondents (68,5%) are focused on professional and financial values, 72,4% of respondents were oriented on family values. Using the method of "Value orientation" of M. Rokych, it has been found that such values as creativity, activity, education, innovation in professional cases, are not significant for most respondents (Halian, 2009). At the same time, the value of family well-being is a priority for 78,8% of respondents.

Summarizing the obtained experimental data, we have determined the level of formation of the value of conscious parenthood of future specialists of social work after the realization of the experimental methodic and have investigated the dynamics of its changes (table 2 and figure 2).

The analysis of the table and diagram data showed a positive dynamics of sufficient and average levels of the formation of the value of conscious parenthood and a negative (decrease of value) dynamics of the elementary level. In addition, as a conclusion, the suggested experimental methodic became effective in optimizing the process of formation of the value of conscious fatherhood in future specialists of social work and its transformation into a professional and value orientation.

Table 2: Dynamics of the levels of formation of the value of conscious parenthood of future specialists of social work

Levels	Respondents					
	at the beginning of the experiment		*at the end of the experiment*		*dynamics*	
	Number	*%*	*Number*	*%*	*Number*	*%*
Elementary	6	8,9	14	20,9	+8	+12,0
Average	43	64,2	49	73,1	+6	+8,9
Sufficient	18	26,9	4	6,0	-14	-20,9

Fig. 2. Dynamics of the levels of formation of the value of conscious parenthood of future specialists of social work after the realization of the methodic.
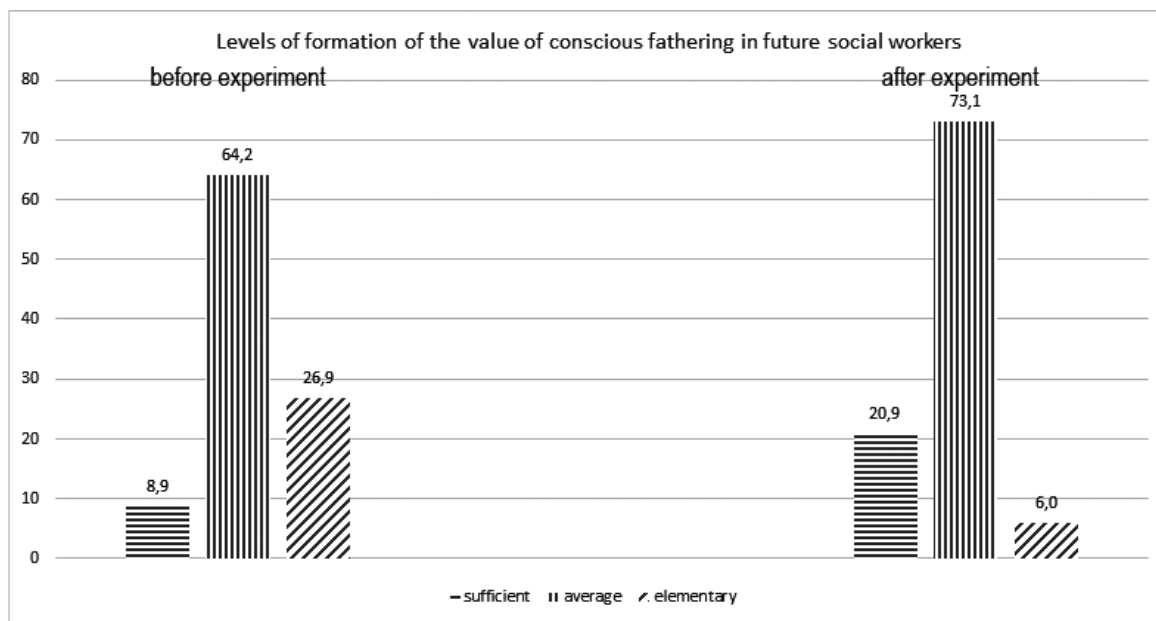
Considering the problem of training social work specialists to forming conscious parenthood as a value, it is important to consider the concepts of "consciousness", "conscious parenting" and "forming conscious parenting". Consciousness is a special characteristic of mental and intellectual actions of the individual, involves the ability of human consciousness to introspection of his own activity. A person can control only the process, which he is conscious; it is reflection that enables him to have an instrumental

attitude to the contents and processes of his individual psyche, and, as a consequence, to work out his own subjective position, which, in turn, ensures the development and constitution of the subject itself (Pavlova, 2012).

Today, in psychological and pedagogical science, along with the concept of conscious parenthood, responsible parenthood is widely used. Analysis of the views of scientists shows that if conscious parenthood is an integral quality of personality, which consists in conscious planning, creating future family life, birth of children, then responsible parenthood is the ability of an individual to take responsibility for the birth and upbringing of children (Smalko, 2016). Thus, conscious parenthood includes the responsibility of parents for the birth and upbringing of children. Conscious parenthood is impossible without parental responsibility, which is basically dual in nature – it is a responsibility to society and to oneself for the future upbringing of their own children.

The training of future specialists of social work for the formation of conscious parenthood in young people involves the formation of a system of competencies for the conscious creation of a future family, planning the birth and upbringing of future children. According to P. Anokhin, the formation of the subject's readiness presupposes a clear awareness of the goal set by him, to the achievement of which he later directs his activity on the basis of the previous creation of an appropriate personal plan of actions. Clarifying his point of view, the scientist has stated that the readiness indicates that a person has not yet begun the necessary action, and his brain is already programmed in physiological and psychological form (Anokhin, 1968). In our opinion, the future specialist of social work will effectively form conscious parenthood in clients, under terms of they are aware of themselves as future parents, the availability of knowledge about ideal parents, parental functions; recognition of fatherhood as a personal and professional value.

On the one hand, the specialist of social work understands parenthood as a process of interaction between parents and children and with each other on the basis of identifying a conscious attitude to the compliance with their parental responsibilities, introspection of their own motives, activities and behavior, perception of each family member as an unconditional value. On the other hand, conscious parenthood can be perceived as a holistic system that includes appropriate knowledge, skills, value organizations, parental attitudes, feelings, attitudes, positions, qualities, styles of family upbringing.

Therefore, forming conscious parenthood is seen as a purposeful, controlled and multifaceted process of influencing the consciousness, feelings, will of the future specialist of social work in order to transform subjectively personal values of fatherhood into a supra-individual whole, the educating of a set of stable properties and qualities that are necessary for future father / mother. However, the training of future specialists of social work to the formation of conscious parenthood as a unity of classroom and extracurricular work of higher education institution, which is aimed at forming a system of competencies of interaction with the client in order to develop a holistic structure of parenthood, understanding the connections between its structural components, the transition from the individual to the supra-individual level of this phenomenon. Then, readiness, as a result of professional training of future specialists of social work to conscious parenthood, is a stable personal formation, which is characterized both by its own conscious orientation on the birth of a child, a conscious choice to be a father (mother), a responsible attitude to the compliance with parental functions, the acquisition of the necessary knowledge and skills for care and education of a child, and by professional – on the educating of this value in clients.

Whereas value orientations define various aspects of professional activity on the basis of personal orientation and value significance; stimulate to the realization of both professional opportunities and to the realization of personal needs on self-development and self-realization, then it is important to create conditions for the transformation of the value system into a professional and value system of orientations in the training of future specialists of social work, which are a reference point of social and professional activity of the future specialist, a determinant of his life position (Fig. 1).

In the context of studying the problem it is a question of development of the maintenance, forms and methods of formation of value of conscious parenthood in future specialists of social work and its transformation into professional and value orientation which will provide formation of value of conscious parenthood in clients that is one of priority directions of social work.
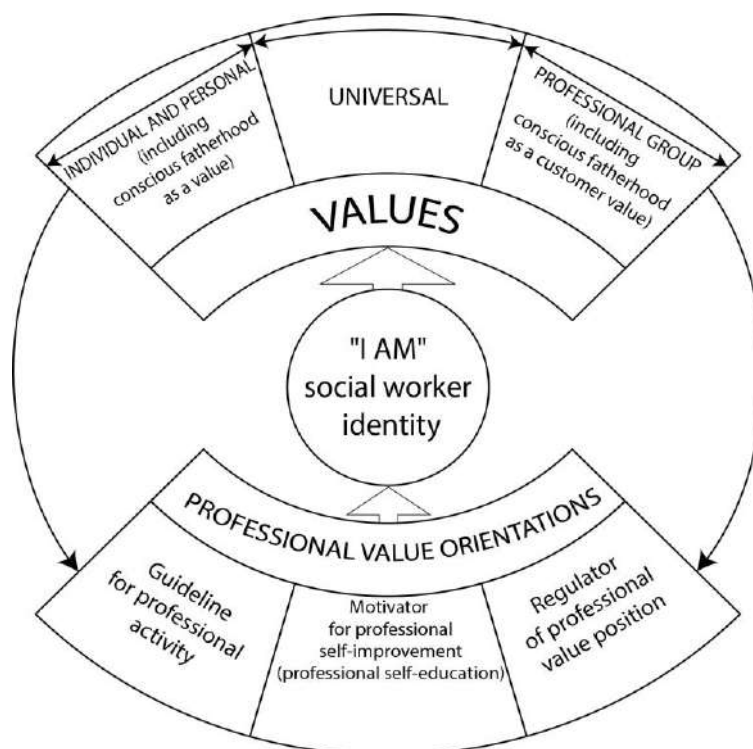
Fig. 1. Transformation of personal value of conscious parenthood into professional and value orientation of personality of specialist of social work

Conclusions

The suggested and tested author's methodic of forming the value of conscious parenthood of future specialists of social work contributed to the transformation of the existential value of conscious parenthood into professional and value orientation, thus actualizing the priority of the researched direction of their professional training. The methodic was based on the modification of the content of professional training through the activities of the club "Conscious parenthood", the use of innovative interactive methods of work, initiative, activity, creativity of club members. The effectiveness of the workshop as an innovative form of educational work with young people was proved.

It was established that the effectiveness of methodic of forming the value of conscious parenthood of future specialists of social work and its transformation into professional and value orientation for the successful formation of such value in clients depends on: the logic of building the educational process in a higher education institution and filling it with innovative content about conscious parenthood; the integration of innovative, interactive, information technologies into the organization of training and education; taking into account age, professional, personal characteristics of becoming a

specialist; unity of classroom and extracurricular forms of organization of the educational process.

References

Aksyonova S.Y., 2014. Advanced Maternal Age: the Case of Ukraine, 2014. Demography and social economy. № 2(22). P. 62–64. DOI: https://doi.org/10.15407/dse2014.02.057

Aleksandrova O.N., Bogoliubova O.N., Gulina M.A. (2002). Psychology of social work. Sankt-Petersburg. P. 352. ISBN 5-94723-339-8

Anokhin P.K. (1968). Biology and neurophysiology of the conditioned reflex. Medicine. P. 546.

Antoniuk V., Alendar N., Bartkiv O., Honcharuk O., Durmanenko O. (2021). Axiological Aspect of Professional Training of Future Pedagogues. REVISTA GEINTEC-GESTAO INOVACAO E TECNOLOGIAS. Vol. 11 No. 4. P. 2481-2492. DOI: https://doi.org/10.47059/revistageintec.v11i4.2296

Bartkiv O., Durmanenko Ye. (2016). Theoretical bases of transformation of values of future experts into value orientations. Scientific Bulletin of the Lesia Ukrainka East European National University. Pedagogical sciences. 2. P. 136.

Bern E. (1992). Transactional analysis and psychotherapy. Brotherhood. P. 224. ISBN 5-87918-009-3.

Chapman G., Campbell R. (2016). The 5 Love Languages of Children Paperback. Christian society "Bible for all". P. 272. ISBN: 978-0-8024-1285-0

Chernova Zh., Shpakovska L. (2010). Young Adults: Marriage, Partnership, Parenthood. Discursive prescriptions and practices in contemporary Russia. Laboratoruim. Journal of Social Research. № 3. P. 31. Available online. In: http://www.oecd.org/els/family/database.htm. Date of consultation: 01.10.2021.

Eidemiller E.G. (2007). Family diagnosis and family psychotherapy. Speech. P. 352. Available online. In: https://ipk74.ru/upload/iblock/ff2/ff2718462f48fd166ab750fb958831e8.pdf. Date of consultation: 01.10.2021.

Family database OECD. (2020). Available online. In: http://www.oecd.org/els/family/database.htm. Date of consultation: 03.10.2021.

Filippova G. (2005). Psychological readiness for motherhood. Perinatal Psychology textbook: Psychology of pregnancy, childbirth and the postpartum period. URAO. Available online. In: http://sodb.ru/node/921. Date of consultation: 30.09.2021.

Fopel K. (2000). How to teach children to cooperate? Psychological games and axercises. A practical guide. P. 157. ISBN 5-85297-011-5

Halian I. (2009). Psychodiagnostics. Tutorial. Akademvidav. P. 464. ISBN 978-617-572-022-6

International Child Development Program. (2012). Available online. In: https://www.girlsnotbrides.org/our-partnership/member-directory/international-child-development-program-icdp/. Date of consultation: 30.09.2021.

Karelin A. (2007). The large encyclopedia of psychological tests. ESKMO. P. 312. ISBN 978-5-699-13698-8

Myasishchev V. (1995). Psychology of relationships. Institute of practical psychology. MODEK. P. 356. ISBN 5-87224-084-8

Pavlova T.V. (2012). Psychological determinants of personality perceptions of parenthood. Dissertation of candidate of psychological sciences: 19.00.01. P. 21.

Schaefer Ye. (2012). Good behave, can not be capricious. Exmo. P. 384. ISBN 978-5-699-55438-6.

Smalko O.V. (2016). Formation of students of classical universities responsible attitude to parenthood in the process of extracurricular educational work. Dissertation of candidate of pedagogical sciences. P. 270.

Vasylchenko O. (2012). Diagnosis and correction of reproductive behavior of the individual. Educational and methodical publication. P. 96. ISBN 978-966-2421-10-1

Volkova A. (1990). Workshop on experimental and applied psychology. Available online. In: http://brunner.kgu.edu.ua/index.php/psy-metodiks/20/198-volkova. Date of consultation: 05.10.2021.

Creativity, change readiness and uncertainty tolerance in law enforcement officers

Liubov S. Protsyk*
Yuliia Y. Boiko-Buzyl**
Vyacheslav P. Kazmirenko***
Sofiia B. Vlasenko****
Olha V. Davydova*****

ABSTRACT

Change readiness is an important precondition for human activity and a component of the overall professional readiness. At the same time, an important component of a police officer's personality is his/her creativity, which allows him/her to make decisions successfully and effectively in the changing and uncertain conditions of law enforcement services. The research aimed at establishing the correlation between the resilience of law enforcement officers to perform duties in unforeseen circumstances and their ability to be creative in this activity. The paper empirically examines the level of manifestation and correlation of creativity, change readiness and uncertainty tolerance in law enforcement officers. The study involved a set of diagnostic techniques for assessing the level of creativity, change readiness and uncertainty tolerance. Quantitative and qualitative methods of data processing were used. Strong correlations between indicators of creativity, change readiness and uncertainty tolerance were found in law enforcement officers. The prospect of further research is to clarify the correlation between creative solutions to occupational situations, change readiness and resilience, as well as other personal characteristics of law enforcement officers. This will help to outline a more holistic portrait of law enforcement officers and make their training more effective.

KEYWORDS: mental stress; creativity; police; motivation; psychological tests.

*Candidate of Psychological Sciences, Researcher of Research Laboratory of Psychological Support, State Research Institute of the Ministry of Internal Affairs of Ukraine, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0002-5440-5826. E-mail: protsyk15@gmail.com

**Doctor of psychological sciences, Associate Professor of Research Laboratory of Psychological Support, State Research Institute of the Ministry of Internal Affairs of Ukraine, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0002-1715-4327. E-mail: yuliiabbz@gmail.com

*** Doctor of psychological sciences, Professor of Department of psychology of faculty of psychology of the Lviv State University of Internal Affairs, Lviv, Ukraine. ORCID: https://orcid.org/0000-0002-3357-8517. E-mail: li-kazmm1@ukr.net

**** Candidate of Psychological Sciences, Senior Lecturer of Department of Legal Psychology National Academy of Internal Affairs, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0002-3645-9599. E-mail: sofiia_vlas43@ukr.net

***** Candidate of Psychological Sciences , Associate Professor of Research Laboratory of Psychological Support, State Research Institute of the Ministry of Internal Affairs of Ukraine, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0002-1349-3997. E-mail: davydovaolga953@gmail.com

Creatividad, disposición al cambio y tolerancia a la incertidumbre en los agentes del orden

RESUMEN

La preparación para el cambio es una condición previa importante para la actividad humana y un componente de la preparación profesional general. Al mismo tiempo, un componente importante de la personalidad de un oficial de policía es su creatividad, que le permite tomar decisiones con éxito y eficacia en las condiciones cambiantes e inciertas de los servicios de aplicación de la ley. La investigación tuvo como objetivo establecer la correlación entre la resiliencia de los agentes del orden para desempeñar funciones en circunstancias imprevistas y su capacidad para ser creativos en esta actividad. El documento examina empíricamente el nivel de manifestación y correlación de la creatividad, la disposición al cambio y la tolerancia a la incertidumbre en los agentes del orden. El estudio involucró un conjunto de técnicas para diagnosticar el nivel de creatividad, la disposición al cambio y la tolerancia a la incertidumbre. Se utilizaron métodos cuantitativos y cualitativos de procesamiento de datos. Se encontraron fuertes correlaciones entre los indicadores de creatividad, disposición al cambio y tolerancia a la incertidumbre en los agentes del orden. La perspectiva de una mayor investigación es aclarar la correlación entre las soluciones creativas para situaciones ocupacionales, la preparación para el cambio y la capacidad de recuperación, así como otras características personales de los agentes del orden. Esto ayudará a esbozar un retrato más holístico de los agentes del orden y hará que su formación sea más eficaz.

PALABRAS CLAVE: estrés mental; creatividad; policía; motivación; pruebas psicológicas.

Introduction

Modern life is accompanied by a number of negative factors, including instability, high (sometimes very fast) rate of social change in various spheres of public life, a sharp increase in the number of uncertain social situations (Basinska and Daderman, 2019). Uncertainty often manifests itself in a wide range of situations: it is both everyday life, interpersonal communication and intergroup interaction in making decisions or solving problems in educational and professional activities. In particular, police officers routinely find themselves in difficult professional environments, which is why they must have developed certain psychological qualities, where uncertainty tolerance is one of the most important (Duxbury et al., 2015; Fosse, 2019).

In particular, Barko and Ostapovych (2017) believe that work in law enforcement agencies has a number of features that determine its specifics, namely:

1) ambiguous and uncertain conditions of activity (which is a prerequisite for the uncertainty tolerance development);

2) changing and unpredictable developments;

3) strict working conditions (for example, strictly limited time);

4) a large number of different tasks;

5) a significant level of psychological stress in the performance of official duties,

6) significant influence of individual qualities of the employee on the quality of work performed;

7) a significant number of uncontrolled factors affecting the activities of law enforcement officers.

The aim of this paper is to investigate the possible correlation between the creativity of law enforcement officers and their resilience to unstable working conditions, as well as readiness to act under those conditions. The research objectives were the following: 1) find out the level of creativity and its components in law enforcement officers; 2) study the uncertainty tolerance and change readiness in a certain group of respondents; 3) establish possible correlations between these indicators.

1. Literature review

Kravchenko and Yuzvak (2015) point out that the most important value (especially for police officers) in today's difficult conditions is the ability to quickly navigate the situation of choice, to do it right under the conditions of uncertainty and ambiguity.

As Kleinig (1996) emphasizes, the ethics of policing should be focused on cultivating the ethical side of professionalism, that is the ability to act in a situation of uncertainty and urgency only on the basis of law and a system of moral guidelines.

Uncertainty can be a factor of stress, frustration, tension in the professional activities of a law enforcement officer, and can lead to occupational health disorders. It is obvious that tolerance to uncertainty and stress, as well as the ability to overcome them, are probably the most important psychological factors in ensuring the reliability, efficiency and success of law

enforcement officers in their professional activities (McCreary et al., 2017; Page and Jacobs, 2011).

Many scholars focused on the analysis of the concept of "uncertainty tolerance". Psychologists study this concept using different conceptual approaches. The first approach was used in the works of Frenkel-Brunswick in 1948 and in 1949 in the study of authoritarian personality (Page and Jacobs, 2011). The second approach to the analysis of uncertainty tolerance is used in the personality trait theory in the concept of perception, which was proposed by Badner in 1962 (Barko and Ostapovych, 2017). The third approach treats uncertainty tolerance through models of rational decision-making and is based on the concept of "probability" (Kornilova, 2010).

Khilko (2016) believes that uncertainty tolerance is a complex concept that combines the concepts of tolerance and uncertainty, and contains a number of aspects: the ability to approve and reflect on the problem, even if all the facts and possible consequences are unknown; socio-psychological attitude with affective, cognitive and behavioural components; ability to work under the lack of information or its duality (that is to work creatively).

Bilopolyi and Lazarenko (2020) indicate that a psychological readiness for personal change is among the psychological phenomena that help a person to function successfully in today's unpredictable space.

As we can see, scholars describe the concept of "uncertainty tolerance" using different approaches. This allows concluding that the phenomenon of uncertainty tolerance is a complex concept; it is necessary to use various theoretical constructs for its analysis, in particular "cognitive style", "individual type", "personality trait", "risk-taking process", "belief system". We believe that the functioning of law enforcement agencies and their effectiveness should be based on:

- high-quality performance of duties to maintain public order and counteract crime;

- improving internal personnel management;

- understanding and taking into account the factors that affect the activities of the police in general, awareness of the importance of professional and personal growth of employees.

Given the complexity and ambiguity of interpretation of the concept of tolerance by different authors, in psychology this concept is considered in the context of different areas of research. If we try to generalize different psychological approaches, we can conclude that tolerance is embedded in three areas of the human psyche: cognitive, emotional and behavioural.

In the cognitive sphere, tolerance is responsible for a person's knowledge of the national, religious, gender specifics of native and other cultures, as well as for understanding the behavioural and communicative characteristics of different people as representatives of different cultures (Norton, 2002).

In the emotional sphere, tolerance becomes a kind of sensory response to the diversity of the world, which is expressed in empathic attitude towards people, in the desire to help everyone regardless of their status, national and other characteristics (Li, 2006).

The behavioural sphere of the human psyche is integral because it combines knowledge about the diversity of the world and attitudes toward this diversity. The behavioural component is responsible for achieving cooperation and, in essence, means a compromise solution to any problematic issues, achieving mutual assistance and mutual support (Sánchez-Teruel and Robles-Bello, 2014).

Along with uncertainty tolerance and change readiness, an important personal component of law enforcement officers is their creativity and ability to find new solutions in different situations. In the psychological concept of professionalism, Markova interprets creativity as a component of personal competence necessary for making up a superprofessional of personality (Timchenko and Samokhvalov, 2014).

Both domestic and foreign scholars have worked on the problem of creativity in psychology in different years: Guilford introduced the concept of "social intelligence", interpreting it as abilities independent from general intelligence, which are primarily related to behavioural cognition. In their research, the scholars substantiated the importance of using nonverbal materials in the study of social intelligence (Barbot et al., 2019).

The researcher interpreted creativity as a person's ability to abandon standard ways of thinking. In particular, Guilford identified six parameters of creativity:

1) the ability to identify and state problems;

2) the ability to generate a large number of non-standard ideas;

3) flexibility — as the ability not only to generate a variety of ideas, but also to transform them;

4) originality, that is the ability to respond to non-standard stimuli;

5) the ability to improve the object, filling it with new details;

6) the ability to solve unexpected problems of various kinds in a non-standard way, that is the ability to analyse and synthesise.

Guilford developed a factor theory of intelligence and thus proved that creative behaviour is, in fact, a certain sequence of human actions, namely: design, planning, invention (Derevianko, 2013). In his research, Maslow found that creativity as a constant quality of life is typical for all individuals, which are characterized by self-actualization. That is why such people can perceive everything in a new way — it is a natural way of behaviour for them (Pavlenko, 2016). In order to understand the specifics of creativity, Taylor proposed in his research to analyse the properties of the creative product in order to understand how a person can apply the experience and how it will impact human behaviour. Torrens also spent a long time researching creative thinking. In particular, the scholar collected different definitions of "creativity", defined the metaphorical essence of the creative process, analysed intellectual abilities and their impact on human social adaptation in society, regulation of behavioural activity, etc. (Antonova, 2011; Glăveanu, 2014).

Cognitive and multifactorial approaches to the study of creativity have become especially relevant abroad. In particular, Barron (2009) in scientific research tries to reveal the essence of human creativity by creating information systems of the idea of artificial intelligence, which would help to form the creative potential of the individual.

Western scholars use a cognitive multifactorial approach, where "creativity" is primarily the ability of an individual to create a new "creative product", this ability helps a person to adapt to new conditions in a rapidly changing environment (Chiu et al., 2019; Karwowski and Kaufman, 2017).

Despite the importance of creativity and creative abilities, these issues are insufficiently addressed and poorly covered in scientific research. In this regard, Pavlenko (2016), as a recognized researcher of this issue, notes that the fundamental spontaneity of the creative process makes it almost elusive for processing by scientific methods. This spontaneity is manifested in the inability to predict the moment of enlightenment and creative decision, and

in the uncertainty (surprises) of the subject of creativity, creative idea, which may arise out of connection with the purpose of a particular cognitive activity. Some scholars have also begun to consider creativity as the ability to create new ideas, as well as link it with the creative achievements of the individual (Shchadrykov, 2010).

Thus, we can conclude that readiness for change, uncertainty tolerance and creativity are important characteristics of the personality of a law enforcement officer. Based on the study of creativity of Szmidt (2010) and his interpretation of creativity in line with openness and tolerance for ambiguity, lack of fear of the unknown, Shchadrykov (2010), who considers creativity from the standpoint of problem situations, defines it as the ability to solve many problems in constantly changing circumstances; and Khilko (2016), who views tolerance for uncertainty as the ability to work in the absence of information or its duality (that is in a creative way), we assume that indicators of change readiness, uncertainty tolerance and creativity will be related in law enforcement officers. This theoretical assumption became the basis for further empirical research.

2. Methods

The study of creativity, change readiness and uncertainty tolerance of law enforcement officers was carried out in several stages. Empirical material was collected at the first, diagnostic stage. Because of a pandemic and in order to facilitate further processing of the results, it was decided to use a remote survey method. The study involved 240 law enforcement officers of the Ukraine National Police aged 25-45. Length of service of the subjects — from several months to 10 years, women made up 30% of the group. The following techniques were used:

1) Badner's Uncertainty Tolerance Questionnaire (BUT), which was adapted for the National Police of Ukraine. In addition to the general scale of uncertainty tolerance, it contains subscales that allow determining the main factor of this tolerance — the novelty, complexity or unsolvability of the problem.

2) Questionnaire "Personal change readiness", which includes 6 scales that characterize the various components of the concept of "change readiness". Passion — indefatigability and energy; ingenuity — the ability to find new solutions to situations; optimism — belief in the best development of events, focusing on it, and not on the worst option; courage — the desire for new solutions and information; adaptability — the ability to adapt to new conditions of

the situation, to change their activities in accordance with the requirements; confidence — faith in oneself and one's own strength.

3) Diagnosis of personal creativity. Contains a general scale "creativity" and sub-scales "risk-taking", "curiosity", "complexity", "imagination". Risk-taking is manifested in the fact that the subject: will defend his/her ideas not paying attention to the reaction of others; sets high goals and will try to achieve them. Curiosity is expressed in the constant desire to obtain new information and ways to resolve situations. Complexity — focus on knowledge of complex phenomena. The "imagination" subscale reflects the level of development of the subject's imagination.

Johnson's Creativity Questionnaire allows estimating the general level of creativity of the respondents.

The second stage of the study involved processing of the questionnaires, as well as the use of quantitative and qualitative methods of data processing. Spearman's Rank correlation coefficient was chosen among the statistical methods of data processing, which allows identifying correlations between two independent traits in the same group of respondents.

The last stage was to consider the results and prospects for further research.

3. Results

It is established that law enforcement officers have a personal quality, which involves the desire for change and readiness to seek new solutions and overcome difficult situations. A high level of uncertainty tolerance was found in 65% of subjects. Instead, only 15% of surveyed law enforcement officers are not ready for changing working conditions, they seek clarity of the environment and the proposed solutions. Another 30% of respondents show an average level of uncertainty tolerance.

If we talk about the sources of uncertainty, the greatest tolerance of law enforcement officers is manifested to the novelty of the situation. There were 70% of respondents having a strong perception of changing working conditions and consider them an integral part of their work. 55% of respondents show an average level of tolerance for the complexity of the proposed situation, and the unsolvability of situations for 47.5% is partly a factor that can cause difficulties in work (average level of uncertainty tolerance).

The overall level of change readiness in 67.5% of respondents is high. More than half of law enforcement officers show a high level of self-control in situations with incomplete

information or in changing working conditions; they are calm about the lack of "ready" solutions and the need to adapt to changes (Figure 1).

Figure 1. Distribution of the indicators of uncertainty tolerance and change readiness of law enforcement officers

Passion, which is interpreted as energy and increased vitality, is manifested at an average level in 42.5% of respondents. It should be noted that a reduced level of indefatigability was found in 35% of respondents, which may be a sign of physical and/or psychological fatigue from the work performed.

There were 25% of respondents having a high level of skills development, such as finding ways out of difficult situations and choosing new solutions to problems. In 45% of the surveyed the development of these qualities is at an average level; 35% of law enforcement officers are characterized by a low level of optimism. They tend to imagine worse scenarios than they might be, they may be stuck on the problem itself rather than looking for a way to solve it; may not believe too much in the success of the case and be pessimistic about their activities. Instead, 17.5% of the respondents have high level of indicators for this quality.

Courage as a tendency to the unknown and a tendency to abandon the usual patterns is manifested in 57.5% of respondents. They prefer to look for new solutions in unusual situations and experiment in their search. A high level of this indicator was recorded in 12.5% of law enforcement officers.

A significant part of law enforcement officers (32.5%) has a well-developed ability to quickly get used to new conditions, restructure their activities in accordance with this change, as well as to abandon their decisions if they do not meet these new conditions. Adaptability is poorly developed only in 10% of the respondents, and this quality is moderately developed in 57.5%. Self-confidence, belief in their abilities, as well as their adequate and reasonable use is typical of 47.5% of subjects. Only 15% of respondents have a low level of confidence in their own actions, and the average level of manifestation of this quality was found in 37.5% of surveyed law enforcement officers.

Diagnosis of the level of creativity of law enforcement officers allowed obtaining the following results. According to the questionnaire for the diagnosis of personal creativity, it was found that a high level of creativity is inherent in 52.5% of respondents, which is a very significant indicator. Only 12.5% of respondents have a low level of imagination, risk-taking in certain situations and strive to navigate complex problems.

It is interesting that risk-taking was found in 67.5% of subjects. More than half of the surveyed law enforcement officers tend to defend their ideas, not to be influenced by other people's opinions, and set high goals. They strive to implement their plans, while consciously treating their mistakes and accepting them (Figure 2).
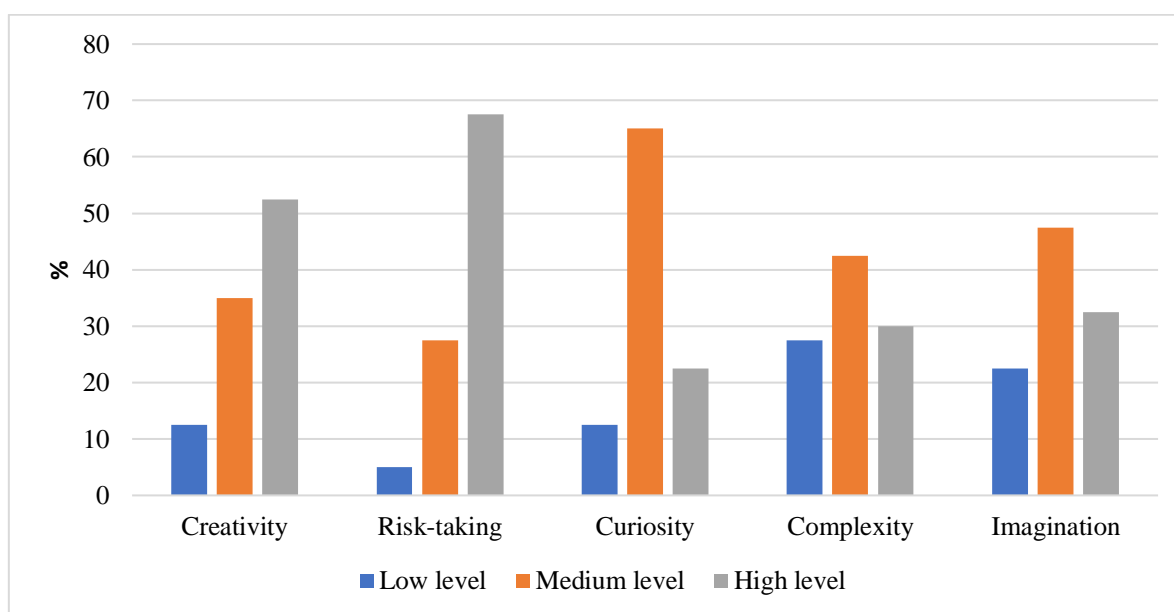
Figure 2. Distribution of indicators of creativity in law enforcement officers*

*According to the questionnaire "Diagnosis of Personal Creativity"

Instead, the curiosity of law enforcement officers is less developed. Only 22.5% of respondents have a high level of interest in the world, inclination to seek new solutions and explore the surrounding reality. The majority of respondents (65%) have an average level of this quality.

Learning complex objects, solving atypical problems and perseverance in the implementation of their own activities are typical for 30% of respondents, the vast majority of respondents (42.5%) have an average level of manifestation of this quality.

Instead, imagination, as a tendency to invent original stories, thinking about new phenomena and objects, atypical perception of objects of the surrounding reality are not very typical of law enforcement officers, as 47.5% have a low level of results on this scale, which is somewhat contradictory to other indicators of creativity.

According to the Johnson's Creativity Questionnaire, there are 5 levels of creativity — very low, low, normal/medium, high and very high (Figure 3).
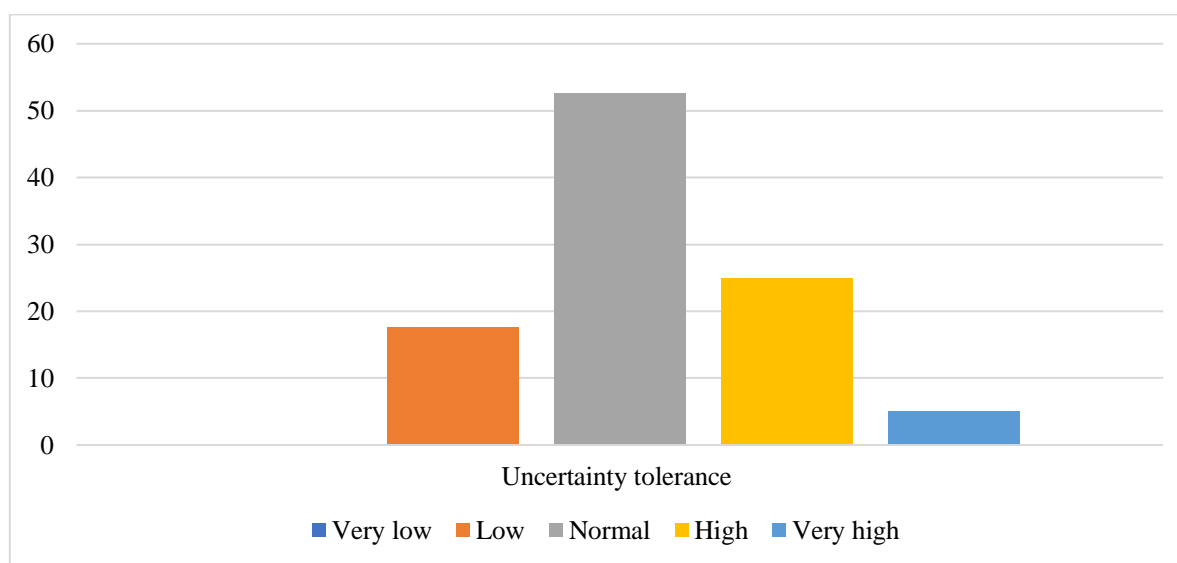
Figure 3. Distribution of creativity indicators of law enforcement officers*

*According to the Johnson's Creativity Questionnaire adapted by Ye.Ye. Tunik

It was found that the average level of creativity is inherent in 52.5% of respondents. Very low rates were not recorded in any of the respondents, low rates — in 17.5% of respondents, high — in 25% of respondents, and very high — in 5% of respondents. As we can see from the results, law enforcement officers have a medium level of propensity to seek new solutions and atypical approaches to resolving the situation. The subgroup with high

creativity rates outnumbers people with a low level of creativity, which gives grounds to conclude about the medium-high level of creativity of law enforcement officers.

Spearman's Rank correlation coefficient was used to establish relationships between uncertainty tolerance, change readiness and creativity in law enforcement officers. The use of correlation analysis revealed that the level of creativity (diagnosis of personal creativity and Johnson's creativity questionnaire) of law enforcement officers directly correlates with the level of general change tolerance (r=0.456, p≤0.001 and r=0.531, p≤0.001). The more respondents tend to be creative in finding new solutions, new visions and approaches to their activities, the higher their level of self-control in situations with incomplete information or in changing working conditions; they are more relaxed about the lack of "ready" solutions and the need to adapt to change. Accordingly, the calmer law enforcement officers are about changing working conditions, the more creatively and broadly they begin to look at ways to resolve these situations.

The creativity scale (according to the Johnson questionnaire) directly correlates at a significant level with the component of uncertainty tolerance — "Novelty" (r=0.351, p≤0.001). As already mentioned, 70% of law enforcement officers have a high level on this subscale, and further increase or decrease of this indicator will have a corresponding effect on the level of creativity of respondents.

The analysis of the correlation between the creativity level and the components of change readiness revealed positive correlations between personal creativity level (Personal Creativity Questionnaire) and the levels of ingenuity (r=0.513, p≤0.001) and courage (r=0.486, p≤0.001). Similar significant correlations were found between the scales of "Ingenuity", "Courage" and the overall creativity level (Johnson's Questionnaire) (r=0.392, p≤0.001 and r=0.506, p≤0.001, respectively). This allows concluding that the personal change readiness and creativity of law enforcement officers are closely linked because of openness to new experiences, abandonment of proven ways out of the situation, and the ability to find a way out of difficult situations.

It was also found that general change tolerance directly correlates with the adaptability of law enforcement officers (component of personal uncertainty readiness) (r=0.417, p≤0.001). The higher the subjects' readiness for changes and finding new solutions and overcoming difficult situations, the more developed ability to quickly get used to new conditions,

restructure their activities in accordance with this change, as well as abandon their decisions if they do not meet these new conditions they have.

4. Discussion

Researchers note that in today's difficult conditions, the professional activities of law enforcement officers are complicated by a number of external factors, including: extreme conditions associated with special risk; high nervous and mental tension caused by various stressors; numerous situations characterized by uncertainty (DeRoma et al., 2003; Maddi, 2005). Therefore, uncertainty and change tolerance is an important feature of a law enforcement officer, which contributes to the resilience of his/her personality to stressful and changing working conditions.

The results show that law enforcement officers have a high level of desire for change, as wel las a willingness to seek new solutions and overcome difficult situations. The greatest tolerance of law enforcement officers is manifested to the novelty of the situation. Tolerance for the complexity of the proposed situation and the unsolvability of this situation is moderate.

Most law enforcement officers demonstrate a high level of self-control in situations with incomplete information or in changing working conditions; they are calm about the lack of "ready" solutions and the need to adapt to changes.
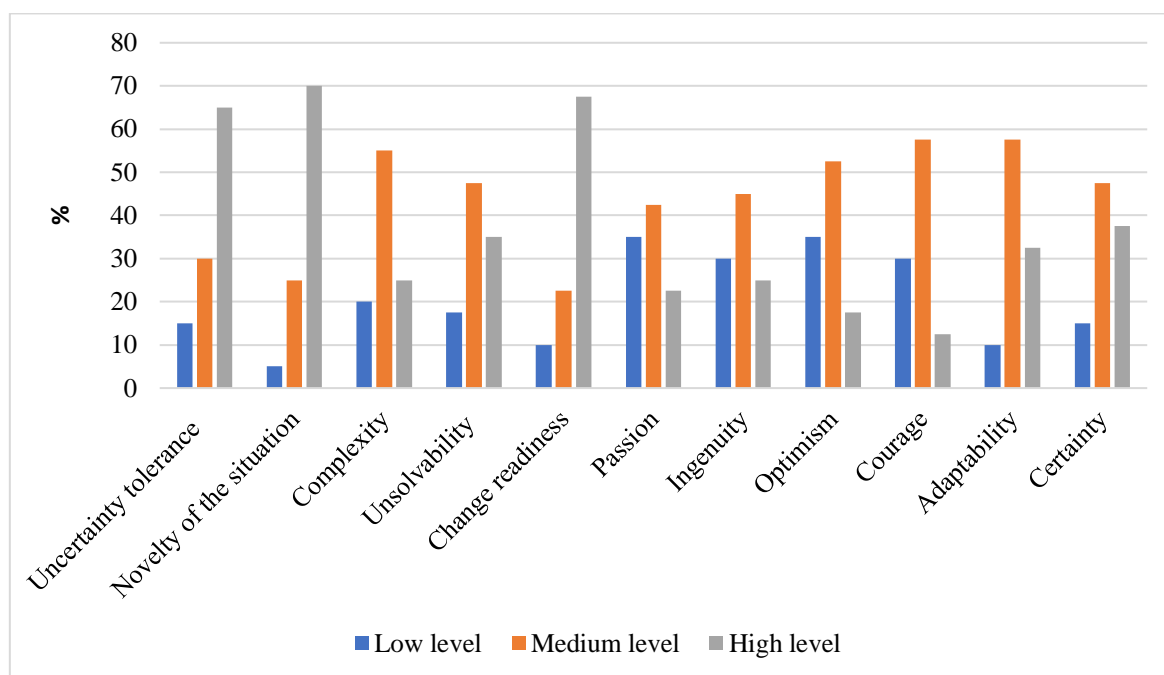
Law enforcement officers also have average indicators of energy and vitality; finding ways out of difficult situations and choosing new solutions to problems, optimism; the desire for the unknown and the tendency to abandon the usual patterns; the ability to quickly get used to new conditions, to restructure their activities in accordance with this change, as well as to abandon their decisions if they do not meet these new conditions. Law enforcement officers have a high level of self-confidence, belief in their abilities, as well as their adequate and reasonable use.

More than half of the surveyed law enforcement officers tend to defend their ideas, not being influenced by other people's opinions, and set high goals. They strive to realize their plans, but at the same time they are aware of their mistakes and accept them. On the other hand, the curiosity of law enforcement officers is less developed, with the majority of respondents having a medium level of this quality.

The vast majority of law enforcement officers have an average level of knowledge of complex objects, solving atypical problems and perseverance in carrying out their own activities.

Instead, the imagination, as the tendency to invent original stories, thinking about new phenomena and objects, atypical perception of the objects of the surrounding reality are not very typical of law enforcement officers, as it is manifested at a low level. Researchers note that the creativity of the individual is inextricably linked with creative activity, it generates something qualitatively new (for the creator, for the group or for society as a whole). Scholars also interpret creativity as the ability to accomplish or in any way create something new: creativity offers a new solution to a problem, a new method of work or tool for its implementation, a new work of art, etc. (Derevianko, 2013; Preiss, 2019).

It is empirically established that the level of creativity development in law enforcement officers is medium tending to high results.

The modern world is changing rapidly and requires all people to respond quickly to new conditions and circumstances, as well as to adapt quickly to modern reality in general. It is creativity that helps a person to solve problems that arise, adapt to new changing living conditions and organize his/her activities under the conditions of uncertainty. However, as we can see from the research of other scholars, there is almost no focus on the connection between creativity and the individual's ability to effectively carry out his/her activities in constantly changing working conditions. As already mentioned, the ability to creatively solve problems is an important personality trait of law enforcement officers, while harsh working conditions and a significant number of uncontrollable factors that affect the activities are also an integral feature of their work. Therefore, the novelty of this study is identifying correlations between indicators of the ability to deal with non-standard situations, the acceptance of uncertainty and resilience to new conditions in law enforcement officers.

The application of correlation analysis allowed determining the correlation between indicators of creativity, change readiness and uncertainty tolerance in law enforcement officers. It is established that the level of creativity of law enforcement officers directly correlates with the level of general change tolerance and with the component of uncertainty tolerance —"Novelty". Positive correlations were found between the personal creativity level and the levels of ingenuity and courage (components of change readiness).

It was also found that general change tolerance is directly related to the adaptability of law enforcement officers (a component of personal readiness for uncertainty).

Conclusion

Uncertainty tolerance, change readiness and creativity are important components of the personal competence of a law enforcement officers, which is necessary for their making up as a professional. These qualities presuppose the ability to creatively consider the initial data, generate ideas that go beyond standards and traditional schemes of thinking, promptly solve problematic law enforcement situations. Empirical research has revealed numerous correlations between indicators of uncertainty tolerance, psychological readiness for changing working conditions and the ability to creatively solve problems set for law enforcement officers. However, the study does not provide a comprehensive understanding of all possible relationships between these traits and the personal characteristics of law enforcement officers. We see the prospect of further research in further scientific analysis in the chosen direction and a deeper study of the correlation between uncertainty tolerance, change readiness, creativity and personal qualities of law enforcement officers. This will allow not only to create a more complete professional portrait of the law enforcement officer, but will also facilitate the development of professional growth programs and individual psychological assistance for law enforcement officers.

References

Antonova, O. Ye. (2011). The essence of the concept of creativity: problems and searches. In O. A. Dubaseniyk (Ed.), *Theoretical and applied aspects of the development of creative education in higher education* (pp. 14-41). Zhytomyr: Vydavnytstvo im. I. Franka.

Barbot, B., Hass, R. W., & Reiter-Palmon, R. (2019). Creativity assessment in psychological research: (Re)setting the standards. *Psychology of Aesthetics, Creativity, and the Arts, 13*(2), 233-240. https://doi.org/10.1037/aca0000233

Barko, V. I., & Ostapovych, V. P. (2017). Psychological features of management in divisions of the National Police of Ukraine. *Black Sea Psychological Studies, 2,* 58-63.

Barron, F. (2009). *Creative person and creative process*. Holt: Rhinehart & Winston.

Basinska, B. A., & Daderman, A. M. (2019). Work Values of Police Officers and Their Relationship with Job Burnout and Work Engagement. *Frontiers in Psychology, 10*(442), 2-13. https://doi.org/10.3389/fpsyg.2019.00442

Bilopolyi, V. V., & Lazarenko, V. I. (2020). Psychological readiness for personal changes and tolerance for the uncertainty of the modern world of students of construction ZVO (DVNZ PDABA). *Bulletin of Prydniprovs'ka state academy of civil engineering and architecture, 2*, 263-264.

Chiu, W.-C., Lun, V. M., & Bond, M. H. (2018). Engaging in creative work: The influences of personal value, autonomy at work, and national socialization for self-directedness in 50 nations. *Journal of Cross-Cultural Psychology, 49*, 239-260. https://doi.org/10.1177/0022022116651336

Derevianko, T. M. (2013). Theoretical and applied bases of psychological training of development of creative thinking of criminal analysts. *Problems of extreme and crisis psychology, 14*(I), 108-116.

DeRoma, V. M., Martin, K. M., & Kessler, M. L. (2003). The relationship between tolerance for ambiguity and need for course structure. *Journal of Instructional Psychology, 30*(2), 104-109.

Duxbury, L., Higgins, C., & Halinski, M. (2015). Identifying the antecedents of work-role overload in police organizations. *Criminal Justice and Behaviour, 42*(4), 361-381. https://doi.org/10.1177/0093854814551017

Fosse, I. (2019). *Readiness for change in the Norwegian police* [Master's thesis at the Department of Psychology]. Oslo: University of Oslo.

Glăveanu, V. (2014). The psychology of creativity: A critical reading. *Creativity Theories – Research – Applications, 1*, 10-29. https://doi.org/10.15290/ctra.2014.01.01.02

Karwowski, M., & Kaufman, J. C. (2017). *The creative self: Effect of beliefs, self-efficacy, mindset, and identity*. Cambrige: Academic Press.

Khilko, S. O. (2016). Methods of research of features of formation of tolerance to uncertainty at future psychologists. *Bulletin of postgraduate education, 2*(31), 138-151.

Kleinig, J. (1996). *The ethics of policing*. Cambridge: Cambridge University Press.

Kornilova, T. V. (2010). *The principle of uncertainty: the unity of the intellectual and personal potential of a person*. Moscow: Smysl.

Kravchenko, O. H., & Yuzvak, S. A. (2015). Features of the implementation of the value-based approach in training police officers. *Society and law, 2*(52). 330-333.

Li, E. L. (2006). Gender differences on tolerance of ambiguity. *Journal of Sanmenxia Polytechnic (Comprehensive Edition), 5*(3), 65-67.

Maddi, S. R. (2005). On hardiness and other pathways to resilience. *American Psychologist, 60*(3), 261-262. https://doi.org/10.1037/0003-066X.60.3.261.

McCreary, D. R., Fong, I., & Groll, D. L. (2017). Measuring policing stress meaningfully: Establishing norms and cut-off values for the operational and organizational police stress

questionnaires. *Police Practice and Research*, *18*, 612-623. https://doi.org/10.1080/15614263.2017.1363965

Norton, R. W. (2002). Measurement of ambiguity tolerance. *Journal of Personality Assessment*, *39*(6), 607-619. https://doi.org/10.1207/s15327752jpa3906_11

Page, K. S., & Jacobs, S. C. (2011). Surviving the shift: Rural police stress and counselling services. *Psychological Services*, *8*(1), 12-22. https://doi.org/10.1037/a0021796

Pavlenko, V. V. (2016). Creativity: the essential characteristics of the concept. *Creative Pedagogy*, *11*, 120-131.

Preiss, D. (2019). Recent advances in the psychology of creativity. *Studies in Psychology*, *40*, 491-496. https://doi.org/10.1080/02109395.2019.1679456

Sánchez-Teruel, D., & Robles-Bello, A. M. (2014). Personality and resilience in a special corps of the National Police in Spain. *Revista de Psicologia del Trabajo y de las Organizaciones*, *30*(2), 75-81. https://doi.org/10.1016/j.rpto.2014.06.003

Shchadrykov, V. D. (2010). *Professional ability*. Moscow: Progress.

Szmidt, K. J. (2010). *ABS creativities*. Warszawa: Difin.

Timchenko, O. V., & Samokhvalov, O. B. (2014). Creativity as an invariant of law enforcement officers. *Bulletin of the National Academy of the State Border Guard Service of Ukraine. Series: Psychology*, *4*, 165-172.

The problem of forming the foundations of the professional activity of a preschool teacher at a university

Valentina N. Belkina*
Yulia A. Moiseeva**
Evgeniya V. Safarova***

ABSTRACT

The article is dedicated to the problem of the interdependence of the formation of competences between students and components of professional activity. The basic concepts of professional activity are analyzed in the psychological and pedagogical literature, its structure conformed by prognostic, design, constructive, organizational, communicative and reflective components is presented. The professional activity of a preschool teacher is analyzed in greater detail, which has specificities in terms of goal setting, motivation, from the point of view of implementation methods and technologies. An empirical study of the formation of the foundations of the professional activity of a preschool teacher was carried out according to the characteristics of a natural experiment. The content stages of the quasi-professional activity of the students are revealed (modeling of pedagogical situations, pedagogical tests of different levels of student independence). In the processing of analyzing the process of training pedagogical competencies, developing components of the structure of the professional activity of a teacher are simultaneously identified.

KEYWORDS: competence approach; pedagogical activity; quasi-professional activity; productive activity, visual activity.

*Professor Head of the Department of Preschool Pedagogy and Psychology Yaroslavl State Pedagogical University named after K.D. Ushinsky, Russia. ORCID: https://orcid.org/0000-0003-1903-7500. E-mail: belkinavn@yandex.ru

**Senior Lecturer at the Department of Preschool Pedagogy and Psychology Yaroslavl State Pedagogical University named after K.D. Ushinsky, Russia. ORCID: https://orcid.org/0000-0003-1481-2280. E-mail: yuliamoiseeva86@gmail.com

***Yaroslavl Assistant at the Department of Preschool Pedagogy and Psychology Yaroslavl State Pedagogical University named after K.D. Ushinsky, Russia. ORCID: https://orcid.org/0000-0001-7347-3755. E-mail: eva.safarova.1992@mail.ru

El problema de sentar las bases de la actividad profesional de un docente de preescolar en una universidad

RESUMEN

El artículo está dedicado al problema de la interdependencia de la formación de competencias entre estudiantes y componentes de la actividad profesional. Se analizan los conceptos básicos de la actividad profesional en la literatura psicológica y pedagógica, se presenta su estructura conformada por componentes pronósticos, de diseño, constructivos, organizacionales, comunicativos y reflexivos. Se analiza con mayor detalle la actividad profesional de un docente de educación preescolar, que tiene especificidades en cuanto al establecimiento de metas, la motivación, desde el punto de vista de los métodos y tecnologías de implementación. Se realizó un estudio empírico de la formación de los fundamentos de la actividad profesional de un maestro de preescolar de acuerdo con las características de un experimento natural. Se revelan las etapas de contenido de la actividad cuasiprofesional de los estudiantes (modelado de situaciones pedagógicas, pruebas pedagógicas de diferentes niveles de independencia de los estudiantes). En el análisis del proceso de formación de competencias pedagógicas, se identifican simultáneamente componentes en el desarrollo de la estructura de la actividad profesional de un docente.

PALABRAS CLAVE: enfoque por competencias; actividad pedagógica; actividad cuasiprofesional; actividad productiva, actividad visual.

Introduction

Modern professional education is based on several methodological approaches, the leading of which is the competence-based approach. Higher pedagogical education is designed to form a number of competencies in students, which later allowed them to master professional activities. In our opinion, a direct translation of the integrative skills (competencies) developed in the learning process into the development of the structural components of activity cannot occur. Therefore, the second methodological position of modern vocational education is associated with its practical orientation. One of the most important problems of professional training is the development of mechanisms for the interdependence of formed competencies in students and components of professional activity; that is, the opportunity to use what I "can" in practical work, understanding its essence, being motivated specifically for the chosen field of activity, willingness to use variably methods for realizing the diverse goals of such activities and adequately assess the results obtained.

1. Literature review

In modern psychological and pedagogical literature, several basic categories that are directly related to the problem of our research are considered in detail.

There are several general positions that precede a more specific analysis of our experience in the formation of the foundations of the professional activity of a preschool teacher at a university.

1. The problem of activity occupies a central place in the scientific work of many researchers. The activity that realizes the objective social relations of a person in the world is the substance of the personality (Asmolov, 1990).

The theoretical development of the concept of activity comes from different sides: the development of the most general definition, the allocation of structure and essence.

One of the most complete and detailed descriptions of the general structure of activities is given within the framework of the systems approach of M.S. Kagan. He distinguishes three main elements of activity: the subject, the object and the activity, that is, the energy of the subject directed to the object (Kagan, 1974).

A similar systemic view of activity, its essence as a multilevel education is revealed in the theory of system genesis of the activity of V.D. Shadrikov. He developed a clear categorical apparatus for the psychological analysis of activity, which implements the principle of consistency through multilevel analysis: personal-motivational, component-target, structural-functional, informational, psychophysiological, individual-psychological (Shadrikov, 1980).

Also V.D. Shadrikov most fully reveals the essence of the issue of human development in activity in a number of his works. He points out that the development of mental qualities and properties of a person in activity occurs through the development of the operational mechanisms of these properties. Under the influence of the requirements of activity, the operational mechanisms of a person's mental properties are rebuilt. He calls it the process of rebuilding operational mechanisms into operational mechanisms. This process is the essence of the transition from mental properties to activity-important (professionally important, educationally important) properties (qualities) (Shadrikov, 1993).

2. Among all types of activity, professional activity as a subject of research occupies a special place, defining one of the most important characteristics of a person. Most people are

involved in this or that professional activity from a certain age; a significant part of adolescence is spent on preparing for it. Many researchers widely use the term "professional development of personality", among them: E.M. Borisova, S.G. Vershlovsky, E.F. Zeer, E.A. Klimov, T.V. Kudryavtsev, A.I. Shcherbakov and others.

The essence of professional development lies in the transformation of an individual into a professional capable of exerting an active influence on the development of professional activity and the professional community as a whole (according to Zeer, 2009). This is an individualized formation of professionally significant qualities and abilities, professional knowledge and skills, an active qualitative transformation by a person of his inner world, leading to a fundamentally new structure and way of life - creative self-realization in the profession.

Yu.P. Povarenkov notes that the professional formation of an individual is a process of structural - dynamic development of the subject of a professional path; in the course of this process, professionally oriented substructures and professionally important personality traits, adequate forms of her professional activity are formed and developed in accordance with social and professional requirements and on the basis of the individual's capabilities and aspirations (Povarenkov, 2002).

Further, the main directions and content of the teacher's activity are considered, based on the analysis of the works of a number of researchers (N.V. Kuzmina, E.I. Rogov, V.A. Slastenin). In fact, we are talking about the components of the structure of pedagogical activity, reflecting its multifunctionality, integrity and consistency.

1. Predictive activity is the prediction and forecasting of the result of pedagogical activity, modeling of the pedagogical process.

2. Designing and constructive activities of the teacher, aimed at designing and planning the pedagogical process.

3. Organizational activity is the organization of one's own pedagogical activities and the activities of children.

4. Communicative activity involves the construction of interpersonal interaction and relationships that create conditions for the organization of an effective pedagogical process.

5. Reflexive activity is the comprehension of the results of one's pedagogical activity (Nikitina, 2004; Kislinskaya, 2004).

2. Methodology

The professional activity of a preschool teacher has its own specifics, both from the point of view of goal setting and motivation, and from the standpoint of methods and technologies of implementation. Therefore, the selected components of professional activity are formed in future teachers very unevenly, which is also confirmed by our empirical data.

7 study groups (1-4 courses) of the profile "Preschool education" in the Yaroslavl State Pedagogical University named after K.D. Ushinsky in the number of 111 people took part in the study. Students filled out an author's questionnaire, consisting of questions reflecting the component composition of the kindergarten teacher's activities, the self-assessment of the severity of each of which students had to evaluate, as well as the task - to write an essay in free form on the topic "Why I chose the profession of a kindergarten teacher". The results made it possible to more clearly represent the motives for choosing a teaching profession and the initial knowledge of students about the specifics of the activities of a kindergarten teacher.

3. Results and Discussion

Based on the data obtained, the following conclusions can be drawn.

Most students choose the specialty "Preschool Pedagogy and Psychology", as they like communication with children. Although some students answered the question about the motives for choosing this profile of training as follows: "family tradition" and "accidentally". Motives associated with the activities of a preschool teacher (high social significance of pedagogical work in the preschool period, the dream of child development in the process of pedagogical activity), and cognitive motives (interest in psychology) prevail among students, as a rule, of senior years. An interesting fact is that the majority of senior students do not change their attitude towards their chosen profession during their studies at the university, referring to an even greater awareness of all the difficulties of the profession, the importance of pedagogical work and a conscious attitude towards it. Many students see opportunities for self-realization in this profession, prospects for the development of their teaching activities. For the majority of senior students, the learning process is comprehended from the standpoint of the requirements of professional activity, which already means the actualization of professional motivation. Here are excerpts from student essays:

"In order to be a good example for a child, it is not necessary to know and be able to do everything in the world. It is enough just to pay attention to the child, to show that you are not indifferent to his interest in something and his activities. The adult must show that any answer or solution can be found together". "Any adult should not exalt himself above a child, command and show who is" in charge "here. First of all, an adult should be a friend for a child, someone who can help, understand and sympathize with him". "An adult must accept a child as he is, regardless of his success or characteristics. An adult should help in understanding the world, delineating the boundaries of acceptable and unacceptable behavior. The task of adults is to explain "what is good and what is bad". These are the people who are the first to start showing the child the norms and boundaries of what is permitted and forbidden, acceptable and unacceptable".

If the motivational component of the pedagogical process of a kindergarten teacher is formed even before entering the university, as well as goal-setting, understanding of the essence of the teacher's profession (maybe not entirely deep), then other components of the activity require special attention.

In particular, studying the deficits in the activities of young teachers of preschool education, we conducted a survey of more than 1200 teachers of kindergartens in Yaroslavl and the Yaroslavl region and more than 6,000 thousand parents of pupils. The inclusion of parents in the sample is explained by the selection of the most difficult areas of activity of a kindergarten teacher, in particular, its communicative component. Such spheres of professional activity as design, organizational and communication (mainly in the context of communication with parents) turned out to be difficult for young teachers. It is quite obvious that vocational training at any level of education cannot fully form the practical skills of working directly with children. Therefore, a particular difficulty is the organization of a children's community, joint children's activities, interaction with children with different behavioral characteristics (hyperactivity, aggressiveness, shyness, anxiety). Moreover, parents often feel the need for psychological and pedagogical support of the process of raising such children (Dakovich & Lukkola, 2017).

In this regard, some aspects of the formation of the foundations of the professional activity of a preschool teacher at a university are considered.

Let's focus on the sequence of steps in the process of implementing types of educational activities that integrate various aspects of professional activity.

Undoubtedly, the practice-orientedness of training students is now the main thesis in all regulatory documents. At the same time, an increase in the number of practices does not solve anything, especially since the emphasis is often placed on the formation of competencies in isolation from pedagogical activity. But this is a special topic.

We will focus on the sequence of steps in the process of implementing types of educational activities that integrate various aspects of professional activities.

First of all, the so-called quasi-professional activity. It has a certain logic of construction: modeling of pedagogical situations, introductory educational practice and active (industrial) practice. In this case, several circumstances matter. First, the continuity and complication of the forms of work with students (from solving ready-made ones to creating their own cases of pedagogical situations in the process, in particular, their modeling). Secondly, the obligatory reflexive analysis of problems arising in the process of solving problems. Thirdly, the systematization of forms, methods of solving speculative and real pedagogical situations (first in the student audience, and then in the nursery). Fourth, the integration of disciplines (psychology, pedagogy, private methods) in the content and technologies of teaching (Pamela, 1996).

Approximately in this logic, the formation of students' ideas about pedagogical activity takes place in the framework of the study of each methodological discipline at the university.

As an example, the stage-by-stage formation in students of various types and types of pedagogical regulation of children's visual activity, which is one of the types of productive children's activity, as a projection of the general idea of forming the foundations of the professional activity of a preschool teacher, is considered (Olivia, 2019)

The productive activity of a preschooler is carried out under the guidance of an adult and the product of children's creativity, presented in models of objects of the surrounding world, acts as its result. Productive activity contributes to the deepening of children's visual ideas about objects, phenomena, situations, and all this is embodied in drawings and designs. The study of productive activities was carried out by teachers and psychologists such as A.V. Bakushinsky, I.L. Ermakov, R.G. Kazakova, V.I. Kireenko, K.N. Kornilov, V.S. Mukhina, N.P.

Sakulina, E.A. Fleerina. Research on productive activities is ongoing. Currently, a number of problems remain unresolved, such as the individual characteristics of the creative manifestations of children, the activation of mental activity in the process of productive activity, the education of independence in using the acquired skills and abilities in working with various materials.

Productive activities include painting, sculpting, appliqué and construction. Their relationship is traced by means of expressiveness. Means such as form, rhythm, line, volume are used to create a product. In decorative painting, sculpting and appliqué, color and harmony are used, and in plot painting, composition. In design, there is a connection with the artistic and constructive-technical activities of adults. This type of activity is the most difficult for children and involves the creation of buildings, bringing objects, their elements and parts into a certain position. As noted by D.B. Elkonin, in the course of productive activity, the preschooler develops the abilities and skills of the variable use of expressive means, and also has generalized ways of depicting objects of the surrounding world. (Elkonin, 2007).

Productive activities are an important means of all-round development, meeting the interests and needs of preschool children, and have great opportunities for mental, moral and aesthetic education. Drawing affects the development of a sense of color, teaches you to see the beauty of a combination of different colors and shades. Sculpting affects the development of a sense of form. Application leads the child to generalize the form and express it with the help of a silhouette. Construction helps teach a child to combine a variety of volumes and shapes, which contributes to the better development of constructive creativity. All types of productive activities affect the physical development of the child and contribute to the development of the child's hand, which is important for further learning to write at school.

Let's take a closer look at children's visual activities (Bazaeva, 2021). The difficulty of regulating this type of activity is that the student must be able to draw, sculpt, create applications.

Therefore, the educational process has two directions: on the one hand, to form students' special skills (within the framework of electives), on the other hand, to develop the skills of pedagogical support of the process of mastering art by children (individual and joint). The five components (aspects) of activity that we have designated are the basis.

At the first stage, the main task of which is the formation of the prognostic side of the activity of a kindergarten teacher, students get acquainted with the peculiarities of the development of the visual activity of children. Based on the analysis of children's drawings, crafts, they highlight typical difficulties in drawing, modeling, and applications, taking into account the age of children, they learn to design the content of work with preschoolers, both individual and joint, including in the framework of the discussion of various preschool education programs (Delamare, 2009; Papalia, 1990).

At the second stage, students move on to modeling the system of working with children (individual and group) for the development of visual skills in children, planning, together with the children, plots of the displayed reality. At the same time, the issues of recruiting children's groups for the execution of ideas are being considered.

The constructive and organizational aspect causes the greatest difficulties for students, therefore, after modeling the situations of interaction of children in joint activities in the classroom, students are given tasks during the period of various types of practices. At the same time, the most significant is the development by future teachers of the communicative aspect of regulation of both the individual visual activity of the child and the interaction of children with their peers in conditions of activity. Already at the stage of modeling situations of joint activity of preschoolers, students are given the opportunity to determine the types and types of pedagogical regulation of this activity (teaching, corrective, guiding), which is analyzed by future teachers and during the period of practice in groups of different ages (Arnold, 1976).

Reflecting the level of preparedness for this kind of activity plays a special role in the process of preparing students for pedagogical regulation of joint visual activity.

The data were obtained using a questionnaire, the method of expert assessments, the use of survey techniques, such as a questionnaire to determine the severity of dominance (L.N. Sobchak's method), a test to determine the level of forced reflexive pedagogical skills (N.V. Kuzmina's method), and author's questionnaires.

At the diagnostic stage, 152 students of the pedagogical faculty of the Yaroslavl Pedagogical University took part in the study. The data obtained indicate that students' self-assessment of the level of development of various aspects of pedagogical activity, in this case, the activity of regulating the interaction of children, is ambiguous. The most developed

students consider the communicative and creative qualities, the least developed, according to the students, the organizational and reflective traits. In addition, students are guided by the development of the child's individuality, but an insignificant part of them is aware of the importance of the pedagogical participation of an adult in the interaction of children.

On the basis of the data obtained, a special course "Preparing students for the pedagogical regulation of the joint visual activity of preschool children" was developed. This course was taught in the second year of student education; the purpose of this course was to form and develop in future teachers all aspects of pedagogical regulation of the interaction of children with peers in the conditions of visual activity, including individual work with children.

The most important results of introducing a special course into the curriculum are presented below:

1. Strengthening the pedagogical motivation and the desire of students to get involved in work with the children's community, which was reflected in the future in pedagogical practice, in holding open events with preschool children.

2. Increase in the values of communicative and creative qualities in students' self-esteem.

3. Students began to assess their skills to organize and predict the results of the visual activity of each child and children's group much higher.

4. The idea of students about the trends in the development of their own style of pedagogical activity became adequate.

Conclusion

Thus, the educational process of university training of a preschool teacher involves not only the formation of a sufficiently large list of professional competencies among students, but also the development of all structural components of pedagogical activity. The particular importance of this kind of attitude is important in the process of training a teacher working with a small child, where the integral formation of his personality and intellect can be ensured by the teacher's deep understanding of his own mission, which is to develop the individuality of a child who is able to realize himself in various life situations, respecting himself and others.

References

Arnold, Arnold. (1976). The World Book of Arts and Crafts for Children [Text] A.Arnold. - London; Basingstoke: Macmillan London Limited, 286 p.:

Asmolov A. G. (1990) Psychology of personality: Textbook. - M.: Publishing House of Moscow State University, 367 p.

Bazaeva, F.U. (2021). Fundamentals of the formation of professional identity of youth - Pedagogy, № 02(104). Part 3. Pages: 95-98.

Dakovich G., Lukkola T. (2017). Relevance of international appraisers in reflecting the national context of higher education in the Journal of Institutional Assessments of the European Higher Education Area, Issue 2, URL.: https://www.eheajournal.eu/ru/справочник gliederung#Gliederungsebene/408/Issue-3

Delamare Le Deist, F. and Winterton, J. (2009). What is competence? [Electronic resource] International human resource development. - 2005. – Vol. 8. – No. 1. – S. 27-46. – Access mode: http://www.ht.ru/cms/partners/763-10-08-14-08-22 (accessed 30.07.2021).

Elkonin D.B. (2007). Textbook for students. higher. studies. institutions. - M.: Academy, 384 p. ill. - in English

Kagan M.S. (1974). Human activity (Experience of system analysis). - M., Politizdat, 328 p.

Modern Perspectives of Motivation Research in Preschool Education Edited by: Olivia Saracho (2019), University of Maryland, Volume from the series: Modern Perspectives in Preschool Education.Editor(s): Olivia Saracho, University of Maryland.Published in.

Nikitina N.N. (2004). Introduction to pedagogical activity: Theory and practice: studies. manual for students. higher. ped. studies. institutions / N.N. Nikitina, N.V. Kislinskaya. - M.: Publishing center "Academy", 224 p.

Papalia, Diane E. (1990). The World of the child [Text]: from infancy to adolescence Papalia D. E., ed. SW Olds. – New York; St. Louis; San Francisco: The Publishing House McGraw-Hill,.593 p. – eng. lang. GIFT FUND SABRE, USA.

Povarenkov, Yu.P. (2002). The psychological content of the professional formation of a person [Text] / Yu.P. Povarenkov. - M.: Publishing House of URAO, 160 p.

Schroeder, (1996). Pamela J. Numbers Text P.J.Schroeder, author J. M.Donish. Vero Beach: Rourke Publishing, INC.

Shadrikov V. D. (1980). Psychological analysis of activity as a system // Psychological journal. Vol.1. - No. 3. - pp. 33-46.

Shadrikov V.D. (1993). Philosophy of education and educational policies / Shadrikov V. D. - M.: Research. the center of probl. quality of training. specialists, 181 p.

Zeer, E.F. (2009). Psychology of professional education: textbook for students. higher. studies. institutions / E.F. Zeer. - M.: Publishing center "Academy",384 p.

Project-based learning in the training of future philologists

Viktoriia Zinchenko*
Larysa Udovychenko**
Anatolii Maksymenko***
Karina Gevorgian****
Tetiana Nesterenko*****
Valentyna Honcharuk******

ABSTRACT

Objective. The objective of the research is to determine the effectiveness and relevance of the implementation of project-based learning technology (PBL) and students' assessment of the prospects for learning linguistic theory, theory and practice of translation using the PBL method. Methodology. The use of project-based learning technologies within language courses increases understanding of native linguistic concepts, strengthens the link between translation theory and technology is the research hypothesis. To implement the research goals an innovative educational project was presented and implemented on the basis of Kharkiv National Pedagogical University named after Hryhoriy Skovoroda, Ukraine. Participants of the project attended the course "Fundamentals of Translation" during the academic year. The whole process of project creation was formed in three stages and contained 6 steps: initiation, definition, design, development, implementation, and summarizing. Results of the paper. The results of the study showed that the students have a very positive evaluation of the use of project technology in professional training of philological field, thus this training is effective. Examination of practical cases on the implementation of the PBL method will allow identifying more prospects in such areas as collaboration and project design.

KEYWORDS: Learning environment; Learning methods; Language education; Linguistics.

*Candidate of Pedagogical Sciences, Associate professor of the Department of Social Sciences and Humanities, Donetsk State University of Internal Affairs, Kryvyi Rih, Ukraine. ORCID: https://orcid.org/0000-0003-3080-4272. E-mail: vicik-210898@ukr.net

** Associate Professor of the Department of Ukrainian Literature, Comparative Studies and Grinchenko Studies, Institute of Philology, Department of Ukrainian Literature, Comparative Studies and Grinchenko Studies, Borys Grinchenko Kyiv University. ORCID: https://orcid.org/0000-0002-5698-557X. E-mail: l.udovychenko@kubg.edu.ua

*** Vice- Rector for Academic and International Affairs, Department for International Affairs, Kyiv National Linguistic University. ORCID: https://orcid.org/0000-0002-6892-4766. E-mail: maksimap@ukr.net

****Associate professor, Department of Chinese Philology, KNLU. ORCID: https://orcid.org/0000-0002-1977-743X. E-mail: karina_xiwang@yahoo.com

*****Candidate of Philological Sciences, Associate Professor, Volodymyr Vynnychenko Central Ukrainian State Pedagogical University. ORCID: https://orcid.org/0000-0001-8987-4350. E-mail: tetiananesterenko1207@gmail.com

****** Associate Professor, Faculty of Ukrainian Philology, Department of Ukrainian Studies and Relevant Teaching Methodologies, Pavlo Tychyna Uman State Pedagogical University. ORCID: https://orcid.org/0000-0002-7323-0590. E-mail: goncharuk424@ukr.net

Aprendizaje basado en proyectos en la formación de futuros filólogos

RESUMEN

Objetivo. El objetivo de la investigación consistió en determinar la efectividad y relevancia de la implementación de la tecnología de Aprendizaje Basado en Proyectos (ABP) y la evaluación de los estudiantes sobre las perspectivas de aprendizaje de la teoría lingüística, la teoría y la práctica de la traducción utilizando el método ABP. Metodología. La hipótesis de la investigación es que el uso de tecnologías de aprendizaje basadas en proyectos dentro de los cursos de idiomas aumenta la comprensión de los conceptos lingüísticos nativos, fortalece el vínculo entre la teoría de la traducción y la tecnología. Para implementar los objetivos de investigación, se presentó e implementó un proyecto educativo innovador en la Universidad Pedagógica Nacional de Kharkiv que lleva el nombre de Hryhoriy Skovoroda, Ucrania. Los participantes del proyecto asistieron al curso "Fundamentos de la Traducción" durante el año académico. Todo el proceso de creación del proyecto se formó en tres etapas y contenía 6 pasos: iniciación, definición, diseño, desarrollo, implementación y resumen. Resultados del trabajo. Los resultados del estudio mostraron que los estudiantes tienen una evaluación muy positiva del uso de la tecnología de proyectos en la formación profesional de los estudiantes del campo filológico, pues esta formación es efectiva. El examen de casos prácticos sobre la implementación del método ABP permitirá identificar más perspectivas en áreas tales como la colaboración y el diseño de proyectos.

PALABRAS CLAVE: Ambiente de aprendizaje; Métodos de aprendizaje; Enseñanza de idiomas; Lingüística.

Introduction

Philology is a branch of knowledge, the core concept of which is language, its study, semantic components, and system connections and, of course, ways of effective language learning. In the pedagogy of linguistics, first, the space for the application of effective educational technologies at different educational levels, in different contexts and conditions (Junining et al., 2020). The group of researchers also found that theoretical aspects of linguistics are critical to understanding the mechanisms of language functioning and help in the formation and development of practical knowledge and skills that are essential for philologists and philologists. The study of foreign languages is not a purely field of specialists in this field, but also largely determines the professional level of philologist as such (Correa, 2014). Linguistic

disciplines are an important component of the curricula of various philological disciplines and specialties with foreign languages of instruction. Sometimes it is a specialty of the student's choice, but it is not very popular, it is considered that it is not important and vital for better language learning. This is a pedagogical problem, where it is necessary to resort to innovative approaches and pedagogical technologies of interactive level. The project approach can show the important role of the theory of linguistics in activating and promoting language learning in the educational context.

1. Literature review

The study of design technologies has been going on since the XIX century (Dewey, 1938) and it was associated with the development of learning theory. This student-centered learning finds its researchers in the fields of modern pedagogy (Kim, 2011; Ko, et al., 2013; Vienna, 1996). This is a comprehensive approach to work in the classroom, which combines practical tasks and lecture materials, and in this process were actively involved not only teachers but also students (Puranik, 2020). The design method was effectively used in the case of studying complex topics and large amounts of educational materials (Way, 2016). In a number of researches elements of design technologies were gradually considered, researches as investigations were singled out; step-by-step preparation with definition of a core basis; preparation of tasks with a body of problem and leading questions (PACTE, 2018).

The PBL method provides practical design opportunities in the structure of academic disciplines, promotes cooperation between teachers and students, teaches group work, and provides feedback within the project between the course authors and their students (CASLS, 2019). Consideration of the introduction of project - based learning in the study of linguistic disciplines is presented in research (Javadi, Tahmasbi, 2019). The researchers have humanized theoretical, difficult-to-learn material, equipped classrooms with the necessary technical teaching aids, made courses closer to students through involvement in active project activities (Shin, 2018). The research aim set for the student should be relevant, related to the communicative and production needs of the future profession, for example, research projects as an operational way to solve the problem, the so-called crisis management (Kuzmina, et al., 2020). The dependence of motivation to study, to carry out research on successful project

activities have also been studied in modern pedagogy (Solemani, et al., 2015). The relationship between the PBL method and the preservation and nurturing of student educational interests has also been in the research focus (Peterson, Nassaji, 2016), this also applied to the search for ways to improve the activity of writing and translating texts (Sedeghi, et al., 2016; Vasquez, 2018).

The pedagogy of translation is not outside the research interests. The potential of translation as a teaching technique for the formation and intensification of linguistic and cultural awareness of students was studied, first, creating opportunities for students to compare the structures of one language compared to others (Bergen, 2010). There are studies that consider the assessments of students of the feasibility of teaching translation as an element of speech skills development (Zhao, 2018)., (Brogger, 2017) investigated the effectiveness of different translation methods and the feasibility of their use, ways to improve the understanding of grammar and difficult cases of translation.

In addition to promoting the study of linguistics, project activities should be consistent with the content and structure of the curriculum. The integration of project technology into the foundations of university education is also in the field of view of researchers (Senthilkumar, Kannappa, 2017; Salgur, 2013).

The educational systems of different countries have accumulated extensive experience in using the project method in teaching. This method is an alternative to traditional teaching because it helps to bring theoretical teaching material closer to practice; changes the roles of students who become active full-fledged subjects of education and teachers who organize, supervise and direct this process, and not just pass on ready-made information to students. At the same time, improving the motivation of students, educating the principles of critical thinking and the effectiveness of independent learning of future philologists is insufficiently researched in scientific and practical literature. That is why it is necessary to continue pedagogical experiments in the field of formation of speech skills, formation of social and personal responsibilities of the graduate of philological direction.

The objective of the research is to determine the effectiveness and relevance of the implementation of project-based learning (PBL) technology and students' assessment of the

prospects for learning linguistic theory, theory and practice of translation using the PBL method. To achieve an objective, a number of tasks were performed: to determine the structure and sequence of project activities by students of philological specialties; to establish the assessment given by students on the relevance and prospects of studying linguistic theory, theory and practice of translation using the PBL method.

2. Methods

To implement the research goals, the group introduced an innovative educational project, which was implemented by the university (Kharkiv National Pedagogical University named after Hryhoriy Skovoroda, Ukraine). 20 participants who attended during the academic year (2 semesters) course "Fundamentals of Translation" for philological specialties attended the project. Within the framework of this training course, a number of project tasks were introduced aimed at improving the understanding of basic linguistic concepts, translation theory, and in general correlations between linguistic theory and its implementation in translation practice.

Stage 1. The whole process of project creation was formed in three stages and contained 6 steps (initiation, definition, design, development, implementation, and summarizing). At this stage, 1 step of the project has been introduced, which involves the development of a concept, project idea, development of basic tasks, which required definition and planning. The main steps of implementing a functional pragmatic approach to the translation of texts are identified.

Stage 2. At this stage, a set of materials on the subject "Fundamentals of Translation" provides for active work on the project. In experimental groups, the teacher monitors the status and content of the project. The range of interviewers is determined; transcripts and types of translation are developed. Step 2 is carried out in the project implementation, when the project is constructed and the plan and its content are formed.

Stage 3. At the final stage, respondents' assessments of the introduction of project technologies in the study of theoretical disciplines in the linguistic field will be monitored, as well as a questionnaire to assess the usefulness and motivation of respondents during the course "Fundamentals of Translation", in addition to design technology was assessed from the standpoint of the feasibility of introducing it into the educational process on an ongoing basis.

Based on the implemented project, data on translation features were collected, bilingual glossaries were compiled, and translation techniques were identified, as well as the main difficulties and errors of translation, project dossiers, links to websites and groups on social networks, etc. were compiled. The training materials were later uploaded to university websites, electronic archives, specially adapted for the purposes of this study.

Regarding the difficulties encountered by the research team during the work on the project and in the process of conducting the experiment, it is time costs (2 semesters), and it is also difficult to determine the reasons for changes in respondents' assessments; there is no possibility to conduct a qualitative in-depth study.

3. Result

In the study, students were grouped into 2 creative project groups of 10 people each (70% women and 30% men). Their age ranged from 20 to 23 years. These are students of the 3rd year of study of the first (bachelor's level), who studied the third year of foreign (English) as a second language and Ukrainian as the main language in the 2020-2021 academic year. Applicants have chosen the training course "Fundamentals of Translation". They were familiar with translation techniques, but had not previously used project-based learning technology. In parallel with the project activities, teachers used educational literature on the theory of linguistics. This is a series of textbooks in linguistics, based on which theoretical training was carried out. Translation skills were based on translation theory works and author's teaching materials, selected specifically for the introduction of design technology. Respondents were introduced to the features of several types of translation (literal, literary, free, and contextual, etc.). The level of student success depended on the success of the quality and the group's assessment of the role and contribution of each to the project.

At the 1st (preparatory) stage, the research group and teachers had a step-by-step algorithm for designing. Project participants gather in the audience and discuss all aspects of future work.

Step 1.

1. The initial phase begins with the first week of the course. Participants assess their capabilities, determine the range of research interests, their capabilities and desire to improve

specific skills and knowledge. They work with texts of different genres prepared by the teacher, determine the types of translation, and consider the main provisions of the theory of linguistics, which help to identify the type of translation, to determine its stylistic markers and pragmatics.

2. Project identification and planning phase. At this stage, (the first half of the second week of training) are formed requirements for the project, tasks to achieve the goal. For example, the number of interviews on the initial topic, their transcription, determination of pronunciation, translation, analysis of transcripts based on linguistic theory and translation typology, choice of translation type, etc.

Step 2.

3. Project design phase. At this stage (the second half of the week in the implementation of the project) the teacher agreed on the project with the groups. Each participant received their task and took on a role in the project. The schedule of actions on the project is covered, covering the problem part, conducting interviews, interviews, transcription in accordance with the established purpose and objectives of the project.

4. The stage of project formation is the process of project development. At this stage of work on the project, teachers must provide all opportunities for students to implement their plans. This includes theoretical advice and the availability of the necessary training and additional materials, a good technical base. If the interviewees are invited and selected, there is a selection and accumulation of textual information and fulfillment of all requirements for the project.

Step 3

5. Project implementation - project implementation phase. Planned actions were implemented; materials were collected, analyzed and identified. The whole group prepared a project.

6. Implementation and improvement of the project. This is the final stage, it is necessary to check the correctness of all content parts of the project, before presenting it to experts and other groups of students (especially if there was to be mandatory feedback), check the possibility of individual feedback with all project participants. After discussion in the project team, this project is submitted to the consultant, teachers and prepared to interact with them

so that everyone could comment on their project and so that each member of the project team could present this project.

Figure 1. Step-by-step design of project creation techniques
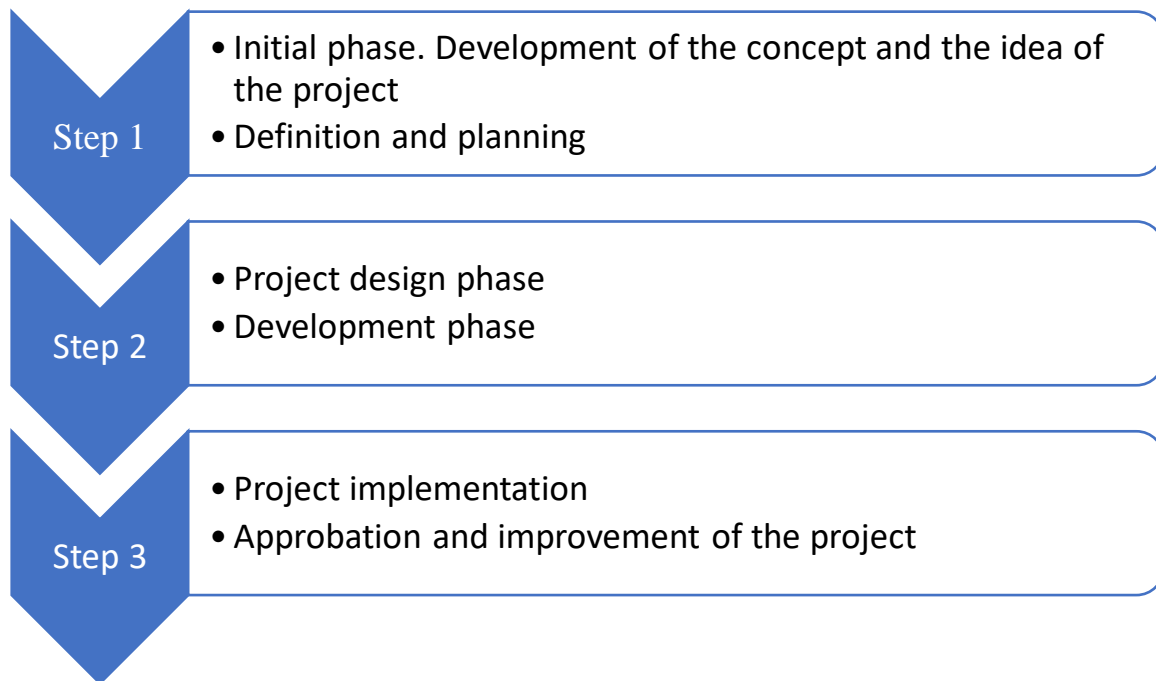
At the second stage, there is an active training of theoretical bases with parallel application of design technology. In the process of teaching the course "Fundamentals of Translation" the main goal was to present linguistic concepts in relation to the implementation of translation, where the goal of project technology in teaching practice to include theory in practice. From such positions the subject and structure of the course "Fundamentals of Translation" were formed.

At the final stage, a questionnaire was presented, which contained 4 questions. Respondents had to answer in the negative or agree with each question.

Students generally praised the introduction of project technology in the structure of linguistic disciplines. Most of all, the change of attitude toward traditionally important, in the opinion of students, linguistic theories were captured, as the project allowed us to see how theoretical theses can help in the implementation of practical cases.

The participants of the experiment were also asked to evaluate the introduction of the PBL method in the theory and practice of translation. A questionnaire was proposed, which contained the questions presented in the table (Table 3). Students gave their answers, the most typical of them were also presented in the table, and the number of answers is presented as a percentage.

Table 1. The structure of the course "Fundamentals of Translation" using project technology

№	Name of topics	Section name
1	Theory of linguistics	Phonetics and phonology Morphology Semantics Syntax
2	Courses in linguistic issues	Applied Linguistics Pragma-linguistics Sociolinguistics History of language Linguistic style
3	Fundamentals of translation and theory of linguistics	Types of translation equivalence (conceptual, propositional, thematic, contextual); Typology of translation (scientific, technical, literary, free translation)

Table 2. Assessment of the relevance of project activities within the training course "Fundamentals of the project".

		Yes	No
1	We are waiting for the continuation of project programs in the future	65%	35%
2	PBL contributed to the learning process with pleasure	43%	57%
3	The help of teachers contributed to the project activities	65%	35%
4	The project allowed us to look at linguistics differently	80%	20%

Table 3. Student assessment of work with the PBL method

№	Question	Reply
1	Why I learned something new while working on the project	Ability to work with the project (54) Translation skills (60) Improved language skills (43) Language skills (43)
2	The best part of my project was the section with	Morphology (45) Syntax (38) Vocabulary (24) Linguistic Theory (51)
3	The biggest difficulties encountered on the project are	Foreign language, especially: Phonetics (37) Morphology (14) Syntax (19) Vocabulary (8) Theory of Linguistics (48)
4	The most interesting thing was to work with	Foreign languages (83) In Ukrainian (75)
5.	It was the least interesting to work with	Theory of Linguistics (52)

As the final survey of students showed, the theoretical aspects were the least interesting. It is necessary to continue working on improving the work with theoretical material, to work out new forms and methods of teaching linguistic theory.

In general, students of philology with pleasure during the introduction of project technology studied languages (80%), learned to translate texts of different genres and styles, studied the typology of translation (60%). The least difficulties arose with the assimilation of lexical material, and the greatest with phonetics and morphology.

4. Discussion

The research on the introduction of project-based technology and its evolution in teaching of transfer students (Mary-Yilan, Konca, 2021) showed that during the introduction of project-based technology in English and Turkish language learning by the students of the philological field. The motivation of students has increased, their attitude to learning has

improved, and they are beginning to take a positive view of traditionally difficult language topics and translation systems. Almost 70% of respondents noted the need for active participation of the teacher in the learning process and project preparation, and 93% of respondents in general positively evaluated the project activities within the framework of linguistic disciplines, noted that their skills in translating from English into Turkish have improved, the students have discovered new positions and perspectives in translation theory, and are looking forward to continuing their studies using the PBL method. Our survey also revealed that 80% of the respondents praised the use of project-based technologies in language courses, and students noted the need to constantly involve project-based technologies in the study of linguistic theories in combination with practical cases. The importance of the influence of the teacher in the process of implementation of the PBL method was found by 65% of the students, but 35% of them did not need significant assistance of the consultant-director.

Kiki-Papadakis & Chaimala (2016) raised the issue of mandatory inclusion of research and innovation programs in the curricula of institutions of higher education. An important condition for the success of the pedagogical educational project is the support of the administration, the managerial staff of the universities, which is realized in the technical and technological equipment of innovative projects, considering them in the development strategies of institutions (CASLS, 2019). Indeed, the inclusion in the structure of curricula of courses of choice that would simultaneously carry out the training of a qualified modern specialist, who is grounded in the basics of linguistic knowledge and at the same time possesses practical translation cases, is a very relevant topic. This study has shown the possibility of implementing such practices in the training process of students of philological studies.

The implementation of new research in the theory of translation, translation pragmatics to teaching activities remain unresolved. The role of digital technology is critical in optimizing the efficiency of teaching foreign languages, as well as the implementation of translation activities.

Conclusion

During the project a set of translation and educational materials was collected, which contributed to increasing the motivation of the students to study the courses.

The main stages of project activities were several. This is the initial phase of creation of the concept, the idea, and formation of motivation. Then the main topics are identified and the project plan is created. In the phase of constructing and building, the structure of the project began the selection of texts, respondents, and the collection of materials. Then carried out the phase of the development of the project with the active assistance of the facilitator. The final steps in the realization of the idea are the implementation of the project as a holistic complex, the analysis of problems and benefits. In addition, the final step is the improvement occurs assessment of the project by all its participants, teachers, consultants, etc.

Overall, the experimental study showed a positive acceptance of the implementation of project technologies in professional training of students in the field of philology. Further continuation of work with the PBL method was desired by 60% of respondents. The students were also keen to combine the theoretical basis of linguistics, translation theory and their practical application (more than 80%), which in itself facilitates the understanding of language disciplines and demonstrates the necessity of possessing such knowledge.

References

Bergen, D. (2010). Translation strategies and the students of translation. Jorma Tommola, vol. 1, 109-125. Retrieved from URL http://www.hum.utu.fi/oppiaineet/englantilailentilologia/exambergen.pdf

Brogger, M. (2017). When Translation Competence is not enough: A Focus Group Study of Medical Translators. Meta, vol.62 (2), 396-414. DOI:10.7202/1041030ar

CASLS (2019). Project-Based Language Learning: The Basics. Retrieved December 12, 2019, fromhttp://caslsintercom.uoregon.edu/content/viewContent/18724?searchUrl=%2Fcontent%2 FsearchContentSubmit%3FtxtContentTitle%3D%26txt_Author%3D%26txt_InputDate1%3D %26txt_InputDate2%2 % 26hiddenLevel% 3D% 26hiddenContentArea% 3D% 26hiddenState% 3D% 26hiddenGroup% 3DIntercom% 26UpdateTags% 3D% 26sort% 3DTyPe

Correa, M. (2014). Teaching (Theoretical) linguistics in the second language classroom: Beyond language improvement. Porta Linguarum: International Review of *Didáctica de las Lenguas Extranjeras*, vol. 1 (22), 161-171. DOI:10.30827/Digibug.53738

Dewey, J. (1938). Education and experience. (First edition). New York: Touchstone, p.91

Javadi, Y., Tahmasbi, M. (2019). Application of Humanism Teaching Theory and Humanistic Approach to Education in Course-books. Theory and Practice in *Language Studies*, vol. 10 (1), 40-48. DOI:10.17507/tpls.1001.06

Junining, E., Mahendra, V.A., Kusuma, L. (2020) Translation strategies for translating a news article. *LiNGUA Journal Ilmu Bahasa dan Sastra*, vol. 15, no. 1, 79-90. DOI: 10.18860/ling.v15i1.9562

Kim, Eun-Young (2011) Using translation exercises in the communicative EFL writing classroom. ELT Journal, vol. 65, Issue 2, 154–160. DOI: 10.1093/elt/ccq039

Kiki-Papadakis, K. & Chaimala, F. (2016). The Embedment of Responsible Research and Innovation Aspects in European Science Curricula. Romaneasca Review for Multidimensional Education, vol. 8 (2), 71-87. DOI:10.18662/rrem/2016.0802.06

Ko J., Sammons P., Bakkum, L. (2013) Effective Teaching: a review of research and evidence. CfBT Education Trust. Retrieved from URL http://cdn.cfbt.com/~/media/cfbtcorporate/files/research/2013/reffective-teaching-2013.pdf

Kuzmina, M., Protas, O., Fartushok, T., Raievska, Y., Ivanova, I. (2020) Formation of Students' Competence of Tertiary Educational Institutions by Practical Training Aids. International Journal of Higher Education. Vol. 9, no. 7, 279-288. DOI:10.5430/ijhe.v9n7p279

Mary-Yilan, S., Konca, M. (2021) An evaluation of Project-Based Learning: a Turkish 'linguistics for translators' students' case. Ekev Akademi Dergisi, 85, 417-434. DOI:10.17753/ekev1905

PACTE (2018). Competence Levelsin Translation: Working towards a European Network. The Interpreter and Translator Trainer, vol.12 (2), 111-131. DOI:10.1080/1750399X.2018.1466093

Peterson, C. and Nassaji, H. (2016). Project-based learning through the eyes of teachers and students in the adult ESL classroom. The Canadian Modern Language Review, 72 (1), 13-39. DOI: 10.3138/cmlr.2096

Puranik, S. (2020) Innovative teaching methods in higher education. BSSS Journal of Education, vol. IX, issue I, 67-75. DOI: 10.51767/je0907

Salgur, SA (2013). The importance of the teacher in intercultural education. International Journal of Global Education, vol. 2 (1), 1-5. Retrieved from URL http://www.ijtase.net/ojs/index.php/ijge/article/view/244/312

Senthilkumar, V., Kannappa, R. (2017). Impact of Innovative Teaching and Learning Methodologies for Higher Educational Institutions with reference to Trichirappalli District. *IOSR Journal of Business and Management (IOSR-JBM)*, vol. 19 (7), 88-92. DOI: 10.9790/487X-1907028892

Sedeghi, H., Biniaz, M. and Soleimani, H. (2016). The impact of project-based language learning on Iranian EFL learners' comparison / contrast paragraph writing skills. *International Journal of Asian Social Science*,vol.6 (9), 510-524. DOI:10.18488/journal.1/2016.6.9/1.9.510.524

Shin, M.H. (2018). Effects of project-based learning on students' motivation and self-efficacy. *English Teaching*,vol.73 (1), 95-112. DOI:10.15858/engtea.73.3.201809.95

Solemani, H., Rahimi, Z., Sedeghi, H. (2015). Project-based learning and its positive effects on Iranian intermediate EFL learners' reading ability and vocabulary achievement. *International Journal of English Language and Literature Studies*, 4 (1), 1-9. DOI:10.18488/journal.23/2015.4.1/23.1.1.9

Vasquez del Arbo, E. (2018). Innovative Teaching Methods in Specialized Translation, Modern Journal of Language Teaching Methods, vol. 8, issue 12, 426-436. DOI:10.26655 / mjltm.2

Vienna, J. (1996). Toward a pedagogy of 'translation in situation'. *Studies in Translation Theory and Practice*, vol. 2, no. 1, 51-59. DOI:10.1080/0907676X.1994.9961222

Way, C. (2016). The Challenges, Opportunities of Legal Translation, and Translator Training in the21st Century. *International Journal of Communication*, vol.10, 1009-1029.

Zhao, C. (2018). Translation in Light of Bilingual Mental Lexicon. A Psycholinguistic Approach. *IJALEL*, vol.7, no.3, 165-169. DOI: 10.7575/aiac.ijalel

Cognitive-behavioral aspects in the effectiveness of foreign language training of students of a non-linguistic university

Larisa E. Deryagina*
Sergey N. Tikhomirov**
Igor B. Lebedev***
Darya V. Rusetskaya****
Yury V. Chumanov*****

ABSTRACT

The article analyzes the impact of the cognitive-behavioral characteristics of students from a non-linguistic university on the level of success in learning a foreign language. The purpose of this article is to identify the patterns of the cognitive-behavioral parameters of decision-making in the conditions of choosing between various alternative reactions and their relationship with the effectiveness of foreign language training of students from a non-linguistic university. To study behavior patterns, the method of parameterizing was used such as an important component of any activity, as decision-making by modeling situations under conditions of free, probabilistic and conditional choice. The study involved freshmen and sophomores from a medical university, who were studying foreign languages. The simulation of the follow-up of the stimulus presented revealed a low level of voluntary attention in the students with low performance, especially in a situation of imposed rhythm. Naturally, there is the hypothesis that in this group, their own cognitive style is dependent on environmental conditions, so this must be taken into account in the learning process. The results obtained indicate that the presence of universal differentiated cognitive-behavioral strategies are important in the case of successful / unsuccessful command of a foreign language.

KEY WORDS: behavior; cognitive activity; attitude; decision making; forecasting; voluntary attention.

*Professor of the Department of Psychology, Educational and Scientific Complex of Psychology of Service Activities, Moscow University of the Ministry of Internal Affairs of the Russian Federation named after V.Y. Kikot, Moscow, Russia, ORCID https://orcid.org/0000-0001-5522-5950. E-mail: lderyagina@mail.ru

**Candidate of Pedagogical Sciences, Professor of the Department of Pedagogy of the Educational and Scientific Complex of Psychology of Service Activities, Moscow University of the Ministry of Internal Affairs of the Russian Federation named after V.Y. Kikot, Moscow, Russia. ORCID https://orcid.org/0000-0001-8972-2808. E-mail: 5103720@gmail.com

***Professor of the Department of Psychology, Educational and Scientific Complex of Psychology of Service Activities, Moscow University of the Ministry of Internal Affairs of the Russian Federation named after V.Y. Kikot, Moscow, Russia. ORCID: https://orcid.org/0000-0002-8070-3843. E-mail: I_leb53@mail.ru

****Research associate of the educational and scientific complex of service psychology, Moscow University of the Ministry of Internal Affairs of the Russian Federation named after V.Y. Kikot, Moscow, Russia. ORCID: https://orcid.org/0000-0003-1256-1238. E-mail: dasha_rusik@mail.ru

*****Candidate of psychological Sciences, senior teacher-Methodist of faculty of training of scientific and pedagogical staff, Moscow University of the Ministry of Internal Affairs of the Russian Federation named after V.Y. Kikot, Moscow, Russia. ORCID: https://orcid.org/0000-0003-4705-4463. E-mail: yvc90@mail.ru

Aspectos cognitivo-conductuales de la eficacia de la formación en lenguas extranjeras de estudiantes de una universidad no lingüística

RESUMEN

El artículo analiza el impacto de las características cognitivo-conductuales de los estudiantes de una universidad no lingüística en el nivel de éxito en el aprendizaje de una lengua extranjera. El propósito de este artículo es identificar los patrones de los parámetros cognitivo-conductuales de la toma de decisiones en las condiciones de elegir entre varias reacciones alternativas y su relación con la efectividad de la formación en lenguas extranjeras de estudiantes de una universidad no lingüística. Para estudiar los patrones de comportamiento, utilizamos el método de parametrizar un componente tan importante de cualquier actividad como la toma de decisiones al modelar situaciones en condiciones de elección libre, probabilística y condicional. El estudio involucró a estudiantes de primer y segundo año de una universidad médica, que estudiaban idiomas extranjeros. La simulación del seguimiento de los estímulos presentados reveló un bajo nivel de atención voluntaria en los estudiantes con bajo rendimiento, especialmente en una situación de ritmo impuesto. Naturalmente, existe la hipótesis de que en este grupo, su propio estilo cognitivo es dependiente de las condiciones ambientales, por lo que esto debe tenerse en cuenta en el proceso de aprendizaje. Los resultados obtenidos indican que la presencia de estrategias cognitivo-conductuales diferenciadas universales son importantes en el caso de dominio exitoso / no exitoso de una lengua extranjera.

PALABRAS CLAVE: comportamiento; actividad cognitiva; actitud; toma de decisiones; previsión; atención voluntaria.

Introduction

The question of the success of mastering a foreign language is extremely relevant in the context of the globalization of the modern world. Today, a modern promising specialist in a particular field is obliged to know a foreign language (Prokopenko 2014). One of the key points is to solve a fundamental dilemma: which is more important - the universality of learning processes or dependence on the characteristics of a particular language (Mizen 2019) Behavioral aspects of educational activity are determined by the motivational orientation of the subject of learning, in which it is possible to distinguish content (internal) and dynamic (external) components. Our research has shown (Khokhlova, Deryagina, 2009) that the harmonious ratio of these components determines the success of educational

activities, in particular, the acquisition of a foreign language. The behavioral construct of any activity is inextricably linked with cognitive processes, in which the attitude has an important regulatory function (Bakhmat, 2016). According to D.N. Uznadze, the setting is a dynamic, integral state of a person's readiness to act in a given direction (Uznadze, 2001). The attitude characterizes the needs of the subject and the ratio of informative features and all conscious and unconscious stimuli acting on him at the moment. A significant quality of cognitive activity is the phenomenon of "static - mobility" of the forming attitudes, their ability to inhibit and activate new ones, more adequate to the changed situation (Kostandov, 1995).

For the organization of this study, domestic and foreign scientific literature was analyzed. In particular, the scientific provisions of behaviorism and the activity approach are analyzed. The research is also based on the theory of Uznadze's attitude, the main provisions of neurobiology, the theory of decision-making, the provisions of communicative-pragmatic and cognitive approaches.

The purpose of this study was to identify patterns of cognitive-behavioral parameters of decision-making in the context of a choice of several alternative reactions and their relationship with the effectiveness of foreign language training of students of a non-linguistic university.

1. Methodology, subject and object of research

An instrumental technique for studying decision making, subject to a choice of several alternative reactions, developed according to the theory of functional systems by P.K. Anokhina (Matveev, Nadezhdin, 1996) on the device "Binatest" (Russia) is applied in the proposed study.

The authors of the methodology proposed three experimental models of activity:

● Free choice of generating reactions is a behavior that does not depend on the patterns of appearance of stimuli on the panel of the device.

● Probabilistic choice of generating responses is a behavior in which the subject is asked to predict the pattern of emerging stimuli.

● Conditional choice is a behavior in which the subject's responses must exactly match the proposed pattern of emerging stimuli.

The data obtained in the course of the study were subjected to statistical processing using the software package "Statistic for Windows", version 7.0. Assessment of the distribution of signs for normality according to the Shapiro-Wilk criteria was carried out for each of the studied parameters. Also, Student's t-test was used for the normal distribution of indicators and the equality of variances of the studied trait, the arithmetic mean and standard deviation were used for descriptive statistics. The critical level of significance (p) when testing statistical hypotheses in the study was taken as ≤ 0.05.

The subject of the research is the cognitive-behavioral construct of decision-making in the experimentally created environment of "choice-tracking" the pattern of emerging stimuli. The object of the research was chosen patterns of decision-making depending on the success of educational activities in the field of learning foreign languages. The study involved 1st and 2nd year students of a medical university (n = 400) aged 17 to 19 of both sexes, studying English, German and French. The study did not include students who graduated from schools with in-depth study of a foreign language. All subjects were informed of their consent to the survey. As a result of oral and written responses during the first month of study, students with excellent academic performance were divided into groups of high and low performing.

2. Results

The analysis of the obtained results was carried out on the basis of a patent for an invention (Deryagina, et al., 2001), in which the author's interpretation of the obtained results of instrumental testing is given. Of particular interest is the free choice mode, when the subject is given multiple opportunities to make an arbitrary choice, which depends only on the subjective decision-making mechanisms. Factor analysis by the method of principal components revealed two groups of factors that characterize the totality of testing parameters in conditions of free choice. The first group of factors included structural indicators (preference for choice, which determines 42.37% of the total variance, the second group consisted of dynamic (speed) parameters of 13.53%. Thus, the structure of the behavioral construct turned out to be decisive in the selection process under conditions of free activity.

Evaluation of the test results in the free choice mode showed two groups: 1) students preferring "single choice" (67% of low-performing students) and 2) students who prefer the behavior of "repeated N times in a row choice" (77% well-performing). The preference for "single choice" may indicate the need to constantly search for solutions in the course of any activity. The search for solutions, accordingly, assumes a certain time. The mean time between reactions showed a statistically significant difference (p = 0.001) between the studied groups (Fig. 1), especially at the beginning of the first year of study. The leveling of differences by the end of the second year indicates adaptive processes in the dynamics of learning activity.
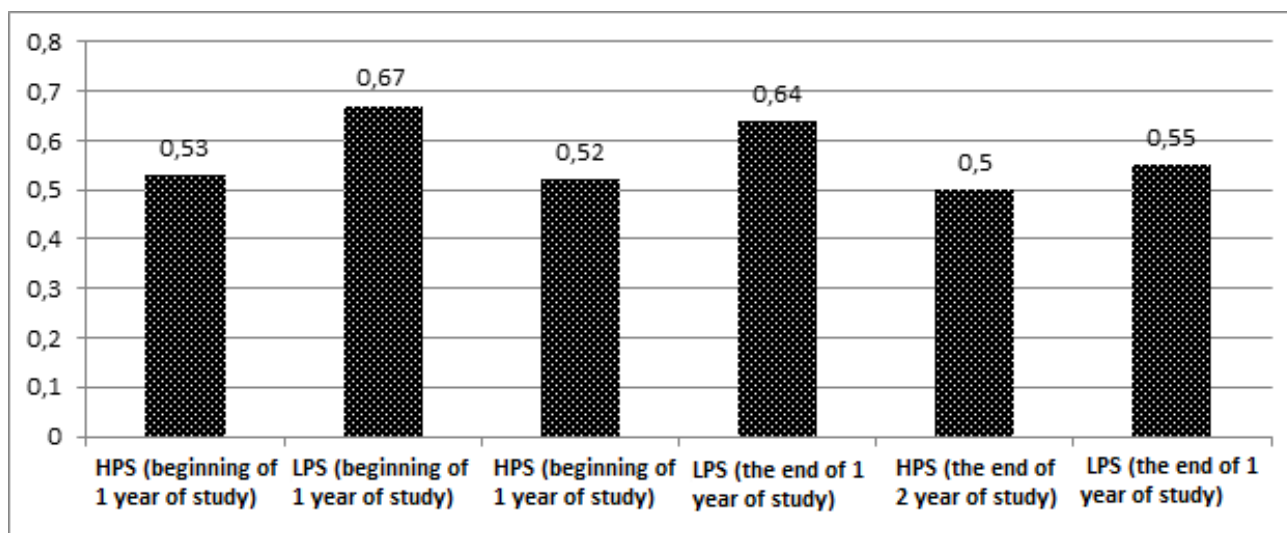
Fig. 1. Average time between reactions in the free choice mode (sec): HPS - high performing students, LPS- low-performing students.

The average time between reactions reflects the lability of the psychomotor reactions of the subject as a whole, while the differential indicators of the decision-making time during the repeated choice can be considered as the main components of the behavioral construct (Table 1): the average repeated choice time is the information component, the average reaction time is the motivational component, in particular search activity (Simonov, 1997). The level of the subject's awareness of the external environment (information component) correlates with environmental stimuli and determines the level of search activity (motivational component). Evaluation of differential indicators of decision-making time during repeated choice demonstrated a certain dominance (at the level of tendencies) of indicators of the information component among well-performing students, which, possibly,

determined more successful educational activities. Excessive indicators of search activity (motivational component) were observed in the group of low-performing students, which we regarded as an indicator of a high degree of uncertainty in the learning environment for this group of subjects.

Table 1. Free choice testing parameters(M ± SD)

Time (sec)	HPS	LPS	P - value		
	1 year of study(1)(n=200)	2 year of study (2)(n=200)	1 year of study(3)(n=200)	2 year of study(4)(n=200)	
Average reselection time	0,48±0,04	0,50±0,04	0,44±0,03	0,45±0,03	(2-4) 0,004
Average reaction time	0,45±0,03	0,48±0,03	0,64±0,05	0,66±0,05	(1-3) 0,000

According, to Leont'ev, (1975), activity is "the process of interaction of a subject with an object, provided that its direction as a whole (its subject) always coincides with the motive (motive), in which the need is concretized and defined". Also, his further postulates about activity as internal, and the subject as a subjective characteristic of a person confirms our concept of cognitive-behavioral activity of students. If we concretize the activity as educational, it is appropriate to recall the approach of L.S. Vygotsky, who believed that "the need, task, motives, actions and operations are distinguished in the structure of educational activity" (Fedorova, 2010). Considering the above, it should be noted that stable scenarios of human behavior under standard conditions are an ordered sequence of reactions occurring in time and space. In our study, we observed structural and functional differences in operational processes in conditions of free activity among students with high and low academic performance.

Any activity, including educational, contains elements of uncertainty, which requires the inclusion of mechanisms for predicting future events. A person can "use imagination as a powerful tool that helps people to reveal themselves as individuals and enter into a deeper, living and responsible relationship with reality" (Donati, 2019). A study by Potts R. et al. shows that preliminary guessing of translations of foreign words leads to an intensification of the learning process (Potts, Davies, Shanks, 2018). Much attention is paid to forecasting in psycholinguistics, especially to probabilistic forecasting of spoken speech. From a

psychological point of view, probabilistic forecasting is a consequence of the body's readiness to be exposed to one or another auditory stimulus (Matveeva, 2015). However, the perceptual processes of speech include not only auditory perception, but also visual perception. We conducted an instrumental analysis of the subjects' ability to anticipate the appearance of a visual stimulus signal in the form of lighting one of the two windows of the device. The advantage of this method of testing lies in the indifference of the stimulus material in relation to gender, age, race and available knowledge.

Activity in the form of prediction (probabilistic choice) was assessed by us on the basis of the success of the choice of the subject, which determined his ability to perceive the internal interconnection of the sequence and, on this basis, to predict the next stimulus. The most significant of the 16 parameters proposed by the developers of the device turned out to be three: the average reaction time (30), the probability of repeated selection of the left and right buttons against the background of success (25) and failure (26).

Repetition on the background of success was statistically significantly higher in the group of well-performing students, both in the first and second year. This result is quite natural, which is consistent with our data on the prevalence of the motive for achieving success among more successful students (Khokhlova, Deryagina, 2009). Moreover, the vector of increasing this parameter upward was identical in both groups. Repetition against the background of an erroneous decision had no statistically significant intergroup differences, increasing by the second year also in all surveyed students.

Table 2. Testing parameters in terms of probabilistic choice(M ± SD)

Parameters	HPS	LPS	P - value		
	1 year of study(1)(n=200)	2 year of study(2)(n=200)	1 year of study (3)(n=200)	2 year of study(4)(n=200)	
25 (%)	66,90 ±0,75	74,7 ±7,5	61,43 ±7,1	65,13 ±0,77	(1-2) 0,030 (1-3) 0,020 (2-4) 0,020
26 (%)	25,12 ±0,51	29,84 ±0,54	27,25 ±0,63	32,93 ±0,76	(1-2) 0,030 (3-4) 0,020
30 (сек)	0,81 ±0,18	1,51 ±0,19	0,73 ±0,15	1,06 ±0,18	(1-2) 0,040 (2-4) 0,050

The average speed of reactions in the mode of probabilistic choice in the first course differed almost 2 times. The differences were not so great by the second year. The reaction rate increased in all students, which, however, led to an increase in repetitions against the background of failure (r = -0.72; p = 0.05).

It should be noted that correct and erroneous prediction revealed a relationship with the development of linguistic guesswork, which is necessary for the correct perception of foreign language information by ear and the functioning of the functional speech system. When translating 20 words with a phonetic coincidence with the Russian language, low-performing students gave fewer correct answers (12 words) compared to the group of high - performing students (19 words, respectively). At the same time, an incorrect translation of one word entailed a chain of mistakes, which required 2-3 attempts for low- performing students to correct. Students with a good level of foreign language proficiency made mistakes less often and were corrected immediately after an unsuccessful answer.

The decision-making mechanism and the probabilistic forecasting that constitutes its basis are, therefore, necessary conditions for effective and adequate perception of foreign language speech. Its rate is much higher than the rate of the native language (French speech - 310 syllables per minute, English - 250, German - 220, Russian - 197 (Bukhvalova, 2012; Cutler, Mehler, 2002), and, consequently, the load on the neuronal systems that process dynamic properties of foreign language hearing information.

An obligatory component of the success of educational activities is the level of attention and the effectiveness of the restructuring of choice strategies. These functions were tested in the form of tracking the presented spatio-temporal pattern of stimuli (controlled choice) at the limiting (intrinsic - UV0) and imposed tempo (with an interstimulus interval of 400 ms - UV400). The response time (RT) and error rate (ERR) were recorded. The acceptable level was taken as 15%.

The level of attention in one's own response rate (inversely to the number of erroneous answers) was statistically significantly higher among well-performing students, both in the first and second years. By the second year, the number of errors was halved for all students, regardless of their academic performance. At the same time, the reaction time in the group of high performing students was lower at the tendency level in the first year and statistically significant in the second. Thus, the necessary components of effective tracking of visual stimuli in the group of well-performing students were initially present. Accordingly, the

number of erroneous responses and reaction times differed statistically significantly among these students in the mode with the imposed tracking rate (Table 3).

Table 3. Guided Selection Test Parameters (M±SD)

Parameters	1 year of study	2 year of study	P - value		
	HPS (1) (n=200)	LPS (2) (n=200)	HPS(3) (n=200)	LPS (4) (n=200)	
ERR (UV0) %	4,4±0,03	11,6±0,01	2,0±0,02	6,7±0,01	(1-2) 0,02 (3-4) 0,03
ERR(UV400) %	12,1±0,04	20,3±0,01	9,7±0,01	18,3±0,04	(1-2) 0,006 (3-4) 0,03
RT (UV0) c	0,42±0,03	0,49±0,03	0,43±0,03	0,52±0,02	(3-4) 0,03
RT (UV400) c	0,40±0,02	0,47±0,01	0,37±0,01	0,44±0,03	(1-2) 0,04 (3-4) 0,04

Conclusion

The cognitive paradigm in the field of linguistic research has been actively developing and establishing itself since the end of the 20th century. The language system is derived from the "ecological context" in which the language exists (Solodilova 2010). One of the components of the ecological context for language is the human cognitive system, which is interdependent with a complex behavioral construct. The fundamental aspect of behavior was studied in our work - the problem of choice, both free and determined by the conditions of the external environment, which was considered through the prism of the successful acquisition of a foreign language by students of a non-linguistic university. Making a decision in an uncertain situation, i.e. choice associated with strong involvement of cognitive processes. The speed with which the subject receives and transmits information in this case is mediated by his activity, aimed at building activity in the prevailing objective conditions. The preference for a single choice with a relatively low reaction rate in a free environment by students with low grades indicates the limitedness of "ready-made" neural programs, which requires a clear determination of educational activity, the formation of a social attitude as a

mechanism of communication between the operations of analysis, selection, selection of information and the environment (Devyatkin, 2009). A direct connection between the speed of perception of a foreign language and the success of consolidating the acquired knowledge was revealed in (Zerr et al., 2018), which is indirectly consistent with data on lower speed characteristics in all testing modes among unsuccessful students.

Almost any behavioral act is impossible without predictive elements, be it a conscious or unconscious level. Learning activity can be divided into many quanta of behavior, each of which contains the foresight of the future result. Instrumental testing in a probabilistic selection mode has shown that successful students are more responsive to positive reinforcement, choosing repetition against the background of success. No intergroup differences were found in response to negative reinforcement. This fact confirms the opinion that it is necessary to maintain a reasonable readiness in students not to be afraid of mistakes when learning a foreign language (Egorova, 2013). The nervous system has the ability to assess not only the probability of the appearance of certain stimuli, but also the probability with which reinforcement will follow, and the prediction of high-probability reinforcement is associated with the functions of the frontal cortex. It can be assumed that intergroup differences are associated with morphofunctional features of the brain organization.

Simulation of tracking presented stimuli revealed a low level of voluntary attention in low - performing students, especially in a situation of imposed pace. A hypothesis arises that their own cognitive style in this group is dependent on environmental conditions (Nozari, Siamian, 2014), so this must be taken into account in the learning process.

Thus, the results obtained indicate the presence of universal differentiated cognitive - behavioral strategies in the case of successful / unsuccessful mastering of a foreign language, in which the way of making decisions in conditions of free activity, predicting the future result of activity and the level of voluntary attention are important. The obtained statistically significant differences in the dynamics of learning between 1 and 2 years of education indicate the plasticity of the attitudes that are formed in the learning process.

References

Bakhmat E.M. (2016). The relationship between image and attitude in the system of mental regulation of activity. Scientific works of the Republican Institute of Higher Education. No. 16-2. Pp. 25-30.

Bukhvalova E.G. (2012). On the rhythm of English and German speech. Philological sciences. Questions of theory and practice. No. 2. Pp. 43-44.

Cutler A., Mehler J. (2002). The syllable's differing role in the segmentation of French and English. Psycholinguistics. Vol.1. Pp. 115–135.

Devyatkin A.A. (2009). The phenomenon of social attitude in the psychology of the twentieth century: monograph. Kaliningrad: Kaliningrad State University, 385 p.

Deryagina L.E., Sidorov P.I., Soloviev A.G. (2001). A method for assessing a behavioral response for professional selection and in screening studies. Patent for invention RUS 2208388 07.16.

Donati M. (2019). From active imagination to active life: at the roots of Jungian social activism. J Anal Psychol. Apr;64(2):225-243. Doi: 10.1111/1468-5922.12480.

Egorova N.V. (2013). The importance of the psychological aspect in the study of foreign languages. An innovative context for the development of methods of teaching foreign languages, philology and intercultural communication materials of a scientific and practical conference with international participation. Editorial Board: V.A. Mayevskaya (editor-in-chief). Pp. 251-256.

Fedorova M.A. (2010). Didactic characteristics of the relationship between the concepts of "activity", "educational activity", "educational independent activity". New in psychological and pedagogical research.No. 1 (17). Pp. 136-151.

Kostandov E.A. (2006). The value of the context of cognitive activity in the formation of unconscious visual attitudes. Russian physiological journal named after I.M. Sechenov. Vol. 92. No. 2. Pp. 164-178.

Khokhlova L.A. (2014). Psychophysiological connections in the structure of foreign language speech abilities. St. Petersburg, 7 STUDIO RIK. 255 p.

Khokhlova L.A., Deryagina L.E. (2009). Features of motivational behavior of students of the left and right hemisphere type in the process of learning foreign languages. Human Ecology, No. 5. Pp. 25-29.

Leontiev A.N. (1975). Activity. Consciousness. Personality. Moscow: Politizdat.304 p.

Matveeva L.Yu. (2015). Probabilistic prediction of sounding speech: to the problem statement. Saratov Journal of Medical Scientific Research. Vol. 11.No. 2. Pp. 216-220.

Mizen S. (2017). Preliminary thoughts on the neurobiology of innate unconscious structures and the psychodynamics of language acquisition. J Anal Psychol. Nov;62(5):756-770. Doi: 10.1111/1468-5922.12362.

Prokopenko Yu.A. (2014). The need for the study of foreign languages as a result of globalization processes. Eurasian Union of Scientists. No. 5-4 (5). Pp. 58-60.

Potts R., Davies G., Shanks D.R. (2018). The benefit of generating errors during learning: What is the locus of the effect? J Exp Psychol Learn Mem Cogn. Jul 19. doi: 10.1037/xlm0000637

Solodilova I.A. (2010). Communicative-pragmatic and cognitive approaches: unity and struggle of opposites. Social and Humanitarian Bulletin of the South of Russia. Krasnodar. Pp. 123 - 135.

Uznadze D.N. (2012). Psychology of installation. Psychology-classic. St. Petersburg: Peter, 2001. 416 p. Available at: http://www.psyworld.in.ua/.Accessed: 01.04.2012.

Zerr C.L., Berg J.J., Nelson S.M., Fishell A.K., Savalia N.K., McDermott K.B. (2018). Learning Efficiency: Identifying Individual Differences in Learning Rate and Retention in Healthy Adults. Psychol Sci. Sep;29(9):1436-1450. Doi: 10.1177/0956797618772540.

Digital educational space in the professional training of a musical art teacher

Myroslava M. Kachur*
Iryna A. Dikun**
Myroslava A. Zhyshkovych***
Liudmyla P. Stepanova****
Inna S. Synevych*****

ABSTRACT

The objective of this study was to determine whether higher education institutions, teachers and students of the specialization in musical art are prepared to create and use the digital educational space in the educational process. The study involved the following methods: literature review and analysis of the content of official documents of higher educational institutions that provide professional training for music teachers; survey; mathematical methods of data processing; Statistica software package. The research has shown that not all higher educational institutions have the necessary resources to implement learning in the digital education space. Besides, not all higher educational institutions teach subjects that help improve students' digital literacy. There are also teachers who have difficulties using the digital educational space in the learning process due to lack of digital literacy. The study demonstrated awareness of the importance of using the digital educational space in the education of future music teachers. But, it is necessary to pay attention to improving the digital literacy of all participants in the educational process, as well as provide educational institutions with proper modern recourses, software, hardware and equipment, including also computer music technologies and electronic musical instruments.

KEYWORDS: digital literacy; distance education; electronic learning; music education; educational resources.

*Department of Theory and Methodology of Musical Education, Pedagogical Faculty, Mukachevo State University, Mukachevo, Ukraine. ORCID: https://orcid.org/0000-0002-9311-5741. E-mail: mkachyr155@ukr.net

**Department of Art Disciplines, Pedagogical Faculty, Municipal Institution of Higher Education «Bar Humanitarian Pedagogical College named after MykhailoHrushevsky», Bar, Ukraine. ORCID: https://orcid.org/0000-0002-9697-0305. E-mail: dikuniren6@ukr.net

***Department of Academic Singing, Faculty of Musicology, Composition, Vocals and Conducting, Lviv National Music Academy named after M.V. Lysenko, Lviv, Ukraine. ORCID: https://orcid.org/0000-0003-3432-2641. E-mail: zhyshkomyr1985@i.ua

****Department of Theory and Methodology of Musical Education, Choral Singing and Conducting, National Pedagogical Dragomanov University, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0002-9364-2373. E-mail: liuda453stepanova@gmail.com

*****Separate Structural Subdivision «Humanitarian and Pedagogical Vocational College of Mukachevo State University», Mukachevo, Ukraine. ORCID: https://orcid.org/0000-0002-1403-6202. E-mail: gpk3547@yahoo.vom

Espacio digital educativo en la formación profesional de un profesor de arte musical

RESUMEN

El objetivo de este estudio fue determinar si las instituciones de educación superior, los profesores y los estudiantes de la especialización en arte musical están preparados para crear y utilizar el espacio educativo digital en el proceso educativo. El estudio contó con los siguientes métodos: revisión de la literatura y análisis del contenido de los documentos oficiales de las instituciones de educación superior que brindan formación profesional a los profesores de música; encuesta; métodos matemáticos de procesamiento de datos; paquete de software Statistica. La investigación ha demostrado que no todas las instituciones de educación superior tienen los recursos necesarios para implementar el aprendizaje en el espacio de la educación digital. Además, no todas las instituciones de educación superior enseñan materias que ayudan a mejorar la alfabetización digital de los estudiantes. También hay profesores que tienen dificultades para utilizar el espacio educativo digital en el proceso de aprendizaje debido a la falta de alfabetización digital. El estudio demostró conciencia de la importancia de utilizar el espacio educativo digital en la formación de futuros profesores de música. Pero es necesario prestar atención a mejorar la alfabetización digital de todos los participantes en el proceso educativo, así como proporcionar a las instituciones educativas los recursos, software, hardware y equipos modernos adecuados, incluidas también tecnologías de música informática e instrumentos musicales electrónicos.

PALABRAS CLAVE: alfabetización digital; competencia digital; la educación a distancia; instrumentos musicales electrónicos; plataforma de aprendizaje; recurso electrónico.

Introduction

The search for optimal methods and approaches to teaching future music teachers was carried out in different countries, in particular, in European countries such as Poland, Germany, France, Sweden, Finland, Norway, Great Britain, Greece.

The main prerequisites for the introduction of digital technologies in education are: their emergence; one of the principles of sustainable development is lifelong learning, including self-education; the growing popularity of the introduction of gamification in the educational process; gadgetisation, etc.

Digital educational space performs the following functions: information and methodological support of the educational process; planning the learning process and providing it with the necessary resources; quality assessment and recording of learning

outcomes; search, collection, analysis, processing, storage and submission of information; remote communication between participants in the educational process, as well as communication between various educational institutions and other organizations that can help improve the effectiveness of learning.

Information culture has become an integral part of culture. It is necessary to combine traditional forms of education with digital in order to build effective interaction of participants in the learning process based on the interests of modern students, for whom the digital technological environment is comfortable.

The question of the use of digital educational space in higher educational institutions of Ukraine, where future specialists acquire professional competencies, remains open. The aim of this work was to investigate the degree of readiness of higher educational institutions of Ukraine to use the digital educational space in training music teachers. Achieving the aim involved fulfilling the following objectives:

1) study whether higher educational institutions that train music teachers have the necessary resources for the use of digital educational space in the educational process;

2) through survey of teachers and students determine their readiness to use the digital educational space and the degree of its use in the educational process of training music teachers.

1. Literature review

In today's information-rich world, a successful person is one who has digital competencies (Henseruk and Martynyuk, 2019, Koukopoulos and Koukopoulos, 2019), which describe a person as one who can think logically, manage information and have the skills to work with digital technologies.

The digital educational environment contributes to the development of digital competence of participants in the learning process (Henseruk and Martynyuk, 2019; Maymina et al., 2018). But it requires compliance with the following rules when creating it (Henseruk and Martynyuk, 2019): a student is an active subject of knowledge, who has some experience and individual characteristics, which should be directed to self-education and professional self-development not only during student years, but throughout life. After graduating from a pedagogical institution, the future music art teacher should acquire the

following professional competencies: the ability to use techniques to activate student's cognitive activity, thereby promoting the development of intelligence (Artemieva et al., 2020; Morozov and Kozlov, 2019); knowledge of the psychological and pedagogical features of the aesthetic and educational process and promotion of the comprehensive development of students by means of art; the ability to apply an individual approach to each student in order to meet their creative needs; have ICT user skills and apply them in the learning process, etc. (Prokopchuk, 2020).

Digital competencies that need to be developed in future teachers (Henseruk and Martynyuk, 2019): the ability to recognise and use digital educational resources depending on the goals and objectives of learning; ability to generate interactive tasks using digital resources; ability to carry out research using digital technologies; ability to organise and participate in group interaction in a digital educational environment; ability to motivate students to creative use of digital space (Cordie et al., 2021); ability to transfer the traditional educational process into the digital educational environment (Henseruk and Martynyuk, 2019, Mitchell and Appleget, 2021; Mullabayev et al., 2021)). ICTs also contribute to the development of the following competencies in future music teachers: independent musical thinking, building an auditory model of interpretation of a musical work, etc. (Havrilova et al., 2019).

Digital competence is also related to: understanding the structure and ways of interaction of digital technologies; awareness of the possibilities of digital technologies for innovative activities; assessing the reliability of information; skills and abilities to work with different programmes (Erstad and Silseth, 2019; Henseruk and Martynyuk, 2019).

Literature review on the topic of this study showed that there is no single approach to the definition of "digital educational space". Some scholars (Bayanov et al., 2019) understand the digital educational space of the educational institution as digital technologies of the online community of teachers and students. In this paper, an educational system with the following components will be considered as digital educational space: educational resources in electronic form (lecture texts, plans of seminars and practical classes, tasks for practical work, discussion topics, electronic libraries, catalogues, audio, video recordings, repositories, etc.); ICT (for example, various digital technical means, educational digital platforms, etc.), which make the interaction of the subjects of the educational process in the educational space possible (holding webinars, online conferences, consultations, etc.).

In order for a future music teacher to be able to adapt in the modern information space, it is necessary to introduce the subject Theoretical Foundations of Information Culture or Music Informatics into the curriculum (Gorbunova and Bazhukova, 2020). The main technical means should be music computer technology and electronic musical instruments. Increasing the efficiency of the use of digital educational space requires high information literacy of all participants in the educational process, so it is advisable to pay attention to the special information training of teachers.

The penetration of digital technologies into the art of music has led to the emergence of new prospects (Bowen et al., 2018) and the transition of the learning process to a higher level (Gorbunova and Hiner, 2019). Music computer technologies, keyboards, synthesizers, multimedia computers, etc. have become widely used (Gorbunova and Plotnikov, 2018). Their capabilities allow to improve musical skills in the course of interaction with a music computer (Gorbunova and Hiner, 2019), as well as led to the emergence of new, non-traditional technologies for performing musical works (Gorbunova, 2018).

To date, a number of interactive learning systems have been developed and used in music schools and clubs. These include (Gorbunova and Hiner, 2019, p. 125): Soft Way to Mozart, Music in Digital Space, Music and Informatics, Murzilka: The Lost Melody, Clifford: Guess the Melody, Music Class: Play and Learn, Ear Master School, Ear Power, Sight-Singing Trainer. Interactive learning systems have specialised software that allows using a computer and a connected numeric keypad as a musical instrument, while the music computer has a graphics card, has the ability to create computer graphics, animation, interact. It is also possible to support such activities as singing, playing musical instruments, composition and recompilation of music, they can be used in music-related areas of culture and art — theatre, choreography, music videos, etc. (Gorbunova and Plotnikov, 2019). However, the main purpose of, for example, the learning system Soft Way to Mozar" is to teach its users to play keyboard instruments (Gorbunova and Hiner, 2019). A number of mobile applications have also been developed (Zimmermann et al., 2019), such as Practicia (Wagner, 2017).

Music computer technology also allows applying all the experience of traditional music teaching in a distance form (Gorbunova and Pankova, 2020). Besides, ICTs allow all creative individuals to interact on a global scale, share experiences and be inspired by new achievements. It is necessary to have appropriate skills in working with ICT to be able to use

the global digital creative environment (Gorbunova and Hiner, 2019; Gorbunova, and Pankova, 2020).

As Gorbunova and Pankova (2020) demonstrated through teaching the subject Computer Technology in Music Education, music computer technology has software for musical creativity: arrangements, audio and video editors, sound libraries, virtual synthesizers, audio processing programmes, video recording programmes, audio file content analysis programmes, etc. They also have the tools needed to conduct a test of acquired knowledge of musical subjects. For example, music computer technology can be used for interactive testing, which includes questions from theoretical material, auditory assignments, musical dictation, etc.

The introduction of special music platforms, such as ConservatorioVirtual.com, into the educational space of music teachers is also promising (García-Gil and Andreu, 2017).

Another advantage of information technology is that it makes learning accessible to everybody (Gillett-Swan and Sargeant, 2018), and for people with disabilities (Tohara, (2021), for example, with visual impairments (Gorbunova and Voronov, 2018), as well as during natural disasters (Tudor and Popescu, 2020). Scholars have considered and classified the benefits and risks of implementing digital technologies in the educational process (Bayanov et al., 2019; Kratus, 2019).

It is also proposed to focus on the needs of the majority of students in music education provided in schools, rather than trying to grow 0.1% of musical geniuses, ignoring the interests of 99.9% of students who are forced to study music at school and acquire knowledge and skills which they will never need in adult and professional life (Kratus, 2019).

Researchers propose to include social networks, in particular, YouTube, in the digital educational space of professional training of music teachers, which will contribute to an even deeper immersion in the world of music art (Smith and Secoy, 2019).

2. Methods

The research procedure contained the following components:

1) The available resources for the creation of digital educational space in pedagogical education institutions that train teachers of music art were identified. In particular, they found out whether there are electronic libraries, music computer technologies, electronic

musical instruments in the studied HEIs. Besides, it was found whether digital educational platforms are used in the training of future teachers. It was also found out whether students' digital literacy is being enhanced through the study of subjects related to the use of ICTs in education and music.

2) A closed-ended questionnaire was created and a survey of teachers of specialised subjects in the major Secondary Education (Music Art) was conducted to determine their attitude to the use of digital educational space in the educational process, as well as their capabilities for the use of ICTs, music computer technologies and electronic musical instruments, as well as whether there are difficulties when working in the digital educational space.

3) A closed-ended questionnaire was created and a survey of students majoring in Secondary Education (Music Art) was conducted to find out how common among students is work in the digital educational space, whether ICT, music computer technologies, electronic musical instruments are used in the learning process and how they affect learning outcomes, as well as the acquisition of knowledge, skills and abilities necessary for the future professional activity of music teachers.

The first stage of the research involved content analysis of the official websites of the sample universities to identify the necessary informational, digital, theoretical, methodological and technical support that allows forming a digital educational space to train future music teachers. Besides, the content of educational and professional programmes and curricula for music teachers was analysed to identify subjects that contribute to improving the digital literacy of students needed for effective learning in the digital educational space.

The second and third stages of the study provided for the creation of questionnaires and conduct of surveys of teachers and students. The sample consisted of ten higher educational institutions of Ukraine selected at random according to one criterion — training in the major Secondary Education (Music Art). The sample included the following HEIs: Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Berdyansk State Pedagogical University, Volodymyr Vynnychenko Central Ukrainian State Pedagogical University, South Ukrainian National Pedagogical University named after K.D. Ushynsky, Ukrainian Engineering Pedagogics Academy, H.S. Skovoroda Kharkiv National Pedagogical University, Pavlo Tychyna Uman State Pedagogical University, Taras Shevchenko National Pedagogical University of Chernihiv, Borys Grinchenko Kyiv University, V.O. Sukhomlinskiy

National University of Mykolaiv. The sample also included seventeen teachers of the studied HEIs who teach specialised subjects to students majoring in Secondary Education (Music Art), and 163 students studying in the selected HEIs in this major. The distribution of the sample by HEIs was as follows: 1-2 teachers from each selected educational institution of different ages, work experience, scientific degree and position; and 15-20 students from each studied HEI aged from 18 to 30 of the 3rd-4th years of study.

The obtained results were processed in Statistica software.

3. Results

Students need knowledge and skills in the field of modern ICT to effectively use the digital educational space to meet educational information needs.

In this paper, the prerequisites for creating and using digital educational space of research institutions were identified through the content of websites of Ukrainian pedagogical HEIs which provide educational services to future teachers of music, as well as curricula and educational and professional programmes. The obtained results are summarised in Table 1.

Table 1. The identified conditions for the creation and use of digital educational space in the sample universities

HEI	Subjects that promote digital literacy	Necessary provision of digital educational space	Availability of e-library	Source of information
Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University	Innovations and Technologies in Contemporary Art	The use of Moodle	Yes	http://vspu.edu.ua/
	Organization of the Educational Process in the Digital Learning Ecosystem			
	Methods of Developing and Using Electronic Courses			
	Digital Environment Ecology			
	Distance Education Product Management			
	Digital Innovative Technologies			
	Work with Electronic Courses			
	Digital Technologies for Graphic Image, Animation and Video Processing			

	Modern Digital Technologies and Media Education			
	Distance Learning Software			
	Modern Information Technologies (for professional purposes)			
Berdyansk State Pedagogical University	Modern Information Technologies (for professional purposes)	Moodle distance learning platform	Yes	https://bdpu. org.ua/
Volodymyr Vynnychenko Central Ukrainian State Pedagogical University	Music and Information Technologies	Moodle distance learning platform, depository, electronic resources	No	http://kspu.kr. ua
South Ukrainian National Pedagogical University named after K.D. Ushynsky	Innovative Technologies of Teaching Art	work with the cloud environment Microsoft Office 365, Zoom, repository	Yes	http://pdpu.edu. ua/
H.S. Skovoroda Kharkiv National Pedagogical University	Music Informatics (elective)	training and information portal based on the Moodle platform; midi keyboard; electronic archive; repository; electronic catalogue, repository; educational and methodical complexes of subjects; internship programmes; blocks of elective subjects	No	http://pu.ac. kharkov.ua/

Pavlo Tychyna Uman State Pedagogical University	Music Informatics	virtual educational environment of the university; copyright development of teaching staff; electronic library resources; Moodle electronic environment platform; educational and methodical complexes of subjects	Yes	http://www.udpu.org.ua/
Taras Shevchenko National Pedagogical University of Chernihiv	ICT in the Field of Music Art Digital Musical Instruments	virtual educational university environment, author's development of teaching staff, electronic environment of the Moodle platform, educational and methodical complexes of subjects	Yes	http://chnpu.edu.ua/
Borys Grinchenko Kyiv University	Music Informatics	Microsoft cloud services, Webex software, electronic repository	Yes	
V.O. Sukhomlinskiy National University of Mykolaiv	Music Informatics (elective)	Moodle system	Yes	
Nizhyn Mykola Gogol State University	Information Learning Technologies Music Informatics	Moodle virtual learning environment	Yes	http://www.ndu.edu.ua/

Table 1 shows that all HEIs included in the sample of this study provide educational services in the major Secondary Education (Music Art). 100% of the curriculum provides for the development of digital literacy of future music teachers through the following subjects:

Music Informatics, Modern Information Technology, ICT in the Field of Music Art, Multimedia Technologies in Art Education and others. However, in 30% of HEIs these subjectsare elective.

The vast majority of HEIs use the traditional form of education: lectures, seminars, practical and individual classes, independent work and consultations, and assessment in the form of written or oral exams and tests, presentations, defence of internships, term papers, etc.

However, according to the information posted on the official websites, all HEIs of the sample also use digital teaching aids, in particular Moodle digital learning platform, through which the participants of the educational process interact in digital format by placing educational and methodological complexes of studied subjects, audio, video materials, repository, as well as online consultations, conferences, etc.

As the analysis of curricula and educational professional programmes showed, not all selected HEIs pay attention to the development of such knowledge, skills and abilities of future music teachers as knowledge of modern music computer programmes designed for sound processing, knowledge of sound recording, knowledge of music editors, skills and abilities to work with sound equipment, skills and abilities to use a computer as a music studio, skills of recording and processing sound using digital technologies, knowledge, skills and abilities to use music resources on the Internet.

This work also involved a survey of teachers and students of HEIs included in the sample. Sample description by age, gender and occupational characteristics are given in Table 2.

Table 2. Sample description

	Total	Men	Women	Age				
				18 - 24	25 - 34	35 - 44	45 - 54	55 - 65
Lecturers/professors:	17	5	12	2	3	6	5	3
PhD, Associate Professor	11	3	8	0	1	3	4	3
Lecturer, demonstrator	6	2	4	2	2	3	1	0
Students	163	48	115	154	9	0	0	0

The results of the survey conducted among teachers of the studied HEIs are presented in Table 3, and among the students of the sample — in Table 4.

Table 3. The results of the survey of teachers

Item No.	Questions of the questionnaire for students	Number/percentage of responses:		
		"Yes"	d	"No"
1.	Do you have the necessary ICT skills?	16 / 94 %	768	1 / 6 %
2.	Do you have the necessary skills to work with music computer technology?	10 / 58 %	552	7 / 42 %
3.	Do you have the necessary skills and abilities to work with electronic musical instruments?	8 / 48 %	554	9 / 52 %
4.	Do you prefer traditional and blended learning?	13 / 76 %	338	4 / 24 %
5.	Do you use the resources of the digital educational space in the learning process?	16 / 94 %	916	1 / 6 %
6.	Are there difficulties in organising learning in the digital educational space due to lack of digital literacy?	7 / 42 %	736	10 / 58 %
7.	Do you use music computer technology in your learning process?	5 / 29 %	1349	12 / 71 %
8.	Do you use electronic musical instruments in the learning process?	4 / 24 %	1235	13 / 76 %

As Table 3 shows, 6% of the surveyed HEI teachers do not have sufficient knowledge, skills and abilities to work with ICT to organise the educational process in the digital educational space of the university. However, 94% of teachers use the resources of the digital educational space in the educational process, the same number of respondents prefer traditional and blended forms of learning, because not all have sufficient skills to organise teaching and learning in the digital educational space so that students are interested in the subjects studied, motivation to study was not lost and, as a result, success was not reduced. Only 24% of teachers use electronic musical instruments in class, although 58% of respondents know how to work with them. The reason for this may be the low technical provision of pedagogical education institutions with modern information technologies that can be used in the training of future music teachers, in particular in the digital educational space. Intergroup variance d is the weighted sum of squares of deviations of group means from the general mean, due to the heterogeneity of the sample, namely the different conditions for creating a digital educational environment in different HEIs, is given in Tables 3, 4.

Table 4. The results of student surveys

Item No.	Questions of the questionnaire for students	Number/percentage of responses:		
		"Yes"	d	"No"
1.	Are digital resources available in your higher educational institution?	160 / 98 %	739	3 / 2 %
2.	Do you use digital educational resources in preparation for classes?	134 / 82 %	984	29 / 18 %
3.	Do you use digital educational resources during classes?	155 / 95 %	659	8 / 5 %
4.	Are ICT skills sufficient to use digital educational resources?	147 / 90 %	371	16 / 10 %
5.	Are there web conferences, webinars held between participants of the educational process?	155 / 95 %	976	8 / 5 %
6.	Is distance learning sufficiently organised?	132 / 81 %	983	31 / 19 %
7.	Are digital learning platforms used for learning?	161 / 99 %	912	2 / 1 %
8.	Do you have experience with music computer technology?	51 / 31 %	1397	112 / 69 %
9.	Does the use of ICT in learning have a positive impact on learning outcomes?	119 / 73 %	329	44 / 27 %
10.	Are there risks to learning in the digital educational space?	47 / 29 %	457	116 / 71 %
11.	Are electronic musical instruments used in the learning process?	33 / 20 %	1541	130 / 80 %
12.	Is there enough theoretical and methodological digital support for successful learning in the digital educational space of your university?	134 / 82 %	813	29 / 18 %
13.	Are the acquired ICT competencies sufficient for the future professional activity of a music art teacher?	116 / 71 %	589	47 / 29 %

A survey of students showed that 90% of them have the skills and abilities to work with ICT that are sufficient to use them in learning through the digital educational space, but only 82% of students use digital resources in preparation for classes; 20% of students say that electronic musical instruments are used in the classroom, and 31% are familiar with computer music technologies. There are 81% of students believing that distance learning in their educational institution is conducted at the appropriate level, 82% believe that theoretical material in digital format is sufficient for successful learning in the digital educational space, and according to 71% of respondents, their skills and abilities to work with ICT are already enough for future professional activity.

It was found that the standard deviation from the mean percentage of positive responses to the same question in different universities was different. In this case, the intergroup variance, which describes the fluctuations of these groups, and intragroup variance, which describes the fluctuations caused by random factors not taken into account, are not equal, which indicates the invalidity of the null hypothesis.

Besides, calculation of the value of χ_1^2 through chi-square test when answering the questionnaire "Are there enough ICT skills to use digital educational resources?", "Does the use of ICT in learning have a positive impact on learning outcomes?" in selected HEIs, where the study of Music Informatics is mandatory for all students

$$\chi_1^2 = 3,1 \tag{1}$$

compared with

$$\chi_2^2 = 0,3 \tag{2}$$

obtained for universities, where the study of this subject is elective, found that

$$\chi_1^2 > \chi_2^2 \tag{3}$$

This may indicate that there is reason to believe that there is some connection between the study of this subject and students' interest in using the digital educational space in the learning process.

4. Discussion

One of the components of the digital educational space is distance learning. The National Academy of Managerial State of Culture and Arts remotely teaches the following subjects: History of Music, Fundamentals of Musical Composition in Choreography, Current Issues of Contemporary Music Performance, Contemporary Ukrainian Music, and at the National Pedagogical Dragomanov University — Polyphony, Vocal, Methods of Music Education, etc. (Havrilova et al., 2019).

Havrilova et al. (2019) share the experience of distance teaching the course Basic Musical Instrument (Piano) to future teachers of music. It included theoretical (lecture texts, multimedia presentations, tables, diagrams, audio, video, photos and reproductions of works of art), practical parts, independent work of students, control of knowledge and skills in the form of testing conducted in MOODLE learning environment, which allows testing the

theoretical material leant, as well as the acquired ability to recognise musical compositions that can be listened to in this digital learning environment.

In the training of music teachers, ICTs help to immerse oneself in the life of a composer thanks to the following opportunities (Havrilova et al., 2019): finding the necessary information, listening to works, viewing photos and videos, etc. They also allow finding and listening to different interpretations of the same work, use electronic libraries of musical information, record one's own performance of musical works for its analysis, observe the relationship between music and painting. The experiment of introducing a distance form of learning in the study of Basic Musical Instrument (Piano) showed that despite the various methodological possibilities of ICTs, acquiring practical skills and abilities to play an instrument is not possible through this form of learning only. Therefore, a combination of distance and traditional forms of learning is proposed (Havrilova et al., 2019), which involves interaction between participants in the learning process not only by means of ICT, but also face to face.

According to a survey (Kuznetsova and Azhmukhamedov, 2020), the digital educational space can be dangerous in terms of negative impact on the physical health of participants in the learning process (for example, musculoskeletal system, brain, skin, respiratory system, cardiovascular system, etc.), as well as their psycho-emotional state (increased nervous tension, sleep disturbances, irritability) and cause risks that can be attributed to social (in particular, reduced motivation to learn). Researchers are studying the social and anthropogenic risks of digitalisation of the educational environment (Baeva and Grigorev, 2020).

Despite a number of risks posed by the use of the digital learning environment, surveys (Kuznetsova and Azhmukhamedov, 2020) showed that 90% of respondents consider digital education a promising alternative to traditional one, and 64% believe that the digital learning environment has a positive impact on learning outcomes.

Kamahina et al. (2019) conducted a survey of teachers to determine their readiness to effectively use the digital educational space in the educational process, which showed that more than 90% of respondents use digital tools in the educational process, such as electronic textbooks, digital educational environments and online services. In addition, the survey showed a high level of information literacy of respondents, almost 100% confident in their

information competence. And about 67% consider the digital educational space a highly effective tool for improving the level of acquired knowledge, skills and abilities of students.

The opinion of students about the effectiveness of the use of digital educational environment in teaching almost coincides with the opinion of teachers, about 60% of US students surveyed believe that the most effective combination is traditional forms of learning with digital ones (Sorokova, 2020). The latter have such advantages as access to training materials and assignments at any convenient time, online testing; possibility of consultations with the teacher, receive and perform assignments in the digital space, hyperlinks to various sources of information and video lectures of teachers, etc. Similar studies conducted through Likert scaling (Borisova, 2020) showed that the vast majority of students consider online testing as an adequate form of assessment of acquired knowledge and skills. In general, according to students, digitalisation helps to improve the learning process.

According to the computer scale of self-efficacy perception and the scale of evaluation of attitudes to digital technologies, a study was conducted among 102 students majoring at Music Art and found a relationship between the level of perception of ICT efficiency and attitudes to digital technologies (Gudek, 2019).

Gorbunova and Bazhukova(2020) showed that there is a mismatch between the level of knowledge, skills and abilities of information technology teachers of music faculties to modern requirements for the use of digital technologies in the educational process, as well as between the level of professional training of future teachers provided in the relevant educational standards and methodological support of the digital educational environment, which uses music computer technology and electronic musical instruments.

An experimental study conducted at a Finnish school (Juntunen, 2017), which was based on the use of tablets in music lessons, showed that the use of information technology in music lessons helps to increase student activity in creative activities. An experiment conducted among students of pedagogical universities (Hiner and Gorbunova, 2019) showed that all participants learned to play the piano with both hands thanks to Soft Way to Mozart, and 91% of them could reproduce the works studied in this way on acoustic piano.

In general, there is an intention (Belonovskaya et al., 2020) to unite the digital information space of all universities in the country into a single educational space. This will allow for the unhindered exchange of experience and equal opportunities for quality education, regardless of geographical location.

The research conducted in this paper showed that the effectiveness of the use of digital educational space in the educational process depends on many factors. For example, the information literacy of all participants in the learning process, as well as digital information and technical provision of universities.

Conclusions

The use of new forms and technologies of teaching and learning, in particular digital ones, which allow optimizing the educational process and promote the acquisition of the necessary competencies for future professional activities is an urgent and priority task of educators.

A study conducted in this paper showed that not all higher educational institutions that train music teachers have the full resources needed to use the digital educational space in the educational process, while not all teachers and students have a sufficient digital literacy. At the same time, sometimes there are no subjects that contribute to its development in educational and professional programmes and curricula. The study also showed that in order to increase the efficiency of the use of digital educational space, it is necessary to provide educational institutions, including music faculties, with the necessary technical means, such as computer music technologies, electronic musical instruments, etc.

The results of this study can be useful for heads of educational institutions, teachers and students involved in the educational process, actively using the digital educational space, as well as scholars looking for ways to optimise the learning process, including training music teachers. The study showed the imperfection of the digital educational space for training music teachers, so future research should deal with finding ways to improve it, as well as monitoring changes due to the rapid development of ICT in order to timely introduce them into the training of future music teachers.

References

Artemieva, V. V., Voronina, L. V., Utyumova, E. A. (2020). Development of information culture of future teachers in the conditions of digitalization of education. In: A. D. Nazarov (Ed.), 2ndInternational Scientific and Practical Conference "Modern Management Trends and the Digital Economy: From Regional Development to Global Economic Growth" (MTDE 2020) (pp. 841-847). Amsterdam, Atlantis Press.

Baeva, L., Grigorev, A. (2020). Safety of digitalization of educational and social space. Pakistan Journal of Distance and Online Learning, 5(1), 231-246.

Bayanov, D. I., Novitskaya, L. Y., Panina, S. A., Paznikova, Z. I., Martynenko, E. V., Ilkevich, K. B., Karpenko, V. I., Allalyev, R. M. (2019). Digital technology: Risks or benefits in student training. Journal of Environmental Treatment Techniques, 7(4), 659-663.

Belonovskaya, I. D., Matvievskaya, E. G., Saitbaeva, E. R., Ksenofontova, A. N., Usmanov, S. M., Zatsepina, M. B., Bakshaeva, E. V. (2020). Digital communication in educational process: development trends and new opportunities. Online Journal of Communication and Media Technologies, 10(2), 202008.DOI: https://doi.org/10.29333/ojcmt/7928

Borisova, E. V. (2020, November). Students in the digital format of the educational process of the higher educational institution: risks and advantages. Journal of Physics: Conference Series, 1691(1), 012075. doi:10.1088/1742-6596/1691/1/012075

Bowen, J. P., Giannini, T., Polmeer, G., Gannis, C., Gardiner, J., Kearney, J., Wand, B., Weinel, J. (2018). States of being: art and identity in digital space and time. Electronic Visualisation and the Arts, 2018, 1-7. http://dx.doi.org/10.14236/ewic/EVA2018.1

Cordie, L., Lin, X., Whitton, N. (2021). Utilizing digital educational games to enhance adult learning. In: M. Khosrow-Pour (Ed.), Research Anthology on Adult Education and the Development of Lifelong Learners (pp. 933-958). Hershey, IGI Global. DOI: 10.4018/978-1-7998-8598-6.ch046

Erstad, O., Silseth, K. (2019). Futuremaking and digital engagement: from everyday interests to educational trajectories. Mind, Culture, Activity, 26(4), 309-322. DOI: https://doi.org/10.1080/10749039.2019.1646290

García-Gil, D., Andreu, R. C. (2017). Gender differences in music content learning using a virtual platform in secondary education. Procedia-Social and Behavioral Sciences, 237, 57-63. DOI: https://doi.org/10.1016/j.sbspro.2017.02.017

Gillett-Swan, J. K., Sargeant, J. (2018). Voice inclusive practice, digital literacy and children's participatory rights. Children and Society, 32(1), 38-49. DOI: https://doi.org/10.1111/chso.12230

Gorbunova, I. B. (2018). New tool for a Musician. Paper Presented at the 15th International Conference on Education, Economics, Humanities and Interdisciplinary Studies (EEHIS-18) June 20-21, 2018 Paris, France. Available at: http://uruae.org/siteadmin/upload/2852AE06184024.pdf (accessed: 29.09.2021).

Gorbunova, I. B., Hiner, H. (2019). Musical computer technologies: musical education in digital age school. The World of Science, Culture, Education, 1(74), 260-262.

Gorbunova, I. B., Bazhukova, E. N. (2020). Misconceptions in teaching musical informatics and the methods of their overcoming. Journal of Critical Reviews, 7(19), 3285-3293. DOI: https://doi.org/10.31838/jcr.07.19.394

Gorbunova, I. B., Pankova, A. A. (2020). Teaching computer science and information technology studies for students of musical and pedagogical specialties. Educacao & Formacao, 5(3), e3350-e3350. DOI: https://doi.org/10.25053/redufor.v5i15set/dez.3350

Gorbunova, I. B., Plotnikov, K. Y. (2018). The place of music computer technologies in Informatics course for secondary school. The World of Science, Culture, Education, 5(72), 331-333.

Gorbunova, I. B., Plotnikov, K. Y. (2019). Music-related educational project for contemporary general music education of schoolchildren. International Journal of Innovation, Creativity and Change, 9(13), 683-699.

Gorbunova, I. B., Voronov, A. M. (2018). Music Computer Technologies in Computer Science and Music Studies at Schools for Children with Deep Visual Impairment. Paper Presented at the 16th International Conference on Literature, Languages, Humanities and Social Sciences (LLHSS-18) Oct. 2-4, 2018 Budapest (Hungary). Available at: http://uruae.org/siteadmin/upload/3920UH10184021.pdf (accessed: 29.09.2021).

Gudek, B. (2019). Computer self-efficacy perceptions of music teacher candidates and their attitudes towards digital technology. European Journal of Educational Research, 8(3), 683-696. DOI: https://doi.org/10.25053/10.12973/eu-jer.8.3.683

Havrilova, L., Ishutina, O., Zamorotska, V., Kassim, D. (2019). Distance learning courses in developing future music teachers' instrumental performance competence. Pedagogika Vyshchoyi ta Serednoyi Shkoly, 52, 197–214. http://ds.knu.edu.ua/jspui/handle/123456789/2143

Henseruk, H. R., Martynyuk, S. V. (2019).Development of digital competence of future teachers in the digital educational environment of higher education institutions. Innovative Pedagogy, 19(2), 158-161. DOI https://doi.org/10.32843/2663-6085-2019-19-2-34

Hiner, H., Gorbunova, I., (2019, February). Music computer technologies and interactive systems of education in digital age school. In: O. D. Shipunova (Ed.), International Conference Communicative Strategies of Information Society (CSIS 2018) (pp. 124-128). Amsterdam, Atlantis Press.

Juntunen, M. L. (2017). Using socio-digital technology to enhance participation and creative engagement in a lower secondary music classroom. Nordic Research in Music Education. Yearbook, 18, 47-74. http://hdl.handle.net/11250/2490537

Kamahina, R. S., Yakovenko, T. V., Daibova, E. V. (2019). Teacher's readiness to work under the conditions of educational space digitalization. International Journal of Higher Education, 8(7), 79-83. DOI: https://doi.org/10.5430/ijhe.v8n7p79.

Koukopoulos, Z., Koukopoulos, D. (2019). Integrating educational theories into a feasible digital environment. Applied Computing and Informatics, 15(1), 19-26. DOI: https://doi.org/10.1016/j.aci.2017.09.004

Kratus, J. (2019). A return to amateurism in music education. Music Educators Journal, 106(1), 31-37. DOI: https://doi.org/10.1177/0027432119856870

Kuznetsova, V., Azhmukhamedov, I. (2020). Advantages and risks of using the digital educational environment. In: I. R. Gafurov et al. (Eds.), Proceedings of the VI international forum on teacher education (pp. 1369-1381). Kazan, Kazan Federal University. DOI: https://doi.org/10.3897/ap.2.e1369

Maymina, E., Divina, T., Liulia, V. (2018). Digital economy in education: Perspectives and development perspectives. Revista Espacios, 39(38), 30.

Mitchell, C., Appleget, C. (2021). Preservice teachers collaborating and co-constructing in a digital space: using participatory literacy practices to teach content and pedagogy. In: M. Khosrow-Pour (Ed.), Research Anthology on Facilitating New Educational Practices Through Communities of Learning (pp. 557-574). Hershey, IGI Global. DOI: 10.4018/978-1-7998-7294-8.ch029

Morozov, A. V., Kozlov, O. A. (2019). Information and Communication Technologies in Modern Digital Educational Environment. Available at: http://ceur-ws.org/Vol-2562/paper-27.pdf (accessed: 29.09.2021).

Mullabayev, B. B., Mallaboyev, N. M., Normatov, A. M. (2021). Challenges of digital educational environment. Academic Journal of Digital Economics and Stability, 4, 54-60.

Prokopchuk, V. (2020). Methodological training of future music teachers in the European educational space. Innovation in Education, 11, 122-134. DOI: https://doi.org/10.34142/27091805.2021.2.01.07

Smith, R., Secoy, J. (2019). Exploring the music identity development of elementary education majors using Ukulele and YouTube. Journal of Music Teacher Education, 29(1), 71-85. DOI: https://doi.org/10.1177/1057083719871026

Sorokova, M. G. (2020). E-course as a digital educational resource of blended learning in higher education. Psychological Science and Education, 25(1), 36-50. DOI: https://doi.org/10.17759/pse.2020250104

Tohara, A. J. T. (2021). Exploring digital literacy strategies for students with special educational needs in the digital age. Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12(9), 3345-3358. DOI: https://doi.org/10.17762/turcomat.v12i9.5741

Tudor, S. L., Popescu, A. M. (2020). E-inclusion versus digital divide–a challenge for Romanian educational system within the context of CORONAVIRUS pandemic growth. Educaţia Plus, 26(1), 374-381. DOI: https://doi.org/10.24250/JPE/1/2020/SLT/AMP

Wagner, C. (2017). Digital gamification in private music education. Antistasis, 7(1). Available at: https://journals.lib.unb.ca/index.php/antistasis/article/view/24904 (accessed: 29.09.21)

Zimmermann, J., Happes, J., Bergis, N. (2019). Transformation and continuity in urban space: the smartphone as a companion to digital teaching and learning processes in extracurricular learning settings. Journal of Educational Media, Memory, Society, 11(2), 30-44. DOI: https://doi.org/10.3167/jemms.2019.110202

Comparison of two platforms for distance learning students of Moscow Aviation Institute: Microsoft Teams and LMS Moodle

Petr A. Ukhov*
Anatoly V. Ryapuhin**
Natalia A. Biryukova***
Anna K. Biryukova****
Denis A. Borschenko*****

ABSTRACT

Microsoft Teams platform is a kind of messenger created on the basis of Microsoft Skype for Business in 2017. It implements the concept of a collaborative workspace and allows group members to organize joint online meetings, hold audio and video conferences and connect additional Microsoft services. Microsoft Teams implements the possibility of individual interaction between the teacher and the student through audio and video calls. In relation to the pandemic of coronavirus infection, on March 17, 2020, MAI completely switched to the distance learning mode. For the organization of distance educational process, LMS MAI website, based on the Moodle platform, is mainly used, but the range of its capabilities is limited. In order to expand opportunities and share the flow of students using the website for e-learning, many classes with students began to be held at Microsoft Teams. It has an intuitive interface and meets all the requirements of confidentiality and security: encryption, multi-factor authentication and device management are used to protect information; necessary protection mechanisms against unauthorized access are implemented. When this platform was studied a number of its advantages were identified compared to LMS Moodle platform, also there were system vulnerabilities correlated with LMS and suggestions to eliminate them.

KEY WORDS: distance learning; information; comparative analysis; computer software; educational software.

*Professor. Moscow Aviation Institute (National Research University), Moscow, Russia. ORCID: https://orcid.org/0000-0002-3728-2262. E-mail: ukhov@mai.ru

**Professor. Moscow Aviation Institute (National Research University), Moscow, Russia. ORCID: https://orcid.org/0000-0002-2208-6875. E-mail: ryapukhin.a.v@mail.ru

***Professor. Moscow Aviation Institute (National Research University), Moscow, Russia. ORCID: https://orcid.org/0000-0002-6696-3104. E-mail: natali_4_00@mail.ru

****Professor. Moscow Aviation Institute (National Research University), Russia. ORCID: https://orcid.org/0000-0002-4879-8686. E-mail: nusy1296@yandex.ru

*****Professor. Moscow Aviation Institute (National Research University), Moscow, Russia. ORCID: https://orcid.org/0000-0001-5968-656X. E-mail: d3n7@bk.ru

Comparación de dos plataformas para estudiantes de educación a distancia del Instituto de Aviación de Moscú: Microsoft Teams y LMS Moodle

RESUMEN

La plataforma Microsoft Teams es una especie de mensajería creada sobre la base de Microsoft Skype for Business en 2017. Implementa el concepto de un espacio de trabajo colaborativo y permite a los miembros del grupo organizar reuniones conjuntas en línea, realizar conferencias de audio y video y conectar servicios adicionales de Microsoft. Microsoft Teams implementa la posibilidad de interacción individual entre el profesor y el alumno a través de llamadas de audio y video. En relación con la pandemia de infección por Coronavirus, el 17 de marzo de 2020 MAI cambió completamente al modo de aprendizaje a distancia. Para la organización del proceso educativo a distancia, se utiliza principalmente LMS MAI, basado en la plataforma Moodle, pero el rango de sus capacidades es limitado. Con el fin de ampliar las oportunidades y compartir el flujo de estudiantes que utilizan la página web para el aprendizaje electrónico, se comenzaron a impartir muchas clases con estudiantes en Microsoft Teams. Tiene una interfaz intuitiva y cumple con todos los requisitos de confidencialidad y seguridad: se utilizan cifrado, autenticación multifactor y gestión de dispositivos para proteger la información; se implementan los mecanismos de protección necesarios contra el acceso no autorizado. Al estudiar esta plataforma se identificaron algunas de sus ventajas en comparación con la plataforma LMS Moodle, también hubo vulnerabilidades del sistema correlacionadas con LMS y sugerencias para eliminarlas.

PALABRAS CLAVE: aprendizaje a distancia; información; análisis comparativo; software informático; software educativo.

Introduction

Microsoft Teams is a corporate platform developed by Microsoft, it has the ability to combine chat, meetings, notes and attachments in the workspace, the product is a part of the Office 365 suite and distributed through a corporate subscription. It has integration with all company products and even with third-party applications (Nashilov, 2019; Chernaya, 2020).

This platform is an excellent option for conducting classes in the distance learning mode: it implements the concept of a workspace for collaboration and chatting, and it can also be used to hold meetings and exchange files and applications.

In addition to chats, Microsoft Teams has audio and video calls and document stores (figure 1) (Robotx.ru, 2020). These funds are divided into private (individual) and collective

ones. Students of MAI immediately assessed the possibility of a collective discussion of projects, reports and current training issues when using the platform.

As for conducting classes, it is worth noting the possibility of "visual" contact between teacher and students, which allows for control, for example, during tests or verification works. The platform allows holding meetings using a webcam, record all conferences, interact with a teacher not only during the conference, but also at any convenient time: it is a kind of messenger, so we can access any content of the working group: messages, document library, files or information about participants (Ukhov et al., 2018; Ukhov et al., 2020).

To register on Microsoft Teams platform, a student of MAI must go to the official website mai.ru, where he can receive corporate mail and password (Microsoft, 2017). The data for receiving login (mail) and password will be the name and telephone number. If the search in the students' database was successful, the student will have the data to enter in Microsoft Teams, he will only have to log in (Microsoft, 2020a).

Figure 1. Platform work window
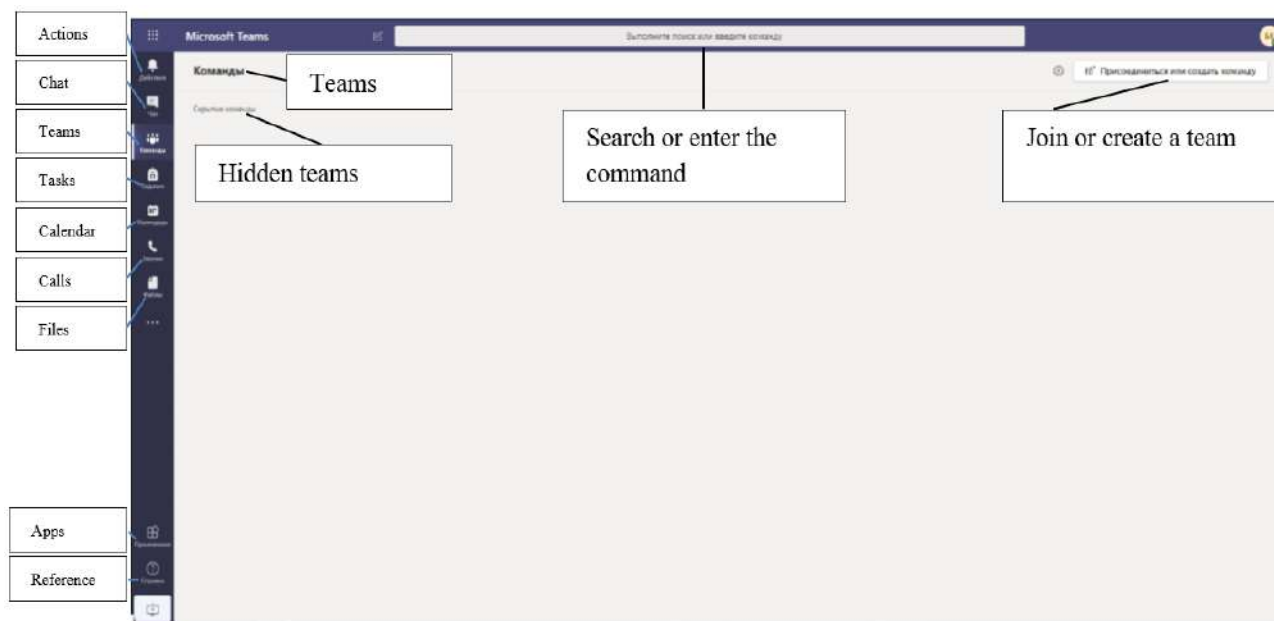
In order to start a conference, which will be an analogue of a seminar or lecture, we need to create a team and add participants to it (figure 2, 3). A team is users who are united by a common characteristic. It can be students who carry out one project, group of them, students and teacher, etc.

Figure 2. Creating a team
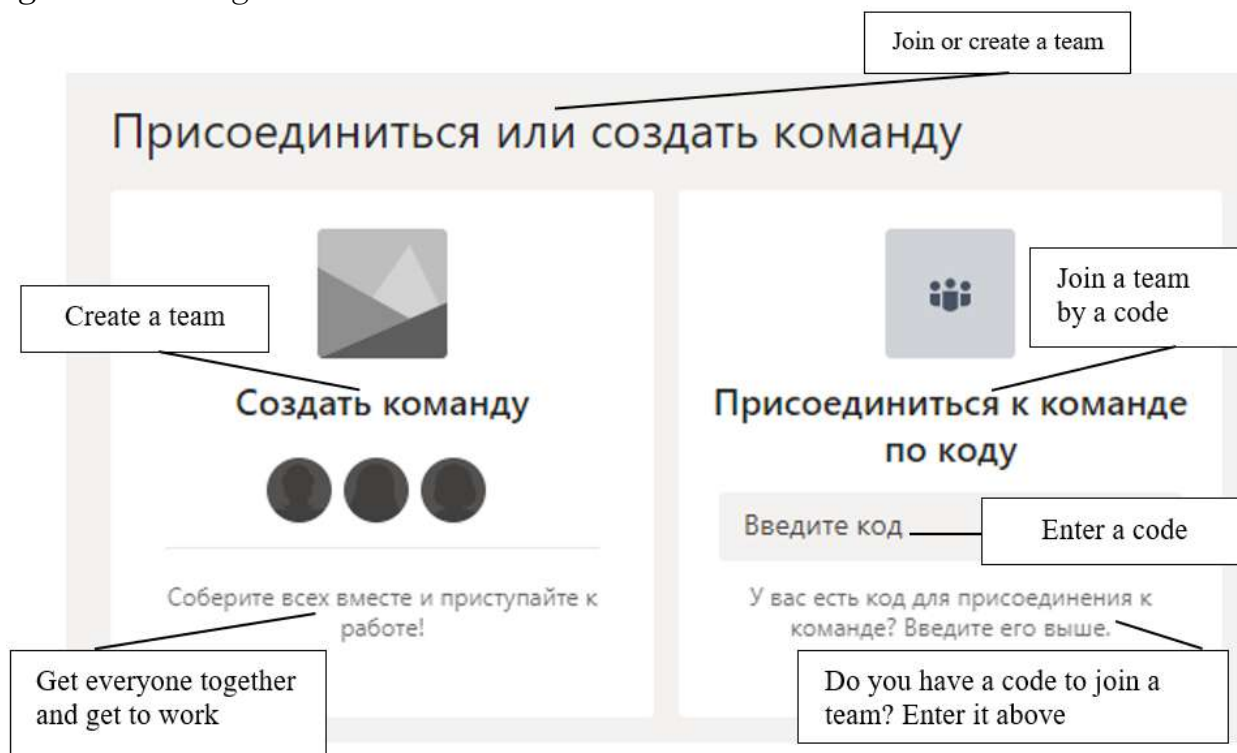
Figure 3. Adding members
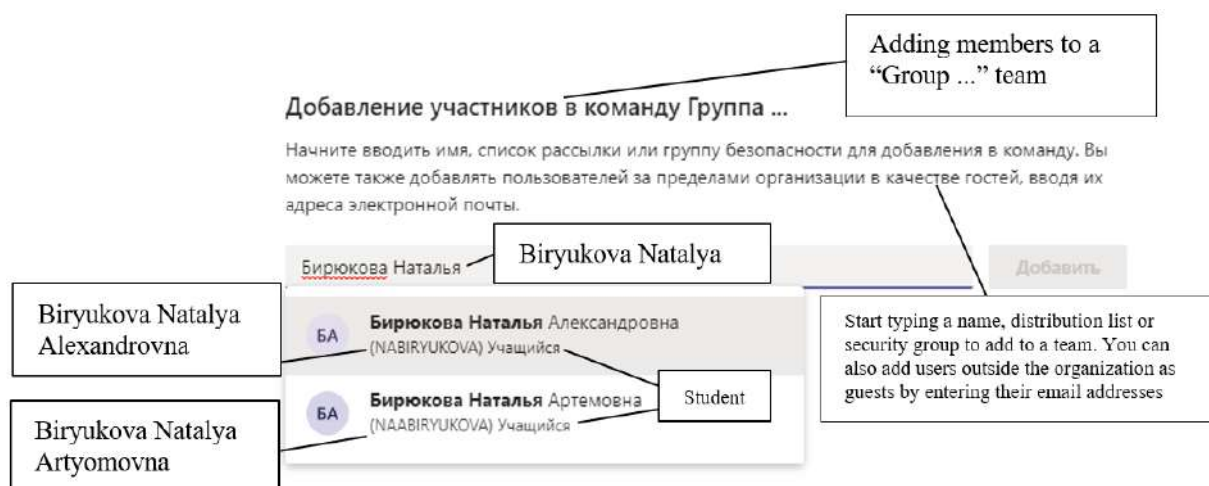
After that, group members will have access to a general meeting chat with various options (figure 4):

- investments;
- stickers, emoji, GIF animation;
- "Start Meeting" button.

Figure 4. Team chat
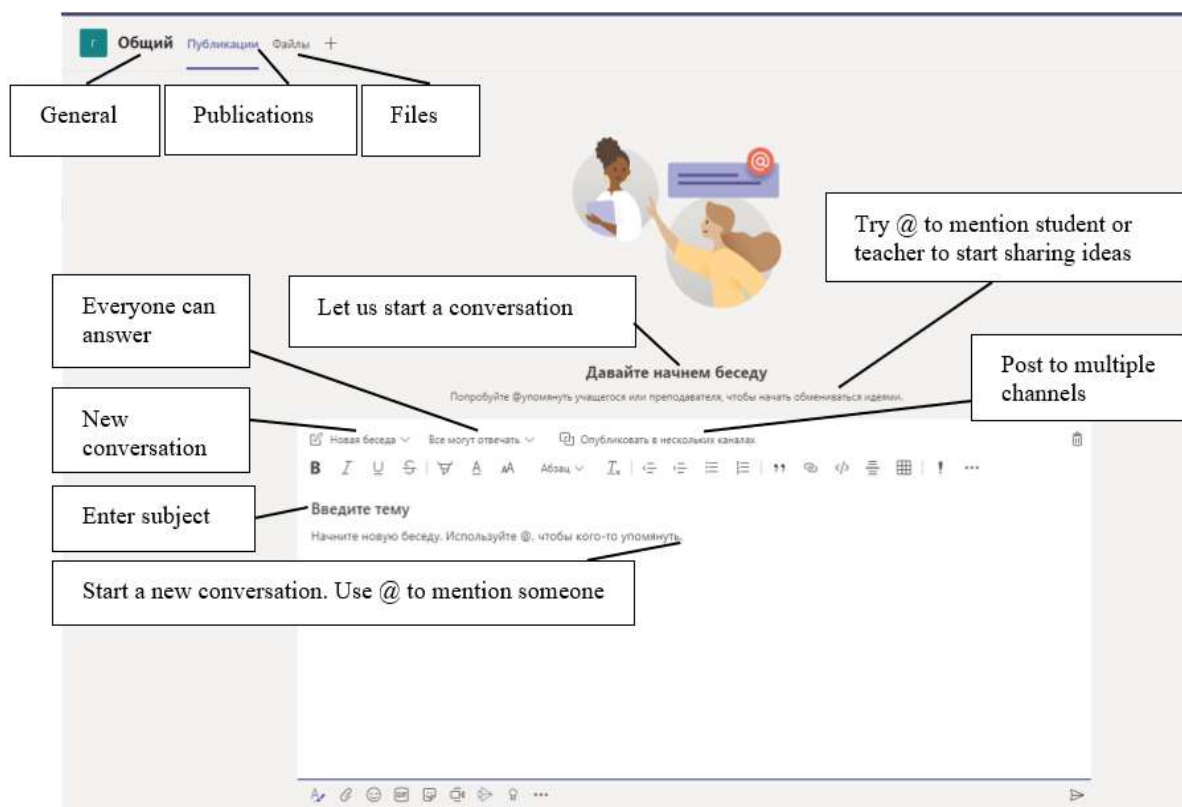
1. Materials and Methods

As a result of a survey of a group of students of 100 people, it was revealed that Microsoft Teams is the second most popular platform for interacting with students (among the platforms used by teachers) (figure 5). During the survey, students also shared their views on the use of this platform, highlighting its advantages relative to LMS MAI.

Figure 5. Student survey results
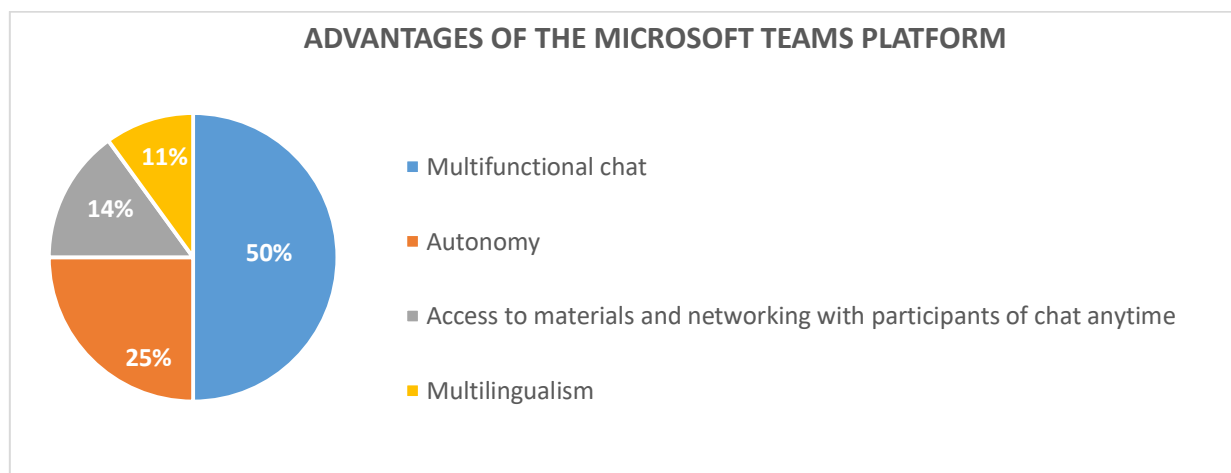
2. Results and Discussion

In the article about a software product such as Teams, from the knowledge base of the Russian University of Chemical Technology, the authors indicated the following positive aspects for the software product:

- Creation of Team for organizing training in groups of students;

- Access to training materials and files;

- Assignment and verification of individual and group assignments, tracking their timely implementation and implementation of verification, and for students - an indication of the deadline for the delivery of work;

- Create virtual classrooms that enable students to make presentations or share a digital whiteboard. Teachers and students can interact using not only a whiteboard, but also text, audio or video;

- Organizing and conducting webinars, video lectures or practical online seminars that can be recorded for offline viewing (RCTU knowledge base, 2021).

In the article, we have also highlighted and shared these benefits of the platform so that educators and students can use the same experience in Teams to learn, collaborate and interact online.

Also the advantages of Microsoft Teams are:

- Multifunctional chat that allows exchanging files, carry out audio and video communication and format sent messages (figure 6) (Chernaya, 2020; Microsoft, 2020a). It should be emphasized that LMS MAI platform does not have such options (this platform only supports audio communication) (Ukhov, 2020);

- We can discuss ideas in a private chat and share them with the rest of the team. Microsoft Teams also allows storing all files and documents together, we can access them at any time, as well as view the content and history in the group chat or in a private chat (Chernaya, 2020; Microsoft, 2020a) (LMS MAI platform does not provide these capabilities: it does not have a closed chat; we can view the group's chat history only if a video conference was recorded before, etc.);

- Ability to communicate directly by mentioning and tagging team members. Microsoft Teams supports the addition of tabs on channels, which allow conveniently configuring the workspace for the needs of users, connecting not only Microsoft.GIF and stickers in

messages, but also various services and applications, including from third-party suppliers (Chernaya, 2020; Microsoft, 2020a);

- Microsoft Teams has smart features like background blur (LMS MAI does not have these features). Conferences in office365 allow attendees to connect to Microsoft Teams from any device (Nashilov, 2019). Note that there is a mobile version for this platform, while LMS MAI has only a mobile version (Ukhov, 2020). Interestingly, in Microsoft Teams, chat bots can act as chat participants, from which we can specify the necessary information and receive recommendations, which can greatly simplify the work and seriously increase the productivity of employees (if the functionality of such bots is developed) (ActiveCloud.by, 2020) (not supported by the platform LMS MAI);

- Multilingual Microsoft Teams: the interface of this platform supports most languages, for example, Russian, English, German, French, Italian, Spanish, Chinese (Microsoft, 2017; Microsoft, 2020a). (LMS MAI platform only supports 6 languages: Russian, English, German, French, Spanish, Chinese (Microsoft, 2020b)).

In addition to the positive aspects of Microsoft Teams platform, which is used for distance learning of students at MAI, there are some negative aspects related to information security.

Compared with LMS MAI platform, Microsoft Teams has solved the problem with a password system: receiving a password is not done by sending usernames and passwords to the monitors of the groups via social networks or in other ways, but by students themselves. To access Microsoft Teams, as well as other services of MAI information systems, we need to go to the website https://mai.ru/getpass and enter the student's personal data: in particular, full name, phone number and student status, and then select the method for obtaining a password (Microsoft, 2017). There are two options for obtaining it: automatic generation and setting your own password (figure 6).

In addition, the "registration" provides protection with the help of captcha from various bots, spam and attacks of automatic programs.

We consider automatic password generation (figure 7). This method is one of the most reliable and proven, since attacks from spam machines are excluded and direct contact with the student is obtained. Also, with this solution, we can implement not only a one-time confirmation of registration on the website, but also regular login to your account.

Figure 6. Password retrieval page interface
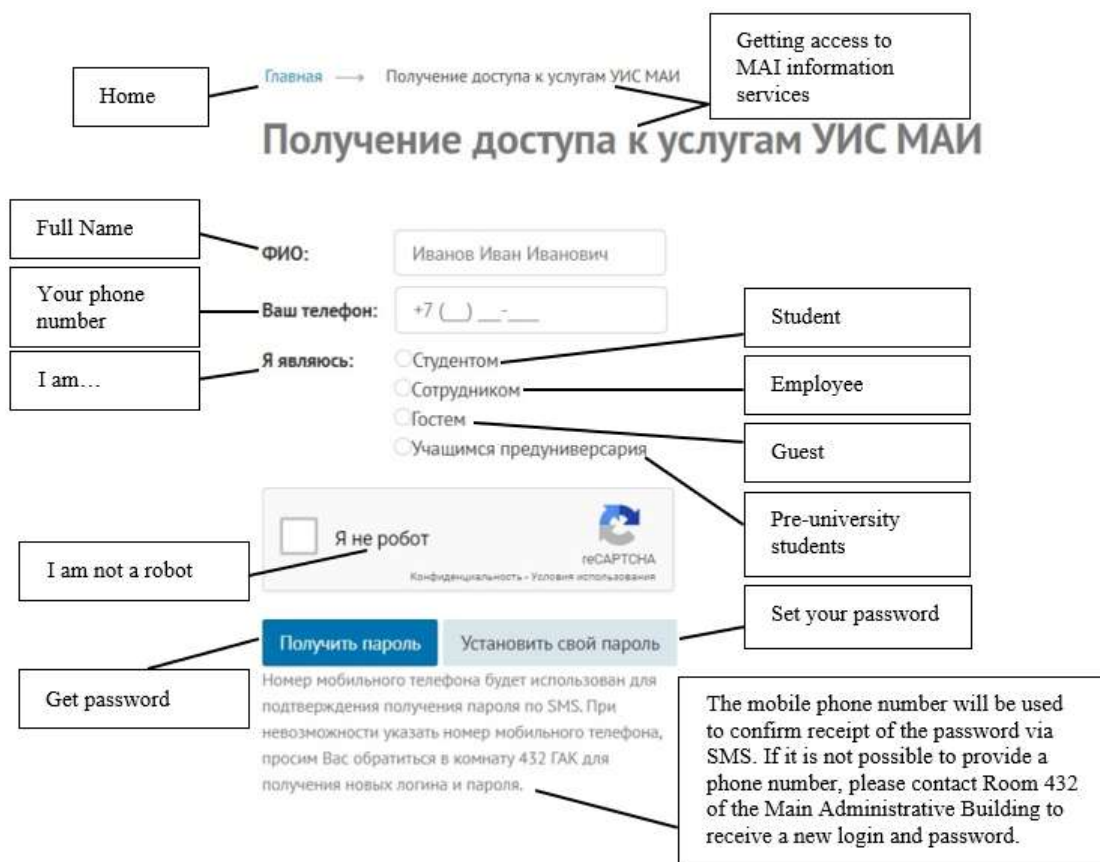
Figure 7. Receive verification code via SMS

After entering the six-digit code received in the SMS, a page opens with the login and password for access to MAI information systems, as well as to Microsoft Teams distance learning platform.

In the case of independent assignment of a password by the student, similar operations occur: the student fills out the proposed forms and enters the six-digit code received in SMS. After these actions, the student is asked to enter his own password, which is presented with the requirements inherent in strong passwords (figure 8). It is also important to note that there is a certain limit on changing the password, which also excludes the possibility of unauthorized editing.

Figure 8. User password setting

Based on the above-mentioned information, we can conclude that when using the access system to information system it is impossible to prevent the sending of information with logins and passwords by the group leaders in LMS MAI (Agranovich, 2020).

Hacking this system is also practically impossible due to the fact that a sufficiently large number of time and computing resources are needed.

189

In case of changing the password by the user of MAI information system, the user logs out of the Microsoft account, and, accordingly, from Microsoft Teams (Microsoft, 2020b). This means that revocation of access keys is configured on this system. Comparing Microsoft Teams and LMS MAI platforms with this parameter, it is important to emphasize that LMS MAI did not previously have the ability to revoke keys (Agranovich, 2020), but today, this shortcoming of the main platform for distance learning of students of MAI has been fixed, and this option has become available to students.

In the article "Instrumental and methodological foundations of providing distance educational process with digital technologies (for example, Microsoft Teams)" from the journal "Pedagogy. Theoretical and Practical Issues" it was reported about such platform shortcomings as the impossibility of carrying out laboratory work on real equipment (Revunov et al., 2020). We agreed with this statement by conducting additional research on the platform's functionality. But we would like to note that it is possible to share the platform with other products from Microsoft and other manufacturers. Naturally, speaking of using one platform, we still cannot call Teams universal, but combining it with other products can solve any set tasks.

In addition, in the process of using Microsoft Teams platform, several shortcomings were identified, the solutions to which are presented below.

It is necessary to make new methods of authorization and user protection. A possible solution to security problems would be the generation of complex passwords by users, for example, with an increased length (more than 16 characters). In addition, another option may be the method of introducing "combustible" passwords, that is, the user receives a temporary password for a one-time login to the system (Ukhov et al., 2021a; Ukhov et al., 2021b).

LMS MAI platform does not provide the function of informing about an attempt of unauthorized access to the account (Man'zhov et al., 2017): if third parties try to access the student's account, the student will not be able to take the necessary measures to stop hacking attempts (Moscow Aviation Institute, 2020). Microsoft Teams platform has the ability to notify the user of all logins to the distance learning system. Also, Microsoft Teams is configured to send email notifications about an attempt to change email, directly about changing email and password change, which is not in LMS MAI.

Another drawback of the system is the problem of extraneous inputs, which was also observed on LMS MAI. This situation occurs due to the theft of information and data about the usernames and passwords of students by other users for the sake of jokes or by intruders. There are three ways to solve this problem:

● registration of new devices in the system (information about a new device and an authorization code are sent to a mobile or mail);

● creation of a log of entrances;

● blocking users from whose accounts third-party logins are made until the user password is changed to more complex ones.

In addition, independent experts discovered Remote Code Execution, a vulnerability that could allow arbitrary code to be executed through Microsoft Teams platform. This platform, unlike LMS MAI, uses the Squirrel utility, which provides the download and installation of updates created using the NuGet package manager. Experts found that the "update [URL]" and "download [URL]" commands allow uploading a file to Microsoft Teams folder, where it will be automatically executed (Moscow Aviation Institute, 2020). Possible recommendations for counteracting code execution through Microsoft Teams are the following:

● user should not be able to disable antivirus software;

● method for automatically updating anti-virus signatures should be implemented;

● anti-virus software used should provide protection against boot viruses;

● virus removal process must be planned in advance.

Conclusion

The trend of universities to use electronic platforms for distance learning provides students with autonomous and flexible learning. Thanks to this, in the current situation, the educational process was not stopped or disturbed, but was even supplemented by such advantages as flexibility and autonomy in obtaining knowledge.

Microsoft Teams platform, which is widely used for organizing video and audio conferences by various organizations and higher educational institutions, contributes to the process of obtaining knowledge. Good password system, ability to format sent messages, access to send materials at any time and wide choice of interface language make this platform

one of the most frequently used platforms not only at MAI, but also around the world. With the quality organization of distance learning at Microsoft Teams, including in terms of information security, it becomes possible to provide quality education.

From comparisons between Microsoft Teams platform and LMS MAI, we can conclude that Microsoft Teams platform as a whole is more optimized and protected from attacks than LMS MAI. However, Microsoft Teams also has some vulnerabilities and methods for fixing proposed here.

References

ActiveCloud.by (2020). *Teams is an effective teamwork service.* Retrieved at: https://www.activecloud.by/news/novosti-kompanii/2020/teams-effektivnyy-servis/.

Agranovich, M. (2020). *The Ministry of Education and Science recommended that universities organize distance learning.* Retrieved at: https://rg.ru/2020/03/15/minobrnauki-rekomendovalo-vuzam-organizovat-distancionnoe-obuchenie.html.

Chernaya, A. (2020). *How to use Microsoft Teams: features, tips, life hacks.* Retrieved at: https://www.canva.com/ru_ru/obuchenie/microsoft-teams-chto-eto/.

Man'zhov, A., Petunin, Y., Savinov, C., & Cheshik, A. (2017). *Microsoft Teams - New Customer Engagement Features.* Retrieved at: https://docs.microsoft.com/ru-ru/archive/blogs/tasush/microsoft-teams-novye-vozmozhnosti-vzaimodejstvija-s-klientami.

Microsoft (2017). *Microsoft Teams.* Retrieved at: https://teams.microsoft.com/

Microsoft (2020a). *10 reasons to use Teams for distance learning.* Retrieved at: https://news.microsoft.com/ru-ru/features/remote-learning/.

Microsoft (2020b). *Introducing Microsoft Teams.* Retrieved at: https://support.microsoft.com/ru-ru/office/представляем-microsoft-teams-59b4cf2f-84ef-4a41-860a-37d3b9af09d3.

Moscow Aviation Institute (2020). *Distance learning at the Moscow Aviation Institute: how it works.* Retrieved at: https://mai.ru/press/news/detail.php?ID=114512.

Nashilov, E. (2019). *Independent expert find RCE-vulnerability in Microsoft Teams.* Retrieved at: https://threatpost.ru/microsoft-teams-vuln-due-to-squirrel-usage/33318/.

RCTU knowledge base (2021). *Microsoft Teams platform.* Retrieved at: https://wiki.muctr.ru/pages/viewpage.action?pageId=40927348

Revunov, S.V., Shcherbina, M.M., & Lubenskaya, M.P. (2020). Instrumental and methodological foundations for the provision of distance educational process by means of

digital technologies (for example, "Microsoft Teams"). *Pedagogy. Questions of theory and practice*, *5*(3), 387-392.

Robotx.ru (2020). *What is and why is Microsoft Teams needed. A brief overview of the functionality*. Retrieved at: https://www.robotx.ru/oblachnye-tehnologii/komandnaya-rabota/obzor-microsoft-teams/.

Ukhov, P.A. (2020). *MAI e-learning system*. Retrieved at: https://lms.mai.ru.

Ukhov, P.A., Dmitrochenko, B.A., & Ryapukhin, A.V. (2021). The practice of technological deception in videoconferencing systems for distance learning and ways to counter it. *Amazonia Investiga*, *10*(40), 153-168.

Ukhov, P.A., Khoroshko, L.L., & Khoroshko, A.L. (2018). The use CAD/CAE systems to create E-learning courses on technical subjects at university. *International Journal of Engineering Pedagogy*, *8*(2), 64-71.

Ukhov, P.A., Ryapukhin, A.V., Biriukova, N.A., Biryukova, A.K., & Dmitrochenko, B.A. (2020). Problems of Distance Learning in the LMS Moodle Environment Through the Eyes of Students of Moscow Aviation Institute During Quarantine (Self-Isolation). *Revista Inclusiones*, *7*(SI), 412-426.

Ukhov, P.A., Ryapukhin, A.V., Biriukova, N.A., & Biryukova, A.K. (2021). Prospects for the development of LMS MAI and Microsoft Teams platforms after the end of quarantine. *Amazonia Investiga*, *10*(39), 117-128.

Introduction of mobile education in the educational process in the university

Svetlana E. Germanova *
Vladislav V. Plyushchikov **
Polina A. Petrovskaya***
Nataliya B. Sambros ****
Nikolay V. Petukhov *****

ABSTRACT

The goal is to consider the possibilities of a virtual educational ecosystem using mobile devices, interactions of students and teachers, faculties and laboratories of the university, interactive activation of educational material and monitoring of the student learning process. The research methodology includes methods of system analysis, synthesis, decision-making, multi-agent systems and situational modeling. Results of the work: 1) a systematic interpretation of the category "mobile training" is proposed, its "pros" and "cons" are classified; 2) an informological scheme and a methodological scheme of mobile training are proposed; 3) practical examples of training (on the example of training managers in the field of tourism) using the organization of modeling, independent work of students are considered; 4) shows examples of approaches to making team business decisions and conducting situational modeling; 5) a systemically significant conclusion was made that simple, auxiliary tasks and simple memorization of facts students transfer to independent work, freeing up time for creative cooperation.

KEYWORDS: educational equipment; development; system analysis.

*Senior Lecturer of the Department of Technosphere Security of the Agrarian and Technological Institute, Peoples' Friendship University of Russia, ORCID: https://orcid.org/0000-0003-2601-6740. E-mail: germanova-se@rudn.ru

**Assistant lecturer of the Department of landscape design and sustainable ecosystems of the Agrarian and Technological Institute, Peoples' Friendship University of Russia, ORCID: https://orcid.org/0000-0002-3364-7922. E-mail: pliushchikov-vv@rudn.ru

***Senior Lecturer of the Department of Landscape architecture and sustainable ecosystem of the Agrarian and Technological Institute, Peoples' Friendship University of Russia, ORCID: https://orcid.org/0000-0002-7518-6837. E-mail: petrovskaya-pa@rudn.ru

****Senior Lecturer of the Department of Technosphere Security of the Agrarian and Technological Institute, Peoples' Friendship University of Russia, ORCID: https://orcid.org/0000-0002-6704-6834. E-mail: sambros-nb@rudn.ru

*****Candidate of Agriculture Science, Associate Professor of the Department of Technosphere Security of the Agrarian and Technological Institute, Peoples' Friendship University of Russia, ORCID: https://orcid.org/0000-0003-1521-2797. E-mail: petukhov-nv@rudn.ru

Introducción de la educación móvil en el proceso educativo en la universidad

RESUMEN

El objetivo del artículo es considerar las posibilidades de un ecosistema educativo virtual utilizando dispositivos móviles, interacciones de estudiantes y profesores, facultades y laboratorios de la universidad, activación interactiva de material educativo y seguimiento del proceso de aprendizaje estudiantil. La metodología de investigación incluye métodos de análisis de sistemas, síntesis, toma de decisiones, sistemas multi-agentes y modelado situacional. Resultados del trabajo: 1) se propone una interpretación sistemática de la categoría «formación móvil», se clasifican sus «pros» y «contras»; 2) se propone un plan informológico y un plan metodológico de formación móvil; 3) se consideran ejemplos prácticos de formación (por ejemplo, de directivos de formación en el ámbito del turismo) utilizando la organización del modelado, el trabajo independiente de los estudiantes; 4) muestra ejemplos de enfoques para tomar decisiones empresariales en equipo y llevar a cabo el modelado situacional; 5) se llegó a una conclusión sistémicamente significativa de que las tareas simples y auxiliares y la simple memorización de los hechos los estudiantes lo transfieren al trabajo independiente, liberando tiempo para la cooperación creativa.

PALABRAS CLAVE: equipo educativo; desarrollo; análisis de sistemas.

Introduction

Modern learning technologies, especially digital ones, are the result of the communicative and technological evolution of society, education and changes in consumer preferences of students and the labor market.

"Mobile learning" is a relatively new concept in the modern world. This category implies the use of mobile communication means (personal computer, mobile phone, laptop, and tablet) in the educational process, for effective training.

According to UNESCO, since the beginning of the pandemic COVID-19 more than 1.37 billion students in 138 countries have been out of closed schools and universities, as well as 60 million teachers. I had to switch to online training, find funds for its development. It required technical acceleration of training video streams, virtualization of storage of training materials and adaptation of training methods to new conditions.

In Russia, according to Rosstat, they planned for education in 2021-2023 over 60 billion rubles. But the "pandemic adjusted" - 3 trillion rubles are planned (1062854 million

rubles by year, 2022 - almost 1035634 million rubles, 2023 - 1094133 million rubles). A significant amount will go to the development of online educational resources.

Mobile training received an additional "boost" during the COVID-19 pandemic. It has become relevant with the development of the capabilities of mobile devices, networks and audiences of young fans of gadgets, for which the mobile device and Internet access from it have become a familiar way to obtain information and training. Everyone likes portability, agility and efficiency.

Mobile devices are not only a smartphone, tablet, netbook or laptop, but also all means of mobile access to educational resources, a teacher (tutor), interactive forms of activating educational material and control.

The prerequisites for mobile training include Seymour Peypert and his idea of using the latest technologies to overcome differences in the quality of education (for example, LOGO, 1969).

Tutor is an intermediary between students and educational resources and technologies (Clarke, et al., 2008). Some consider the ancestor of m-Learning, mobile learning, Rafael Ballagas and his team, which formulated the principle of BringYourOwnDevice (BYOD). This is a methodology (a set of technologies) for encouraging employees to use their personal gadget in the workplace.

There are versions of what to bring:

1) own device (BYOD);

2) its own technology (BYOT);

3) your phone (BYOP);

4) your computer or tablet (BYOPC).

Back in 2009, INTEL successfully connected employee devices to the Intranet. However, until 2011, corporate and consumer interests were tested. BYOD is little dependent on administrators, the technology only directs the use of devices into the right direction. Corporate data works directly on the company without "spreading." Insider does not increase. But some companies are in no hurry to accept and apply the concept.

Although BYOD should be kept under control, this concept is in demand. It's used to retain young, talented, highly qualified specialists everywhere. Companies note an increase in performance and comfort in the BYOD environment. It helps to become more productive,

improves convenience and corporate spirit. More than 45% of applicants consider it right if the company supports the device.

Students are free to use their devices in the learning process. Graduates are suspicious when the employer prohibits the use of his gadget - only equipment provided by the company. It's not always better.

Conflicts arise, such as the planning and maintenance of the training process in the network infrastructure, the supplier and the service provider, with the support of the quality of the network educational service. It's dangerous that service management will "remember" itself as an infrastructure seller. Fines, penalties, network degradation arise. Information, resource becomes a tool of influence, manipulation of consciousness and in learning. A traditional organization is replaced by a virtual one.

The introduction of mobile technologies was also facilitated by international conferences that help:

1) rethink the principles of mobile training;

2) systematize and classify its problems;

3) create relevant models of mobile training;

4) improve mobile technologies in training;

5) create and verify mobile training methods, integration approaches;

6) to form a unified mobile training strategy;

7) to investigate the emergence and systemic potential (Kaziev, et al., 2018) of mobile education in a modern university.

In Russia, mobile training is being introduced intensively. In particular, this is evidenced by the statistics of the M-Video chain of stores, in which in 2020 smartphones worth more than 30,000 rubles (they are considered more popular among students) were bought 40% more than before the pandemic COVID-19.

In Russia, mobile training has become part of continuous and flexible education according to GEF, which should solve two basic problems:

1) comfortable organization of the educational process (similar to content with usability) for both the teacher and the student;

2) motivation to increase the competencies of not only teachers, employees and students, but also corporations, private businesses to participate in mobile education.

The introduction of mobile technologies into education is vital for expanding the scope of the educational process beyond the university, students with health restrictions, and the rapid dissemination of new methods and training programs.

Therefore, the main goal of this article is to develop information and methodological schemes of mobile education, supported by the independent work of students in teams conducting situational modeling, creative cooperation "anywhere, at any time, with any resource".

The hypotheses of this study were: providing a comfortable organization of the teaching process for the teacher and student, as well as motivation of teachers and students, participation of corporations and private business in mobile training, infrastructure unity of their key business processes.

1. Materials and methods

Mobile training methodology allows you to use and integrate Internet resources and mobile technologies into the educational process and effectively form professional competence with their help. Such technology allows you to organize research activities of trainees.

Using Web Quests technology allows educators to solve the following important problems of m-Learning:

1) increase motivation;

2) improvement of educational achievements;

3) use of graphical visualization methods;

4) the formation of a professional culture - information, communication and media.

Using this technology, creative tasks are solved; the educational activity itself is full optimized.

Students and teachers were given unlimited opportunities to develop their educational space and share it. Despite the huge potential of mobile technologies, which is in demand in education, it is not used enough. This is due to the lack of digital literacy of teachers and leads to the emergence of a digital divide. Access to digital technologies is an urgent task of digital and mobile transformations of education.

Although the concepts of "mobile learning" and "mobile technology" are intertwined, these categories are different. "Mobile learning" is multivariable defined. For example, it's often characterized as any training dominated by mobile devices (Traxler, 2005).

UNESCO interprets (UNESCO, 2015) mobile training as the use of mobile technology in the educational process, its organization. Regardless of the place of training, both autonomously and jointly with ICT.

UNESCO in South Africa has been implementing (since 2009) the Mobile Phone Stories project to introduce teenagers to reading using cheap mobile phones. In Cambodia (since 2013), the Pink Phone project has been implemented for simple exchanges during training, as part of one online MOOC training course.

In Russia, there is the GOST 52653-2006 standard, according to which mobile training is electronic training through mobile devices, without taking into account the location of the trainee (GOST, 2006). Both mobile applications and capabilities, mobile learning technologies are developing (Doskazanov, et al., 2018).

One of the major mobile education projects was the Nokia Life project (2009) using SMS. More than 91 million citizens of India, Indonesia, Nigeria and China were able to join education in the field of agriculture, health, ecology and entrepreneurship, in particular, raising children, farming, HIV prevention, and women's business startup.

The effectiveness of mobile technologies in teaching languages, for example, English, has been demonstrated at a language university in Japan (Thornton, Houser, 2005) and a non-language university in Russia (Titova, Danilina, 2018).

Pilot projects and applications for mobile training have been launched in Russia (Izhuninov, 2020). The technology of delivery and presentation of educational content, organization of control and assessment of competencies is being developed, for example, using the integration of mobile applications and technologies:

1) Kahoot! - a system of training, presentations, video conferences, games, allows the teacher to create questions, and students to answer using mobile devices, with music, points and a list of leaders;

2) Poll Everywhere - a system of testing using a simple phone via SMS, polling in a browser or Twitter;

3) Plickers - a system for creating a class on one mobile device, generating questions with multiple choice of answers recorded on different sections of a sheet of paper (card);

4) Class Responder - a system in which a teacher creates an account, assigns a class code, students are authorized, answer questions using mobile devices, the teacher sees answers, controls the absorption of material;

5) Socrative - a real-time testing system, questions are visible on mobile devices, together with possible explanations, each student adjusts the pace of performance for himself, and you can compete in response speed;

6) PeLe, Peer Learning Assessment - P2P-system of mutual assistance in teaching, including the help of students themselves;

7) SurveyMonkey - a service for creating and maintaining online surveys, with its own database of respondents and operations such as "search," "visualization," "ordering" "upload," etc.

There are also many mobile blog services, dictionaries, podcasts, storytelling, quests, etc. For example, the system for creating interactive lectures using SRS surveys (Titova, Talmo, 2015), visualization, gamification and robotization.

Hybrid methodologies and related training procedures may be used in the near future:

1) Blue-Bot - the simplest robot, in a transparent case, the interaction of its parts is visible, works with a mobile device on Android, iOS, Mac, Windows platforms, the robot can activate 200 commands (this is very good for a beginner);

2) Root-Coding - for gamification, training in programming skills (LOGO type) m interactive coding, Root-robot climbs the wall, senses the environment, reproduces the melody, etc.;

3) Dash/Dot - a pair of robots (with applications that help program them) that allow you to create communication (Bluetooth) puzzles, LOGO programs;

4) Arduino is an open-architecture IDE-based designer connected to a mobile device with sensors, an expansion card, a router, a C++ library and an Arduino IDE, it's good for an advanced student, since there is a VisualStudio environment, and the system itself is easily integrated into any learning system.

A teacher (tutor) for mobile training is a multilaterally developed teacher. He should know the basics of the Internet of Things (IoT), SMART training (Sherstobitova, et al.,

2020), distance learning and control technologies, the methodology of modern training - projects, creativity, scenario simulation, teambuilding and other modern technologies.

For example, in a pandemic of COVID-19, students are offered to solve projects that teach (self-training) the design of robots controlled from a mobile device, in particular:

1) a disinfectant robot (for example, ultraviolet light) that disinfects with "cold steam";

2) a robot recognizer of infected people in the stream, determining whether the interlocutor is infected (according to breathing, pulse, other symptoms);

3) operation of a saturation meter, smear taking, 3D painting and interactive data transmission via a wireless terminal.

Existing mobile learning methods and technologies allow (Nemtinov, et al., 2021) to use multimedia resources (audio-video, graphics, images), network courses, directories and dictionaries, SMS, Twitter, Skype, etc.

Of great importance is a full-fledged educational portal adapted for mobile devices (Abdrasheva, et al., 2016). For example, this is the portal of the Russian Open University of New Information Technologies (INTUIT).

The relevance of mobile learning is manifested, in particular, in the development of mobile technologies, increased mobility of students, business-processes and educational structures (Lai, Hong, 2015).

But the data itself can be controlled by gadgets. For example, MDM (Master Data Management) - systems (technologies, applications) are actively used to manage data using proven actions and familiar gadgets.

They are all adaptable to mobile learning goals by selecting or blocking other applications, restoring files, etc.

2. Results and discussion

Our analysis allows us to use the following simple and complete system category: mobile training - training using the infrastructure of mobile devices and technologies, independent of spatial and time restrictions of access. The category is evolutionary, which allows you to explore the self-organization of mobile environments in training.

Mobile gadgets in the field of education have "pros" and "cons."

In our opinion, the following features of mobile devices can be considered "pros":

1) arouse interest, attract those who want to resume such interest to the education process;

2) rationally, inexpensively (in a "paperless way"), fully and comfortably engage in self-education at any point of access to the Internet, with any gadget, preserving its mobility, which has already become an "attribute" of students;

3) the ability to independently, with effective feedback, build and implement individual educational ecosystems, trajectories, plans and even personalized courses and programs, which is important for students with limited physical capabilities;

4) allows the participants of the educational process to move freely in space-time;

5) increases the potential of formative assessment, diagnosis of emerging educational and practical problems;

6) it is possible to conduct the lesson outside the computer class;

7) the ability of the teacher (tutor) to concentrate directly on the training process;

8) building a model of the trainee and tracking the course of training, a training profile with material and technology correction, including using a voice assistant or testing without the participation of a tutor, as well as training tools to everyone familiar;

9) the possibility of dynamically changing (adapting) the form of classroom work, for this there are many different practical-oriented technologies - from listening to educational material to joint design and team activities, solving cases;

10) variety of forms of social interactions based on mobile infrastructure and mobile learning process;

11) the possibility of situational, scenario training and game mechanics (gamification), with the placement of the instructor in a virtual environment or in a real (laboratory, game situational) environment.

Mobile devices also have "cons", these include the following circumstances:

1)   difficulties with small screen size, uncomfortable scrolling, unstable adaptability and cross-browsers;

2)   low battery capacity, the need for timely recharging of the device (often emergency);

3)   in general, lower reliability indicators than personal computers (fault tolerance, continuous operation time, etc.);

4) difficulties in performing tasks for processing large documents, graphic objects, Excel tables, etc.;

5) the difficulty of focusing the student, his telephone dynamic switches that interfere with focusing;

6) insufficient recognition of diplomas and even certificates of universities, educational centers obtained through mobile passage of the program;

7) low connection speed in the network;

8) paid usage mode for many mobile applications;

9) an unworked policy and a single platform for mobile training in many universities, for example, for the development of competencies, you will still need the help of a group, tutor, methodologist and administrator;

10) lack of full-format and flexible platforms and applications that allow creating (supplementing) content using mobile devices.

Multimedia helps increase motivation of trainees and trainees. If you send out web quests (Scrapkin, Yakubova, 2018), small modules containing, for example, a quantum of educational material, its control and writing essays, you can effectively use mobile devices in training, accepting feedback interactive communication. Students are also encouraged to develop mobile learning applications (for example, student development to work with a portfolio of students, Magomedova, Rajabov, 2014).

The methodology and organization of mobile training is important. We used different forms and techniques and integrated them. In particular, for future managers in the field of tourism, we proposed to solve the problem of modeling the flow of tourists from Russia to Turkey using mobile technologies.

At first, data was collected on the Internet on tourist flows using phones. The data were then processed statistically (mean, variance, deviations, dropout of rough data, etc.) in Excel medium. Next, the command task was to build a flow mathematical model taking into account the following parameters:

1) t - simulation time;

2) T - horizon (time limit) of simulation;

3) $x(t)$ - number of tourists at the moment t, $0 < t < T$;

4) $a(t)$ is the specific influx of tourists, $0 < a < 1$;

5)   b(t) - specific outflow of tourists, 0 < b < 1;

6)   x(0) - the initial flow of tourists (at the time of the opening of the direction).

Using these parameters, with the participation of a tutor, students build a mathematical model of the dynamics of the flow of tourists in the audience. For example, some students took it in a simple and understandable recurring form:

$$x(t + 1) = (a + 1)x(t) - bx^2(t), \ x(0) = x_0.$$

Students during their independent work, mobile exchange of opinions, data from various websites of the tourism business, results and business solutions. They investigate (predict) tourist flows at various points in time, seasons, form and make a team (Scheinbaum, 2018) business decision.

All work within Excel, and the most advanced team (advanced student) also implements the program (C++) of simulation prediction. Making a business decision on the development of the direction, service is based on the results of simulation experiments, mobile communication. The program simulates the evolution of travel companies.

The following important pedagogical and technological possibilities of mobile training are being activated:

1) instant assessment of a student's task (action) and feedback in a problem situation;

2) tracking the assimilation of knowledge;

3) the operational transition of the student to the next productive level (not always to a higher level);

4) visualization, virtualization of situations and results;

5) panel discussions;

6) equalizing the opportunities of students with a lower level of competence, shy and shy;

7) possibility of discussions and lively discussion of errors, etc.

It should be noted that modeling using various virtual mobile environments is popular in Russian universities. In particular, Virtual PetroLab applications for smartphones and tablets (Shelyago and Shelyago, 2019).

We conducted a small comparative experiment to study two modules in two groups of students (24 and 22 people). The student was asked to choose what kind of training

(content delivery, control) he wants: mobile or traditional, classroom, in a computer class. Both versions used the Moodle platform and provided appropriate feedback. At the same time, 38 students (83%) chose the mobile option.

An important conclusion from the experiment is: students transfer routine actions and tasks of simple memorization to independent work, and most of the educational and personal time of self-education they share competencies, cooperate creatively, i.e. master the skills that they need in professional activities.

The most important quality of mobile training is its interactivity, creativity. However, it is strengthened or weakened by the level of creativity of course authors, tutors, methodologists and technologists-administrators, for example, LMS systems, simulators, virtual laboratories, Serious Games, for example, the game training platform 3D GameLab (Lam, et al., 2019). Professional podcasts, promotions, interviews, blogs and social networks support such systems.

Figure 1 shows the information logic diagram of mobile training in an enlarged form. The general system-methodological scheme of mobile training is similarly presented (Figure 2).

Note that for commercial universities, mobile education is ideal, because it moves most of the educational processes and technologies (applications) to the student's space, which is relevant in pandemic conditions.

Mobile training, education in universities passed the first stage of mass and emergency ("quarantine") activation. Practical experience of training in conditions of uncertainty and multi-criteria has been accumulated. A difficult little experience is still difficult to analyze. But a similar analysis is already being carried out. Some results of this analysis allow us to adapt for m-Learning systems of the Zoom class, BBB, MOOC, Inquiry-based Learning, Flexible Learning, Blended Learning, Flipped Classroom, etc.

These systems transform the role of the teacher in the educational process (Prokhorenkov, 2016), especially during the current transition in Russian universities to new GEF educational standards, which provide for more than 50% of the independent work of students, the development of general cultural and professional competencies.

```
                          ┌─────────────────────────────┐
                          │            Tutor            │
                          └─────────────────────────────┘
                                       ↕
┌──────────────────────────────────────────────────────────────────┐
│        ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐           │
│              Mechanisms and Technologies                          │
│        └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘           │
│   ┌──────────────┐  ┌──────────────────┐  ┌──────────────────┐    │
│   │   Adaptive   │  │Situational Analysis│ │ Dicision-making │    │
│   └──────────────┘  └──────────────────┘  └──────────────────┘    │
└──────────────────────────────────────────────────────────────────┘
                                       ↕
┌──────────────────────────────────────────────────────────────────┐
│        ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐           │
│              Mobility Methods, Models and Tools                    │
│        └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘           │
└──────────────────────────────────────────────────────────────────┘
                                       ↕
                          ┌─────────────────────────────┐
                          │          Students           │
                          └─────────────────────────────┘
```
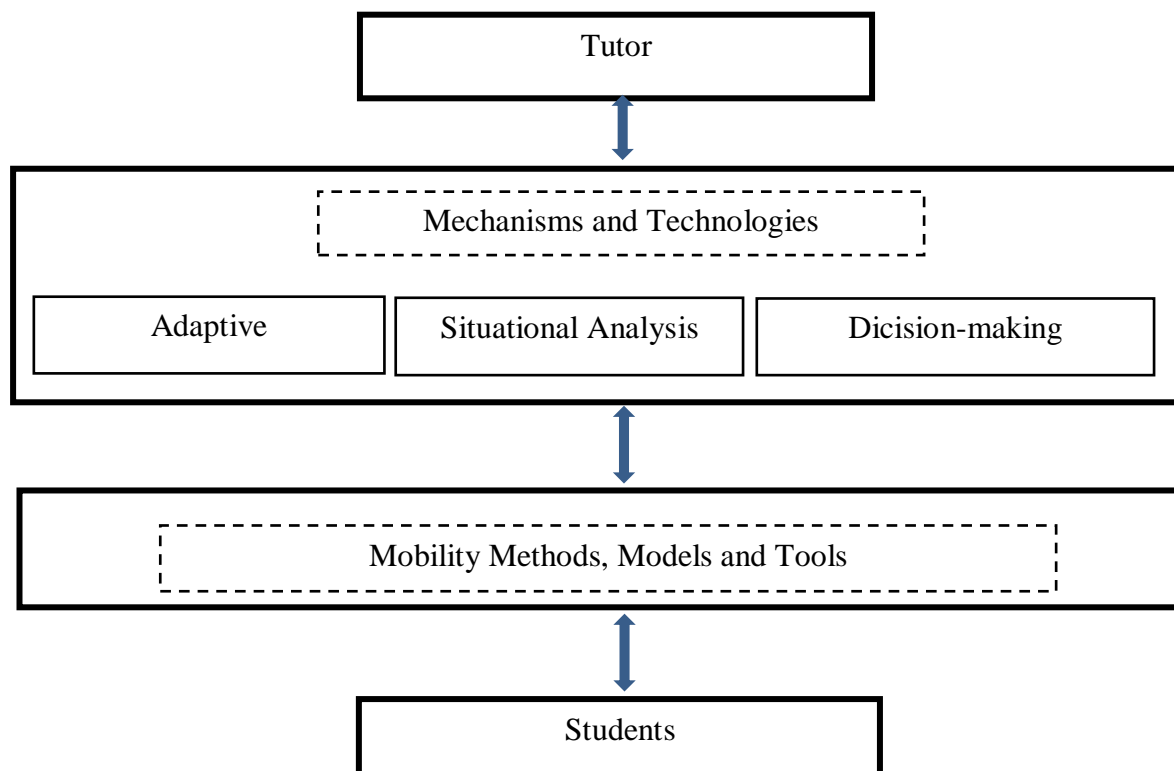
Figure 1. m-Learning info-logical scheme

m-Learning

Methodology · Technology · Communication skills · Self-educational abilities
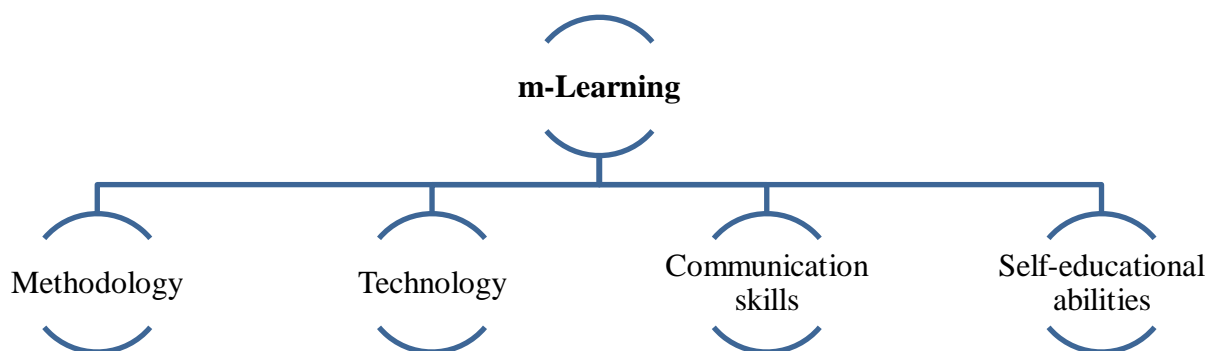
Figure 2. m-Learning methodological scheme

Students are prepared for mobile communications, web resources, they can study independently. But this is often not a consequence of the student's high competence, but a consequence of the task and the proposed methods, competencies of the teacher. Therefore,

there is the potential for student mobility if you use not only subject-oriented content as a "buffer", but also a multitasking mobile environment that allows you to make decisions in effective, productive conditions of psychological, pedagogical and technological communication of content to the student himself. For example, environmental risk forecasting and management tasks.

Tutors are needed - mobile process coordinators, application developers, appropriate infrastructure, interactive methodology, security policy, etc.

Not only mobility is important, but also the intellectuality of technology and tools. Intelligence in mobile training systems is supported using the following tools, procedures:

1) fuzzy sets, logic;

2) expert and heuristic;

3) analytical (for example, the Learning Analytics class);

4) identification of parameters, scale, profile;

5) situational activity of students;

6) multi-agent, for example, class P2P, etc.

Mobile activity of students and educational resources, interactions, elimination of unnecessary intermediate links forms the market of mobile educational technologies and applications for private (self-education) and professional consumption (training, retraining, upgrading of competencies, obtaining an additional specialty).

Mobile systems in training are innovative solutions based on the above procedures.

Conclusion

The use of mobile technologies and educational means in universities leads to reengineering, a radical restructuring of the educational infrastructure at the university. Flexibility, multi-criteria and adaptability of educational processes are needed here.

The most susceptible to mobile learning are distributed, remote access processes (content, tool), telecommunications (webinars), 3D visualization of model and real-world situations (educational situational experiment), interface support, etc.

Mobile Learning Infrastructure Support:

1) serves as a source of information, a means of summarizing, systematizing and controlling knowledge, skills;

2) facilitates the assimilation of material, allows developing observability and logic-combinatorial thinking;

3) leads to the activation of cognition, the emergence of interest in training, increased visibility, satisfaction of requests of various directions, including interdisciplinary ones;

4) entails the specificity of events, organization and rationalization of the educational process.

Thanks to mobile training, you can save time, the strength of the teacher and student by simplifying the educational material and accelerating the training.

The above possibilities are due to didactic features, such as information and emotional expressiveness, a large number of techniques of in-depth penetration into the essence of mastered phenomena, their demonstration in dynamics, real reflection of reality, etc.

It's necessary to train tutors, technologists and mobile training methodologists. There is a lack of trained system administrators and managers - according to the training process itself, and not education managers; if these competencies coincided with someone, then this is just wonderful.

Mobile training in universities meets the requirements of the GEF, this is a promising direction. But it needs to be integrated with research and methodological processes. Support for adaptive mobile learning technologies is required. It's important to focus on cognitive, creative, social and special competencies of university graduates.

The evolution of m-Learning (as well as e-Learning) involves the development of infrastructure capabilities. But it has a feature to lag behind, while the technological component of the evolution vector can be ahead of the methodological, didactic components. A complex process needs relevant tools that reduce complexity, free from nonlinearities, uncertainties.

Digital, mobile learning environments affect all aspects and aspects of competency-based education. But it's important not only their application, but also the readiness of the university for them, its potential for professional and personal self-development of the future specialist.

Vocational education is understood not only as strengthening the orientation towards the graduation of professionals or the individualization of their training, but also as support, monitoring, audit (control) of professional activities at a university. The latter can be

implemented by creating and testing various professional mobile systems, for example, communities in social networks.

The professionalism of the student is enhanced by choosing and tracking individual mobile self-learning trajectories, as well as free access to mobile educational resources, a tutor for consultation and virtual process support.

Acknowledgments

References

Abdrasheva G.K., Tutkyshbaeva Sh. S., Kalibekova D.Sh. (2016) Mobile training and mobile applications in education. Problems and prospects for the development of education in Russia. 39, 126-131.

Clarke P., Keing C., Lam P., McNaught C. (2008) Using SMSs to engage students in language learning. Proceedings of the 20th Annual World Conference on Educational Multimedia, Hypermedia&Telecommunications, Vienna: Austria, 30 June. Available from: URL: http://www.cuhk.edu.hk/clear/download/paper/CKLMcN_EM_08.pdf (contact date: 14.04.2021).

Doskazanov C.T., Danenova G.T., Kokkoz M.M. (2018) Role of mobile applications in the education system. International Journal of Experimental Education, 2, 17-22. Available from: URL: http://www.expeducation.ru/ru/article/view?id=11790 (contact date: 12.04.2021).

GOST RF 52653–2006: Information and communication technologies in education. Terms and definitions. Available from: URL: http://docs.cntd.ru/docu- ment/gost-r-52653-2006 (contact date: 14.04.2021).

Izhuninov M.A. (2020) Prospects for the use of mobile applications in education. Young scientist. 28:318, 18-19. Available from: URL: https://moluch.ru/archive/318/72489/ (contact date: 12.04.2021).

Kaziev V., Tyutrin N., Khizbullin F., Takhumova V., Medvedeva L. (2018) Improvement and modeling of the company's activity based on the innovative kpi system. Journal Fundam. Appl. Sci., 10(5S), 1406-1415.

Lai K.W. Hong K.S. (2015) Technology use and learning characteristics of students in higher education: Do generational differences exist? British Journal of Educational Technology, 46(4), 725–738. URL: https://doi.org/10.1111/bjet.12161

Lam J.T. Gutierrez M.A. Goad J.A. Odessky L. Bock J. (2019). Use of virtual games for interactive learning in a pharmacy curriculum. Currents in Pharmacy Teaching and Learning, 11(1), 51–57. https://doi.org/10.1016/j.cptl.2018.09.012

Magomedova R.M., Rajabov F.R. (2014) Mobile application to support student portfolio management. Problems of modern science and education, 4 (22), 11-12.

Nemtinov V.A., Borisenko A.B., Morozov V.V., Nemtinova Yu.V. (2021). Increasing the Level of Professional Competence Using a Virtual Educational Environment. Higher Education in Russia, 30(3), 104-113. DOI:10.31992/0869-3617-2021-30-3-104-113.

Prokhorenkov P.A. (2016) Stages of the formation of the electronic information and educational environment of the university. International Journal of Experimental Education, 2(2), 291-294.

Shelyago E.V., Shelyago N.D. (2019) Experience in the development and application in the educational process of the Virtual PetroLab application for mobile devices. Higher education in Russia, 28(5), 120-126. DOI: https://doi.org/10.31992/0869-3617-2019-28-5-120-126

Scrapkin Yu. M., Yakubova E. Yu. (2018) Use of the "web quest" technology in professional self-determination. Bulletin of the Russian University of Friendship of Peoples (series "Informatization of Education"), 15(4), 373–381. DOI: https://doi.org/10.22363/2312- 8631-2018-15-4-373-381

Scheinbaum V.S. (2018) Competence "ability to work in a team" and its development using interdisciplinary training technology in a virtual production environment. Higher education today, 27(2): 2–9. DOI: 10.25586/RNU.HET.

Sherstobitova A.A, Iskoskov M.O., Kaziev V.M., Selivanova M.A., Korneeva E.N. (2020) University Financial Sustainability Assessment Models. Smart Innovation, Systems and Technologies, 188, 467-477. https://doi.org/10.1007/978-981-15-5584-8.

Traxler J. (2005) Defining mobile learning. IADIS International Conference Mobile Learning. Available from: URL: https://www.researchgate.net/profile/John_Traxler/publication/228637407_Defining_mobile_learning/links/0deec51c8a2b531259000000/Defining-mobile-learning.pdf (contact date: 12.04.2021).

Thornton P., Houser C. (2005) Using mobile phones in English education in Japan. Journal of Computer Assisted Learning, 21(3), 217–228. https://doi.org/10.1111/j.1365-2729.2005.00129.x.

Titova S.V., Danilina E.K. (2018) Experimental implementation of a model for organizing the formation and current control of written and speech skills based on mobile technologies of students of a non-language university. Bulletin of the University of Tambov (series: "Humanities"), 23 (172), 35–42. https://doi.org/10.20310/1810-0201-2018-23-172-35-42.

Titova S.V., Talmo T. (2015) Creating an interactive lecture model using the SRS mobile polling system. Bulletin of Moscow University (series "Linguistics and Intercultural Communication"), 3, 49–63.

UNESCO Policy Recommendations for Mobile Learning (2015). Available from: URL: http://iite.unesco.org/pics/publications/ru/files/3214738.pdf (contact date: 10.04.2021).

Brecha digital y estrategias didácticas en el contexto de la escuela Unidocente

Gabriela del Carmen Benites-Sigcho*
Bélgica Elena Argüello-Fiallos **

RESUMEN

El objetivo de la investigación consistió en diagnosticar las estrategias didácticas que se pueden implementar para superar las dificultades que desencadena la brecha digital en el proceso de enseñanza aprendizaje en Ecuador. Para el estudio se ha tomado como referencia contextual, la escuela básica "Lcdo. Eugenio García García", la cual funciona como un centro escolar Unidocente y presenta dificultades para que sus dos maestras puedan realizar su labor pedagógica, dado el contexto social en el que se encuentra la escuela. Metodológicamente, la investigación está sustentada en un modelo de investigación mixta, que combina el diseño de campo y y la aplicación de un cuestionario tipo Likert entre el alumnado de la institución, para describir sus habilidades digitales en el contexto educativo. Igualmente se realizan entrevistas a profundidad a las docentes que laboran en la institución. En el caso de los alumnos, aunque muestran ciertas competencias digitales, se encuentran falencias al momento de su aplicabilidad educativa. En cuanto a los docentes, hay un mayor compromiso y experticia digital; en todo caso, a nivel general y, a pesar de lo que puede pensarse, en este caso de estudio, no parece haber brecha digital significativa entre docentes y alumnos.

PALABRAS CLAVE: Brecha digital; estrategias didácticas; competencias digitales; enseñanza multimedia

*Licenciada en Ciencias de la Educación, Mención Educación Básica. Magíster en Educación, Mención Pedagogía. Escuela de Educación Básica Lcdo. Eugenio García García, Palenque – Loma de Franco, Pasaje, El Oro – Ecuador. ORCID: https://orcid.org/0000-0002-8673-4720. E-mail: carmen.benites@educacion.gob.ec

**Licenciada en Lengua Inglesa, Especialización en Lingüística y Literatura. Unidad Educativa San Josemaría Escrivá, Guayaquil – Ecuador. ORCID: https://orcid.org/0000-0001-5749-3609. Email: b.arguello@josemariaec.org

Digital gap and didactic strategies in the context of the Unidocente school

ABSTRACT

The objective of the research was to diagnose the didactic strategies that can be implemented to overcome the difficulties triggered by the digital gap in the teaching-learning process in Ecuador. For the study, we have taken as a contextual reference the basic school "Lcdo. Eugenio García García", which works as a united school center and presents difficulties for its two teachers to carry out their pedagogical work, given the social context in which the school is located. Methodologically, the research is based on a mixed research model, which combines the field design and the application of a Likert-type questionnaire among the students of the institution, to describe their digital skills in the educational context. Likewise, in-depth interviews are conducted with the teachers who work in the institution. In the case of students, although they show certain digital skills, there are shortcomings at the time of their educational applicability. As for teachers, there is a greater commitment and digital expertise; in any case, at a general level and, in despite of what may be thought, in this study, there does not appear to be a significant digital gap between teachers and students.

KEYWORDS: Digital gap; teaching strategies; digital skills; multimedia teaching.

Introducción

El contexto social actual presenta una serie de características que derivan, en buena parte, de la forma en que las naciones han reaccionado frente al tema de la pandemia del Covid-19 y han adecuado sus dinámicas económicas, sociales y, por supuesto, educativas a esta situación inédita. En el ámbito de la educación, las perspectivas se han decantado por una necesaria extensión y profundización del uso de las Tecnologías de la Información y Comunicación (TIC) en el trabajo pedagógico, para poder mantener el ritmo y pertinencia de los procesos de enseñanza-aprendizaje de los diferentes niveles de formación.

Este esfuerzo se está aplicando en los centros escolares del Ecuador, para mantener la idoneidad de las estrategias didácticas y la calidad educativa y, es -además- lo que se pretende ahondar desde este artículo. En principio, hay que aceptar que a pesar de la buena voluntad que han demostrado los docentes para afrontar las nuevas circunstancias socioeducativas, Hernández, Niembro y Velázquez (2020), tienen razón cuando afirman que las demandas o

exigencias planteadas por la educación, en la pandemia, desnudan las carencias que, tanto en equipamiento como en competencias digitales, tienen los alumnos y los profesores actualmente.

En el caso ecuatoriano, es interesante profundizar en torno a las dificultades que presentan aquellas escuelas, llamadas "Unidocentes", para que los docentes puedan cumplir integralmente con sus labores pedagógicas. La brecha digital, es decir, la distancia entre quienes poseen acceso a internet y equipamiento tecnológico y quienes no cuentan con esos recursos, puede constatarse con mayor facilidad en esos centros escolares, porque el trabajo de los docentes debe tener una cobertura total y la atención de los alumnos es compleja. Hay que considerar que estos centros escolares se encuentran, en su mayoría, en zonas rurales del país, con una población estudiantil de mayores carencias materiales.

El texto de este artículo está organizado de manera que el lector, en un primer momento, pueda seguir el hilo de una reflexión que va desde los antecedentes y la problematización de la situación estudiada hasta la formulación de los objetivos de investigación. En seguida, se desarrollan los fundamentos conceptuales, del estudio y los procesos metodológicos implicados en la recolección y procesamiento de la información, para -finalmente- presentar la discusión de los resultados.

Desde el punto de vista metodológico, es importante tener en cuenta que, actuando en función de la naturaleza del estudio y de los intereses intelectuales de las autoras, la investigación se plantea en el contexto de la escuela de educación básica "Lcdo. Eugenio García García", ubicada en el sitio Palenque, perteneciente a la Parroquia Loma de Franco, cantón Pasaje, por lo que presenta características propias de un estudio de caso.

Así mismo, considerando que la pandemia del Covid-19 no solo representa un problema de salud pública en muchos países latinoamericanos, entre ellos Ecuador, las medidas gubernamentales para controlar la expansión del virus, ha dejado al descubierto, una vez más, las desigualdades que existen entre los ciudadanos, cuando se trata del acceso y conocimiento de los medios digitales y su aplicación a la educación. Esta realidad se ha evidenciado con mayor nitidez, en esta especie de cultura digital emergente, en el que la información y la formación deben ajustarse a nuevos formatos para su tratamiento y fomento (Cedeño et al, 2017).

Particularmente, en las escuelas ecuatorianas unidocentes, la realidad de la educación virtual, en línea o a distancia, presenta mayores inconvenientes, porque su población estudiantil suele provenir de contextos socioculturales de mayor depresión económica y, por ende, con menos probabilidades de contar con los medios tecnológicos necesarios para una educación en línea que mantenga los parámetros de calidad necesarios. Si a esas circunstancias institucionales, se agrega que la ubicación de estas escuelas, en su mayoría se encuentra en zonas rurales de mayor dificultad para la cobertura de la internet, el problema de la brecha digital se complejiza.

Desde el punto de vista contextual, esta investigación focaliza su atención en un caso de estudio representado por la escuela básica "Lcdo. Eugenio García García", un pequeño centro escolar ubicado en la Provincia El Oro, Cantón Pasaje, Sitio Palenque. La escuela está a cargo de dos maestras y cuenta en la actualidad con 54 estudiantes, repartidos entre el primer y el séptimo grado de educación básica. Allí, mediante la observación no sistemática y entrevistas informales a los padres y representantes, se determinó que un 50% tienen internet fijo y los demás se manejan con recargas y mientras que alrededor del 10% no poseen conectividad de ningún tipo.

Aunado a esta situación de los estudiantes, las docentes presentan requerimientos que pasan por lo formativo, es decir, una profundización en la actualización cognoscitiva para la utilización didáctica de las TIC y por una mayor dotación de la escuela, en la perspectiva que los estudiantes puedan acceder a las herramientas que ofrece la tecnología, cuando la educación presencial sea posible. Por ahora, en el contexto de la educación a distancia, existe la necesidad de actualizar las estrategias didácticas que se adecuen a este modelo educativo en pandemia.

En definitiva, esta investigación busca respuestas a las incertidumbres que ha provocado la problemática de la brecha digital en las escuelas unidocentes que están obligadas a adecuar sus procesos pedagógicos a la modalidad de educación a distancia. En ese sentido, la pregunta principal que surge en este contexto es la siguiente: ¿Qué estrategias didácticas se pueden implementar para superar las dificultades que desencadena la brecha digital en las escuelas unidocentes?

En congruencia con esa pregunta general, se generan otras inquietudes que fungen como directrices al momento de buscar información y/o diseñar los instrumentos de investigación, tales como: ¿Qué usos hacen de los medios o dispositivos tecnológicos los docentes y alumnos

de los centros unidocentes?; ¿cuál es la realidad en cuanto a dotación y disponibilidad de medios para la educación digital de la escuela básica "Lcdo. Eugenio García García"?; ¿cuál es el nivel de competencias digitales que poseen los docentes y alumnos de la escuela básica "Lcdo. Eugenio García García"?.

Estas interrogantes guían la búsqueda de información que integra este artículo científico. Como se observa, si bien la centralidad de la investigación tiene que ver con la caracterización de la brecha digital en un centro educativo específico, se pretende obtener una perspectiva, lo suficientemente sistémica del problema, para que pueda servir de referencia en otros contextos educativos. En tal sentido, los objetivos planteados por la investigadora, fueron:

Objetivo General

Diagnosticar las estrategias didácticas que se pueden implementar para superar las dificultades que desencadena la brecha digital en el proceso de enseñanza aprendizaje en escuelas unidocentes

Objetivos específicos

- Caracterizar la realidad, en cuanto a dotación y disponibilidad de medios para la educación digital, de la escuela básica "Lcdo Eugenio García García"

- Registrar el tipo y la aplicabilidad que tienen los medios o dispositivos tecnógicos para docentes y alumnos de los centros unidocentes

- Distinguir el nivel de las competencias digitales que poseen los docentes y alumnos de la escuela básica "Lcdo Eugenio García García"

1. Algunas perspectivas precedentes

Estudios recientes demuestran que la relación entre las TIC y la educación en sus diferentes niveles, es cada vez más estrecha. Esto es lo que dejan ver Romero, Hernández y Ordoñez (2016), cuando enfatizan acerca de la necesidad que tienen los docentes actuales de reconsiderar su praxis pedagógica en función del avance en los dispositivos tecnológicos aplicados a la educación. El trabajo docente debe asumir el reto de las competencias digitales pues de allí depende un mayor impulso de la calidad de la educación en este siglo, aminorando

así, la brecha digital que existe en muchos países latinoamericanos y que redunda en una mayor desigualdad e injusticia social.

Sobre el tema, de las TIC y la educación, la UNESCO también ha llamado la atención en cuanto al rol que deben desempeñar los gobiernos en procura de impulsar la integración eficaz de las TIC en la gestión pedagógica de la escuela actual. En ese llamado se hace énfasis en una redefinición, tanto de la función docente como de sus estrategias al momento de orientar el proceso de aprendizaje dentro y fuera del aula, es decir, la didáctica. Sin embargo, el enfoque promovido por este organismo es holístico, en tanto, son tan importantes las gestiones gubernamentales para mantener el equipamiento de los centros educativos, como la continua formación y actualización del profesorado, así como la disposición actitudinal de los alumnos, al respecto (Valencia et al., 2016).

En cuanto a las investigaciones desarrolladas sobre este tema y que pueden referenciarse como valiosos antecedentes de este estudio, se encuentra el trabajo de Mendoza y Caldera (2014), sobre los "Umbrales para la determinación de la brecha digital". En este análisis, los autores se plantearon la determinación de un porcentaje que funciona como escala o medición en porcentaje para ubicar la brecha digital que puede existir entre regiones desarrolladas tecnológicamente. La idea de la investigación es llenar el vacío metodológico que existe cuando se quiere referenciar la dificultad tecnológica que presentan ciertas localidades frente a otras, aun estando en un mismo país.

En Ecuador, López (2018), aborda la brecha digital entre profesores y alumnos, alertando alerta en cuanto a la necesidad de potenciar las competencias digitales entre el profesorado pero, más aún entre los estudiantes, de manera que, estos últimos, no sean víctimas de la desigualdad que supone una estrategia pedagógica, basada en el uso de una tecnología que ellos no han aprendido a utilizar de forma correcta, sobre todo educativamente. Entre los hallazgos más importantes de este estudio, se encuentra la verificación de una necesidad perentoria: tanto docentes como estudiantes de Ecuador, requieren un fortalecimiento de sus competencias digitales, más allá del llamado para que el Estado dedique mayores esfuerzos por la dotación de equipos y el acceso a la red, en los centros educativos.

Estos precedentes investigativos, son apenas una muestra de la inquietud intelectual que está generando el tema de las TIC como herramientas en la gestión pedagógica de los docentes, máxime en estos momentos en que la mayoría de los países se mantienen con un régimen educativo en línea a causa de la pandemia. Ciertamente no se ha seguido un criterio específico para decidir que estudios seguir, en todo caso, se atendió al hecho de ser trabajos de investigación con una orientación temática similar a la que ocupa este artículo.

2. Fundamentos conceptuales

Una vez delineado el problema y los objetivos de la investigación, es preciso presentar el estado de la cuestión, desde el punto de vista teórico. Se trata de realizar una aproximación a aquellos conceptos o categorías cuyo análisis pueden resultar de soporte para la interpretación y discusión de los resultados y que puedan servir como telón de fondo para el desarrollo de directrices en la actualización de las estrategias docentes atendiendo al desarrollo o fortalecimiento de su competitividad digital y la de sus estudiantes.

2.1. Brecha digital

El debate sobre las desigualdades sociales que devela el uso de la tecnología aplicada a la educación tiene ya un largo recorrido. El concepto de "brecha digital", que se origina en Europa a raíz de un proyecto de inversión de la empresa Minitel, dedicada al negocio de la telefonía en los años de 1970, alude al contexto problemático que deriva de la alta utilización de las Tics, en espacios sociales en el que no todos los ciudadanos tienen igual acceso y conocimiento acerca de las ventajas que tienen estas herramientas (Martín , 2020).

De manera más amplia, autores como Olarte (2017), consideran que no es posible entender este concepto , sin incluirlo en la cosmovisión teórica de la sociedad de la información, propia de la era postindustrial. Es una época en el que las TIC y la llamada Revolución Tecnológica en general, se presentan como una gran oportunidad para reducir las desigualdades sociales que generó la industrialización, al promover un mayor acceso a la información y, en tanto, al conocimiento. Sin embargo, lo que parece haber ocurrido es una profundización de las

diferencias entre quienes se conectaron al progreso tecnológico y quienes, por diversas razones no lo han logrado.

Todas estas circunstancias adversas que se generan como producto del avance y universalización tecnologica en la vida p{ublica y privada de las personas, se traduce en eso que se ha dado en llamar: brecha digital. Es así como "...las distintas organizaciones internacionales coinciden en señalar que las TIC por sí solas no constituyen un remedio para las grandes fracturas sociales, sino que, al contrario, pueden incidir en un agravamiento de las brechas sociales preexistentes" (Olarte, 2017:288).

2.2. TIC y competencias digitales

En ese proceso que ha llevado un fortalecimiento de la relación entre TIC y pedagogía, se ha hablado del surgimiento de un nuevo formato educativo, el cual está asociado a la transformación de la praxis educativa en función de la implementación de la tecnologización de la enseñanza. De lo que se trata, en el contexto de estas innovaciones, es de construir un nuevo modelo educativo en el que se integran, las TIC y las herramientas pedagógicas de los docentes para conducir los procesos formativos de los alumnos, que serán, en el futuro, los ciudadanos que impulsen una sociedad más justa y democrática (Gómez et al, 2018)

Este tipo de educación lleva como bandera una relación muy próxima entre la cognición del estudiante y la dinámica del mundo digital y puede resultar un soporte teórico para la digitalización de procesos y dinámicas que antes eran manufacturados. Eso, en las aulas supone el uso de herramientas como el mail y las Webquest, para impulsar el trabajo escolar de los alumnos en equipos que, esta vez, no requieren su presencia física, sino la creación por parte de los docentes, de otros espacios de interacción comunicacional y acercamiento para construir conocimiento cooperativo basados en la interactividad y la digitalización del conocimiento.

Así, la importancia que tienen las TIC cuando se coloca al servicio de la pedagogía, es innegable. Especialmente en la edad temprana, los niños están en una etapa de pleno desarrollo intelectual y psicomotor que les hace más proclives a aprovechar, en toda su potencialidad estas herramientas. Asi mismo, se la adopción de las TIC tanto en la praxis docente, en las aulas, como

en el trabajo escolar que los alumnos pueden realizar desde sus casas forman parte del nuevo equipamiento del profesorado de esta etapa, a la hora de planificar sus actividades.

Ahora bien, visto desde la tecnología, ¿qué ha cambiado?, pues, sin duda hay muchas nuevas herramientas digitales o virtuales como es el caso de las redes, que permiten una mayor operatividad de la educación virtual, y una gran cantidad de recursos didácticos pero soportados tecnológicamente que demandan una transformación mucho más veloz de los estilo de enseñanza actuales. Se demanda así, una mayor cooperación en la producción de saberes, una constante conectividad para el intercambio de ideas, y una reducción de la brecha digital para poder avanzar en los procesos virtuales de la educación, incluso entre docentes y alumnos

En cuanto a las competencias digitales (CD) del profesorado, que en este contexto de cambios, se presenta como una necesidad perentoria, algunas organizaciones como el Parlamento Europeo (2006), incluyen allí, los aspectos que derivan del uso de la red para la búsqueda, obtención, creación o acopio de información, ya sea para uso propio o distribución. La definición de las CD en términos de habilidades por parte de este organismo, son particularmente interesantes, entre ellas se mencionan: a) habilidades para buscar, ubicar y tratar de manera crítica la información; b) capacidad para usar las TIC para comprender ciertas informaciones y crear nuevas de manera crítica; y, c) El uso responsable y ético de la información disponible en las redes

La UNESCO (2018), por su parte, considera que las CD, son habilidades que facilitan a las personas, especialmente a los docentes, la utilización diligente y eficiente de los mecanismos tecnológicos, gestionando su aplicabilidad en el contexto académico. Se considera que en la sociedad del conocimiento, es fundamenta aprender, aunque sea el manejo básico de los dispositivos móviles, pues, al igual que la lecto-escritura, son una forma de alfabetización.

Se entiende en ese espectro reflexivo, que las competencias digitales de los docentes y su aplicabilidad en la creación de innovadoras estrategias de gestión pedagógica para la calidad, más que un deseo de quien ejecuta esta investigación , es una demanda del entorno. Esto último lo reafirman Navarrete y Mendieta (2018) al señalar que en Ecuador, se ha tomado conciencia del valor que tiene la actualización docente en el área de las comunidades virtuales, porque eso

le permitiría crear nuevos ambientes de aprendizaje y utilizar las TIC como herramientas didácticas.

2.3. La didactica y los modelos pedagógicos y educativos

En el contexto de la educación, las teorías y sus consecuencias prácticas, suelen traducirse en procesos que terminan influyendo en la concepción de un modelo de enseñanza, es así como surge la didáctica, la cual , "se presenta como una disciplina autónoma derivada de la pedagogía, y cuyo objeto de estudio es la enseñanza-aprendizaje" (Arango, Vásquez, Salazar, & Álvarez, 2013). Esta definición de lo que significa la didáctica, empalma con los cambios que, para efectos de la educación y sus modelos, representan las nuevas circunctancias en las que se desempeñan los docentes.

En ese orden de ideas, es importante tener en cuenta que, el uso de las TIC en la labor pedagógica, obedece a la concepción del modelo educativo que tenga presente el docente. Como señalan Apodaca y otros (2017), para el docente, el conocimiento del modelo educativo "...le permitirá crear una planeación didáctica y uso de herramientas y técnicas acorde a cumplir objetivos que tendrán un impacto favorable en la educación de los estudiantes". (pág. 80) Estos mismos autores afirman que todo modelo aplicado a la educación implica la reunion de teorías y recursos que dan sentido a las actividades de en el aula.

Modelo didáctico, modelo educativo y, finalmente, modelo pedagógico, representan tres espacios teóricos-prácticos que han de ser repensados a la luz de la formación que requieren los estudiantes en el siglo XXI. Respecto al modelo pedagógico, Vives (2016), afirma que, "...es concebido como una categoría descriptivo explicativa para la estructuración teórica de la pedagogía, la cual adquiere sentido en la medida que es contextualizada históricamente" (48). De esta definición se puede deducir que en este modelo, subsume los dos primeros, es decir, la pedagogía comprende, tanto a la didáctica como a la educación, en sus expresiones prácticas.

3. Metodología, procesos e instrumentos

Esta investigación está enmarcada en el enfoque de investigación descriptiva con elementos del tipo correlacional, debido a la vinculación que se establece entre la brecha digital

y las estrategias didácticas. Según Rojas (2015), este tipo de estudio, produce acercamientos a la realidad en su presentación genuina, mostrando el fenomeno tal cual es, sin intervenirlo o modificarlo.

El diseño es de campo, esto significa que se recaba la información del mismo lugar donde se da el hecho, en este caso el de la brecha digital en escuelas unidocentes y las estrategias didácticas para enfrentar este problema. La idea es comprobar el impacto del cambio en la modalidad educativa a raíz de la pandemia, tomando en consideración que el uso de la tecnología era algo adicional antes pero ahora es el centro de la formación.

Así mismo, en el entendido que se aborda el caso de estudio en una escuela de la cual, la autora de este proyecto forma parte, es posible aproximarse a la realidad desde la pespectiva fenomenológica de sus protagonistas, es decir, a partir de la observación no sistemática, de la interacción entre docentes y estudiantes, una relación que se ha visto profundamente impactada por las circunstancias socioeducativas derivadas de la pandemia y la necesidad de readecuación de la enseñanza.

Especificamente, el estudio esta enfocado en la realidad de La Escuela de Educación Básica "Lcdo. Eugenio García García se encuentra ubicada en el sitio Palenque, perteneciente a la Parroquia Loma de Franco, cantón Pasaje, Ecuador. Este centro educativo, por sus caracteristicas se corresponde con una escuela unidocente con todas las implicaciones sociales, educativas y pedagógicas que eso representa.

En cuanto a la población, actualmente la escuela esta a cargo de dos maestras y cuenta con una población de 54 estudiantes, entre niños y niñas, tal como se refleja en la tabla 1.

En lo que respecta al abordaje cuantitativo, la investigación esta guiada por un objetivo general cuyo desglosamiento facilita el uso de un cuestionario tipo likert que permite medir en una forma aproximada aspectos relacionados con: los usos que hacen de los medios o dispositivos tecnógicos los docentes y alumnos de los centros unidocentes, la realidad en cuanto a dotación y disponibilidad de medios para la educación digital de la escuela básica "Lcdo Eugenio García García" y, el nivel de competencias digitales que poseen los docentes de la escuela básica "Lcdo Eugenio García García".

Tabla 1. Composición de la población estudiantil

GRADOS	HOMBRES	MUJERES	TOTAL
1º	4	6	10
2º	1	2	3
3º	3	3	6
4º	3	6	9
5º	4	5	9
6º	2	5	7
7º	5	5	10
TOTAL	22	32	54

Fuente: Secretaría del centro escolar

El instrumento para obtener la información consiste en una serie de afirmaciones frente a las que se les pide a los estudiantes de la escuela "Lcdo. Eugenio Gacía García", manifestar su grado de acuerdo o desacuerdo, según se consideren ajustadas a la realidad de la institución. Una vez respondidos los cuestionarios, se mostraran, los resultados a partir de la estadistica desciptiva, o más concretamente, en unas tablas porcentuales que describan las circunstancias que rodean la relación entre la brecha digital y las estrategias didácticas en la escuela.

De igual manera, entendiendo que la realidad es compleja, la investigadora procede a aplicar, en paralelo, la técnica de la entrevista focalizada, la cual presenta dos modalidades, por una parte se le administra una entrevista a la docente que acompaña las labores pedagógicas de la autora y, por otra se realiza una autoentrevista, pues, en este caso particular, las experiencias que tiene la autora de este artículo, como docente del centro escolar, es sumamamente valiosa.

4. Presentación y discusión de resultados

El instrumento para obtener la información consiste en una serie de afirmaciones frente a las que se les pide a los estudiantes de la escuela "Lcdo. Eugenio Gacía García", manifestar su grado de acuerdo o desacuerdo, según se consideren ajustadas a la realidad de la institución. Una vez respondidos los cuestionarios, se mostraran, los resultados a partir de la estadistica desciptiva, o más concretamente, en unas tablas porcentuales que describan las circunstancias que rodean la relación entre la brecha digital y las estrategias didácticas en la escuela.

Para favorecer la comprensión posterior de los analisis derivados de los resultados, divididos según la dimensión sobre la que se pregunta en el instrumento, en la tabla 2, se muestra el cuestionario completo que fue aplicado a los estudiantes de la escuela.

Tabla 2. Cuestionario aplicado a la población estudiantil

DIMENSIÓN	AFIRMACIONES	N	CN	AV	CS	S
Tecnológica	1. Tienes acceso a redes públicas de internet 2. Accedes a internet desde tu casa 3. Accedes a internet desde un computador 4. Accedes a internet desde un teléfono 5. Utilizas tu computador					
Económica	6. Has pensado adquirir nuevos equipos 7. El equipamiento tecnológico con que cuentas es suficiente para tus estudios 8. En tu hogar se retrasan en los pagos del servicio de internet 9. El ingreso familiar es suficiente para seguir con éxito en tus estudios a distancia 10. La utilización de los sitios privados de servicio de internet es una opción para ti					
Competencia Digital	11. Tomas cursos para mantenerte actualizado(a) en los usos de la tecnología 12. Es imprescindible mantenerse actualizado en el uso de la tecnología 13. El uso de la tecnología es algo cotidiano que no requiere mayor preparación 14. Es más exitoso en la educación actual quien se mantiene actualizado					
Estrategias Didácticas	15. Utilizas las aplicaciones informáticas para la educación 16. Haces uso de las plataformas virtuales para asignar/cumplir tareas educativas 17. Recibes/das asesoría oportuna para los trabajos educativos 18. La comunicación digital es suficiente para el éxito educativo 19. El uso y recuperación de información web para el aprendizaje es exitoso 20. Existe un aprendizaje colaborativo mediante el empleo de la tecnología					

Fuente: elaboración propia.
Lectura: **N** (Nunca); **CN** (Casi nunca); **AV** (A veces); **CS** (Casi siempre); **S** (Siempre)

Enseguida se transcriben los cuadros con las estadísticas descriptivas a partir de respuestas recibidas a estas preguntas, como estrategia analítica, se recurre a la presentación dividida en función de cada dimensión examinada a partir de la opinión de los estudiantes que participaron en el estudio.

Tabla 3. Resultados obtenidos para la dimensión tecnológica

Afirmaciones	N		CN		AV		CS		S	
	f	%	f	%	f	%	f	%	f	%
1. Tienes acceso a redes públicas de internet	22	40,7	12	22,2	10	18,5	5	9,2	5	9,2
2. Accedes a internet desde tu casa	2	3,7	2	3,7	5	9,2	25	46,2	20	37
3. Accedes a internet desde un computador	30	55,5	14	25,9	5	9,2	3	5,5	2	3,7
4. Accedes a internet desde un teléfono	1	1,8	3	5,5	5	9,2	40	74	5	9,2
5. Utilizas tu computador	36	66,6	12	22,2	4	7,4	1	1,8	1	1,8

Fuente: elaboración propia

Una de las caracteristicas de la brecha digital, tiene que ver con la posibilidad de las grandes masas poblacionales a contar con acceso a internet de manera gratuita a traves de servicios prestados por el estado. En este caso de estudio, las respuestas al cuestionario, referidas a ese aspecto, muestran que el mayor porcentaje de los estudiantes (40%), no accede nunca al internet a través de redes públicas, mientras que, por el contrario, casi el 50%, manifestó que acceden desde su casa.

Con un 74%, el dispositivo tecnológico más popular para acceder a internet, por parte de estos alumnos, es su celular, siendo el computador el de menos uso. En este par de observaciones se ratifica la ineficiencia de las redes públicas para proveer el servicio de internet entre los estudiantes encuestados y, el terreno que han ganado los dispositivos moviles, frente al desuso en que, poco a poco, han caido los equipos tecnológicos fijos.

Tabla 4. Resultados obtenidos para la dimensión económica

Afirmaciones	N		CN		AV		CS		S	
	f	%	f	%	f	%	f	%	f	%
6. Has pensado adquirir nuevos equipos	4	7,4	5	9,2	20	37	15	27,7	10	18,5
7. El equipamiento tecnológico con que cuentas es suficiente para tus estudios	5	9.2	11	20.3	25	46,2	3	5,5	10	18,5
8. En tu hogar se retrasan en los pagos del servicio de internet	6	11,1	15	27,7	23	42,5	6	11,1	4	7,4
9. El ingreso familiar es suficiente para seguir con éxito en tus estudios a distancia	0	0	2	3,7	5	9,2	12	22,2	35	64,8
10. La utilización de los sitios privados de servicio de internet es una opción para ti	48	88,8	3	5,5	3	5,5	0	0	0	0

Fuente: elaboración propia

En cuanto a la variable economica y su importancia para reducir o ampliar, la brecha digital, al menos entre los alumnos que cursan estudios en este centro unidocente; los resultados dejan ver cierta disponibilidad favorable de los encuestados. Aunque la mayoría, un 46%, algunas veces ha pensado adquirir más equipamientos tecnológicos, tambien un el mas alto porcentaje considera que los ingresos familiares son suficientes para hacer frente al modelo de educación a distancia.

Tomando en cuenta estos resultados, parece que el la brecha digital, en este caso especifico, no depende de la desigualdad económica que pueda haber entre el estudiantado, por el contrario, al parecer, hay fortaleza entre las familias para continuar apoyando a sus hijos en el reto que significa la educación digital, al menos, en cuanto a lo económico se refiere.

Lo que muestran los resultados del cuestionario, en lo que respecta a la competencia digital de los estudiantes, es ilustraticvo de una realidad cultural actual: las mayorías asumen que las TIC son indispensables, no solo en la educación, sino en la cotidianidad. Destaca entre estos datos, el alto porcentaje, casi 65%, que considera que el éxito educativo, en la actualidad, esta vinculado a la actualización en el manejo de las TIC.

Tabla 5. Resultados obtenidos para la dimensión competencia digital

Afirmaciones	N		CN		AV		CS		S	
	f	%	f	%	f	%	f	%	f	%
11. Tomas cursos para mantenerte actualizado(a) en los usos de la tecnología	38	70,3	15	27,7	11	20,3	0	0	0	0
12. Es imprescindible mantenerse actualizado en el uso de la tecnología	33	61,1	16	29,6	5	9,2	0	0	0	0
13. El uso de la tecnología es algo cotidiano que no requiere mayor preparación	6	11,1	6	11,1	18	33,3	20	37	4	7,4
14. Es más exitoso en la educación actual quien se mantiene actualizado	3	5,5	5	9,2	35	64,8	6	11,1	5	9,2
15. Utilizas las aplicaciones informáticas para la educación	0	0	5	9,2	15	27,7	17	31,4	17	31,4

Fuente: elaboración propia

Es destacble también que, entre las dos ultimas frecuencias valoradas (CS y S), suman más de 60% de evaluación positiva en cuanto a la necesidad de utilizar aplicaciones informáticas en los procesos educativos. Ciertamente, la mayoria confiesa poca preocupación por la necesidad de formalizar su preparación tecnológica a traves de cursos, pero eso es congruente con su creencia acerca de la tecnología com un aspecto de su cotidianidad que no requiere mayor experticia.

Más del 90% de los estudiantes valoran positivamente tanto las asesorías que reciben a traves de las TIC, como la suficiencia de la comunicación que establecen con sus maestras a tráves de estas vias. Este no es un dato menor, pues nos informa acerca de la funcionalidad del modelo de educación a distancia que se ha tenido que implementar en esta escuela unidocente.

Observados en conjunto, los resultados del cuestionario aplicado a los estudiantes de la escuela ecuatoriana que nos ha servido de caso de estudio, dejan bien parada, tanto la modalidad de educación implementada en el contexto de la pandemia, como las estrategias didácticas que han desarrollado las docentes de ese centro escolar. Se puede asumir, según estos

resultados, que la percepción estudiantil sobre la calidad de la educación que están recibiendo es adecuada y si hay una preocupación de los docentes, en ese sentido.

Tabla 6. Resultados obtenidos para la dimensión estrategias didácticas

Afirmaciones	N		CN		AV		CS		S	
	f	%	f	%	f	%	f	%	f	%
16. Haces uso de las plataformas virtuales para asignar/cumplir tareas educativas	2	3,7	11	20,3	37	68,5	2	3,7	2	3,7
17. Recibes/das asesoría oportuna para los trabajos educativos	0	0	0	0	5	9,2	39	72,2	10	18,5
18. La comunicación digital es suficiente para el éxito educativo	0	0	6	11,1	34	62,9	14	25,9	0	0
19. El uso y recuperación de información web para el aprendizaje es exitoso	1	1,8	24	44,4	20	37	8	14,8	1	1,8
20. Existe un aprendizaje colaborativo mediante el empleo de la tecnología	0	0	2	3,7	9	16,6	33	61.1	10	18,5

Fuente: elaboración propia

Precisamente, respeacto al tema de la percepción y compromiso de los docentes en este proceso redefinitorio de la pedagogía, Navarrete y Mendieta (2018), lo reafirman al señalar que en Ecuador, se ha tomado conciencia del valor que tiene la actualización y usos de las TIC en el área educativa. En esa perspectiva y, congruente con nuestro interes en esta investigación, además del cuestionario a la población estudiantil, se realiza una entrevista para pulsar la opinión de las dos maestras que laboran en la escuela unidocente tomada como referencia.

Ahora bien, los resultados que se ilustran en las matrices hermenéuticas que siguen, se dividen en dos partes, una corresponde a la entrevista aplicada a una de las docentes d ela escuela y, la otra es una suerte de "autoentrevista", que fue respondida por la autora de este artículo que es la otra maestra de la institución.

Tabla 7. Entrevista 1

Ejes temáticos	(Extractos discursivos)	Hermenéutica crítica
Tiempo en la institución	"2 años"	Esta docente es la más nueva en la institución, sin embargo, aunque su trayectoria, apenas supera el tiempo que ha durado la pandemia, su perspectiva, justamente se ha formado en ese lapso, por lo que es pertinente, obtenerla.
Grado de satisfacción	"me siento excelente"	
Inconformidades	"Falta de equipos TIC para trabajar"	Su satisfacción con la labor que desempeña en la escuela, se ve trastocada por las carencias tecnológicas que tiene la institución, lo que se traduce en un problema para la calidad educativa que puede impartir.
Acceso y uso educativo de la TIC	"Mi accesibilidad al internet en la institución no es muy buena"	En esta entrevista docente se corrobora uno de los hallazgos del cuestionario aplicado a los alumnos. La conectividad para el trabajo, tanto de alumnos como de las maestras se realiza con mayor frecuencia y adecuación en sus residencias familiares.
	"En mi domicilio puedo trabajar de manera satisfactoria, ya que tengo todos los equipos necesarios para ofrecer un mejor desempeño laboral"	Este dato es importante porque tiene implicaciones de denuncia frente a la inoperatividad que, en algunos aspectos, presenta la gestión oficial, cuando se trata de apoyar el trabajo de las escuelas en la modalidad a distancia. No obstante, sigue siendo importante la constatación de la buena voluntad docente, para el trabajo pedagógico domiciliado.
	"Mi Computadora, impresora, me ayudan a realizar mis labores diarias"	
Disponibilidad económica	"Mi situación económica es satisfactoria para contar con equipamiento y servicio privado de internet"	Ciertamente, una de las preocupaciones en cuanto a la brecha digital en nuestros países, tiene que ver con la disponibilidad económica de las personas para mantener actualizados sus equipos tecnológicos. En este caso de estudio, la entrevistada, alude una situación de relativa comodidad para mantener, tanto su equipamiento, como los pagos de sus servicios de conexión. Esto también coincide con parte de las

		opiniones estudiantiles al momento de valorar sus ingresos y la posibilidad de adquirir o mantener sus equipos.
Competencia digital	"Es necesario, ya que nos permite cumplir con nuestras labores de manera excelente" "Es sumamente importante que las TIC se utilicen a diario en la educación, para que así los estudiantes tengan un mejor desempeño educativo" "YouTube, nos sirve para poder revisar enlaces y empaparse del tema de la clase. La valoración sería excelente."	Se entiende que el fortalecimiento de las competencias docentes para la educación en línea es una demanda de la educación actual, en cualquier nivel y, si se apoya gerencialmente, en instituciones como la escuela estudiada ese fortalecimiento, toda la institución se beneficiará. Esas convicciones se ven corroboradas en el discurso de esta entrevistada, quien además, considera que la necesidad de formación digital, también es parte de lo que debe ser transmitido a los alumnos. Cada paso que se avanza en este sentido, diversifica la perspectiva de los estudiantes frente a las TIC, la cual, muchas veces se ve reducida al mero campo de la diversión.
Estrategias didácticas	"Estrategias de ensayo y de elaboración de tareas" Estrategias afectivas y de metacognición" "Las TIC son muy buenas en las estrategias de organizacionales para tareas básicas de aprendizaje, porque permite consultar información al respecto"	Aunque en su relato, la docente no explica concretamente el uso de estrategias didácticas para una educación a distancia, que permita superar los problemas de una posible brecha digital, cuando se le interroga al respecto, si remarca la importancia de las TIC, en ese sentido. No es posible constata si ha habido contratiempos en este lapso de la pandemia para implementar las estrategias de enseñanza-aprendizaje, sin embargo, de las palabras de la maestra se deduce que existe un grado importante de consecución de los objetivos pedagógicos, a pesar de los problemas que presenta la educación en este contexto.

Fuente: elaboración propia

Tabla 8. Auto entrevista

Ejes temáticos	(Extractos discursivos)	Hermenéutica crítica
Tiempo en la institución	"5 años con tres meses"	La experiencia en esta escuela ha sido de especial crecimiento personal como docente, pero sobre todo como ser humano. El trabajo en una escuela unidocente, con las características de este centro, tiene implicaciones especiales por el perfil de sus alumnos.
Grado de satisfacción	"Muy satisfactoria"	
Inconformidades	"Limitaciones en el uso de las TIC: nula señal de comunicación telefónica e internet, carencia de medios tecnológicos en la institución"	Ahora bien, en este último año y medio, los efectos de la pandemia y de los cambios en la modalidad educativa, han develado las falencias en términos de disponibilidad tecnológica que tiene la institución, las cuales se han ido subsanando, por la disposición docente y el equipamiento personal, en TIC.
Acceso y uso educativo de la TIC	"En mi domicilio puede acceder con mayor regularidad que en la institución"	El equipo personal de la docente, como en el caso anterior, representa el apoyo logístico para su labor pedagógica. En este caso, se observa que la disposición docente, además del aspecto profesional, pasa por un tema de vocación, pues esta modalidad educativa requiere mayor dedicación de tiempo. Es importante observar que la brecha digital, no afecta en mayor proporción a las docentes, pues el acceso a las redes y trabajo con sus alumnos, lo tienen desde sus propios hogares, lo que revierte las dificultades que en este aspecto presenta la institución.
	"Computadora de escritorio, laptop, teléfono... de vital importancia para rendir las tutorías sincrónicas y asincrónicas según sea el caso"	
Disponibilidad económica	"La situación económica es aceptable frente a los retos de la educación actual, para la obtención de un equipamiento TIC... servicios de internet es accesible ya que cuento con un plan acorde a mi salario"	Al igual que los alumnos y la otra docente del centro escolar, en este particular, no hay mayor preocupación por la erogación de dinero que significa el equipamiento en TIC y el pago de servicios de conectividad. Esto es importante pues, parte de las causas de la brecha digital y sus efectos negativos para la educación, se da en aquellos países en los que, el trabajo docente no es remunerado con suficiencia, para que los profesores logren cubrir esa necesidad.

Competencia digital	"A raíz de la pandemia, surgió la necesidad imperiosa de actualizarse en cuanto al uso y aplicación de la tecnología... la utilización de medios y herramientas tecnológicas... Zoom, Teams, Whatsapp"	Las necesidades que inaugura la pandemia en el ámbito educativo tienen implicaciones vocacionales y formativas. Eso se deriva de las palabras docentes al considerar que, a estas alturas, el manejo de las TIC, para la enseñanza-aprendizaje no es una opción sino, una obligación. Se entiende en ese espectro reflexivo, que las competencias digitales de los docentes y, en consecuencia, de sus alumnos, más que un tema de actualización, es una demanda del entorno. La aplicabilidad de las TIC en la creación de innovadoras estrategias de gestión pedagógica para la calidad educativa, están en esa agenda que reconoce la docente en esta entrevista
Estrategias didácticas	"Visitas in situ a la comunidad...Tutorías sincrónicas (zoom) y asincrónicas (Whatsapp)... Elaboración de actividades en línea" "...se tiene muchas limitaciones al no tener todos los estudiantes acceso a la tecnología, se han realizado adaptaciones y adecuaciones para que todos reciban en el momento y tiempo oportuno su material de trabajo"	Aunque la pandemia continua limitando las clases presenciales, como estrategia, la docente reconoce la realización de ciertas visitas, necesarias por demás a las comunidades en donde se puede reunir con sus alumnos. No obstante, desde el punto de vista de las estrategias pedagógicas, vinculadas a una educación digital que contravenga la brecha digital, se ha erigido el uso de los celulares y, con ello, se ha podido aprovechar, educativamente, una herramienta tecnológica, muy apreciada por el universo estudiantil. Con todo, es preciso que los docentes puedan lograr una combinación adecuada entre estas estrategias, propias de la virtualidad, con el compromiso y la ética que revisten la educación presencial, esa es una tarea, indispensable para los docentes.

Fuente: elaboración propia

Conclusiones

El tema de la brecha digital ha vuelto a surgir en los debates académicos propios de la educación en el siglo XXI, como un problema de la dinámica que representa, en ese ámbito, la pandemia y sus consecuencias. Ya sea, por la crisis económica que puede implicar una mayor desigualdad para la disponibilidad en la adquisición de tecnología y accesibilidad a internet,

entre profesores y alumnos o, entre los mismos alumnos, bien sea porque la demanda de equipamiento y usos del servicio se convirtieron en una obligación para docentes y alumnos.

Además, si bien la educación digital como modelo en este último año ha sido una alternativa de emergencia, producto de la pandemia. Es una realidad que hoy en día, no hay educación idónea para el siglo XXI si los docentes y los alumnos no son capaces de hacer uso adecuado de la tecnología. En este estudio, esa realidad se constata en las dos perspectivas y enfocados en el caso de las escuelas unidocentes de Ecuador, que por sus características socioeducativas representan espacios de vulnerabilidad en términos de la existencia de la brecha digital.

Considerando los objetivos planteados en este artículo, en lo que respecta a las estrategias didácticas docentes, congruentes con la realidad educativa en un contexto social particularmente vulnerable, como son las escuelas unidocentes, tanto los alumnos, como las docentes refuerzan la necesidad de "digitalizar" la educación, a partir del uso de aplicaciones informáticas y herramientas online, como pueden ser you tube, wikis y blogs. En este aspecto, destaca también, el fortalecimiento del whatsapp como vía comunicacional privilegiada entre docentes y alumnos.

Finalmente, aunque existen ciertas falencias institucionales para la dotación de las TIC, en la escuela, esta situación de carencia, ha sido bien llevada por los docentes y alumnos, utilizando sus equipos personales que son, generalmente sus dispositivos móviles. Así mismo, ni docentes, ni alumnos, muestran signos de debilidad en cuanto a sus competencias digitales, aunque en ambos casos, se descarta la necesidad de una mayor formación para la virtualidad y, se asumen las TIC, como un elemento más de la vida cotidiana actual.

Referencias

Apodaca, G., Ortega, L., Verdugo, L., Reyes, L. (2017). Modelos educativos: un reto para la educación en salud. Revista Ra Ximhai. En: https://www.redalyc.org/pdf/461/46154510006.pdf. Fecha de consulta: 20/01/2021

Arango, S., Vásquez, C., Salazar, A., & Álvarez, L. (2013). Aproximación de un modelo didáctico para la creación de objetos virtuales de aprendizaje. *Ciencias sociales y educación, 2*(3), 107-130.

Cedeño, S., Hernández, F., & Morales, J. (2017). Brecha digital entre estudiantes del área urbana y rural, a partir del estandar de saberes digitales mínimos propuestos por la UNESCO. *ReHuSo*, 1-17.

Gómez, D., Alvarado, R., Martínez, M., & Diaz Christian. (2018). La brecha digital: una revisión conceptual y aportaciones metodológicas para su estudio en México. *Entreciencias*, 49-64.

Hernández, A., Niembro, M., & Velázquez, R. (2020). Representación social de la incorporación los dispositivos móviles en el proceso de enseñanza aprendizaje. *Revista Electrónica sobre Tecnologia, Educación y Sociedad*, 1-23.

López, R. (2018). Ecuador; la brecha digital entre profesores y alumnos. *Cambio universitario*, 19-26.

Martín , A. (2020). La brecha digital generacional. *Temas laborales*, 77-93.

Mendoza, J., & Caldera, J. (2014). Umbrales para la determinación de la brecha digital: comparativa entre regiones desarrolladas. *TransInformação*, 125-132.

Navarrete, G., & Mendieta , R. (2018). Las TIC y la educación ecuatoriana en tiempos de internet: Breve análisis. *Espirales*, 123-136.

Olarte, S. (2017). Brecha digital, pobreza y exclusión social. *Temas laborales*(138), 285-313.

Parlamento Europeo (2006). *Recomendaciones del Parlamento Europeo y del Consejo sobre las competencias claves para el aprendizaje permanente.* Diario Oficial de la Unión Europea. Obtenido de https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=celex:32006H0962

Romero, S., Hernández , C., & Ordóñez, X. (2016). La competencia digital de los docentes en educación primaria: análisis cuantitativo de su competencia, usos y actitud hacia las nuevas tecnologías en la práctica docente. *CEF*, 33-51. Obtenido de https://dialnet.unirioja.es/servlet/articulo?codigo=6159598

UNESCO (15 de 03 de 2018). *Las competencias digitales son esenciales para el empleo y la inclusión social.* Obtenido de https://es.unesco.org/news/competencias-digitales-son-esenciales-empleo-y-inclusion-social

Valencia , T., Serna , A., Ochoa , S., Caicedo, A., Montes , J., & Chávez, J. (2016). Competencias y estándares TIC desde la dimensión pedagógica: Una perspectiva desde los niveles de apropiación de las TIC en la práctica educativa docente. Cali, Colombia: Pontificia Universidad Javeriana - Cali. Obtenido de http://www.unesco.org/new/fileadmin/MULTIMEDIA/FIELD/Santiago/pdf/Competencias-estandares-TIC.pdf

Vives, M. (2016). Modelos pedagógicos y reflexiones para las pedagogías del sur. *Boletín virtual*, *5*(11), 41-55.

Internet design in a modern educational environment

Zainab K. Alieva*

Olga I. Vaganova**

Inna K. Kirillova***

Julia M. Tsarapkina****

Olga V. Sesorova*****

ABSTRACT

Purpose of the article: analysis of the process of Internet design in the modern educational environment. Methodology: The article presents the results of a survey of students of higher educational institutions "Assessment of the impact of Internet projects on professional self-development", about the dynamics of the participation of students from professional educational institutions in the design of the Internet for three years. Conclusions. According to the research, the number of participants in Internet projects is growing, and the popularity of such contests is increasing. Participation in the Internet project provides the student an opportunity for promising employments.

KEY WORDS: internet; higher education institution; professional training; professional competencies; hackathon; professionalism.

*Russian State Social University, Moscow, Russia. ORCID: https://orcid.org/0000-0002-6248-6996. E-mail: zainabalieva@mai.ru

**Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia. ORCID: https://orcid.org/0000-0001-8347-484X. E-mail: vaganova_o@rambler.ru

***Moscow State University of Civil Engineering, Moscow, Russia. ORCID: https://orcid.org/0000-0002-8506-0744. E-mail: innes_05-81@mail.ru

****Russian State Agrarian University - Moscow Timiryazev Agricultural Academy, Moscow, Russia. ORCID: http://orcid.org/0000-0002-3807-4211. E-mail: julia_carapkina@mail.ru

*****Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia. ORCID: https://orcid.org/0000-0002-1225-0985. E-mail: sesorovao.v.62@mail.ru

Diseño de internet en el entorno educativo moderno

RESUMEN

Objetivo del artículo: análisis del proceso de diseño de Internet en el entorno educativo moderno. Metodología. El artículo presenta los resultados de una encuesta a estudiantes de instituciones de educación superior "Evaluación del impacto de proyectos de Internet en el autodesarrollo profesional", acerca de la dinámica de la participación de estudiantes de instituciones educativas profesionales en el diseño de Internet durante tres años. Conclusiones. Según la investigación, el número de participantes en proyectos de Internet está creciendo y la popularidad de tales proyectos está aumentando. La participación en el proyecto de Internet brinda al estudiante la oportunidad de un empleo prometedor.

PALABRAS CLAVE: internet; institución de educación superior; formación profesional; competencias profesionales; hackathon, profesionalismo.

Introduction

Today, there is a need to train specialists who are focused on the creative transformation of reality, who can quickly solve the tasks set (Dobudko et al., 2019). Design is one of the most effective tools in the formation of a competent, independent specialist.

Internet projects that can make a real contribution to the development of specific areas of life are becoming increasingly relevant. The organization of Internet design contributes to the solution of various professional tasks (Yarygin et al., 2019a).

Purpose of the article: analysis of the process of Internet design in the modern educational environment. The organizers have the opportunity not only to get a ready-made project for their company, but also to choose the best, in their opinion, students who will be able to develop the company in the future (Ponachugin & Lapygin, 2019). Students also get the opportunity of real employment in a company that occupies a leading position (Vaganova et al., 2020a).

The Internet is a platform that allows students to implement socially and professionally relevant ideas (Yarygin et al., 2019b). The Internet project is a tool for self-development and self-realization of the student, the approval of his active life position, since the Internet becomes for him not only an entertainment and information field, but also a source of professional knowledge.

Various events are organized for the development of Internet projects, where professionals from various fields meet (Rojas-Bahamón, Aguilar-Cruz & Arbeláez-Campillo, 2020). Among such events, where Internet projects are developed, hackathons are noted (Vaganova et al., 2020b). Among the most active participants, representatives of various companies choose those who will be able to work in their organization in the future.

Participants of technological competitions under the guidance of experienced specialists have the opportunity to bring a new product to the market. The hackathon is held in a short time, and the number of participants can reach several dozen. During this period, there are many innovative solutions for the development of companies.

Independent experts, such as marketers, business analysts, developers, and others, take part in hackathons.

The implementation of an Internet project in the context of a hackathon allows students to gently enter the professional sphere of activity, since one of the main tasks when announcing the results is to prevent the emergence of feelings of resentment among the participants.

Each of the teams, despite having only one or two winners, receives its recognition, since participation in the development of the project is an achievement that becomes the beginning of serious professional activity.

A prize fund is provided for the most relevant Internet projects. If the hackathon takes place in several stages, the prize fund for supporting further developments increases. The venue for the hackathon is chosen so that participants have round-the-clock access to it. The rooms are equipped with the appropriate equipment: tables, meeting rooms, sofas and ottomans.

As a rule, the creative process of discussing a question takes quite a long time. The task of the organizers is to provide the most comfortable conditions for the participants to achieve the best results.

Internet design in the modern educational environment is developing rapidly. Continuous monitoring is required to support this development.

Internet design allows you to improve the process of training students, expand the opportunities for the formation of professional competencies, the development of independence and creative position.

1. Theoretical framework

An Internet project is understood as a set of hypertext documents that determine the direction of creating an information structure.

Working on an Internet project allows students to take the initiative, independently solve emerging issues, update their research position, and form problem-based and creative thinking in the process of completing tasks (Kiseleva et al., 2019). Scientists believe that project activities are a significant component of the education system (Kidina, 2020). Active planning, forecasting, analysis and synthesis are carried out in project activities.

The Internet project is limited to one specific topic. It is based on a problem, which, in turn, reflects several goals. In addition, the Internet project should have its target audience. The content of the project should be systematized.

An Internet project is not just an Internet resource that is updated with various information. It should have an information storage system (Demidov & Tretyakov, 2016a). The project should be structured in a simple and accessible way, and have the potential for high-quality development (Demidov & Tretyakov, 2016b).

An Internet resource that meets these requirements is an Internet project.

The subjects of Internet design are: project participants (students of higher and secondary vocational educational institutions) (Aniskin et al., 2020); organizers, including teachers of vocational educational institutions, trainers, forum hosts, and others; partners (interested in the development of a project, taking part in its development, (Arbeláez-Campillo et al, 2020). Partners can be customers, sponsors, consultants, various specialists in a particular field) (Pichugina & Bondarchuk, 2019); target audience (people targeted by the Internet project) (Efremenko et al., 2020).

Interaction of Internet design subjects is carried out based on the specific principles reflected in the table.

Compliance with these principles contributes to the creation of a high-quality viable project that can be implemented in the activities of a particular company (Shcerbakova & Shcerbakova, 2019).

In the course of the project, students form the ability to constantly improve themselves, a conscious need to update their professional knowledge (Shcerbakova & Shcerbakova, 2019).

Table 1. Principles of interaction between subjects of the educational process (Obydenkova, 2016)

Principle	Characteristic
Regularity	Discussion of the Internet project is limited in time, while the norms of communication are observed
Involvement	Inclusion of all subjects in the process of developing an Internet project
Fixation	Saving intermediate design results in writing
Facilitation	Creation of conditions by the curators of the project in which students can show their creativity, independence and initiative
Subject-subjectivity	The authors of the Internet project and curators interact on an equal footing; curators encourage students to actively discuss issues
Problematic	The curator raises problematic questions that allow students to comprehend ways to solve a particular problem
Reflection	Creating conditions for students to identify their mistakes, which must be eliminated to achieve the best results

2. Methodology

Students of professional educational institutions took part in the study.

The methods of mathematical statistics were used to process the results of an empirical study.

The survey "Assessment of the impact of Internet projects on professional self-development" was conducted among students of professional educational institutions. Processing of the results allowed us to identify the professional qualities that, in the opinion of students, form Internet projects.

Statistical processing of the survey results was carried out with the translation of responses into an electronic format based on the encoding and organization of the source data in a spreadsheet. The results were revealed through the interpretation of descriptive statistics and graphs. After the survey, the documents were collected and counted, each was assigned a number. Data processing was carried out for several days.

The dynamics of participation of students of professional educational institutions in Internet design over three years was revealed.

3. Results and discussion

Working on projects allows students to master various competencies. Students for the implementation of future professional activities form the skills of goal-setting, planning, implementation of professional reflection to eliminate errors and achieve appropriate results. During the design process, students develop organizational and communication skills. When working on a project, it is important to be able to negotiate and resolve conflicts to achieve common goals. Each project allows students to develop the ability to collaborate and work in a team.

The implementation of Internet projects was carried out both in person in the format of interactive lectures, seminars, trainings and consultations, and remotely, through chats, webinars, video conferences. Students have a special Internet space for project implementation, where they communicate and independently solve emerging issues. For example, creative workshops.

The curator can interact with students both in person and remotely. He advises both individual groups and several project groups at once. At each stage of Internet design, different actors are connected. This can be done by both partners and the target audience.

Internet design is carried out in several stages, as shown in the table (2).

Table 2. Stages of internet design (own authorship)

Stage	Content
Preparatory	Curators determine the goals of Internet projects, organize the space and forms of work, establish the forms of interaction between the subjects of Internet design, the time for completing each stage of the project
Introductory	There is a discussion of the project between the curators and authors of Internet projects, students ask questions of interest regarding its development, the curator motivates the participants, helps to choose a relevant topic
Active	Students form micro-groups to complete projects. Students are discussing the idea of an Internet project. Flipcharts are used to reflect basic notes. The social significance of the project is determined (what task it solves, its goal, main audience, significance for the audience, expected results); personal significance (for each participant and the entire team as a whole); students distribute among themselves responsible roles and tasks that need to be solved. Students formulate the name of the project; create its logo, formulate a brief description of the project, what exactly will the target audience receive when using the future product. At this stage, students take an active part in face-to-face and distance consultations with curators. Students post materials on the Internet. The obtained intermediate results are checked against the assigned tasks, and if they do not correspond, the process is corrected.
Efficient-reflective	The authors present their project, make a presentation of the results. A decision is made on the further feasibility of developing the project.

The time allowed for completing the tasks of each stage is set by the project manager.

Internet projects implemented in the framework of hackathons are conducted both in real time during face-to-face meetings and online. For conducting an online event, they are used.

The number of participants in Internet design in the modern educational environment is growing. We have identified the dynamics of participation of students of higher educational institutions and secondary vocational educational institutions in Internet design over three years.

The study took into account data obtained in several professional educational institutions.
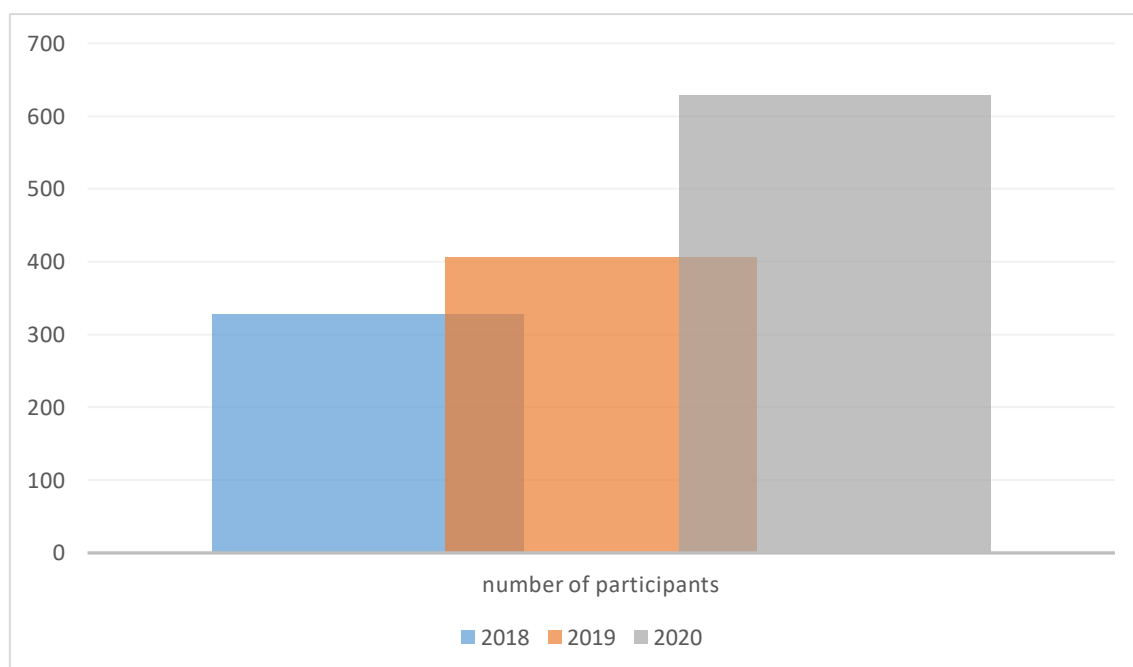
Fig. 1. Dynamics of participation of students of secondary vocational educational institutions in Internet design (2018-2020) (own authorship)

It is worth noting that with the development of the organization's activities, WorldSkills and the desire of Russian professional educational institutions to meet international standards have led to an increase in the quality of education by including students in various projects implemented within the framework of the demonstration exam, including Internet projects.

Training for the student has become more practice-oriented. Project participants were able to engage in activities related to real professional activities and were able to assess the scope of future professional activities.

As you can see, the number of participants in the Internet design of secondary vocational educational institutions is growing.
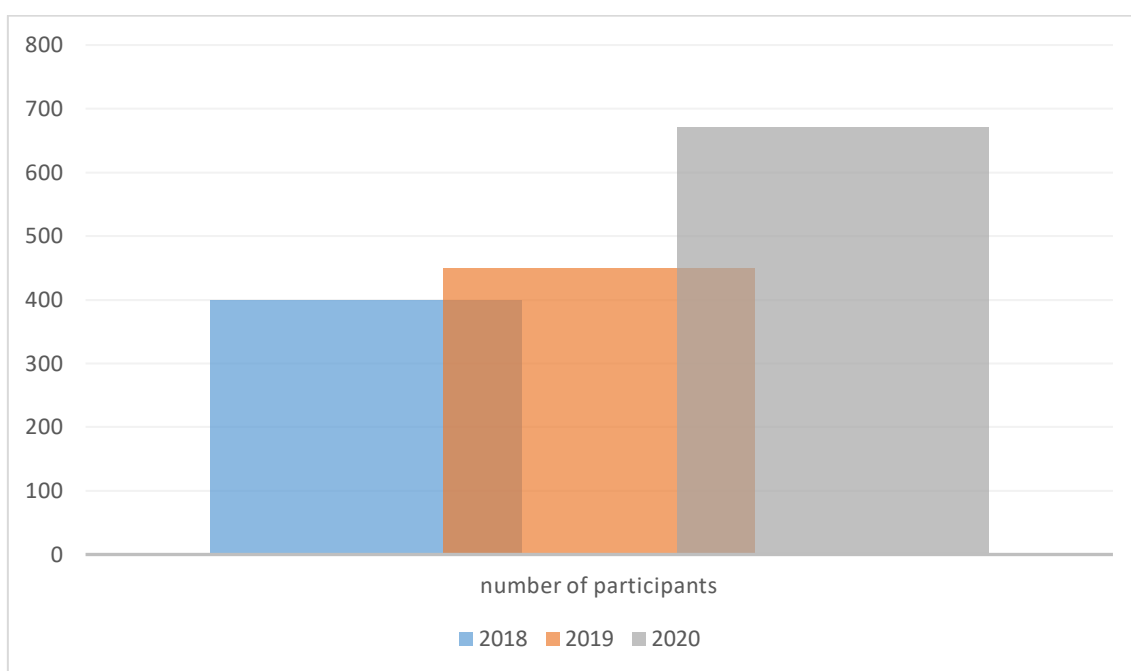
Fig. 2. Dynamics of participation of students of higher educational institutions in Internet design (2018-2020) (own authorship).

Initially, the number of participants in Internet design from higher schools was slightly higher than from secondary vocational educational institutions, since higher school students are more interested in improving their competitiveness and are more conscious of professional self-development.

By 2020, the interest of students in Internet design has increased dramatically, although the consultation process was carried out more remotely due to the epidemiological situation.

We surveyed the participants of the Internet design, the development of which opportunities, in their opinion, contribute to the participation in the Internet project. The results are shown in the figure.
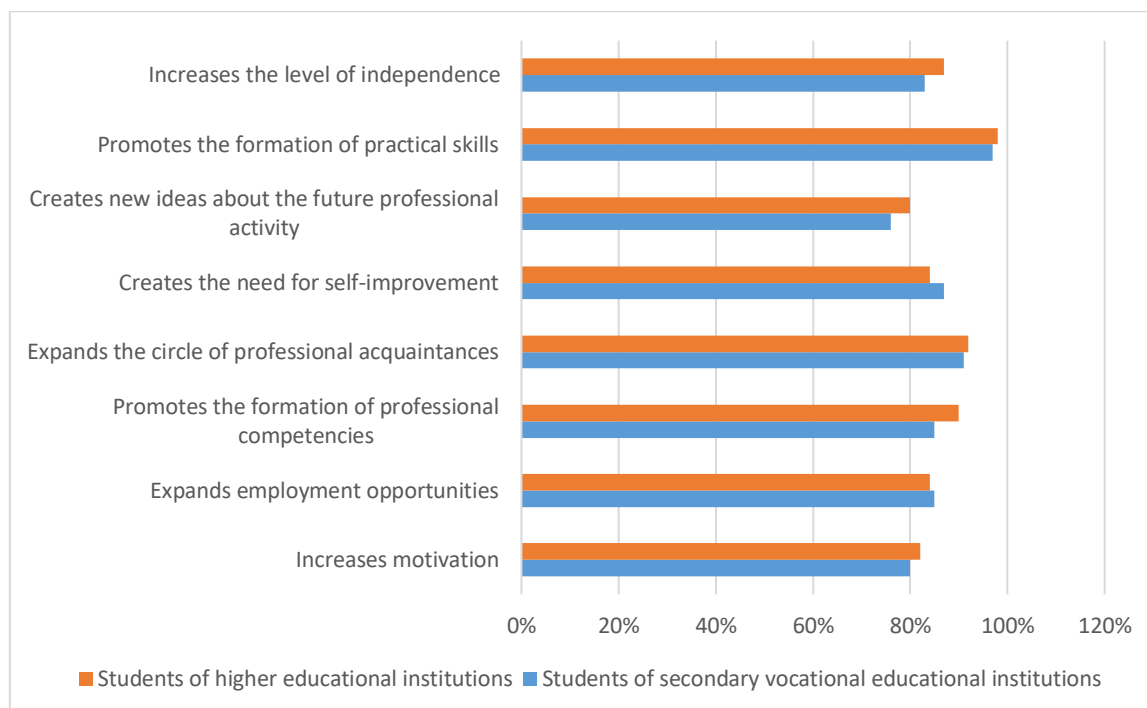
Fig. 3. Results of the survey " Assessment of the impact of Internet projects on professional self-development» (own authorship)

The survey was conducted among students of professional educational institutions. The results are presented in the categories "secondary vocational education institution" and "higher educational institution".

Students note the positive impact of Internet projects on professional self-development and self-improvement. They are ready to participate to expand and deepen their professional knowledge. Most of the participants note that the organizers and partners of the projects show an increased interest in their employment, which is an additional motivation for students.

The results of students of secondary vocational educational institutions and the results of students of higher educational institutions are as close as possible to each other. Students note the positive aspects of working with Internet projects.

Conclusions

The high dynamism of technological progress has led to the need to introduce innovative solutions in the educational environment. Internet design is one of the most effective tools in this process.

The role of Internet design in the modern educational environment is gradually increasing. The Internet is a platform for developing projects that can make a significant contribution to the life of society. Participation in an Internet project provides a student with the opportunity for promising employment, since the organizers of Internet project competitions can be representatives of various companies that need creative and independent specialists who can bring the organization to a new qualitative level.

Internet design is carried out in various formats, including hackathons. Hackathons bring together experts from various fields. Students communicate and learn from experience, developing the ability to communicate effectively and solve professional problems on time to achieve joint goals.

According to the study, the number of participants in Internet projects is increasing, and the popularity of such contests is increasing. Students show a great interest in project activities, noting that this allows them to develop professional competencies and increase their competitiveness in the labor market.

References

Arbeláez-Campillo, D., Tatsiy, V., Rojas-Bahamón, M., & Danilyan, O. (2020). Contributions of critical thinking as a form of participation and political deliberation. *Amazonia Investiga*, *9*(27), 5-12. https://doi.org/10.34069/AI/2020.27.03.1

Aniskin, V. N., Korostelev, A. A., Lvovna, B. A., Kurochkin, A. V., & Sobakina, T. G. (2020). Teaching potential of integrated learning technologies Smart, Stem and Steam. Revista De La Universidad Del Zulia, 11(29), 328-336.

Dobudko T.V., Korostelev A.A., Gorbatov S.V., Kurochkin A.V., Akhmetov L.G. (2019). The organization of the university educational process in terms of digitalization of education. Humanities and Social Sciences Reviews. 7(4), Pp. 1148–1154.

Demidov, A.A. & Tretyakov A.L. (2016a). A network model of centers for ethical and legal education and civil-patriotic education and media education centers based on school libraries: the need to create, opportunities and real prospects. Media Education (Mediaobrazovanie). 3. Pp. 16-22.

Demidov, A.A., & Tretyakov, A.L. (2016b) Centers for ethical and legal information and media education based on the school library - an innovation in the implementation of the Federal State Educational Standard and infrastructure for the development of information and legal culture of children and youth. Media Education (Mediaobrazovanie). 2. Pp. 21-33.

Efremenko L.V., Golovachev V.S., Grigoryeva A.S., Tretyakov A.L., Chertakova E.M. (2020). Environmental education technologies. Eduweb: Revista de Tecnología de Información y Comunicación en Educación. Vol. 14, 2, Pp. 265–279.

Kidina l. M. (2020). Management of the pedagogical collective in the conditions of implementing distance learning. Baltic Humanitarian Journal. (Baltic Humanitarian Journal). Vol. 9 No 4 (33), Pp. 93-96.

Kiseleva, O., Lebedev, A., Pinkovetskaia, I., Rojas-Bahamón, M., & Arbeláez Campillo, D. (2019). Specialization and concentration of small and medium enterprises employees: Russian data. Amazonia Investiga, 8(20), 6-15. https://amazoniainvestiga.info/index.php/amazonia/article/view/59

Obydenkova V.K. (2016). Definition of the concept of "Internet project" in the context of professional training of university students. Internet magazine «World of Science» 4, 6.

Pichugina, G.A., & Bondarchuk, A.I. (2019). Structure of the training case in the organization of the educational process. Humanitarian Balkan Research. Vol. 2, no. 4, pp. 5-7.

Ponachugin, A.V., & Lapygin, Yu.N. (2019). Digital Educational Resources of the University: Design, Analysis and Expertise. Vestnik of Minin University, Vol. 7 (2), 5. (in Russ)

Rojas-Bahamón, M.J., Aguilar-Cruz, P.J., & Arbeláez-Campillo, D.F. (2020). Curricular integration as a strategy to strengthen the educational process in public institutions in COVID-19 times. Revista Inclusiones, 7(num Especial), pp. 233-241.

Shcerbakova E.V., & Shcerbakova T. N. (2019). Experience of Use of Remote Computer Technologies At The Organization Of Independent Work Of Students In The Conditions Of A Mark and rating system. Baltic Humanitarian Journal, Vol. 8, No 4 (29), Pp. 192-195.

Vaganova, O., Korostelev, A., Melnikov, D., Bulaeva, M., & Chelnokova, E. (2020a). Students activities organization technology in environmental communities. Amazonia Investiga, 9(29), 37-44. https://amazoniainvestiga.info/index.php/amazonia/article/view/1364

Vaganova, O. I. Korostelev, A. A., Chelnokova, E.A., Bugoslavskaya, A.V. (2020b). Technology for compiling supporting abstracts in the organization of students' independent work. Revista Amazonia Investiga. 9. 376-382. https://amazoniainvestiga.info/index.php/amazonia/article/view/1254

Yarygin O.N., Korostelev A.A., Akhmetov, L.G., Maseleno, A. (2019a). Modeling of competence as a tool of goal setting for education in modern society. International Journal of Recent Technology and Engineering, 7(6), Pp. 72–77.

Yarygin O.N., Korostelev A.A, Mukhutdinov R.H., Maseleno A. (2019b). Elections and russian citizens residing overseas: Prospects for internet voting. International Journal of Recent Technology and Engineering, 7(6), Pp. 52–57.

Modern trends in the development of communication technologies distance learning in the context of professionally oriented approach

Anton Lebedev*

Mariia Murneva**

Nadezhda Shestakova***

Iuliia Pinkovetskaia****

ABSTRACT

The purpose of the study was to develop and implement a comprehensive project to improve communication technologies, in the context of a professionally oriented approach to distance education of academic English in technical faculties. The research methodology was related to the development and testing of the project, aimed at improving skills in the formation of students' communicative competence. To estimate the quality of the project, two stages were carried out in the application of the survey to the students. The first phase of the survey was carried out in March 2020 before the start of the project. The second stage of the student survey was carried out at the end of the first semester (in January 2021), being implemented remotely. The analysis carried out and the results of the survey indicate that the development of communication technologies and online learning are substantially related. The world of communication technologies should definitely be considered as a tool to improve communicative competence, self-organization, self-development and personal growth.

KEYWORDS: distance education; electronic learning; English; pandemics; information and communication.

* Department of Foreign Languages, National Research Ogarev Mordovia State University, Saransk, Russia. ORCID: http://orcid.org/0000-0002-1927-5595. E-mail: toshaleb@mail.ru

** Department of Foreign Languages, National Research Ogarev Mordovia State University, Saransk, Russia. ORCID: http://orcid.org/0000-0003-4788-1434. E-mail: mashamurneva@yandex.ru

*** Department of Foreign Languages, National Research Ogarev Mordovia State University, Saransk, Russia. ORCID: http://orcid.org/0000-0001-8425-4021. E-mail: shestakovanady@yandex.ru

**** Department of Economic Analysis and State Management, Ulyanovsk State University, Ulyanovsk, Russia. ORCID: http://orcid.org/0000-0002-8224-9031. E-mail: pinkovetskaia@gmail.com

Tendencias actuales de las tecnologías de la comunicación en la enseñanza a distancia en el contexto de un enfoque profesional

RESUMEN

El propósito del estudio consistió en desarrollar e implementar un proyecto integral para mejorar las tecnologías de la comunicación, en el contexto de un enfoque orientado profesionalmente para la educación a distancia del inglés académico en las facultades técnicas. La metodología de la investigación se relacionó con el desarrollo y la prueba del proyecto, destinado a mejorar las habilidades en la formación de la competencia comunicativa de los estudiantes. Para estimar la calidad del proyecto se realizaron dos etapas en la aplicación de la encuesta a los estudiantes. La primera fase de la encuesta se llevó a cabo en marzo de 2020 antes del inicio del proyecto. La segunda etapa de la encuesta estudiantil se llevó a cabo al final del primer semestre (en enero de 2021), implementándose a distancia. El análisis realizado y los resultados de la encuesta indican que el desarrollo de las tecnologías de la comunicación y el aprendizaje en línea tienen relación sustancial. El mundo de las tecnologías de la comunicación debe considerarse definitivamente como una herramienta para mejorar la competencia comunicativa, la autoorganización, el autodesarrollo y el crecimiento personal.

PALABRAS CLAVE: educación a distancia; aprendizaje electrónico; inglés; pandemias; información y comunicación.

Introduction

Online learning (or so-called "distant education") and communication technologies have become an integral and essential part of the educational standards both in Russia and abroad even prior to the COVID pandemic. The factors contributing to the online learning development include shortage of time, increasingly faster life pace, busy work schedules, spread of broadband Internet connectivity and facilities, shift from desktop computers to the mobile devices (on-the-move learning), popularity of "edutainment" (i.e., integration of entertainment and gaming elements into the learning process), cutting of the travel costs, information accessibility etc. While being questioned and debated as a principal education core, online learning is widely embraced as (at least) a supplementary and additional tool that is to be inherent to any higher educational organization. According to A.V. Lebedev et al. (2020): the rise in global collaboration, business, travel industry and migration processes cause the focus of both philologists and teaching staff dealing on the theoretical and pragmatic aspects of e-learning and distant teaching technologies.

Lockdown safety, pandemic conditions and healthcare regulations have recently added a completely new dimension to online learning. Now it is temporarily being considered as a principal tool of education due to pandemic restrictions. Although the limitations vary from one Russian region (territory) to another, online courses are partially or fully implemented almost in every higher educational organization, including Ogarev Mordovia State University (Saransk).

The anti-pandemic measures and digitization of the education courses have reshaped and rearranged the learning process, as well as professional thinking and perception. Teaching staff and faculty were forced to quickly acquire the new skills (or improve the existing ones) to master the online learning software, deal with technical issues, introduce new teaching techniques, organizing classes in a completely novel environment. The new and unexpected realia challenged education experts and technical specialists to improve the digital environment and online facilities to control both education process and academic work. This required the update and further development of the university websites, personal online profiles, online attendance and grades, digital workflow connecting them to the existing messaging, audio / video conference software (e.g., Skype, Zoom, Viber, WhatsApp) and social media. The overall situation raised multiple issues. First, it led to the re-evaluation of the online resources and forced the teaching staff to make them a key element of their work, at least temporarily. Second, it also highlighted a growing need for an instructor`s individual approach to the broad diversity of students` needs and demands. Third, it "rekindled" a debate on the topic of traditional versus contemporary teaching methods (i.e., can online courses substitute the offline classes?). Fourth, it limited the capacity for offline activities – both curricular (e.g., conducting experiments in natural sciences` disciplines, teaching practice, medical internship etc.) and extracurricular (sports, drama, academic conferences, international exchange programs).

While having a non-negotiable advantage in education, the online learning process is also viewed as a source of potential risks and vulnerabilities. Consequently, it demands constant discussion and improvement to meet personal, educational and professional requirements. These issues are of special importance, especially in the sphere of foreign language learning. There exist multiple ways to use digital technologies and Internet resources in foreign language learning, including the implementation of existing

applications and materials, as well as joint resources created by teachers and students. Kirgintseva and Nechaev (2013) argue that the use of various types of multimedia in teaching a foreign language facilitates the cognitive activity within students, forms a culture of creative operational thinking and the ability to navigate the rapidly changing information flows of modern society.

The purpose of the study was to develop and implement a comprehensive project to improve communication technologies at the Mordovian State University named after V. I. Ogareva in the context of the implementation of a professionally-oriented approach in distance learning of academic English at technical faculties. At the same time, the following tasks were solved:

- the formation of the ability to apply modern communication technologies in the process of professionally oriented academic communication;

- the setting of communication abilities as the major element of studying the academic language;

- the improvement of professional and general language habits for achieving the academic goals in e-learning at technical faculties / departments / institutes;

- the introdiction of the professionally-focused communicative self- and group learning as a kind of cooperative activity for achieving the desired academic purposes;

- the organisation of the Academic English learning by implementing the professionally oriented approach in the context of the development of modern trends in media education at technical departments.

1. Literature Review

Certain aspects of the problem under study were touched in several works discussing below. The researchers suggest that the professionally oriented approach is an integral and inherent part of teaching Academic English in a higher education institution, as well as the initial step in the formation of prospective specialists in various fields.

Andreev (1999) underlines the importance of having such a bonus for students as "freedom" when learning online. It implies a free schedule, comfortable conditions, etc. At the same time, to use this "freedom" correctly students should demonstrate perseverance, purposefulness, independence and honesty.

The international researchers have also contributed to this study, providing insights into the different aspects and elements of the issue of Academic English teaching. For instance, Gao and Zhang (2020) from Hong Kong Baptist University and University of Electronic Science and Technology of China analyze foreign language teachers' cognitions of online training due to the sudden global outbreak of COVID-19 in late 2019. The authors analyze the methodology and practice dealing with the way EFL instructors were facing the challenges, what knowledge they own and acquire on characteristics, perspective and limitations of online EFL teaching, as well as how they obtained data and communication technology literacy by becoming aware of students' learning demands.

The study survey by Gleason and Manca (2020) attempts to conduct research on how social media may support educational goals with specific reference to larger classrooms. In addition, the researchers provide practical advice on using Twitter (despite its limitations) from the experience teaching in a typical higher education setting: a large, undergraduate program in a public university.

The survey by Martin (2020) is aimed at discovering how distance language learners' pronunciation abilities grow (or deteriorate) both with and without targeted pronunciation training over their freshman term. To accomplish this task, an innovative computer-assisted method of pronunciation learning was designed and implemented, and its efficiency, as well as learners' experiences with the method, were evaluated. The study was carried out over the one-semester course with 67 distance learners. It assessed the comprehension abilities and oral production skills on the word and sentence level at the start and end of the semester for a group under study that acquired the targeted pronunciation instruction and a control group that did not receive pronunciation instruction, but otherwise followed the same curriculum.

Technological Pedagogical and Content Knowledge of ESP Teachers in Blended Learning Format have become a theme for the research conducted by the scholars from University Muhammadiyah Semarang, Indonesia. The article (Mulyadi et al., 2020) is dedicated to an effort to discern ESP teachers` skills and professional competencies according to the Technological Pedagogical and Content Knowledge (TPACK) tool in a blended learning format. The modified online survey covered 28 closed questions that were administered to 70 ESP instructors from 35 Universities in Indonesia. The data were

statistically analyzed to be presented in descriptive statistics (percentages of frequencies, means, and standard deviations). The findings indicate that three out of four TPACK subdomains, including technological content knowledge (TCK), and Technological Pedagogical Knowledge (TPK), Technological Pedagogical and Content Knowledge (TPACK) have been mastered by the majority of ESP teachers.

Over three academic years, the research by Foung and Chen (2019) has been focusing on the usage logs for over 7000 students that could be accessed via the university's learning system. The study identifies and examines students` assessment component scores, online activity completion rates, and online behavioural patterns. Among the other methods, descriptive analysis, bivariate correlation analysis, and multiple regression analysis were applied. The findings reveal insights into various (as well as the alternative) online learning behavioural patterns that would benefit blended course designers.

Ho et al. (2020) provide the analysis of the structural model showing that under COVID-19 conditions, computer self-efficacy (CSE) has a positive impact on perceived ease of use (PEOU). There is also a positive relationship between system interactivity (SI) and PEOU. The authors documented that PEOU has no significant impact on students' attitudes (ATT). The results show that SI can moderately affect ATT. Finally, it is noted that the social factor (SF) directly affects the student's attitudes (ATT).

Finally, Marcum and Kim (2020) research the use of oral language skills in the context of e-learning of the English language in the United States institutions. Methodologically, the curriculum for the program is based upon the transactional distance theory, with an emphasis on interpersonal dialogue as a key tool in promoting oral proficiency. To acqure the research data, students participated in synchronous and asynchronous interaction with their peers, tutors, and instructors. The American Council on the Teaching of Foreign Languages (ACTFL) computer-assisted Oral Proficiency Interview (OPIc) allowed to conduct the pretest and posttest measures for this study. To supplement this data, course surveys provided information concerning student feedback of course activities.

2. Methodology

The current research uses methodology for the formation of communicative competence in distance education by identifying modern trends in the development of

communication technologies at Ogarev Mordovia State University in the context of implementation of the concept of the professionally oriented approach in distance learning of Academic English at technical faculties. In accordance with the goals and objectives of the study, a project was developed that provided for the formation of communicative language competence of students of technical faculties of the Ogarev Mordovian State University on the basis of: clarifying the concept of distance education in the formation of communicative competence through the creation of modern communication technologies and appropriate linguistic definitions; analyzing and determining the role, place, content and methodological possibilities of distance education in the educational process; creating a methodologically sound and technologically developed model for the development of foreign language communicative competencies in the process of distance education.

The developed project included imply the practical use of communication technologies in the implementation of distance education; the definition of the major didactic aspects and principles of the application of modern communication technologies in Academic English learning by bachelor students of technical faculties on the basis of experimental teaching; the ability to manage communication technologies within the framework of a professionally oriented approach in the conditions of academic communication of bachelor students on the basis of innovative principles for the development of language competence; the analysis of the experience of using information and online technologies by researchers of Ogarev Mordivia State University in teaching Academic English to students of technical faculties; the conducting of the survey among students in order to comprehend and consider the importance, necessity and prospects of distance learning in Academic English and draw appropriate conclusions; the determination of the methodological principles of distance education in teaching English in order to predict the organisational structure of modern communication technologies; the development and theoretical justification of the methodological principles of organising distance learning in Academic English; the implementation of the modern communication technologies, including educational and methodological multimedia and online complexes.

The study it included the following steps:

- analysis of domestic online Academic English educational programmes for students of technical faculties;

- study of special literature on information technology and the structure of computer networks;

- consideration of psychological, pedagogical and methodological data on the research problem;

- development and implementation of the project for the formation of communicative competence in the context of distance learning;   -
evaluation of the effectiveness of the developed project based on a survey of students;

- analysis of the results of the survey of students and the formation of proposals for improving the educational process.

To improve the quality of education under the pandemic conditions, the project was proposed and tested aimed at improving skills and abilities when forming the communicative competence in students. The main provisions of this project are given in the next section of this article. Two stages of the survey were conducted for students of technical faculties of the N. P. Ogarev Mordovian State University. The first phase of the survey was conducted in March 2020 prior to the start of the project. The second stage of the student survey was conducted at the end of the first semester (in January 2021), which was conducted remotely. Students were trained using the developed project on the development of communication technologies in the context of the implementation of a professionally oriented approach in distance learning of academic English.

The form of the questionnaire that was used in the first and second stages of the student surveys is shown in Table 1. Respondents were asked to assess the degree of satisfaction with communication competence and image in the context of distance learning based on the choice of one of the answers given in the questionnaire.

3. The main provisions of the developed project

Under the current conditions of the global pandemic, the existing traditional methods of teaching English to undergraduate students are in strong contradiction with the contemporary educational model based on professional competencies. The principles of individual approach and implementation of the professionally oriented competencies in distance learning of Academic English at technical faculties stimulate seeking the other teaching methods and technologies in the higher education system. Priority is given to modern trends in media education in students' independent educational activities. Distance

REVISTA DE LA UNIVERSIDAD DEL ZULIA. 3ª época. Año 12 N° 35, 2021

Anton Lebedev et al. /// Modern trends in the development of communication technologies ... 246-269

DOI: http://dx.doi.org/10.46925//rdluz.35.15

learning plays an important role in contemporary education, so one should not ignore its opportunities in the development of modern science.

Table 1. The degree of satisfaction with their communicative competence and image in the context of distance learning

Questions	Choose one of the possible answers: +2 (very large extent); +1 (greater extent); 0 (more or less); -1 (small extent); -2 (very small extent)
1. I am fluent in communication rhetorical tools under the conditions of e-learning	
2. I do not encounter any language barriers in studying the material; I am able to paraphrase and re-consider due to the developed communicative skills	
3. I possess the well-developed communicative habits, an extensive vocabulary, a stock of linguistic forms, collocations, enabling me to rapidly adapt to the existing learning conditions	
4. I am aware of both students` and teachers` rhetorical culture while using online tools	
5. My teacher is a partner, and I try to communicate on an equal ground in the Internet environment	
6. I grasp the significance of speech etiquette in communicating with teachers and fellow students	
7. I possess communication skills; I am not afraid to deliver public speeches at online seminars and discussions	
8. I am satisfied with my teacher's skills, their communication habits and personal traits demonstrated in working with students in the distance learning atmosphere	
9. I am diligently searching for knowledge, ready to self-develop and improve under online learning conditions	
10. The ethical component in my rhetorical culture is a reality	
11. I am familiar with the notions of the addressee and the interpretive direction in student speech	
12. I have mastered the ability of public speech by participating in e-learning	

The study of the problem is associated with the search for new approaches in teaching Academic English for developing cultural competencies and the introduction of

the project method in the context of the search for modern trends in distance education at technical faculties resulted in creating the curriculum "Modern trends in the development of communication technologies in the context of implementation of the professionally oriented approach in distance learning of Academic English at technical faculties", contributing to the improvement of educational institutions' activity. The project justifies the essence and introduces the principles of individualisation and the implementation of the professionally oriented approach in the context of the development of modern trends in distance education at technical faculties. The study features the model for managing the development and improvement of communication technologies, which includes content, socio-cultural and technological components. The project is designed to implement a set of development strategies in a competency-based approach. The survey is an inherent part of the new type of educational programs formation, combining classroom and online learning, based on the principles and main stages of the development of communication technologies. The authors state that the project was developed for bachelor students of technical faculties (departments and institutes) of Ogarev Mordovia State University. The study analyses the experience of integrating two aspects - English for Academic Purposes and English for Special Purposes.

The project considers introducing electronic educational technologies into the university environment using the model of language programs for full-time and part-time undergraduate students studying online. The authors of the project present the types of educational resources, introduce their typology, highlight the educational potentials of each type as a means of teaching, identify the risks and ways to avoid them for the implementation of the professionally oriented approach in the study of Academic English in the context of distance education at technical faculties.

Risks, threats and vulnerabilities associated with the project implementation:

1. Risks associated with monitoring and evaluating the project. In order to avoid it, it is necessary to include quantitative and qualitative control indicators that facilitate open and transparent recording of intermediate results.

2. Non-balanced integration in the implementation of the project by the participants. In order to avoid it, it is critical to balance the distribution of tasks and responsibilities of

each partner of the group; fair distribution of responsibilities, avoiding duplication of other partners' functions.

3. Difficulty in understanding the causal relationships between intermediate results, goals and objectives of the project. In order to avoid it, it is significant to form a professionally oriented plan during the implementation of the project.

4. The risk associated with the sustainability of the relevance of the project. In order to avoid it, it is vital to ensure smooth implementation and the duration of the positive effects that the project will have even after the completion of its implementation period; carrying out a detailed analysis of the expected results in the formation of competencies; ensuring institutional sustainability through structures that allow project results to be sustained beyond the project completion.

5. The risk associated with determining the relevance of the problems that the project is going to solve. In order to avoid it, it is crucial to clearly and thoroughly define the goal, objectives, expected intermediate results, assumptions, deviations and indicators that are fundamental to the project, leading to positive implementation of the project.

It should be noted that Khodyreva (2017) associates difficulties in risk management with the large scale of innovative educational projects, the implementation of which takes place in the context of the continuous modernization of education.

The study on the current trends in the development of communication technologies at Ogarev Mordovia State University in the context of implementing the professionally oriented approach in distance learning of Academic English at technical faculties is an attempt to improve the quality of distance education. For those who have been under influence of the traditional educational system with its typical attributes (going to lessons or lectures, sitting at the desk, communicating with the teacher in the classroom, etc.) the formation of the online communicative competence can be especially difficult to comprehend, master and effectively implement. This can cause problems with acquiring information through remote means of communication or with organization of their educational process without the instructor's strict control.

However, the current harsh conditions of the Covid-19 pandemic, the development of communication technologies in a distant format is an important task not only for our state, but for the whole world. The transfer of the modern community to the information-

educational environment in various fields since March 2020 has become a turning point in the development of communication technologies. The development of information communication technologies of a country depends on the level of its economic development and the availability of resources. While these areas are successfully developing, the Russian Federation is actively taking measures to develop and improve this sphere, National Research Ogarev Mordovia State University being no exception.

In this regard, the modern educational process has a tendency to actively use distant learning in education as an important component of the developing system of open education within the framework of the Bologna process as well as in the circumstances associated with the pandemic. Scholars define the concept of "distance education" in different ways. This is due to the complex nature of the modern processes, as well as implementation obstacles associated with high degree of negative risks on the quality of educational online activities. At the same time, Vaks (2021) admits that "distance learning is the first stage of adaptation of students to social and professional interaction in the context of the digitalization of the economy".

It has recently become obvious that the introduction of modern trends in the development of communication technologies at Ogarev Mordovia State University in the context of implementing the professionally oriented approach in distance learning of Academic English at technical faculties is a necessity and we are witnessing a rapid development of this insufficiently studied process. Thus, efforts of many linguists, researchers, theorists and practitioners of education today are focused in the field of innovative digital, multimedia and online technologies and, in turn, the development of principles, techniques and methods, in particular, the organisation of distance learning, which is aimed at creating projects to improve and modernise teaching communicative technologies.

Distance learning can be viewed as a kind of "mechanism" for adaptation and optimisation of the professional educational process in the conditions of the current pandemic situation. This process is characterised by a transition from passive to an active phase of acquiring knowledge, a paradigm based on the interactive and constructive joint activity of a student and a teacher.

The concept of the distance education system in the Republic of Mordovia connected with improving the communicative competence of learning English implies the rejection of the "authoritarian", "dictatorial" aspect in the teaching style, which implements the concept of the professionally oriented approach in the study of Academic English in the context of distance education at technical faculties and is focused on individual`s personal qualities. The fundamental idea of the development and implementation of modern communication technologies is seen by linguists of Ogarev Mordovia State University as a plan to transfer from traditional forms of teaching communicative competence and a monologue as a prevailing form of educational activity to such a form of teaching as polylogue (dialogue, discussion, communication, conversation), while encouraging the partner to speak implies the formation of communicative competence, when the understanding of information is presented not as "traditional memorisation", but as "thirst for knowledge", actualised in the communicative activity under the conditions of distance education.

It should be noted that distance learning forms of communicative competence are implemented through online dialogues, seminars, conferences, round tables, webinars, quizzes, etc., assuming the use of electronic information sources training platforms (Internet databases, virtual libraries, consulting services, e-learning materials, etc.).

However, under the pandemic conditions it became clear that the use of distance learning and the Internet resources at Ogarev Mordovia State University for improving communicative competence in teaching Academic English to technical students are inadequate in relation to the educational process. Teachers faced the problem of inefficiency of the their communication skills and abilities, based on the traditional forms of education. As a result, it became critical to introduce modern trends in the development of communication technologies at National Research Ogarev Mordovia State University in the context of implementation of the professionally oriented approach in distance learning of Academic English at technical faculties.

Therefore, despite a huge number of works on the problems of information communication trends, the current interest to this topic is due, first, to the continuing demand to improve methodological techniques, tools and approaches to information communication technologies; second, to the rapid change in the structure and spatial

configuration of a foreign language in the global information and communications technology (ICT) industry; third, to the lack of comprehensive research in the field of regulation of ICT creation processes, taking into account the specifics of this sector; fourth, to the significance of studying the modern trends in the development and regulation of the Russian academia in the context of the mobility of the language platform in the conditions of the pandemic. The project implementation led to a number of additional activities related to understanding the essence of the studied issues from students and teachers` perspective. Researchers developed a methodology, the results are taken as the basis for creating a project for the development and implementation of modern communication technologies that contribute to more effective implementation in the educational process, to form and improve communicative competence within the framework of distance learning.

According to Murneva et al. (2018a), the basic principle of training which is close connection of theory and practice is frequently forgotten. The gap between these two components leads to a number of errors in producing speech. In order to master communication skills and abilities, a student should master ways to improve, self-organise and develop intellectually, sufficient time and resources should be devoted to exercises that develop speech habits and improve both active and passive vocabulary. The accomplishment relies on the adequately determined goal, therefore, originally, students are required to clearly anticipate the result to be expected.

General eloquence and speech proficiency is not merely a useful skill, but also an opportunity to feel comfortable when communicating with peers and instructors. The assignments facilitating the development of students' speech habits serve the following goals:

- enhance communicative competence and communication skills when learning online;

- learn speech etiquette;

- form speech behavior culture online;

- establish basics of oratory in students learning online;

- overcome fear of public speaking.

To facilitate the efficient development of communication skills, the formation of the relevant competence for online work, it is vital to adopt a set of contemporary

communication tools and techniques. Murneva M.I. et al. (2018b) state that one needs to analyze the students' individual traits and motivate students to view the proposed tasks not as usual assignments, but treat it as a speech act. The integrated approach implies methods and exercises that provide the development of communicative competence in students of technical faculties who study Academic English in the framework of distance learning. The examples are given below:

- consulting explanatory dictionaries (underdeveloped vocabulary is one of the most common problems for speech expressiveness, therefore it is recommended to have an individual personal vocabulary);

- learning clichés and expressions of Academic English;

- participating in online groups, student and youth forums and communities to eliminate fear of communication, find additional virtual communities on thematic forums or groups in social media, participate in webinars, videoconferences, forums of interest. Such informal communication also provides a lot of useful information and allows to feel comfortable at the new platform of distance education;

- writing out words from different areas of knowledge with their definitions, invent stories using these words and use them in a valid situation. Once the story is represented, it is assigned to be reviewed and rendered to the fellow students, who are to try their best to select the proper equivalents, expressions, collocations etc. The assignment is aimed to practice vocabulary, develop meaningfulness, clarity, precision and expressiveness in speech, as well as facilitate relieving of tension and fear while speaking publicly;

- oral presentation. A students is required to constantly practice his or her oral skills, consequently, it is recommended to daily pronounce pieces of literature, business letters, contracts, technical manuals for a household appliance, etc. The major objective is not to memorize the text, but reproduce it from memory, using synonyms;

- presentation (one of the most effective methods of developing communication and oratory skills on both simple and complex subjects;

- choosing a book or a story to read and retell, trying to avoid filler words that clog speech;

- composing an academic text (scientific conference, academic event, thematic report). This could help to expand the passive vocabulary;

- summarizing texts using the previously mastered cliche plan for rendering the text.

4. Survey results and discussion

The survey involves 159 full-time undergraduate students of the Institute of Mechanics and Power Engineering and 22 full-time undergraduate students of the Institute of Electronics and Lighting Engineering.

Below (in Table 2) are the results of processing the questionnaires completed by students at the two stages of the survey. The first stage of the survey was conducted in March 2020 before the implementation of the project discussed in this article, and the second stage - in January 2021 after the implementation of the project.

According to the research results, the number of students who scored from 16 to 24 points increased from 33 (18,2%) to 136 (75,1%); the number of students who scored from 8 to 15 points decreased from 40 (22,1%) to 30 (16,6%); the number of students who scored from 0 to 7 points decreased from 108 (59,7%) to 15 (8,3%). At the same time, the trend of increasing the number of students who noted an increase in the efficiency of the educational process after the implementation of the project discussed in the article was noted in all for all specialties and courses.

According to the results of the survey conducted in January 2021, the following characteristics of the achieved level of communicative competence of students studying online were formed, as well as recommendations for eliminating the identified shortcomings. These characteristics and recommendations for the three groups of students listed in columns 5, 6, and 7 of Table 2 are given below.

Group 1. Students with the high competence level (16-24 points). They have an excellent opportunity to acquire and enhance communication skills or even master new knowledge in the course of online learning. They experience no obstacles in gaining competence; distance learning is easily accepted and becomes students` major assistant along with the traditional education methodology, which could not completely perform its functions under the conditions of the Covid-19 pandemic. This type of students have properly adapted to the given circumstances, which have led to a major change due to the fact that the modern education system has begun a transfer to blended learning, and the future quantity and quality of distance technologies will only increase.

REVISTA DE LA UNIVERSIDAD DEL ZULIA. 3ª época. Año 12 N° 35, 2021

Anton Lebedev et al. /// Modern trends in the development of communication technologies ... 246-269

DOI: http://dx.doi.org/10.46925//rdluz.35.15

Table 2. Results of surveys of students of the N. P. Ogarev Mordovian State University

Specialty	Course	Number of students surveyed	stage	Student groups		
				from 16 to 24 points	from 8 to 15 points	from 0 to 7 points
Agroengineering	1	21	first	5	5	11
			second	15	3	3
Heat power engineering and heat engineering	1	23	first	3	4	16
			second	18	4	1
Power engineering and Electrical engineering	1	22	first	2	3	17
			second	18	3	1
Operation of transport technological machines and complexes	1	15	first	1	4	10
			second	11	2	2
Technosphere safety	1	22	first	5	5	12
			second	16	4	2
Agroengineering	2	21	first	6	5	10
			second	14	3	3
Operation of transport technological machines and complexes	2	20	first	4	6	10
			second	14	3	3
Technosphere safety	2	15	first	2	2	11
			second	12	2	1
Informatics and computer engineering	2	22	first	5	6	11
			second	16	6	0

This group of students have sufficient satisfaction with distance learning. They are aware of ways to acquire knowledge at their own pace, according to their individual schedule. They have learned to focus on the most important aspects of learning, avoiding unnecessary distractions. This respondents group clearly understand what knowledge and skills they need to improve the communication competence. Their intellectual and cognitive abilities prove that they are enthusiastic students capable of solving the most difficult communication problems. Their personal traits allow to get maximum satisfaction

from distance learning. Considering each question in detail will help to improve professionally oriented aspects of learning, and can also contribute to a more comfortable and effective study process.

Group 2. Students with the intermediate competence level (16-24 points). Anxiety occurs while delivering an online public speech, which indicates that students do not have sufficient components of communicative, rhetorical and speech culture. Not enough attention is paid to the listed aspects that constitute the phenomenon of the students` communicative image in online learning atmosphere. All this does not allow to be completely expressed as a student who possesses the skill of public speech, a rhetorician who uses the word as an instrument of speech. This group of students need to be aware of the reasons for the insufficient level of self-development and -improvement by meditating on how to deal with setbacks and diminish disadvantages in educational activities within distance learning practice.

Group 3. Students with the low competence level (0-7 points). These students have the kind of personal traits, communication habits and abilities, which, to a large extent, inhibit their growth and limit their actions to solving a number of simple tasks through studying a textbook. They are unable to interpret the online material so that it is clear and efficiently received by an adressee. The students my be aware of certain aspects of online communication, but it does not create thecommunicative image of a student as an integral and holistic personality. They have difficulty practising self-discipline and independent search for information. Their initial enthusiasm for the implementation of communicative competence is quickly replaced by indifference, fear and unwillingness to overcome difficulties. In such conditions, without good self-organisation, self-discipline, distance learning is unlikely to be successful and effective. Such students need to overcome the lack of interpersonal communication, which plays an important role in psychological support. Another important problem of the communicative competence formation in the context of distance learning is the lack of a clear and deep understanding of the action plan to eliminate communicative shortcomings. To practise this, it is necessary to study Internet resources, training platforms that are in the public domain, master the list of available modern teaching communication methods and techniques. The lack of a structured scheme for obtaining information is becoming an acute problem, as well as the shortage of clear

goals, tools and time-scale. The sequence of the algorithm for obtaining information is blurred, it is difficult to have a comprehensive and holistic worldview, which ultimately leads to the understanding that it is impossible (or highle unlikely) to efficiently apply the acquired knowledge / skills.

This respondents type needs to study a number of exercises, methods, modern communication technologies that are able to eliminate communication problems in distance learning. The obstacles may occur due to the lack of knowledge of modern technologies that contribute to the formation and improvement of communication skills and abilities in studying Academic English in the conditions of online learning.

The lack of the communicative culture and of the ability to overcome fear of online public speaking gives evidence of their incompetence. It is necessary to learn how to overcome and eliminate communicative shortcomings in the current challenging conditions of distance learning.

To increase the communicative competence and culture, improve the communicative image, one needs to master modern communication methods and technologies that will help in understanding educational activities, allow to see the results of students` work, and also assist in giving a critical assessment of the individual self-realisation, receiving knowledge, addressing the other academic fields, taking into account the format of distance education. This requres self-improvement, diligent labour on communicative competence, speech etiquette, as well as the relentless elaboration of communication skills and abilities under the conditions of e-learning.

Conclusion

The conducted analysis and the survey results obviously indicate that the development of information technologies and online learning has substantial prospects. IT-sphere should definitely be considered as a tool for improving communicative competence, self-organization, self-development and personal growth. It contributes to the understanding of education in the sense far from pointless attendance of lectures and seminars, but helps to predetermine the role of education for the formation of subsequent professional competencies and the development of new areas of knowledge, having

developed individual and independent motivation without the constant need of outward pressure.

We are currently witnessing the beginning of the development of virtual learning with its imperfections and shortcomings, so it is necessary to show maximum responsibility and creativity to improve the quality of online education. Online education stimulates both the work of students and teaching staff. To achieve mutual understanding with the audience online and maximum compliance with innovations, any teacher needs to motivate students to seek for new ways of acquiring knowledge, be able to constantly develop their courses, regularly improve and extend their professional qualifications and encourage students to be creative.

The results of the experiment shows that the formation of communicative competence in the process of online learning is especially effective when integrating it with traditional education, as well as applying a curriculum of traditional education together with that of distance learning. The survey analysis shows that students are open to knowledge and strive for innovative, more effective forms of education, which are aimed at developing cognitive activity, expanding their horizons and knowledge in the field of a foreign language, cultural studies, philosophy, rhetoric, as well as improving their communicative competence.

The study puts forward the theses postulating the effectiveness of modern methods and technologies in the formation of communicative competence in the process of distance learning for undergraduate students of technical faculties with the interaction of three levels of personality (individual, cognitive and intercultural), which have shown their effectiveness. It consists in the formation of the communicative competence of a student as a highly educated person, a person of culture, mastering communicative and intercultural competences, having critical and creative thinking, according to the pattern of the speech activity formation: goal - motive - creativity - self-control - action - means - result.

The academic and practical experience, acquired in the process of online Academic English teaching, allow to develop a number of methodological recommendations for the formation and improvement of communicative competence in the format of online education. The provided research results assert that the set research tasks have been solved. The introduction of the modern communication techniques for the formation of the

communicative competence in students' online learning determines the effectiveness of their implementation and predicts its organizational and methodological structure. On the basis of the developed and theoretically justified methodological principles, the integrated model of methods is presented, including interrelated educational and methodological complexes.

Experimental testing of techniques is carried out in independent work of students when acquiring knowledge online, which ensures the gradual formation of communicative and educational-cognitive competencies as the student's ability to consciously independently search and manage their activities in mastering Academic English. The reliability of the results of the ascertaining experiment was proved, which was methodically verified and tested in the educational process, with the aim of proving the feasibility of integrating traditional and online methods of forming communicative competence integrating modern information technologies, methodological techniques.

The conducted theoretical and experimental research fully confirmed the methodological effectiveness of the presented methodology for determining the degree of student satisfaction with their communicative competence and image in the conditions of distance learning and the feasibility of combining the forms of traditional and online Academic English learning. The results allow to assert that the set research tasks have been solved. The survey presents the current trends in the development of communication technologies at Ogarev Mordovia State University in the context of the professionally oriented approach in distance learning of Academic English at technical faculties. The study of a professionally oriented approach in the implementation of distance education determines the methodological possibilities of online English learning and predict the organizational and methodological structure of projects for the implementation of curricula.

Experimental testing of the project is carried out while observing the independent work of students, which ensures the gradual formation of educational, cognitive and communicative competencies as the ability of a student to consciously independently search and manage their activities in mastering the English language at technical faculties of Ogarev Mordovia State University over the pandemic period. The reliability of the results is proved, which has been methodically verified and tested in the educational process at

Ogarev Mordovia State University since March 2020 with the aim to prove the feasibility of integrating traditional and online methods of teaching English using modern information technologies and the introduction of techniques to improve communicative competencies in the conditions of distance education.

The conducted theoretical and experimental research fully confirms the methodological effectiveness of the presented modern trends in the formation and development of communicative competencies in technical students and the feasibility of combining traditional and online English learning.

Analysis of the research results on the problem of online formation of the communicative competencies in students of technical faculties in independent work allows us to draw the following conclusions confirming the initial hypothesis:

1. Based on the analysis of methodological, pedagogical and specialized literature on the problems of teaching technology, on Russian and foreign experience in using distance technologies in teaching English, a methodology has been developed for introducing modern trends in the development of communication technologies at Ogarev Mordovia State University in the context of the implementation of the professionally oriented approach in the study of Academic English in distance education at technical faculties allowing to study the overall professionally oriented approach of non-linguistic specialties students.

2. The didactically justified project provides a positive teaching effect in the system and interaction with traditional forms, techniques and means of teaching, which provides a full-fledged individual approach in developing communicative skills of independent work in mastering English at technical faculties.

3. It is revealed that the proposed modern trends in the development of communication technologies at Ogarev Mordovia State University in the context of implementing the professionally oriented approach in the study of Academic English in the conditions of distance education at technical faculties ensure the effectiveness of improving communicative competence, provided that the process is phased and gradual.

4. It is proved that the effectiveness of modern trends in the development of communication technologies at Ogarev Mordovia State University in the context of implementing the professionally oriented approach in the study of Academic English in the

conditions of distance education at technical faculties is provided with the mandatory inclusion of an information aspect, instructions for independent work with the project, materials for general independent work, self-control and self-assessment of results.

5. The developed and introduced tools of the development of communication technologies at Ogarev Mordovia State University are effective and productive, which is confirmed during testing and implementation both theoretically and practically.

References

Andreev, A.A. (1999). Didactic Foundations of Distance Learning. Moscow: RAO.

Foung, D. & Chen, J. (2019). A Learning Analytics Approach to the Evaluation of an Online Learning Package in a Hong Kong University. Electronic Journal of e-Learning, 17, 11-24. https://eric.ed.gov/?id=EJ1215541

Gao, L.X. & Zhang, L.J. (2020). Teacher Learning in Difficult Times: Examining Foreign Language Teachers' Cognitions About Online Teaching to Tide Over COVID-19. Frontiers in Psychology, 11, 549-653. doi: http://dx.doi.org/10.3389/fpsyg.2020.549653

Gleason, B. & Manca, S. (2020). Curriculum and instruction: pedagogical approaches to teaching and learning with Twitter in higher education. On the Horizon, 28(1), 1-8. doi: https://doi.org/10.1108/OTH-03-2019-0014

Ho, N.T.T., Sivapalan, S., Pham, H.H., Nguyen, L.T.M., Pham, A.T.V. & Dinh, H.V. (2020). Students' adoption of e-learning in emergency situation: the case of a Vietnamese university during COVID-19. Interactive Technology and Smart Education. doi: https://doi.org/10.1108/ITSE-08-2020-0164

Khodyreva, E.A. (2017). Problems of risk management of innovative educational projects. Scientific and methodological electronic journal "Concept", 2, February, http://e-koncept.ru/2017/170048.htm.

Kirgintseva, N.S. & Nechayev, S.A. (2013). Modern Trends in the Development of Educational Tools Based on IT Techniques. Information and Education, 3, 79-82.

Lebedev, A.V., Bobrova, N.E., Pinkovetskaia, I.S. (2020). Peculiarities of the English Legal Text Discourse: The Issues of Interpretation and Translatability. Journal of History Culture and Art Research, 9(2), 318–328. doi: http://dx.doi.org/10.7596/taksad.v9i2.2689

Martin, I.A. (2020). Pronunciation development and instruction in distance language learning. Language Learning & Technology, 24(1), 86–106. doi: https://doi.org/10125/44711

Marcum, J. & Kim, Y. (2020). Oral Language Proficiency in Distance English-Language Learning. CALICO Journal, 37, 148-168. doi: https://doi.org/10.1558/cj.37788.

Mulyadi, D., Wijayatiningsih, T., Ifadah, M. & Aimah, S. (2020). Technological Pedagogical and Content Knowledge of ESP Teachers in Blended Learning Format. International Journal of Emerging Technologies in Learning (iJET), https://www.online-journals.org/index.php/i-jet/article/view/11490

Murneva, M.I., Shestakova, N.A. & Samoilova, E.V. (2018a). On the problem of teaching English to mixed-ability learners of advanced training courses on the additional program "English for Academic Purposes". Philological Sciences. Problems of theory and practice, 2 (80), Part 1. https://elibrary.ru/item.asp?id=32401410.

Murneva, M.I., Shestakova, N.A. & Samoilova, E.V. (2018b). The modern technology of teaching English at non-linguistic faculties: science or art? Philological Sciences. Problems of theory and practice, 3 (81), 415-418.

Vaks, V.B. (2021). Research of certain aspects of digitalization of the educational process in the university. Scientific-methodical electronic journal "Concept", 2, February, 1-13. http://e-koncept.ru/2021/211004.htm/

Use of interactive methods of collaboration between educational process participants in the conditions of distance learning

Larysa V. Zdanevych*
Alla I. Chagovets**
Ivan O. Stepanets***
Milena I. Yaroslavtseva****
Svitlana V. Pyekharyeva*****

ABSTRACT

The purpose of the article was to study three groups of factors of perception of the introduction of interactive methods of distance education in the educational environment of Higher Education Institutions. The research used general scientific research methods, questionnaire methods, methods for integrated assessment, mathematical methods of data processing: calculation of consolidated characteristics of motivation, sign test. The study revealed a low level of student knowledge about distance education technologies and, by contrast, a high level of student interest in mastering interactive distance education methods. The article detects the influence of the educational environment of the HEIs in the formation of the disposition of the students to use interactive technologies of distance education. The article considers properties of interactive methods such as mobility, openness, accessibility and the use of interactive distance learning technologies. The article aims to study the peculiarities of the students' attitude towards the introduction of interactive distance learning technologies in the educational process. Other research perspectives are in the creation of a system for monitoring the preparation of students for the implementation of innovative technologies in relation to the constant development of scientific and technological progress.

KEYWORDS: methods; distance learning; technologies; education; effectiveness.

* Professor of Department of Pre-School Pedagogy, Psychology and Professional Methods, Faculty of pre-school education and psychology, department of pre-school pedagogy, psychology and professional methods, Khmelnytskyi Humanitarian-Pedagogical Academy, Khmelnytskyi, Ukraine. ORCID: https://orcid.org/0000-0001-8387-2143. E-mail: larysazdanevych@gmail.com

**Professor of Department of theory and methods of preschool education, Faculty of Preschool and Special Education and History, Municipal Establishment «Kharkiv Humanitarian Pedagogical Academy» of Kharkiv Regional Council, Kharkiv, Ukraine. ORCID: https://orcid.org/0000-0003-0680-3165. E-mail: chagovalla54@gmail.com.

***Professor of Department of theory and methods of preschool education, Faculty of Preschool and Special Education and History, Municipal Establishment «Kharkiv Humanitarian Pedagogical Academy» of Kharkiv Regional Council, Kharkiv, Ukraine. ORCID: https://orcid.org/0000-0003-0680-3165. E-mail: chagovalla54@gmail.com.

****Candidate of Pedagogical Sciences, Vice-Rector on the scientific and pedagogical work of Department of Pedagogy, Psychology, Primary education and Educational management, Psychological and Pedagogical Faculty, T Municipal Establishment «Kharkiv Humanitarian Pedagogical Academy» of Kharkiv Regional Council, Kharkiv, Ukraine. ORCID: https://orcid.org/0000-0003-0600-4398. E-mail: io.stepanets26@gmail.com

*****Candidate of Pedagogical Sciences, Associate Professor of Department of theory and methods of pre-school education, Faculty of pre-school and special education and history, Municipal Establishment «Kharkiv Humanitarian-Pedagogical Academy» of Kharkiv Regional Council, Kharkiv, Ukraine. ORCID: https://orcid.org/0000-0001-7465-0653. E-mail: mylenaigorivna56@gmail.com

Uso de métodos interactivos de colaboración entre los participantes del proceso educativo en las condiciones del aprendizaje a distancia

RESUMEN

El propósito del artículo consistió en estudiar tres grupos de factores de percepción de la introducción de métodos interactivos de educación a distancia en el entorno educativo de las Instituciones de Educación Superior. La investigación utilizó métodos de investigación científica general, métodos de cuestionario, métodos para la evaluación integrada, métodos matemáticos de procesamiento de datos: cálculo de las características consolidadas de la motivación, prueba de signos. El estudio reveló un bajo nivel de conocimiento de los estudiantes sobre las tecnologías de educación a distancia y, por el contrario, un alto nivel de interés de los estudiantes en dominar los métodos interactivos de educación a distancia. El artículo detecta la influencia del entorno educativo de las IES en la formación de la disposición de los estudiantes para utilizar tecnologías interactivas de educación a distancia. El artículo considera propiedades de los métodos interactivos como la movilidad, la apertura, la accesibilidad y el uso de tecnologías interactivas de aprendizaje a distancia. El artículo tiene como objetivo estudiar las peculiaridades de la actitud de los estudiantes ante la introducción de tecnologías interactivas de aprendizaje a distancia en el proceso educativo. Otras perspectivas de investigación están en la creación de un sistema de seguimiento de la preparación de los estudiantes para la implementación de tecnologías innovadoras en relación con el desarrollo constante del progreso científico y tecnológico.

PALABRAS CLAVE: métodos; educación a distancia; tecnologías; educación; efectividad.

Introduction

In today's information society, it is impossible to utilize man's creative potential in science, culture, industry, business, and other spheres of life without mastering interactive technologies and the ability to use computer facilities. The concept of "active methods and forms of learning" – a group of pedagogical technologies that help to reach high level of students' activity, has long been used in the teaching practice.

Recently, the term "interactive learning", which is directly related to the introduction of distance learning methods, has become widespread. The use of interactive technologies is one of the most effective ways to increase motivation and individualization, develop creative abilities and produce a favourable emotional atmosphere. Moreover, it allows to move from

an explanatory-illustrated way of teaching to activity orientated one, in which a student participates actively, what contributes to responsible acquisition of new knowledge.

Creation and development of information society involves the widespread use of interactive technologies in education, which is determined by a few factors. Firstly, introduction of interactive technologies significantly accelerates the transfer of knowledge, technological and social experience of mankind not only from generation to generation, but also from one person to another. Secondly, modern interactive technologies, improving the quality of education, allow people to adapt to the environment and to social changes more successfully and quickly. Thirdly, active introduction of interactive technologies in education is an important factor in creating an educational system that would meet the requirements of information society and the process of reforming traditional educational system.

The purpose of the introduction of interactive technologies is to create a single information space of the educational organization, a system in which all participants of the educational process are involved and connected at the information level: administration, teachers, students and their parents. This goal can be achieved by using distance learning methods.

Despite the broad coverage of the research topic, the issues of the effectiveness of the acquisition of professional competencies by the participants of the educational process while using interactive methods of interaction remain unexplored. Thus, the purpose of the study is to identify the effectiveness of usage of interactive teaching methods in distance education.

The specified goal involves implementation of the following tasks:

1. Investigation of the potential of introduction of IDLT into HEI.

2. Analysis of students' readiness for introduction of IDLT in HEI.

3. Exploring the influence of the educational environment of HEI on the students' readiness to implement IDLT in HEI.

1. Literature Review

Let us consider the concept of "interactive" and its derivatives. The term "interactive" means the moment of interaction or being in the mode of conversation, dialogue with something (for example, a computer) or someone (a person) (Irvine et.al, 2013). In other

words, "interactive" means "dialogical" or the one that interacts between a person and the media (interactive television, interactive survey) (Francescucci & Rohani, 2019). The term "interactivity" was borrowed from the Latin word "interactio", deriving from "inter" – "mutual information exchange with the information environment" (Rodríguez-Rodríguez et. al, 2020).

Interactive learning is a special form of cognitive activity, when the learning process is organized in such a way that almost all students are involved in the process of cognition (Soomro et. al, 2017).

Education involves a set of acquired knowledge, skills, abilities, system of values, experience and competencies of a certain volume and complexity for the purpose of intellectual, spiritual, moral, creative, physical and (or) professional development of a person (International Telecommunications Union, 2017).

Interactive learning is dialogical learning, based on the interaction of students with the teachers, learning environment and educational environment (Heitin, 2017). In the process of studying, students carry out joint activities, everyone contributes to the work, there is an exchange of experience, knowledge and skills, so the learning is based on the students' life experience (Awadhiya et. al, 2014). Thereat learning takes place in a friendly atmosphere and with mutual support.

Interactive methods of education establish the following goals:

1. Development and enrichment of socio-personal experience through the involvement of students into interpersonal interaction.

2. Creation of conditions in which students willingly and independently gain the missing knowledge from various sources, learn to use them for solving cognitive and practical problems, develop research skills and systematic thinking.

3. Creating comfortable learning conditions under which the student feels his/her success and intellectual ability, which makes the whole learning process productive and effective (Setiawan, 2020; Ribble, 2017).

The interactive form of distance learning allows the teacher to find an individual approach to every student, to build subject-subject relationship between the teachers and their students. Interactive methods are based on teaching how to act, as with the help of

actions a person better remembers and learns what he/she does with his/her hands, gains invaluable experience through increased pedagogical interaction (Cook & Dupras, 2004).

IDLT are based on reproduction (imitation), model representation in learning, and can be divided into simulative and non-simulative ones. Simulative IDLT are based on simulative or simulative-gaming modelling of real phenomena, i.e. reproduction of the real processes in a learning environment to various levels of adequacy. Construction of models and organization of work with them allow to reflect in the educational process various kinds of professional context and to form professional experience in the conditions of quasi-professional activity.

Non-simulative IDLT do not require construction of models of the studied phenomenon, process or activity, but the activation is achieved here through the selection of problematic educational content, specially organized classes and usage of technical means of conducting them, as well as ensuring dialogical interaction between a teacher and a student.

Since interactive learning technologies are based on the principles of interaction, students' activity, building on the group experience, obligatory reflection, it is necessary to create an environment of educational communication, characterized by openness, constant interaction, equality of arguments of all participants, accumulation of general knowledge, allowability of mutual evaluation and control. The significance of interactive technologies cannot be overestimated, as they are aimed at personality development, as well as the development of teachers and students, the improvement of academic management.

A number of domestic and foreign researchers have studied the peculiarities of the organization of the interactive distance learning. Gewin (2020) in his article covered the issue of transferring the educational process to the Internet in connection with the COVID-19 pandemic. Cook and Dupras (2004) were the pioneers of developing practical principles for the implementation of interactive distance learning. Altinay et al. (2021) consider the importance of interactive forms of learning in the formation of essential skills and competencies. Dawn (2017) discusses the use of online, blended and technologically advanced learning. Esterhuyse and Scholtz (2015) dwell on the problems of implementing distance learning in developing countries. Miglani and Awadhiya (2017) see into the peculiarities of mobile learning in the work of open universities. Arthur-Nyarko et al. (2020) consider the students' readiness to implement interactive forms of learning. Fowler (2019) in

his doctoral dissertation explores the impact of synchronous orientation of an online course on students' exhaustion. Tzafilkou et al. (2021) review the development and validation of the scale of students' attitudes to distance learning (RLAS) in higher education. Liu et.al (2021) envisage the interactive study of multimedia and virtual technologies in artistic education.

2. Methods

For this study, the following diagnostic tools (research methods) were used:

– study and analysis of modern psychological-pedagogical and scientific-pedagogical literature, normative legal and organizational documents, reference literature on the research topic;

– lesson observation of students' educational activities;

– questioning and interviewing the students;

– testing the students;

– analysis of the obtained results using the methods of mathematical statistics.

The experimental work took place in three stages.

The study used questionnaires for psychological and pedagogical research (Seredenko, 2010) with a high level of reliability of the results. The survey method requires respondents to comply with a number of ethical requirements, namely independent answer to all questions honestly and impartially. Ethical criteria such as the honesty of the respondents, professional responsibility, competence, social responsibility, inviolability of personal boundaries and respect are put forward for the research.

Experimental work at the first – indicative – stage of the experiment (2020-2021) included:

– studying of the distance education system in HEI;

– analysis of the formation of information-educational environment through the introduction of distance learning in the educational process of HEI; learning from the experience of application of IDLT in various HEI; determining the level of students' readiness to use IDLT.

Experimental work at the second – formative – stage of the experiment (2021) included:

– setting up the Program of experimental work;

– introduction of pedagogical conditions for the preparation of students for the use of IDLT;

– carrying out control over the course of the pedagogical experiment with the help of questionnaires;

– analysis and processing of the results, obtained during the experiment;

– summarizing the results of the pedagogical experiment.

Experimental work at the third – final – stage of the experiment (2021) included: systematization and generalization of the results of experimental work, formulation of the findings of the study. The given plan corresponds to quantitative research methods and consists in polling and studying the opinion of the specified number of respondents.

Objectives:

The purpose of the study is to test the hypothesis that the introduction of interactive methods contributes to the effective formation of the HEI students' readiness to use IDLT.

Sample:

Experimental work on the formation of the HEI students' readiness to use IDLT was conducted on the basis of the National Pedagogical Dragomanov University (Kyiv, Ukraine). 192 students of all faculties and university-wide departments were selected to take part in the research by means of a remote questionnaire, made in Google Forms.

Methods:

The method of expert assessment was used for comprehensive assessment of the level of HEI students' readiness to use IDLT, namely the motives for using distance learning technologies, as well as professional knowledge, skills and abilities of using IDLT. The following quantitative indicators were used in the study: 1 point – low level, 2 points – average level, 3 points – high level. The mechanism of expert assessment of indicators of students' readiness for the application of IDLT by levels is presented in Table 1.

Consolidated characteristics of motivational, cognitive and technological components by indicators and levels in percentage terms were calculated by the following formula:

$$(\Sigma_{i=1}^{n} K_i)/(n*192)*100\%;$$

Where K is the number of answers to each question, i is the number of questions, n is the quantity of questions, 192 is the total number of respondents (university teachers, who participated in the experiment).

Table 1. The mechanism of expert assessment of students' readiness for the application of IDLT by levels.

Indices	The level of points for each indicator		
	Low level	Average level	High level
Motivational component			
Willingness to participate in the formation of information and educational environment of HEI.	1	2	3
Willingness to introduce new information and communication technologies in the educational process.	1	2	3
Interest in creating and using new forms of learning and their integration with other forms of learning.	1	2	3
Willingness to use the opportunities of the information educational environment of HEI.	1	2	3
Endeavours to participate in various innovative competitions and research papers, conferences, seminars	1	2	3
Cognitive component			
Knowledge of methods, techniques and tools required for the application of IDLT.	1	2	3
Understanding of the role and importance of using IDLT.	1	2	3
Knowledge of the main objectives of the introduction of IDLT in the educational process of HEI.	1	2	3
Knowledge of types and basic systems of distance learning, their main advantages and disadvantages.	1	2	3
Knowledge of the main advantages and disadvantages of different distance learning systems.	1	2	3
Technological component			
The ability to work in the distance learning system.	1	2	3
The ability to use the basic capabilities and techniques of distance learning.	1	2	3
The ability to use the basic capabilities and techniques of the distance learning system to visualize the training material.	1	2	3
The ability to use the basic capabilities and techniques of the distance learning system to assess and control knowledge.	1	2	3
The ability to use the basic capabilities and techniques of the distance learning system to ensure communication between different participants of the educational process.	1	2	3

Source: Setiawan (2020)

Let us assume that the accidental variable X characterizes the state of the level of students' readiness to use IDLT in the considered collection of objects at the fundamental measurement of this property (input control), the accidental variable Y characterizes the state of the same property in the same collection of objects at the second measurement (output control). There are two series of observations:

x1, x2 ,......, xi,......, xN;

y1, y2 ,......, yi,......, yN,

over the accidental variables X and Y obtained by considering two dependent samples. Based on them, N pairs of the form (xi, yi) were compiled, where xi, yi are the results of double measurement of the same indicator in the same object (respondent).

The elements of each pair xi, yi are compared in size, and the pair is assigned to a sign "+" if xi ‹yi, a sign "-", if xi ‹yi, and "0" if xi = yi. According to the results of the study, the laws of distribution of accidental variables X and Y are the same. Then the equality is fulfilled as follows:

$P(x_i < y_i) = P(x_i > y_i)$;

for all pairs (xi, yi), which means that the probability that the fundamental measurement (xi) in the pair (xi, yi) is lower than the second measurement (yi) is equal to the probability that the fundamental measurement in the pair is higher than the second measurement, for all n pairs.

The validity of this equality can be verified by a sign test. Thus, the null hypothesis will look like:

$H_0: P(x_i < y_i) = P(x_i > y_i)$;

for all i. When using the sign test as an alternative hypothesis, the following hypothesis is selected:

$H_1: P(x_i < y_i) \neq P(x_i > y_i)$

for all i. Thus, in this study, during the analysis of the results of experimental work the following null hypothesis H0 can be tested: the level of readiness of most students to use IDLT has not changed after the implementation of pedagogical conditions, but at the alternative H1 the readiness of most students to use IDLT has been formed after the implementation of pedagogical conditions.

In the case when yi tends to exceed the value of xi, the hypothesis H0 should be tested P (xi ‹ yi) ≤ p (xi › yi) – at the alternative H1: P (xi ‹ yi) › p (xi › yi).

H0 deviates at the level of test significance α, if the experimental value is t› n ‑ tα, where the value of n – tα is the coefficient.

Instruments

The survey was conducted using Google Forms and the mathematical package of statistical data processing Statistica 6.1.

3. Results

The total score by all indicators of the components of the HEI students' readiness to use IDLT varies from 19 to 57 points. The choice of intervals in determining the level limits for all indicators in this study was determined using the method of Creswell (2014), according to which the activity will be mastered after the correct execution of 70 or more percent of the tasks. High and low levels are determined by 25% deviation of the assessment from the average in the range of estimates.

To assess the level of students' readiness to use IDLT, control was carried out, which reflects the formedness of motivational, cognitive, and technological components of students' readiness to use IDLT. The following correspondence of the selected answer and the levels was used: "no" – low level, "not sure" – average level, "yes" – high level. Based on the received results we constructed the diagram reflecting the formedness of a motivational component by various indicators (Fig. 1).

According to the obtained data, it is possible to acknowledge high readiness of students to implement IDLT. A significant part of students (over 60%) feel the need to acquire competencies in distance education which, in general, allows us to state high degree of students' motivation to implement IDLT.

In order to check the level of formedness of the cognitive component of students' readiness to use IDLT, we conducted a study of respondents' self‑assessment of their knowledge of application of IDLT with the following correspondence of the selected score and levels: 1 point – low level (I do not know at all), 2 points – medium level (I have some idea), 3 points – high level (I know perfectly). Based on the obtained results, we constructed a diagram reflecting the cognitive component formedness by indicators (Fig. 2).
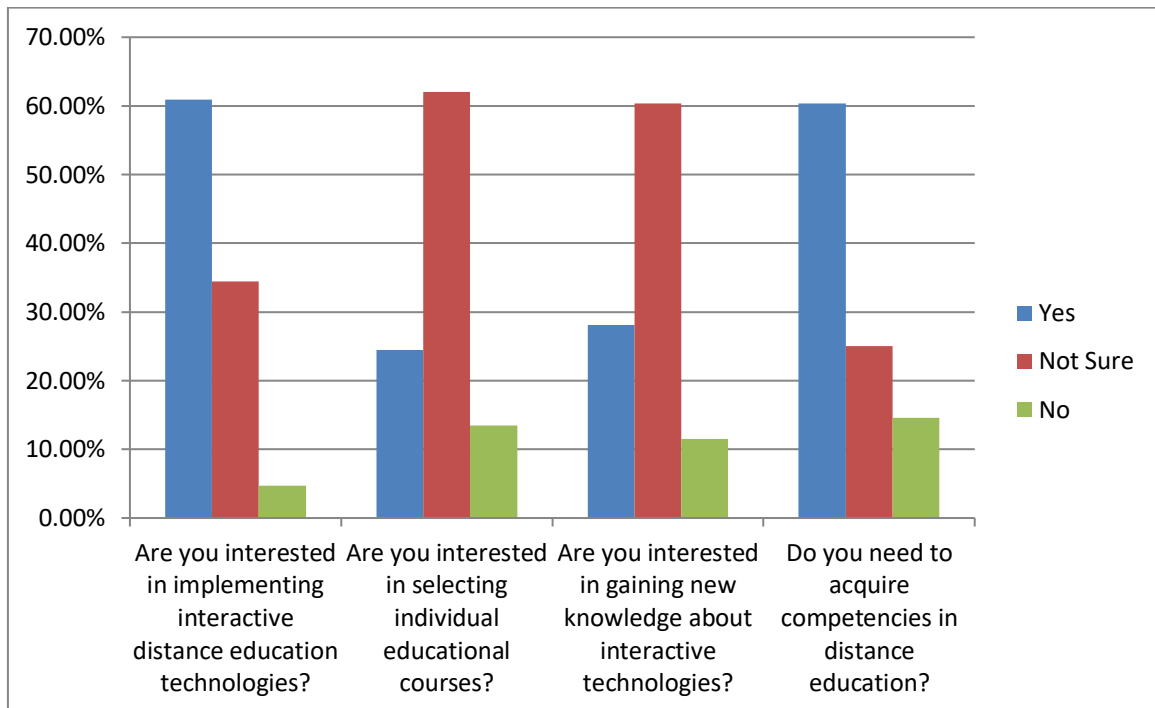
Figure 1. Motivational component of students' readiness to use IDLT
Source: Sugiyono (2018)
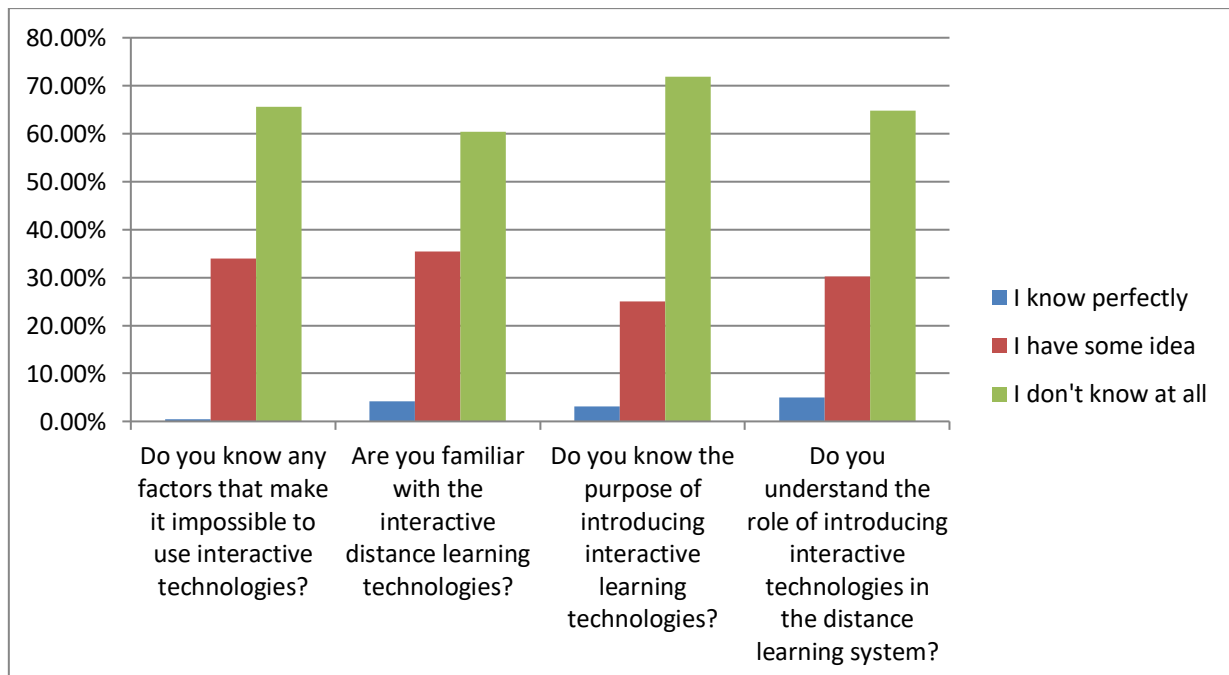
Figure 2. The results of monitoring of the cognitive component formedness of students'
readiness to use IDLT
Source: Sugiyono (2018)

Analysing the results of the student survey, it was concluded that many students still lack awareness of the tasks, goals, forms and means of IDLT. Undoubtedly, the HEI activities should be aimed at improving the level of students' awareness and their comprehensive integration into the world of modern educational technologies.

To check the level of technological component formedness of HEI students' readiness to use IDLT, we conducted a study of respondents' self-assessment of their abilities and practical skills of distance learning technologies taking the following correspondence of the selected answers and levels: "no" – low level, "I cannot give an unambiguous answer" – medium level, "yes" – high level. On the basis of the obtained results, we constructed a diagram reflecting the technological component formedness by various indicators.
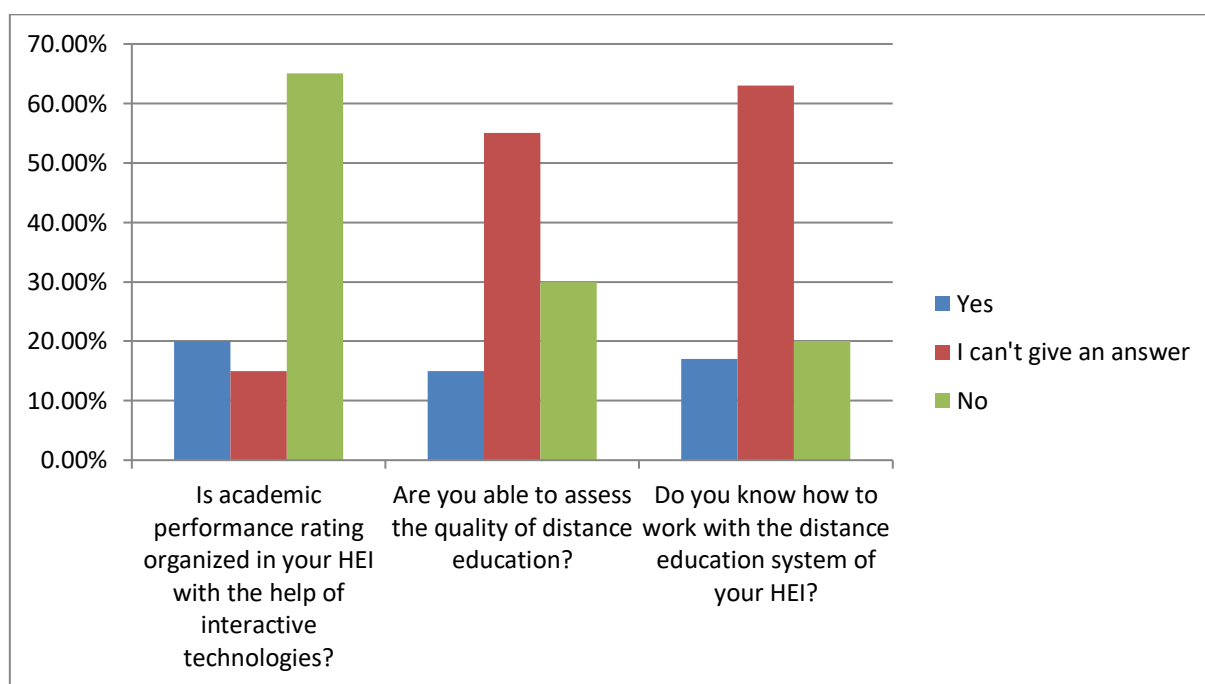
Figure 3. Results of the monitoring of technological component formedness of students' readiness for the application of IDLT
Source: Sugiyono (2018)

We found out low level of students' awareness of means and methods of distance education used in their HEI. At the same time, a small number of students 0078 (15%) dare to assess the distance education system itself, which in turn indicates a high degree of students' ignorance of the introduction of IDLT in their HEI.

The results of monitoring the levels of all considered components of students' readiness to use IDLT are shown in the diagram (Fig. 4).
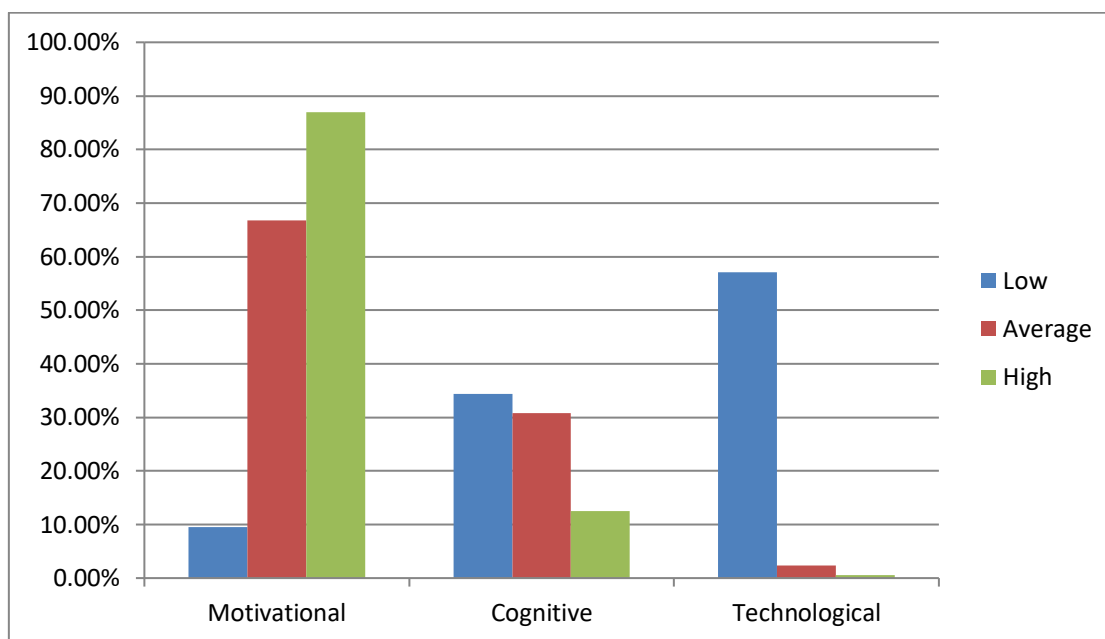
Figure 4. The results of the formedness of components of students' readiness to use IDLT
Source: Sugiyono (2018)

Consolidated average absolute and relative indicators of the formedness of motivational, cognitive and technological components by levels are shown in Table 2.

Table 2. The levels of formedness of components of students' readiness for the application of IDLT

Components, levels	Low		Average		High	
	Abs.	Rel.	Abs.	Rel.	Abs.	Rel.
Motivational	18	9,5%	83	43,4%	90	47,1%
Cognitive	128	66,8%	59	30,8%	5	2,4%
Technological	167	86,9%	24	12,5%	1	0,6%

Source: Sugiyono (2018)

Although 47.1% of students have a high level of the motivational component formedness, in general, most of the experimental group is not ready to use IDLT judging by the set of indicators of all three components (motivational, cognitive, technological ones).

Nonparametric mathematical statistical methods were used to test the statistical hypothesis of experimental research data. Experimental work is aimed at identifying the

effectiveness of pedagogical tools by comparing the achievements or properties of the same group of respondents in different periods of time (groups of dependent samples) or different groups of respondents (independent samples).

For each criterion we adopted the following structure: the type of experimental data to which we apply the criterion; the nature (discrete or continuous) of the studied property; measurement scale of the results of the experiment.

The sign test was used for the data analysis, as it is intended for comparison of states of some property at members of two dependent samples based on the measurements made on a scale not lower than the order scale.

To apply the sign test, the following requirements must be met:

1) random samples;

2) dependent samples;

3) pairs of properties under investigation are mutually independent;

4) the studied property of objects is distributed continuously in both sets of samples;

5) the measurement scale must not be lower than the order scale.

In this study, an experiment was conducted to test the effectiveness of pedagogical conditions as a means of forming students' readiness to use IDLT.

To test the hypothesis of the study, 20 respondents were randomly selected out of 192 respondents. The results of input and output control of respondents represent measurements on the ordinal scale (3-point scale: low level – 1point, average level – 2 points, high level – 3 points) (Table 3).

The value T (test statistics), equal to the number of positive differences between the results of input and output control, is calculated using a one-sided sign test based on observations to test hypotheses. According to the Table, T = 18.

Of the 20 data pairs in two cases, the difference is zero, therefore, only 18 (20-2 = 18) data pairs will be used in the calculations. Thus, in the calculations, n = 18.

To determine the critical statistics values of the criterion n - tα, the table of critical statistics values of the sign test is used, since n ≤ 100. For the test significance level α = 0.05 when n = 18, the value of n - tα = 13. Therefore, we will have the following inequality:

T > n – tα (18 > 13).

Thus, the null hypothesis is rejected at the level of α = 0.05 and an alternative hypothesis is accepted: the readiness of most students to use IDLT is formed after the implementation of pedagogical conditions.

The received analysis of the results of experimental work has shown, that pedagogical conditions, implemented in practice, provide effective formation of students' readiness for the application of IDLT.

Table 3. The results of input and output control of a random sample of the experimental group

Result types / respondent	Input control	Output control	Distinctive sign
1	1	3	+
2	1	3	+
3	1	3	+
4	1	3	+
5	2	3	+
6	1	3	+
7	2	3	+
8	2	3	+
9	1	3	+
10	1	3	+
11	1	3	+
12	2	2	0
13	1	3	+
14	1	3	+
15	1	2	+
16	1	3	+
17	2	3	+
18	2	3	+
19	1	3	+
20	2	2	+

Source: Sugiyono (2018)

4. Discussion

The study revealed low level of Ukrainian students' awareness of IDLT compared to foreign students. Rodríguez-Rodríguez et. al, (2020) and Arthur-Nyarko et al. (2020) in their research provide evidence of better awareness of the issue. The level of integration of the

latest educational technologies into the educational process of foreign countries, as evidenced by the research of Hamdan et al. (2021), is also higher.

The article identifies the potential of IDLT for students, which consists in the possibility of creating an innovative information and educational environment (which is considered in the dissertation of Fowler (2019)); mobility, openness, accessibility, interactivity of learning with the use of distance learning technologies; attracting more students from other regions; opportunities to compile an individual educational trajectory for students; economic efficiency of distance learning; visualization of educational information; application of hypertext structure of educational resources; opportunities for inclusive education; reducing the teaching load of university teachers. These findings are consistent with the studies by Miglani and Awadhiya (2017) which also identified the potential for the introduction of IDLT.

IDLT are used in order to optimize the educational process, as well as interest in continuing education and self-education in the fields of information and communication technologies; knowledge, abilities and practical skills necessary for educational activities with the use of hardware and software, information and methodological resources of distance learning, including automated learning systems and automated knowledge control systems, which was also mentioned by Sushchenko et al. (2019) in their study. Students' readiness for changes in learning technology is also considered by Cook and Dupras (2004), who emphasise the need for comprehensive application of educational innovations in the formation of a modern educational environment.

In the article the students' readiness to use IDLT is considered based on the fact that its structure contains the following components: motivational (reflects motives, content, goals), cognitive (includes knowledge and concepts that allow effective use of IDLT in their professional activities) and technological (a set of practical skills required to carry out activities using IDLT). Each of the above-mentioned components includes success criteria of the formedness of students' readiness to use IDLT (high, average, low). Altinay et al. (2021) also examine students' readiness for the introduction of IDLT.

The study did not reveal the impact of interactive distance technologies on increasing motivation, which contradicts the data of the study Onofrei and Ferry (2020), which noted an increase in student motivation when using distance learning technologies. However,

research has shown the important role of the use of remote technologies in creating a new information society, which confirms the study (Hamdan et al., 2021).

Theoretically, as in the research work by (Gewin, 2020), we found out pedagogical conditions of preparing students for the use of IDLT: gradual improvement of students' readiness to use distance learning technologies; creation of an information and educational environment in HEI, which can realize the possibilities of distance learning technologies.

The article does not cover the full range of problems of students' preparation for the use of IDLT in connection with the constant technical and technological development of information and communication technologies, which suggests the emergence of new trends in the use of distance learning in education. The same idea was suggested in the study by (Dawn, 2017).

The main limitations of the study are the remote method of data acquisition. This method does not allow to control the personal participation and integrity of the respondent. Future research should be aimed at covering a larger number of respondents, comparing data obtained from several free economic zones. Also in further research it is necessary to consider each interactive method separately. The theoretical materials considered in the article can be used in the training of future specialists in the organization of higher education. The obtained practical data can be used in designing the infrastructure of the distance education system in the Free Economic Zone in order to take into account the needs of students.

Conclusion

The article is a timely and relevant study due to the active development of information and communication technologies, including distance learning technologies, and their introduction into the educational process of HEI of Ukraine. However, the problem of forming the student's readiness to use IDLT in terms of unformed methodological approaches to its formation has not been studied sufficiently. The potential of IDLT in HEI lays in creating an innovative information and educational environment; mobility, openness, accessibility, the use of interactive distance learning technologies; attracting more students from other regions; opportunities to compile an individual educational trajectory for students; economic efficiency of distance learning; visualization of educational information;

application of the hypertext structure of educational resources; opportunities for inclusive education; reducing the teaching load of university teachers.

The obtained results can serve as base for diagnosing the level of formedness of HEI students' basic IT competence. During the processing of the results of diagnosing the basic level of IT competence formedness, it was found that the level of 41 students is insufficient. Thus, the analysis of the results of the article showed that the theoretically identified and practically implemented pedagogical conditions provide effective formation of the readiness of most students to the use of IDLT. In the future, there is a need to develop effective methods for monitoring and correcting students' ability to use interactive methods of distance education to improve the level of their interpersonal communication in the educational environment of HEI.

References

Altinay, F., Altinay, Z., Aydin, C., & Dagli, G. (2021). Widening international perspectives and practices through online learning for developing critical friendship and skills. *Educational Technology Research and Development*, 69(1), 231-234. https://doi.org/10.1007/s11423-020-09869-z

Arthur-Nyarko, E., Agyei, D.D. & Armah, J.K. (2020). Digitizing distance learning materials: Measuring students' readiness and intended challenges. *Educational Informational Technology*, 25, 2987–3002. https://doi.org/10.1007/s10639-019-10060-y.

Awadhiya, A. K., Miglani, A., & Gowthaman, K. (2014). ICT usage by distance learners in India. *Turkish Online Journal of Distance Education*, 15(3), 242–253. https://doi.org/10.17718/tojde.52135

Chen, L., Xin, B., & Chen, J. (2017). A tradeoff-based interactive multi-objective optimization method driven by evolutionary algorithms. *Journal of Advanced Computational Intelligence and Intelligent Informatics*, 21(2), 284-292. Retrieved from https://www.jstage.jst.go.jp/article/jaciii/21/2/21_284/_pdf/-char/en

Cook, D. A. & Dupras, D. M. (2004). A practical guide to developing effective web-based learning. *Journal of General Internal Medicine*, 19(6), 698–707. https://doi.org/10.1111/j.1525-1497.2004.30029.x.

Creswell, J. (2014). *Research Design Qualitative, Quantitative, and Mixed Methods Approaches.* Thousand Oaks: SAGE Publications. https://doi.org/10.5539/elt.v12n5p40

Dawn, L. (2017). Online, blended and technology-enhanced learning: Tools to facilitate community college student success in the digitally-driven workplace. *Contemporary Issues in Education Research*, 10(4), 255–262. https://doi.org/10.19030/cier.v10i4.10039

Esterhuyse, M., & Scholtz, B. (2015). Barriers to e - Learning in a Developing Country: An Explorative Study. Retrieved from https://www.semanticscholar.org/paper/Barriers-to-e-Learning-in-a-Developing-Country%3A-An-Esterhuyse/b919bfc4cf5e784ed9f797d0156c13358a109f3c

Fowler, R. C. (2019). *The effects of synchronous online course orientation on student attrition*, [Ph.D thesis]. Columbia: University of South Carolina. Retrieved from https://scholarcommons.sc.edu/etd/5346

Francescucci, A., & Rohani, L. (2019). Exclusively synchronous online (VIRI) learning: The impact on student performance and engagement outcomes. *Journal of Marketing Education*, *41*(1), 60–69. https://doi.org/10.1177/0273475318818864

Gewin, V. (2020). Five tips for moving teaching online as COVID19 takes hold. *Nature*, *580*, 295–296. https://doi.org/10.1038/d41586-020-00896-7

Hamdan, K.M., Al-Bashaireh, A.M., Zahran, Z., Al-Daghestani, A., AL-Habashneh, S., & Shaheen, A.M. (2021). University students' interaction, Internet self-efficacy, self-regulation and satisfaction with online education during pandemic crises of COVID-19 (SARS-CoV-2). *International Journal of Educational Management*, *35* (3), 713-725. https://doi.org/10.1108/IJEM-11-2020-0513

Heitin, L. (2017). What is digital literacy? *Education Week*, *36*(12), 5–6. Retrieved from http://www.edweek.org/ew/articles/2016/11/09/what-is-digital-literacy.html.

International Telecommunications Union. (2017). Measuring the information society report 2017 volume 2. Geneva: ICT country profiles. Retrieved from https://reliefweb.int/report/world/measuring-information-society-report-2017

Irvine, V., Code, J., & Richards, L. (2013). Realigning higher education for the 21st century learner through multi-access learning. *Journal of Online Learning and Teaching*, *9*(2), 172–186. Retrieved from https://jolt.merlot.org/vol9no2/irvine_0613.pdf

Kilpatrick, C. D. (2019). Faces or fingers: Building community with synchronous chat. In Yoon J. & Semingson P. (Eds.), *Educational technology and resources for synchronous learning in higher education* (pp. 1–22). Hershey, PA: IGI Global. https://doi.org/10.4018/978-1-5225-7567-2.ch001

Liu, Q., Chen, H. & Crabbe, M. (2021). Interactive Study of Multimedia and Virtual Technology in Art Education. *International Journal of Emerging Technologies in Learning (iJET)*, *16*(1), 80-93. Retrieved from http://hdl.handle.net/10547/624755

Miglani, A., & Awadhiya, A. K. (2017). Mobile learning: Readiness and perceptions of teachers of open universities of commonwealth Asia. *Journal of Learning and Development – JL4D*, *4*(1), 58–71. Retrieved from https://files.eric.ed.gov/fulltext/EJ1141535.pdf

Nelson, L. (2017). Harnessing the power of the synchronous classroom in staff development. *The Journal of Continuing Education in Nursing*, *48*(2), 62–64. https://doi.org/10.3928/00220124-20170119-05.

Onofrei, G., & Ferry, P. (2020) Reusable learning objects: a blended learning tool in teaching computer-aided design to engineering undergraduates. *International Journal of Educational Management*, *34*, 1559-1575. https://doi.org/10.1108/IJEM-12-2019-0418

Patel, D. & Patel, H. (2017). Blended learning in higher education using moodle open source learning management tool. *International journal of advance research in computer science*, *8*, 439-442. https://doi.org/10.26483/ijarcs.v8i5.3327

Ribble, M. (2017). Digital Citizenship: Using Technology Appropriately. Digital Citizenship Institute. Retrieved from: http://www.digitalcitizenship.net/nine-elements.html.

Rodríguez-Rodríguez, E., Sánchez-Paniagua, M., Sanz-Landaluze, J., & Moreno-Guzmán, M. (2020). Analytical Chemistry Teaching Adaptation in the COVID-19 Period: Experiences and Students' Opinion. *Journal of Chemical Education*, *97*(9), 2556-2564. https://doi.org/10.1021/acs.jchemed.0c00923

Seredenko, P. V. (2010). Psychological and pedagogical research: methodology and methods. Retrieved from http://sakhgu.ru/wp-content/uploads/page/record_85102/2019_04/Середенко-П.-В.-Психолого-педагогическое-исследование-методология-и-методы.pdf

Setiawan, A. R. (2020). Pembelajaran Tematik Berorientasi Literasi Saintifik. *Jurnal Basicedu: Journal of Elementary Education*, *4*(1), 71–80. https://doi.org/10.31004/basicedu.v4i1.298

Soomro, K. A., Kale, U., Curtis, R., Akcaoglu, M., & Bernstein, M. (2018). Development of an instrument to measure Faculty's information and communication technology access (FICTA). *Education and Information Technologies*, *23*(1), 253–269. https://doi.org/10.1007/s10639-017-9599-9.

Sugiyono, D. (2018). Metode Penelitian Bisnis: Pendekatan Kuantitatif, Kualitatif, Kombinasi. Retrieved from: http://eprints.umsida.ac.id/6233/1/Buku%20Metpen%20Sigit%20dan%20Amirullah.pdf

Sushchenko, O., Trunina, I., Basyuk, D., & Pokolodna, M. (2019) Coaching as Education Technology on Electrical Engineering Education. *IEEE International Conference on Modern Electrical and Energy Systems*, *1*, 426-429. https://doi.org/10.1109/MEES.2019.8896507.

Tzafilkou, K., Perifanou, M., & Anastasios, A. (2021) Development and validation of a students' remote learning attitude scale (RLAS) in higher education. *Education and Information Technologies*, *41*, 152-179. https://doi.org/10.1007/s10639-021-10586-0.

Monitoring and evaluation procedure with LMS Moodle

Natalia V. Belozertseva*
Olga I. Vaganova**
Irina V. Akimova***
Anna V. Lapshova****
Roman A. Stepanov*****

ABSTRACT

The purpose of the article is to develop recommendations for results processing in Moodle electronic system. Methodology: the authors presented formulas for calculating the reliability of the tests used to verify students' training, the description of what is required for monitoring, the actions of the teacher to perform a quality assessment system. The process of calculating the final grade for the course is presented, which will provide the necessary conditions for conducting student knowledge control. Results: in the process of study, it was concluded that modern methods of processing the data used during the control measures in higher education institutions within the framework of the Moodle system contribute to improving the graduates training.

KEYWORDS: Moodle; gradebook; electronic system; student; assessment; control.

*Moscow State University of Humanities and Economics, Moscow, Russia. ORCID: https://orcid.org/0000-0003-2367-6014. E-mail: bnv_75@mail.ru

**Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia. ORCID: https://orcid.org/0000-0001-8347-484X. E-mail: vaganova_o@rambler.ru

***Penza State University, Penza, Russia. ORCID: https://orcid.org/0000-0003-0900-4676. E-mail: any19.10@mail.ru

****Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia. ORCID: https://orcid.org/0000-0001-7017-3589.

*****Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia. ORCID: https://orcid.org/0000-0002-5978-3447. E-mail: Sined100895@yandex.ru

Procedimiento de seguimiento y evaluación dentro de LMS Moodle

RESUMEN

El propósito del artículo es desarrollar recomendaciones para el procesamiento de resultados en el sistema electrónico Moodle. Metodología: los autores presentaron fórmulas para el cálculo de la confiabilidad de las pruebas utilizadas para verificar la preparación de los estudiantes, una descripción de las acciones del docente necesarias para la implementación del control para que el sistema realice un procedimiento de evaluación cualitativa. Se presenta el proceso de cálculo de la nota final de la asignatura, que proporcionará las condiciones necesarias para el control de los conocimientos del alumno. Resultados: en el proceso de trabajo llegamos a la conclusión de que los métodos modernos de procesamiento de datos utilizados durante las actividades de control en la educación superior en el marco del sistema Moodle contribuyen a la mejora de la formación de los egresados.

PALABRAS CLAVE: Moodle; diario de evaluación; sistema electrónico; estudiante; evaluación; control.

Introduction

Monitoring and evaluating educational output is a system of planned activities that help to identify the level of knowledge and the formation of students' competencies. Control should be carried out both at the level of individual tasks and exercises, and after doing some module, according to the results of the semester, year. Control must meet the requirements of reliability and practicality. Reliability means obtaining logical results, their stability, reproducibility and independence from the subjective opinion of the reviewers.

The purpose of the article is to develop recommendations for results processing in Moodle electronic system.

Functionality is expressed in the maximum reduction of time for organizing and processing results. The basic requirements for control are: objectivity, regularity, clarity and accuracy of the tasks statement. Monitoring activity peculiarity consists not only in knowledge and skills development, but also in feedback implementation, which makes it possible for the teacher to receive information on the progress of the educational process, on the results of all students and each individual (Bulaeva, et al., 2018). To implement the data collection procedure, there are various platforms for organizing training and monitoring. The use of electronic resources occupies an important place in the educational process. Electronic

tools allow you to activate the student's cognitive activity, motivate him to fill in the knowledge gaps on time, as the assessment results appear automatically and the student can take appropriate measures to improve their own knowledge (Vaganova et al., 2019). Currently, electronic educational systems provide ample opportunities for training students. Moodle allows you to carry out an operational knowledge test, evaluate in a short time a large mass of students' work, carry out verification of theoretical materials, ensure objectivity of assessment.

One of the most popular electronic platforms in the modern educational system is Moodle, which provides tools for monitoring and evaluating the educational results of students that are adequate to innovative development.

With the growing popularity of electronic resources in the education system, distance learning, the requirements for Moodle are growing. The control of knowledge is becoming an increasingly complex procedure, therefore, a thorough in modern conditions analysis of the results processing process in the Moodle system is necessary.

Moodle Platform; includes: wiki; forums, blogs that allow you to make the assessment process faster, more objective, adequate to the tasks.

All grades that are set by the teacher in the framework of Moodle or are determined by the system itself are included in the gradebook, called Gradebook. It is available to students, but at the same time they cannot change it, do not have the ability to correct grades inside it, because they do not have access to this function.

In the journal, students' grades are calculated both for individual answers and for a semester. This system simplifies the assessment procedure, makes it more operational. Student activity on an electronic course is checked using the following accounting capabilities - activity completion, which means completion of an action and logs - journals that give the teacher the opportunity to obtain timely information about the student's work.

1. Theoretical framework

In the quality management system of e-learning, one of the most important indicators are indicators of the education content quality, educational technologies and its results. E-learning quality assurance is achieved through international management standards, which require regular self-assessment and external audit (Yarygin et al., 2019). These processes are

inextricably linked with the implementation of control in a separate electronic course. In pedagogical practice, great importance is given to the electronic environment, which creates optimal conditions for assessing knowledge (Kiseleva et al., 2019).

The assessment process aims not only to test the student's knowledge, skills, competencies, develop self-control skills, critical thinking of students, but also test the effectiveness of teaching (Pichugina & Bondarchuk, 2019). Consequently, assessment tools should check not only the level of students' mastering the teaching material, but also the level of teaching (Kidina, 2020). Therefore, nowadays scientists have identified two types of assessment: cumulative and formative (Bogdanova & Fedorova, 2020). The essence of the first is the accumulation of points by the student to obtain the final grade and accumulate achievements (Shcerbakova & Shcerbakova, 2019). The second is a mechanism that allows the teacher to gather information to improve teaching.

To make students accumulate points the teacher must develop a specific set of tasks (Demidov et al., 2016b). Points are cumulative (Demidov et al., 2016a). To complete the assignment, students must reach a predetermined level and receive an appropriate grade (Kharytonov et al., 2019). The following types of accumulative systems are distinguished: simple (all points are summed up, while the sum of points that must be achieved in order to obtain one or another assessment is known in advance) (Demidov et al., 2016b); accumulative system with weighted values (here different tasks have different weights and are accordingly evaluated differently (Ivanova & Korostelev, 2019); accumulative system (Vaganova et al., 2020), with weight factors and rating (the student's total of points is not comparable with different study periods (Nagovitsyn et al., 2020); allows (at the end of the reporting period) to compare the final estimates with each other for different periods (Tsarapkina et al., 2021).

Using Moodle provides a variety of ways to measure student learning, competency building. Evaluation is the result of the evaluation (Misakov et al, 2019). In Moodle, a teacher can not only evaluate students themselves, but also offer them self-assessment. The term "Rating" means rank, position in a row (Ponachugin & Lapygin, 2019). Ratings as the number of places in the scale is a reference set of options for the qualitative assessment of a given task (Rakhmangulova & Petrova, 2021). The Mark score is a numerical expression of the degree to which student achievement matches the benchmark. The scale is a reference gradation of

the measured characteristics. Calculation of the assessment is carried out related to various elements of the assessment (Pavlovych & Bilous, 2019).

One of the most common control methods is testing, which LMS Moodle allows to implement at a high level. Verification is carried out with the help of many tools that are improving every year. Testing in the electronic system allows you to see the results not only for teachers, but also for the students themselves.

2. Methodology

The article reveals the process of monitoring and evaluating students in LMS Moodle, and its capabilities are determined. The test is defined as one of the most frequently used tool in the students' educational activities control. Formulas for calculating the reliability of tests used to test student preparation are given. To carry out the assessment procedure, several formulas are used. Among them, we identified, firstly, the formula for calculating the average score of the subjects, and secondly, the formula for calculating the standard error. To obtain indicators for each course located on Moodle, special reports are developed. Work with the report is based on Microsoft Excel. The category of electronic courses in LMS Moodle is selected, the data is exported to Microsoft Excel. The problem is that all the comments that were noticed during the work and drawn up in the report, the teacher is not able to convey. And each time there should be a re-examination of electronic courses again. To correct this remark, as a type of module (plug-in) it is necessary to select a "block", which is a widget that is built into the page of the Moodle learning management system. In this case, re-checking of the courses is no longer relevant.

3. Results and discussion

The Moodle system has a modular architecture. The core of the system is surrounded by a large number of different plugins (blocks, reports, course modules). The electronic course in the system is presented as several sections containing text and a specific set of course elements (files, forums, tasks, tests, hyperlinks). The course of the educational process is fixed due to two pre-installed modules: task and test. The role of tasks is to organize review work, course projects, essays, where the answer is formed in the form of a file, followed by the assessment and review of the teacher. The testing module allows you to control

knowledge in the form of tests with various kinds of questions. To obtain indicators for each course, special reports are developed. Work with the report is presented as follows. The category of electronic courses in LMS Moodle is selected, the data is exported to Microsoft Excel. Next, Excel automatically detects comments. All additions to automatically detected comments are saved in Microsoft Excel. This system has an obvious flaw. All available add-ons are stored only in Excel, so the teacher does not have the ability to transfer this report and every time electronic courses must be re-checked again. To correct this remark, as a type of module (plug-in) it is necessary to select a "block", which is a widget that is built into the page of the Moodle learning management system (Aniskin et al., 2020). You can evaluate using the "rate" hyperlink. Icons are highlighted on the page with which you can understand whether the teacher made an assessment. This will allow you to save comments and more quickly correct them (Dobudko et al., 2019).

One of the most common forms of control in an electronic environment is a test. Moodle provides several types of questions: multiple choice; true/false; matching; short answers; numerical answers; calculated answers; embedded answers essay.

In order to carry out test control, the teacher fills in the fields in specially created forms for this, depending on the type of question used in the task. In order to enter a question, it is necessary to fill in the fields: the name of the question, its contents (to do this the use of an internal editor is provided, which allows you to format the text, insert lists, tables, necessary figures, provided that they are uploaded to the server), a picture for display (you can use any picture stored on the server), default score for the question, penalty (deduction of a certain number of points for incorrect answers), general comment (the teacher can provide an explanation for any question to make the students pass the test).

Note that Moodle makes it possible to create non-numeric rating scales. A student can get a grade not in the range from 1 to 100, but in the form of a word or phrase.

The most important advantage of the Moodle system is that Moodle provides built-in tools for processing test data. These tools are constantly evolving, undergoing changes, and the possibilities of monitoring and evaluation are increasing.

The first group includes the entire test, and the second contains separate questions or a group of questions. The average grade of the subjects is the arithmetic average of the grades

of all students who completed the test. *Ts* is the grade for the test of the *S*-th student, the median is the median value of the marks of the subjects *Ts*.

$$\overline{T} = \frac{1}{S} \sum_{s \in S} T_s$$

A median is a grade in the middle of a list of grades sorted in ascending or descending order that are set for the test. The possibilities of the median is that it allows you to compare students and highlight the "strong" and "weak".

A generally accepted measure of variation in student grades per test (for a particular group of students) is the standard deviation of grades for the test. Its purpose is to characterize the differentiating ability of the test (this deviation shows the ability of the test to divide the subjects in terms of training.

The standard deviation indicates "strong" and "weak" students, if the test is high, then the deviation is not more than 30%.

Kurtosis asymmetry coefficients are measures that show the difference in the distribution form of test scores received by students from the normal distribution.

The reliability coefficient of the test in Moodle can be identified by determining the scatter of the results of each student who performed the test when answering questions. The smaller the given scatter of the results of each individual student with respect to the scatter of the total grades for the test, the questions are considered more consistent (Eremina & Pimukova, 2014). The calculation of the standard error is made according to the formula:

$$SE = \frac{ER}{100} SD$$

Calculation of standard error allows you to evaluate the factor of luck and set the margin of error for the student's grades for the test (Eremina & Pimukova, 2014).

If the standard error was 10% and the student received 60% of the maximum mark, in this case, his true mark will range between 50% and 70%.

The randomness indicator shows whether the student performed the test, being aware of his own activity, determines his preparedness, whether the student has real knowledge, or the fact of a good choice prevails in his work.

Moodle supports automatic processing of test results. To enter its statistics, you should go to the "Navigation" block, open the course section tab where the test is located, open the test tab, the results and select the "Statistics" item.

Grade calculations in Moodle are done according to the formula / function templates of popular spreadsheet programs. The creation of formulae should begin by assigning special identifiers to the valuation elements. Let A1 be the identifier of the evaluation element. [[A1]] is the value of the assessment element in the calculations in the final grade for the course (Sergienko, 2015). A1 is the maximum score for the evaluation element A1. The formula is written in the "calculation" field of the window and starts with an equal sign (=) and uses general mathematical operations and functions to form a single numerical result. This result can be edited. Only identifiers, standard arithmetic operations (+, -, *, /, ()), as well as standard functions built into the Moodle system should be used in formulae. Among the most frequently used functions, we single out: sum ([[tl]]; [[t2]]; ...) – the sum of the values of the arguments; average ([[tl]]; [[t2]]; ...) – the average value of the arguments; max ([[[tl]]; [[t2]]; ...) – the maximum value of the arguments; min ([[[tl]]; [[t2]]; ...) – the minimum value of the arguments; round (number, count) – this function allows you to round a number to the specified accuracy.

The standard calculation formulae have limited use and do not reflect the logical relationships of the valuation elements. Imagine that an electronic course contains three active elements (the maximum and minimum passing points are known). The final grade for the course in Moodle is calculated as the sum of the points, but with the condition that all the grade points are completed for a specific grade. In more complex conditions, evaluation in Moodle is done by creating subcategories (combining several active rating elements into one category). In this case, a generalized calculated value is used.

In the Grade Journal in editing mode, users with the appropriate authority have the ability to edit grades. The journal records the results of current student performance. Its elements can be created both manually and automatically. Manually, they are created on the "Grade Log Settings" page. As soon as the estimated interactive action is added to the journal, a space is created automatically for the marks that will be put down after the students complete the tasks, manually or by the system. Figure 1 shows a fragment of the log settings.

Fig. 1. Setting up the Moodle Course Grade Log

Creation of the desired gradebook structure on the course is performed using the item "gradebook setup" located in the "settings", "course control" block.

The journal reflects the three constructed blocks of the assessment journal "assessment element", "category", "assessment". An assessment element is an interactive action (section of a course) in which its participants receive assessments.

Rating categories are called tables, united by meaningful meaning.

Grade Journal allows you to distribute the list of students by last name, view grades of individual students (their names are links), export grades to an Excel spreadsheet file or text file, and distribute the list in ascending or descending order. To make the system evaluate the student's work correctly, it is important to set parameters.

To view the detailed table with grades for each element of the course, you must follow the link "without category", which leads to a summary table. On the "Settings" tab, you can work on the formation of the rating log, set the appropriate parameters. The function "Hide advanced settings" makes it possible to reset the set parameters (for example, weight or category). Weight is the importance used in calculating the score. Just a weighted value is the weight of an individual assessment, which is taken as equal to the maximum score for a

certain type of work. Using the "Advanced Settings" tab, additional settings are turned on or off, which reflect scores and the final rating without categories. The Show External Amounts tab allows you to determine whether external estimates will be shown.

If the course contains a large number of evaluated elements, you need to group them for each individual topic on the "set categories" page.

Moodle provides an opportunity to evaluate not only the teachers, but also the students themselves. However, this action is performed using the "Seminar" module, which allows students to evaluate and organize the quality of correspondence of forums entered in the glossary and recording database.

To set the final grade, you need to configure the formula for its calculation. It is important to set the identifier in the "ID value" section in the "Category total" field of the "Usp" performance category (the name of the variable may be different, but using valid characters (Latin letters, numbers, hyphens and underscores). After clicking "Add ID" identifier will appear on the page.

We would like to note that LMS Moodle provides built-in elements that allow you to monitor the results of the educational process. However, it is worth saying that obtaining reliable and up-to-date data on the effectiveness of e-learning use at the level of one teacher or student using standard Moodle functions is difficult. To do this, you need a set of tools that extends the standard functionality of Moodle, which includes additional services for obtaining operational information.

The monitoring complex should consist of several services, access to which is determined by the functions of the user in the system. Services allow you to monitor the "activity" of users. The number of active users is based on the minimum number of actions existing in the report settings. The share of active users is the ratio of the registered users' number in the system to the number of active users.

To generate a report, the service downloads data from the activity log: the name of the electronic educational complex; surname, name, patronymic of the participant; number of participants in the course; number of active students; the number of student activities for viewing content; the number of students' content creation activities; the number of students' completing assignments activities.

Conclusions

LMS Moodle greatly simplifies the process of evaluating student performance. Testing in Moodle today allows you to evaluate the students' knowledge in an unbiased manner. The formulae presented in the article explain the credibility of the results processing procedure. The tools provided by Moodle allow you to evaluate the results at a high level, which ensures that students fill the gaps in their own knowledge on time. The above calculations for evaluating the students' work with Moodle show the assessment procedure, its main aspects. The data highlighted by us can be used by teachers to understand the essence of the Moodle system work in the assessment procedure and to build their own training courses to work with students more effectively.

References

Aniskin, V. N., Korostelev, A. A., Lvovna, B. A., Kurochkin, A. V., & Sobakina, T. G. (2020). Teaching potential of integrated learning technologies Smart, Stem and Steam. Revista De La Universidad Del Zulia, 11(29), 328-336.

Bulaeva, M. N., Vaganova, O. I., Koldina, M. I., Lapshova, A. V., Khizhnyi, A.V. (2018). Preparation of Bachelors of Professional Training Using MOODLE. Advances in intelligent systems and computing, 622, Pp. 406-411.

Bogdanova A.N., & Fedorova G.A. (2020). The use of interactive surveys in lectures on the discipline "information and communication technologies and media information literacy". Bulletin of the Siberian Institute of Business and Information Technologies, (1 (33)), 4-9.

Dobudko T.V., Korostelev A.A., Gorbatov S.V., Kurochkin A.V., Akhmetov L.G. (2019). The organization of the university educational process in terms of digitalization of education. Humanities and Social Sciences Reviews. 7(4), Pp. 1148–1154.

Demidov, A.A. Tretyakov A.L. (2016a). A network model of centers for ethical and legal education and civil-patriotic education and media education centers based on school libraries: the need to create, opportunities and real prospects. Media Education (Mediaobrazovanie). 3. Pp. 16-22.

Demidov, A.A., Tretyakov, A.L. (2016b) Centers for ethical and legal information and media education based on the school library - an innovation in the implementation of the Federal State Educational Standard and infrastructure for the development of information and legal culture of children and youth. Media Education (Mediaobrazovanie). 2. Pp. 21-33.

Eremina I.I., & Pimukova L.A. (2014). Mathematical model of experimental testing of the diagnostic program for the formation of information, communication and professional

competence of future IT professionals. Bulletin of Kazan Technological University, 17(4), 290-295. https://www.elibrary.ru/item.asp?id=21298223

Ivanova, N., & Korostelev, A. (2019). The impact of competitive approach on students' motivation in sport. Amazonia Investiga, 8(18), 483-490. Retrieved from https://amazoniainvestiga.info/index.php/amazonia/article/view/362

Kidina l. M. (2020). Management of the pedagogical collective in the conditions of implementing distance learning. Baltic Humanitarian Journal. (Baltic Humanitarian Journal). Vol. 9 No 4 (33), Pp. 93-96.

Kharytonov, E., Kharytonova, O., Tolmachevska, Y., Fasii, B., & Tkalych, M. (2019). Information Security and Means of Its Legal Support. Amazonia Investiga, 8(19), 255-265. https://amazoniainvestiga.info/index.php/amazonia/article/view/227

Kiseleva, O., Lebedev, A., Pinkovetskaia, I., Rojas-Bahamón, M., & Arbeláez Campillo, D. (2019). Specialization and concentration of small and medium enterprises employees: Russian data. Amazonia Investiga, 8(20), 6-15. https://amazoniainvestiga.info/index.php/amazonia/article/view/59

Misakov, V., Tsurova, L., Yandarbayeva, L., Tkhamadokova, I., & Gapurovna, G. (2019). Certification of A Regional Economic Complex as A Highly Effective Tool for analysis and diagnostics of its development. Amazonia Investiga, 8(20), 451-458. https://amazoniainvestiga.info/index.php/amazonia/article/view/174

Nagovitsyn, R. S., Vaganova, O. I., Kutepov, M. M., M. L. N., Kosenovich, O. V, Moeseev, Yu. V., Vorotova, M. S., & Osipov, A. Y. (2020). Interactive Technologies in Developing Student's Motivation in Physical Education and Sport. International Journal of Applied Exercise Physiology, 9(6), 78-85.

Pavlovych L.B., & Bilous I.I. (2019). Features of distance learning system moodle. Sciences of Europe, (39-4 (39)), 11-13.

Pichugina, G.A., & Bondarchuk, A.I. (2019). Structure of the training case in the organization of the educational process. humanitarian balkan research. Vol. 2, no. 4, pp. 5-7.

Ponachugin, A.V., & Lapygin, Yu.N. (2019). Digital Educational Resources of the University: Design, Analysis and Expertise. Vestnik of Minin University, 7(2), 5. (in Russ)

Rakhmangulova R. Sh., & Petrova Ju. K. (2021). Creating an electronic course in Moodle. Problems of modern science and education, (1 (158)), 6-8.

Sergienko T.A. (2015). Methods for calculating the final evaluation for the course in organizing the educational process using LMS MOODLE. Materials of the II All-Russian Scientific and Practical Conference, 118-122.

Shcerbakova E.V., & Shcerbakova T. N. (2019). Experience of Use of Remote Computer Technologies at The Organization of Independent Work of Students in The Conditions of A

Mark and rating system. Baltic Humanitarian Journal. (Baltic Humanitarian Journal). Vol. 8, No 4 (29), Pp. 192-195.

Tsarapkina, J. M., Plahina, L. N., Konoplyuk, N. V., Vaganova, O. I., & Lapshova, A. V. (2021). The formation of bachelors' digital competencies at the university. Propositos y representaciones, 9, № SI, Article number e811.

Vaganova, O.I., Korostelev, A.A., Smirnova, Z.V., Abramova, N.S., Dolmatov, S.N. (2019). Improving teachers' professionalism through the development of creativity. International Journal of Innovative Technology and Exploring Engineering, 2019, 8(8), Pp. 630–634.

Yarygin O.N., Korostelev A.A., Akhmetov, L.G., & Maseleno, A. (2019). Modeling of competence as a tool of goal setting for education in modern society. International Journal of Recent Technology and Engineering, 7(6), Pp. 72–77.

Efficiency of the project method in the development of professional competencies in future teachers

Halyna A. Rusyn*
Viktoriia V. Stynska **
Liudmyla O. Matsuk***
Yevheniia Y. Korostelova****
Serhii P. Stetsyk*****

ABSTRACT

The objective is to study the effectiveness of the project method in the formation of professional competencies of future employees in the field of education. Methods: surveys and questionnaires, methods of remote collection and processing of information (GOOGLE Forms) the main methods used in the study were the method of questionnaires, the method of synthesis and analysis, the method of expert evaluations. The chi-square criterion, the feature combination criterion, and Pearson's correlation coefficient were used to calculate the results of the study. Results: The results of the study showed high indicators of the level of formation of students' subjectivity when using the project method in both the main and control groups. The introduction of the project method has an unconditional favourable effect in the process of forming the professional competencies of future teachers. Together with traditional teaching methods, the project method is an effective tool for training future teachers. It is stated that the reliability of the obtained results is proved by the chi-square criterion. Its level is 0.01, on the basis of which it can be concluded that the proposed model is appropriate. Conclusion: Thus, after the analysis of the obtained results, the expediency of applying the project method in the training of future teachers was established.

KEYWORDS: project method; professional competencies; development of competencies; pedagogical education; modern education.

*Department of Pedagogy of Primary Education, Vasyl Stefanyk Precarpathian National University, Ivano-Frankivsk, Ukraine. ORCID: https://orcid.org/0000-0001-9601-5466. E-mail: hrusyn643@gmail.com

** Department of Pedagogy and Educational Management after Bohdan Stuparyk, Vasyl Stefanyk Precarpathian National University, Ivano-Frankivsk, Ukraine. ORCID: https://orcid.org/0000-0003-0555-3205. E-mail: viktoriya.stynska1984@pnu.edu.ua

***Department of Theory and Methods of Preschool and Special Education, Faculty of Pedagogy, Vasyl Stefanyk Precarpathian National University, Ivano-Frankivsk, Ukraine. ORCID: https://orcid.org/0000-0003-0472-6813. E-mail: plo4547@ukr.net

****Department of Theory and Methods of Teaching Physics and Astronomy, Faculty of Physics and Mathematics, National Pedagogical Dragomanov University, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0001-8355-9122. E-mail: 502fizykaa@gmail.com

*****Department of Theory and Methods of Teaching Physics and Astronomy, Faculty of Physics and Mathematics, National Pedagogical Dragomanov University, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0002-5668-6182. E-mail: serhiistet@gmail.com

Eficiencia del método de proyecto en el desarrollo de competencias profesionales en futuros profesores

ABSTRACT

El objetivo es estudiar la efectividad del método de proyectos en la formación de competencias profesionales de los futuros empleados en el campo de la educación. Métodos: encuestas y cuestionarios, métodos de recolección remota y procesamiento de información (GOOGLE Forms), los principales métodos utilizados en el estudio fueron el método de cuestionarios, el método de síntesis y análisis, el método de evaluaciones de expertos. El criterio de chi-cuadrado, el criterio de combinación de características y el coeficiente de correlación de Pearson se utilizaron para calcular los resultados del estudio. Resultados: Los resultados del estudio arrojaron altos indicadores del nivel de formación de la subjetividad de los estudiantes al utilizar el método de proyectos tanto en el grupo principal como en el de control. La introducción del método de proyectos tiene un efecto favorable incondicional en el proceso de formación de las competencias profesionales de los futuros profesores. Junto con los métodos de enseñanza tradicionales, el método de proyectos es una herramienta eficaz para la formación de futuros profesores. Afirmamos que la fiabilidad de los resultados obtenidos se prueba mediante el criterio de chi-cuadrado. Su nivel es 0.01, en base a lo cual podemos concluir que el modelo propuesto es apropiado. Conclusión: Así, luego del análisis de los resultados obtenidos, se estableció la conveniencia de aplicar el método de proyectos en la formación de futuros docentes.

PALABRAS CLAVE: método de proyecto; competencias profesionales; desarrollo de competencias; educación pedagógica; educación moderna.

Introduction

The relevance of the study is due to the transition of the country's economy to an innovative path of development. Strategic tasks of modernization of the system of vocational education and development of human resources include the priority task of formation of competences of innovative activity in university graduates. This ability and readiness for continuing education should be the key to the formation of professional competencies. Systematic self-improvement, professional mobility, the ability to think critically, creativity, entrepreneurship, the ability to work independently, willingness to work in a team and a highly competitive environment should be the competencies that distinguish a true professional. The success of the introduction of innovations in education largely depends on the readiness of teachers (Ismailova et al., 2020c). New conditions, updated content of

education, innovative forms and methods of teaching, growing demands on the quality of knowledge, complicated forms of organisation of classes — all this inevitably requires and entails increasing professional competence and forming the readiness of future teachers for their professional activities (Ismailova et al., 2020a).

Competentia (Latin) is a range of issues which a person knows well, has expertise and experience. A person competent in a certain field has special knowledge and abilities that allow him/her to reasonably judge this area and act effectively in it. The professional competencies are developed through the content of education, which includes not only the list of subjects, but also professional skills and abilities that are developed in the course of mastering the subject, as well as through active student position in various spheres of life (Ismailova et al., 2020a).

It is impossible to achieve a new quality of education (new educational outcomes that meet the needs of society) by increasing the amount of knowledge and even by changing the content of knowledge in certain subjects. Another way is to change the nature of the connections and relationships between the subjects and to change the nature of the connections and relationships between the participants in the learning process itself. The development of competencies is inextricably linked to the experience of successful activities. Therefore, it is advisable to organise learning and research work of students, the use of business, role-playing, simulation games in the creative independent work of students (Lee et al., 2021).

There following abilities are of great importance for future teachers: the ability to search, analyse, interpret scientific information and adapt it to their teaching activities, use professional databases; apply the achievements of domestic and foreign science and educational practice in their teaching activities; organise research and project activities of students; knowledge of legal, psychological, pedagogical, project, methodical, organisational and managerial means of conducting research; mastery of scientific and professional oral and written communication techniques (Khimmataliev et al., 2021a). The organisation of research, creative and independent activities of students in specialized subjects, elective subjects can facilitate the acquisition of these skills and abilities (Ellingsen, et al., 2021).

Research activity ranks one of the first both in-class and out of it, it is attributed to learning technology. It promotes the development of critical thinking, creative and communicative abilities of the individual, the ability to set goals and determine ways to

implement them. Students are engaged in research activities in the course of the project implementation within a particular subject (Bazeliuk et al., 2018).

The project method is the main modern method of teaching. The project method and its elements are an effective interactive teaching method. Interactive teaching methods are understood as all types of activities that require a creative approach to the material and provide conditions for the fulfilment of each student's potential. Interactive ("inter" is mutual, "act" is to act) means to interact, to carry on a conversation, dialogue with anyone. In contrast to active methods, interactive ones are focused on the wider interaction of students not only with the teacher, but also with each other and on the dominance of student activity in the learning process (Záhorec et al., 2020).

The project method involves solving a particular problem, and leads to a specific practical or theoretically significant result, the product. The project method involves the use of a combination of different teaching methods and tools, as well as combining knowledge and skills from different fields of science, creativity, engineering and technology. A completely natural integration is achieved. But the project method is also aimed at acquiring new knowledge in the course of research (Flores-Lueg & Roig-Vila, 2019).

The project method is always focused on the independent activities of students: individual, pair, group, which they perform over a period of time. Students single out a significant research problem or assignment that requires complex knowledge, research; advancing and testing the hypothesis for its solution/completion. Students enter the discussion; collect, arrange and analyse the obtained results, discuss research methods, draw conclusions, put forward new research problems, choose the form of presentation of results (Varela-Ordorica & Valenzuela-González, 2020).

Project activity becomes more important in the course of professional development of future teachers due to the mastery of active ways of action, their acquisition of not only personal qualities such as independence, focus, but also planning skills: goal setting, reflection, control and evaluation of their own activities. For a project to be successful, the group must have a positive relationship between students (Pérez-Ordás et al., 2021). These are just those personal qualities which make the successful implementation of the project possible and which need to be developed: mutual understanding, mutual respect, mutual assistance, cooperation, responsibility.

When considering the main components of the concept of "project activity" in psychological and pedagogical science, Postholm (2016) concludes that participation in projects develops research and creative competencies of the individual — the ability to self-determination and goal setting, orientation in the information space. Admiraal and Hoeksma (2011) draw attention to the fact that student involvement in project activities allows establishing an active and independent position that will promote further self-development.

Other personal qualities that are developed when using the project method include: the ability to work in a team, respect for the honour and dignity of the individual, a tolerant attitude to social, ethnic, religious and cultural differences; goal setting skills; the ability to take responsibility for the result of the completed assignment. So, personal qualities are the essence of the general cultural competencies of the future teacher (Bavčević et al., 2018). As a result of working on the project, the student shall master such skills as formulating a scientific problem; adequate selection of tools and methods for competing the assignments; use of different methods to collect information; mastery of techniques for processing results and their interpretation; drawing substantiated conclusions based on research results and their presentation (Cebrián et al., 2020).

The initial level of training should rather maintain a disciplinary structure, while knowledge and skills will also be assessed according to the descriptors of competencies at the level of subjects. Today's popular tests, cases and assignments are more suitable for this level as assessment tools. But the principles of gradual formation of competencies and independence of assessment should be traced here as well. Therefore, teachers of the second level of education should assess knowledge and skills, and also participate in the development of assessment materials. After all, in fact, they are "orderers" of the knowledge and skills that will be needed for training at the next level, including for the development of educational and proto-professional projects. Otherwise, the level of students' skills necessary for project development will be insufficient, those skills shall be formed during the study of previous subjects (Table 1).

The aim of the article is to study the theoretical and practical aspects of the effectiveness of the project method in the development of professional competencies in future teachers. The aim involved the following research objectives:

1. Research of educational practices of application of the project method.

2. Research of efficiency of the project method in the development of professional qualities in future teachers.

Table 1. The main elements of the system of training and assessment of competencies

Levels by type of training	Subject of assessment	Assessment tools	Forms of assessment	Persons to be assessed
Disciplinary	Knowledge, skills, abilities in accordance with the descriptors of competencies	Tests, practical assignments	Traditional	Second-level teachers
Modular and project	Indicators of achievement of competencies	Educational projects + interdisciplinary exam	Score and rating	Third-level teachers
Professional and project	Professional competencies	Professional projects	Need further research; formalised results are not reflected in the graduate's documents now	Employers

Source: Ellingsen et al. (2021).

1. Literature review

Mastering the technology of project activities also affects the motivation of future teachers: to solve a specific problem they have to gain knowledge; besides, project activities allow revealing their creative potential. Project work allows students to combine theoretical knowledge with practice, and creativity — with research. Creative self-fulfilment, which is facilitated by the assignment, finds personal meaning for students. Çetin (2021) understands project activity as a form of learning, notes its main indicators, such as the psychological new formations that are developed at a certain age, accounting for leading activities of a certain age, spontaneity or purposefulness of content and methods of leading activities, their relationship with other activities, a system of methods to determine the levels of relevant new formations, the nature of the relationship of these levels with the ways of organising leading activities and other related activities.

Examining the project characteristics, Pöntinen and Räty-Záborszky (2020) note its distinctive feature from "pseudo-project", specifying that the need to choose a project as a form of activity arises when its participants are aware of the need for something, and those who have this need do not know what exactly they need to do and how, therefore, the scholars understand the project as a special way of setting and solving problems (Ismailova et al., 2020d). According to psychologists, the main mental new formations of adolescence are cognitive changes, the desire to organise educational and professional activities, the process of building self-awareness and building relationships with others (Hüttel & Gnaur, 2017).

The studies of Bernate and Vargas (2020) deal with the emergence of an individual style of mental activity, and the possibility of intellectual advancement of the individual is provided through the development of learning skills in organising work with educational and scientific literature, formal and logical operations. Shuhailo and Derkach (2021) consider the project training for engineering students majoring in Textile Technology and Design. In the works of Fomina et al. (2020), interactive learning is considered as a means of developing professional competencies in the context of digitalisation of education. Requies et al. (2018) consider the evolution of project-based learning in small groups in Environmental Engineering courses. The article by Sadrina et al. (2018) examines project-based learning assessment in Malaysia.

Silva et al. (2018) consider joint learning involving projects focused on sustainable development. In their article, Khimmataliev et al. (2021b) consider the case-study method in training of students. Ismailova et al. (2020d) focus in their work on the development of students' learning activities in the context of educational mobilisation. Ismailova et al. (2020b) consider an integrative approach to designing the content of vocational secondary education.

2. Methods

Research papers which revealed the pedagogical potential of project activities were the theoretical and methodological background of the study. The works of Ellingsen et al. (2021) deal with the forms of project activity. Methods used in the study: generalisation, analysis and synthesis of information, comparison, survey, Delphi technique. Having

analysed the research of foreign and Ukrainian authors, we revealed the essence, purpose of project activity, the forms of project activity which can be applied in pedagogical higher educational institutions (HEIs) and develop personal and professional qualities of future teachers. The methodological background of the study are the ideas of developmental learning, on the basis of which the project activities of future teachers are considered as a form of learning; activity approach aimed at developing the abilities, personality traits necessary for the implementation of project activities.

The summative stage involved the theoretical analysis of students' features acquired after work on educational projects on the major. Based on the information presented in 42 features and the assessments given to future teachers, the peculiarities have been identified that are of great importance in the study (Ellingsen et al., 2021).

2.1. Objectives

To experimentally test the effectiveness of the project method of developing the professional competencies in future teachers.

2.2. Sample

Active and purposeful intervention in the educational process through the implementation of the developed model, creating special controlled conditions for its implementation, recording changes in the properties or qualities of the considered objects determines the applied method of empirical research, such as pedagogical experiment. The experiment is carried out within the real pedagogical process, so it belongs to the natural type of experiments. It should be noted that the experimental work involved 378 students, which corresponds to the term "research work". The participants of the experiment were selected from among the students of pedagogical faculties from 2 to 5 years of study of Borys Grinchenko Kyiv University, which allowed to obtain objective and reliable results of the study. The study was conducted through a survey (Sugiyono, 2018) using Google Forms.

2.3. Methods

1. The chi-squared test was calculated by the formula:

$$x^2 = (f_1 - f_2)^2/(f_1 + f_2) \tag{1}$$

where f_1 i f_2 — the frequencies of the compared samples.

2. The contingency test if related with chi-squared test the following way:

$$C = \sqrt{\frac{x^2}{x^2+n}} \qquad (2)$$

3. Pearson's correlation coefficient is found using the formula:

$$r_{xy} = \frac{\sum (x_i - \ddot{x}) * (y_i - \dot{y})}{\sqrt{\sum (x_i - \ddot{x})^2 * \sum (y_i - \dot{y})^2}} \qquad (3)$$

where x_i — the value of variable X; y_i — the value of variable Y; $\ddot{x}$ — mean for the variable X; $\dot{y}$ — mean for the variable Y.

2.4. Instruments

Google Forms were used for the survey. Data entry and processing was performed using SPSS Statistics 16.0. All data are given in absolute (number of choice of answers) and relative (% of the number of respondents) values.

3. Results

Most of the future teachers (71%) during the implementation of educational projects were not able to quickly solve problems using equipment and software that was not studied in the HEI, more than half of students (57%) had difficulties communicating with each other, could not work well in a team. On average, the quality of students' professional knowledge and skills was rated at 3.7 on a five-point scale.

During the conversation with the teachers who supervised educational projects and with senior students, it was established that the new environment caused by change of the team, duties, means and technologies of activity in the course of independent work, caused a lot of difficulties for students. According to the students, they felt "ashamed", "afraid of making a mistake or not being competent enough", "could not formulate their problems", "did not know where to get the necessary information", "could not deal with unfamiliar software", etc.

The summative stage involved a survey of second-year students. The questionnaire includes to identify the reasons for the choice of future teachers of the educational institution

and major, questions related to students' understanding of the phrase "project method" and the qualities that a successful specialist needs, as well as questions aimed at understanding the features of professional activities of teachers. The results of the questionnaires and additional clarifying interviews show that the majority of respondents who became students of the HEI did not focus on their own desires and abilities, but made a choice under the influence of parents and friends. The percentage of students who have formed a stable interest in the chosen profession by their age was only 9-15%.

A group of independent and competent experts, consisting of teachers, supervisors that participated in the experiment, were involved to objectively evaluate the results of the study. At the summative stage of the research, the levels of the subjectivity of future teachers and their professional competencies were determined. Figure 1 presents the identified levels of subjectivity.
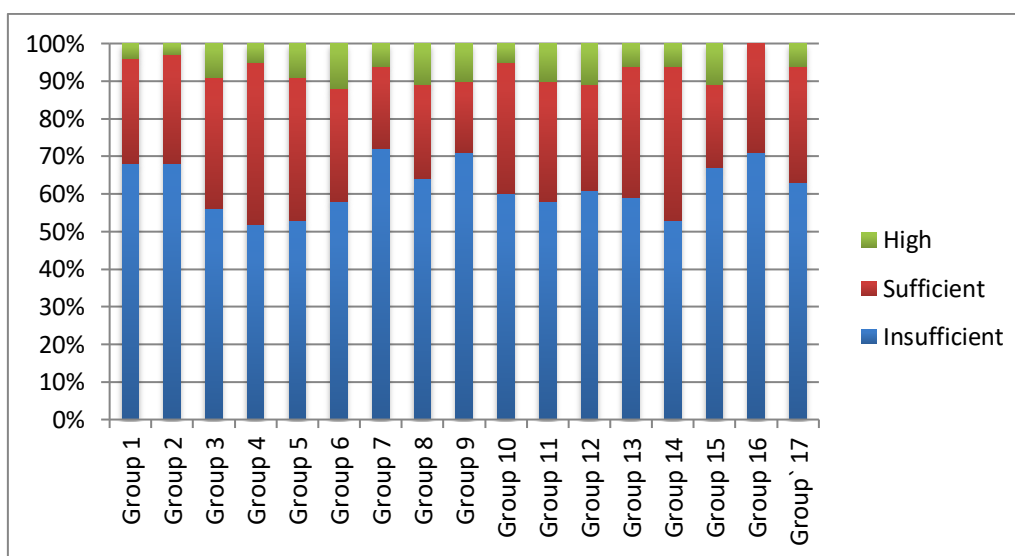
Figure 1. The results for the subjectivity level of future teachers (zero slice), %

The comparison of the data of control and experimental groups gave the following results, corresponding to the level of statistical significance equal to 0.10 (Figure 2).

The obtained results indicate the absence of significant differences in the subjectivity levels of students in the control and experimental groups at zero slice. The data obtained at the zero slice show that most students have a low subjectivity level of personality. In addition to the level of subjectivity of students, it is important for the study to establish the initial level of elements of professional competencies in students of the studied groups. Here we are consciously talking about the elements, as in the second year future teachers do not yet have

a sufficient level of professional knowledge and skills, as well as a positive experience of their manifestation, which describes professional competence (Figure 3).
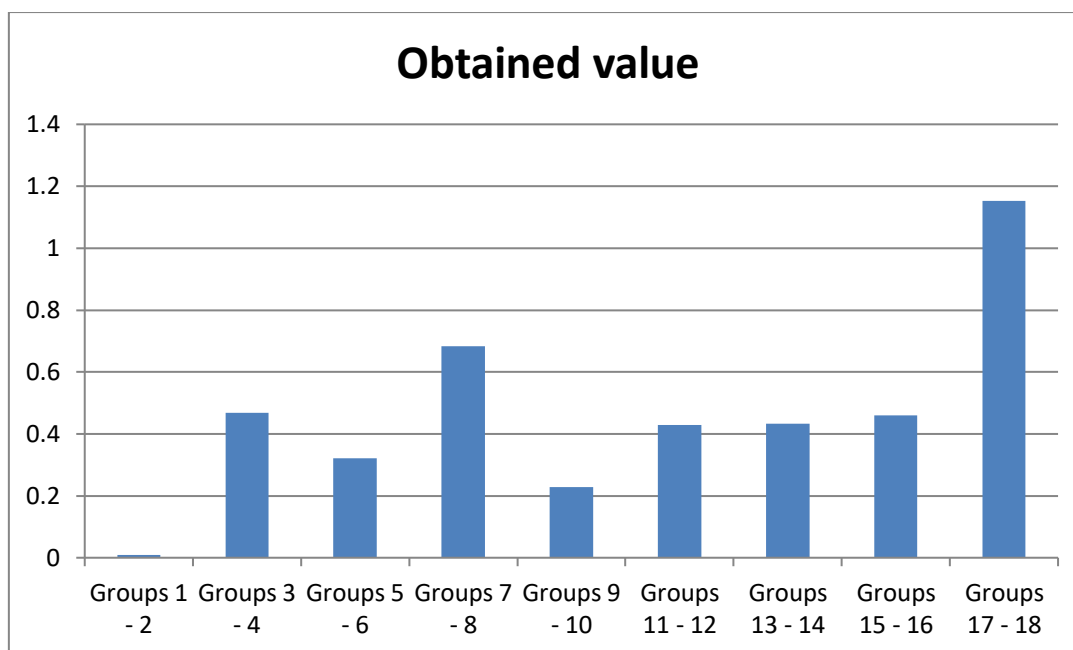
Figure 2. Empirical values of χ^2 of the control and experimental groups
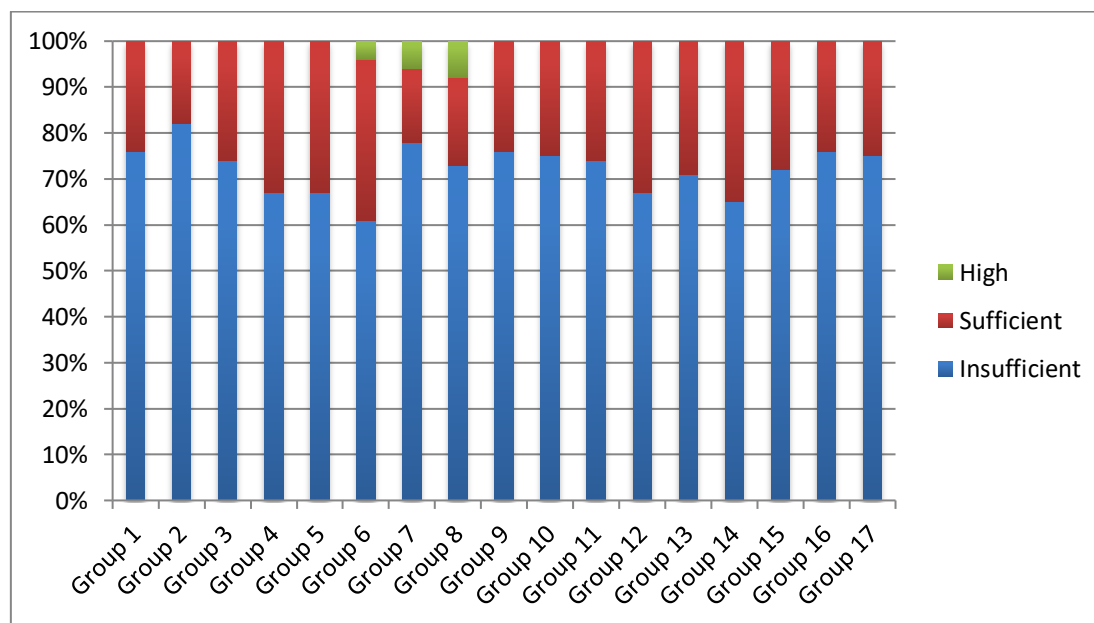
Figure 3. The results for the level of professional mobility in future teachers

When comparing the data of control and experimental groups, we obtained the following results corresponding to the level of statistical significance equal to 0.10 (Figure 4).

The obtained empirical values of χ2 indicate the absence of significant differences in the levels of professional competencies in students of control and experimental groups.
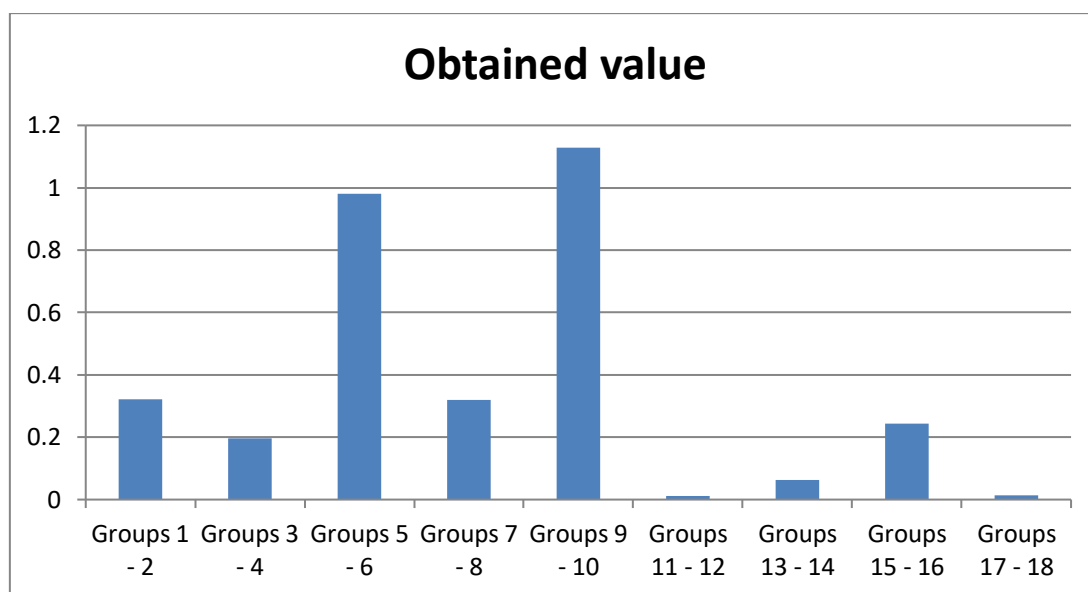
Figure 4. Empirical values of χ^2 of control and experimental groups

Pearson's correlation coefficient was used to measure the strength and direction of the relationship between the levels of subjectivity and professional competence. At the summative stage, the values of correlation coefficients r were obtained, which indicate positive relationships between the students' subjectivity and their professional competencies (Figure 5). The values obtained demonstrate a positive relationship between the subjectivity levels of students and their professional competencies in all studied groups.
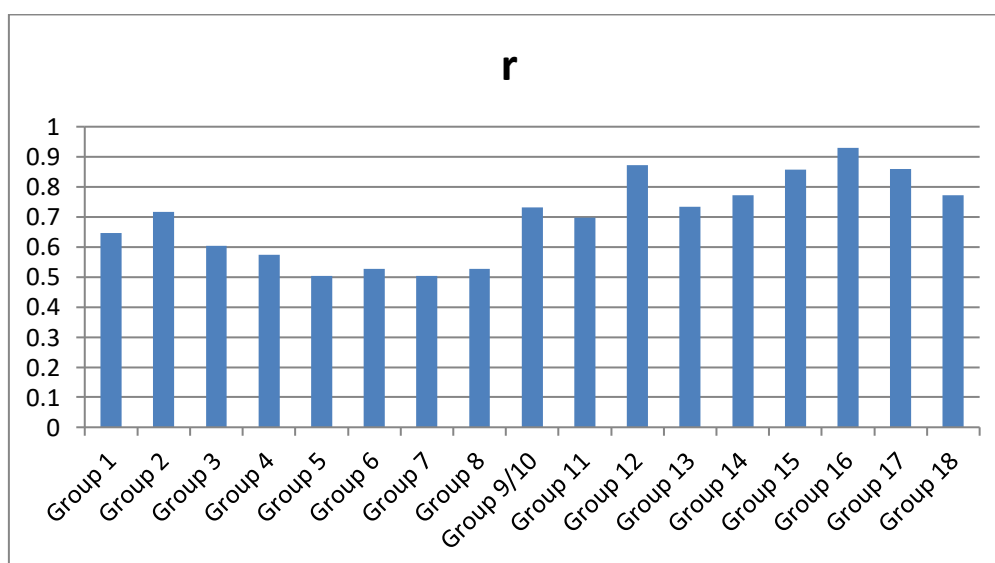
Figure 5. Empirical values of Pearson's correlation coefficient (r)

The results of the diagnostic slice show a mostly low level of professional competencies in students of control and experimental groups. The need to study the identified problem is confirmed by the need to practice. Thus, according to the results of surveys conducted as part of the summative stage of the experiment, the importance of professional competence for future teachers is perceived by the majority of respondents (about 94%). Unanimity was also expressed on the following:

1) the need to show professional competencies in future teachers appears already in the period of practice in the specialty, organized on the basis of educational institutions;

2) the educational process of HEIs allows, without making significant changes in it, accumulating subjective experience of educational activities of future teachers as a factor in the development of their professional competencies (98% of respondents);

3) insufficient attention is paid to the development of professional competencies in the process of training future teachers (82% of respondents);

4) teachers involved in the training of future teachers would contribute to the development of professional competencies in students through the introduction of the project method, if they had developed and scientifically sound technologies (98% of respondents).

So, the summative stage of the study provided data on the low level of professional competencies and subjectivity in future teachers, and identified the reasons why these levels were insufficient:

1) insufficient focus on the future profession, lack of clear ideas about the features of future professional activity;

2) lack of clear ideas about the place of competencies in future professional activities;

3) insufficient level of self-organization and self-education skills;

4) lack of communicative experience due to interaction with various subjects of the educational process;

5) lack of experience in learning information on the subjects not provided for in the curricula;

6) the lack of systemic and purposeful work on the development of professional competencies of future teachers in-class, in extracurricular activities, in independent activities of students.

The obtained results give grounds for the conclusion about the reasonability of making changes in the pedagogical process in order to develop professional competencies in future teachers.

The following scheme (Table 2) was chosen to test the effectiveness of certain pedagogical conditions for the effective implementation of the project method, taking into account the available capabilities of the pedagogical process.

Table 2. The scheme of checking the effectiveness of the proposed pedagogical conditions and their complex

Group	1	2	3	4	5	6	7	8	9
Conditions	1+2	1+3	1+2+3	1	1	2	3	1+2+3	2+3

According to the selected goals, the main objectives of the stage are:

1) determination of the direction of training of experts on general didactic and private methodical principles taking into account the purposes of a stage;

2) arrangement of the training conditions promoting effective subjective experience of educational and project activity of students;

3) training of specialists, which ensures the development of students' value attitude to active, independent educational and project activities as a prerequisite of success in future professional activities, organisation of students' mastery of educational and professional activities, development of skills of independent educational and project activities of future teachers;

4) Determining the levels of subjectivity and professional competencies of future teachers at the end of the adaptation and motivational stage (at the end of the first year of study);

5) Analysis of the results obtained in order to organise and implement corrective measures.

The adaptation and motivational stage is characterised to a greater extent by the subject—object relationship between teacher and student.

Therefore, in the first years of study teachers play the role of mentors, teaching general subjects and carrying out activities aimed at developing the experience of educational and project activities and elements of subjective experience.

This leads to the use of the following methods in this period: persuasive conversations, persuasive demonstrations, excursions, observations, exercises (practical assignments), discussions and educational aids: visual (including videos), public resources. During the first stage of the development of professional competencies the teachers should provide comprehensive assistance to students in effective adaptation to the educational process, provide assistance in creating the prerequisites for the ability to organise students' independent effective educational and professional activities.

The result of the adaptation and motivational stage is:

1) students' understanding of the content of future professional activity, awareness of the importance of active, independent educational and project activities;

2) mastering of methods of educational and professional activity by students;

3) experience of independent educational and project activity of students;

4) identification of the level of subjectivity and professional competencies of future teachers at the end of the adaptation and motivational stage;

5) corrective measures taken.

The traditional education system is focused on mastering the mandatory minimum content presented in state educational standards. Within this content, students majoring in pedagogy master classical methodologies, approaches to curriculum development, classical teaching methods, technologies of organisation of interaction between participants of the educational process, etc.

4. Discussions

Thus, for the areas of professional training of teachers, whose activities involve participation in project activities or project management, a system is proposed in which the project method acts as the main means of learning, and its results — as an assessment tool. These results are confirmed by international studies by Postholm (2016). Having identified a product that is not only used for final certification in the HEI as a final result, but can also be presented to the employer to demonstrate professional training, we determined the structure, forms of training and basic assessment tools. This is also confirmed by the materials of the study by Bavčević et al. (2018). Decomposition of competencies can help determine the structure and content of the educational process, but considering this method as a basis for assessing the level of competencies, using it to justify the full preservation of

disciplinary or project approach in education will mean only endless movement in a circle. Cebrián et al. (2020) and Pöntinen and Räty-Záborszky (2020) expressed the same opinion in their articles.

The pedagogical principle "from simple to complex", the movement from knowledge and skills to competencies should be reflected in the organisational structure of training, which is proposed to include three levels: higher level — project training with the development and implementation of professional projects evaluated by employers, intermediate level — development of training and proto-professional projects, with their evaluation by top-level teachers and at Ukrainian student rating competitions, initial level — traditional disciplinary training, with the evaluation and formation of "orders" for the evaluated product by middle-level teachers. This idea of implementing the project method is confirmed in the works of Lee et al. (2021), Shuhailo and Derkach (2021).

The main problems of developing professional competence in future teachers were identified as a result of completing questionnaires, surveys of students and teachers, interviews with leaders of educational projects. In addition, the analysis of personal data and the results of surveys showed that teachers and future teachers themselves note the importance of the project method in acquiring professional competencies of future teachers, but purposeful work for the development of the studied phenomenon is not conducted in educational institutions. This is noted by Hüttel and Gnaur (2017) and Sadrina et al. (2018) in their studies.

The study took into account the gradual development of professional competencies in future teachers. At each subsequent stage of training, the methods and means of teaching changed in accordance with the change in the subjective experience of educational and professional activities of students. This is also reflected in the works of Bernate and Vargas (2020) and Ismailova et al. (2020d).

Conclusions

The research is topical because the educational process, which is based not on the logic of the subject, but on the logic of activities that have a personal meaning for the student, increases his/her motivation in learning; promotes the development of the necessary types of activities; deep, conscious development of basic knowledge due to their universal use in

different situations; development of creative potential, communicative skills. The organisation of research activities of students in the implementation of projects on specialised subjects — elective subjects — contributes to the effective development of a number of professional competencies in future teachers.

The development of professional competencies of future teachers was determined at 3 levels (insufficient, sufficient, high); the criteria for assessing the levels of the student's subjectivity (his/her activity, independence, responsibility, communication, creativity, self-organisation and self-assessment skills in educational and professional activities) and his/her professional mobility (motivational and value, cognitive activity, reflexive evaluation criteria), as well as evaluation scales were developed. The level of subjectivity and professional competencies of future teachers was assessed through surveys, observations, analysis of student's products of activity, Delphi technique and mathematical statistics.

At the generalising stage of experimental work, the reliability of the obtained results is proved by the chi-square test (χ^2) at the level of statistical significance of 0.01. It allowed drawing a conclusion about the reasonability of applying the proposed project model to develop professional competencies in future teachers when acquiring subjective experience of educational and professional activity with all three pedagogical conditions of its effective functioning.

The research will be a valuable source in the preparation of programmes for the implementation of project methods in the training of future teachers. Despite the wide interest in the introduction of innovative methods of education in the development of professional competencies, the application of the project method remains poorly covered in the domestic scientific literature. Further prospects for research include finding optimal mechanisms for implementing the project method in the educational process.

References

Admiraal, W. M., Hoeksma, M. T. (2011). Assessment of teacher competence using video portfolios: reliability, construct validity, and consequences. Teaching and Teacher Education, 27, 1019–1028. DOI: https://doi.org/10.1016/j.tate.2011.04.002

Bavčević, T., Prskalo, I., Bavčević, D. (2018). A comparative analysis of different models for management of the teaching process in physical education. Acta Kinesiologica, 12(2), 57–66.

Bazeliuk, O. V., Spirin, O. M., Petrenko, L. M., Kalenskyi, A. A., Maiboroda, L. A. (2018). Technologies of Distance Learning. Zhytomyr, Polissia, 160 p.

Bernate, J., Vargas, J. (2020). Challenges and trends of the 21st century in higher education. Revista de Ciencias Sociales, 26, 141–154. DOI: https://doi.org/10.31876/rcs.v26i0.34119

Cebrián, G., Junyent, M., Mulà, I. (2020). Competencies in education for sustainable development: emerging teaching and research developments. Sustainability (Switzerland), 12(2), Art. 579. DOI: https://doi.org/10.3390/su12020579

Çetin, E. (2021). Digital storytelling in teacher education and its effect on the digital literacy of pre-service teachers. Thinking Skills and Creativity, 39, Art. 100760. DOI: https://doi.org/10.1016/j.tsc.2020.100760

Ellingsen, P., Tonholm, T., Johansen, F. R., Andersson, G. (2021). Learning from problem-based projects in cross-disciplinary student teams. Education Sciences, 11(6), 259. DOI: https://doi.org/10.3390/educsci11060259

Flores-Lueg, C., Roig-Vila, R. (2019). Personal factors influencing future teachers' self-assessment about the pedagogical dimension of ICT use. Revista Iberoamericana De Educación Superior, 10(27), 151-171. DOI: https://doi.org/10.22201/iisue.20072872e.2019.27.345

Fomina, A. V., Osipova, L. A., Slikishina, I. V. (2020). Interactive learning as a means of forming professional competencies in the context of digitalization of education. Modern Pedagogical Education, 12, 65-69.

Hüttel, H., Gnaur, D. (2017). If PBL is the answer, then what is the problem? Journal of Problem Based Learning in Higher Education. 5(2), 1-21. DOI: https://doi.org/10.5278/ojs.jpblhe.v5i2.1491

Ismailova, Z., Choriev, R., Salomova, R., Jumanazarova, Z. (2020a). Use of economic and geographical methods of agricultural development. Journal of Critical Reviews, 7(5), 409-412. DOI: https://doi.org/10.31838/jcr.07.05.84

Ismailova, Z., Khimmataliev, D. O., Khashimova, M. K., Baybaeva, M. K., Ergashev, B. B. (2020b). Integrative approach to designing the content of secondary specialized vocational education. Opcion, 36(91), 25–41.

Ismailova, Z. K., Riskulova, K., Axmedov, M. U., Ismoilova Y. T., Pulatova, N. R. (2020c). The role of electronic pedagogical tools in higher education. Journal of Critical Reviews, 7(5), 396-398. DOI: https://doi.org/10.31838/jcr.07.05.8013

Ismailova, Z. K, Khimmataliev, D. O., Kuziiev, N. M., Shabarova, U. N., Almardonov, O. M. (2020d). Formation of a system of methods of technical thinking future engineers. Journal of Critical Reviews, 7(5), 787-794. https://doi.org/10.31838/jcr.07.05.161

Khimmataliev, D. O., Olmov, K. T. Abdullaeva, R. M., Ergashev, B. B., & Chulponova, K. T. (2021a). Mechanisms of professional competence development in future teachers based on pedagogical and technical knowledge. Annals of the Romanian Society for Cell Biology, 25(2), 2950–2958.

Khimmataliev, D. O., Bakhriddinov, S. S., Jumananazarova, Z. K. (2021b). Case-study method in students training. Annals of the Romanian Society for Cell Biology, 25(4), 7568-7578.

Lee, S., Kim, H., Jeong, B., Yoon, J. (2021). A training method for low rank convolutional neural networks based on alternating tensor compose-decompose method. Applied Sciences, 11(2), 643. DOI: https://doi.org/10.3390/app11020643

Pérez-Ordás, R., Nuviala, A., Grao-Cruces, A., Fernández-Martínez, A. (2021). Implementing service-learning programs in physical education; teacher education as teaching and learning models for all the agents involved: a systematic review. International Journal of Environmental Research and Public Health, 18(2), 669. DOI: https://doi.org/10.3390/ijerph18020669

Pöntinen, S., Räty-Záborszky, S. (2020). Pedagogical aspects to support students' evolving digital competence at school. European Early Childhood Education Research Journal, 28(2), 182–196. DOI: https://doi.org/10.1080/1350293X.2020.1735736

Postholm, M. B. (2016). Collaboration between teacher educators and schools to enhance development. European Journal of Teacher Education, 39(4), 452–470. DOI: https://doi.org/10.1080/02619768.2016.1225717

Requies, J. M., Agirre, I., Barrio, V. L., Graells, M. (2018). Evolution of project-based learning in small groups in environmental engineering courses. Journal of Technology and Science Education, 8(1), 45-62. DOI: https://doi.org//10.3926/jotse.318

Sadrina, S., Ramlee, M., Muhammad, I. (2018). The evaluation of project-based learning in Malaysia: propose a new framework for polytechnics system. Jurnal Pendidikan Vokasi, 8(2), 143-150. DOI: https://doi.org//10.21831/jpv.v8i2.19100

Shuhailo, Y. V., Derkach, T. M. (2021). Project-based learning for undergraduate engineering students minoring in textile technology and design. Journal of Physics: Conference Series, 1840, Art. 012042. DOI: https://doi.org//10.1088/1742-6596/1840/1/012042

Silva, M. F., Malheiro, B., Guedes, P., Duarte, A., Ferreira P. (2018). Collaborative learning with sustainability-driven projects: a summary of the EPSAISEP programme. International Journal of Engineering Pedagogy, 8(4), 106-130.

Sugiyono, P. D. (2018). Metode Penelitian Bisnis: Pendekatan Kuantitatif, Kualitatif, Kombinasi, Dan R&D [Business Research Methods: Quantitative, Qualitative, Combination, and R&D Approaches], 3rd edition. Bandung, Alfabeta, 832 p.

Varela-Ordorica, S. A., Valenzuela-González, J. R. (2020). Use of information and communication technologies as a transversal competence in teacher training. Revista Electrónica Educare, 24(1), 172–191. DOI: https://doi.org//10.15359/ree.24-1.10.

Záhorec, J., Hašková, A., Nagyová, A. (2020). Innovations of teacher trainees pregradual training aimed at forming their digital competences. Journal of Technology and Information Education, 12(2), 80-92. DOI: https://doi.org//10.5507/jtie.2020.013

Academic student fraud in longitudinal research design

Galina Epanchintseva *
Lydmila Zubova**
Tatyna Kozlovskaya***
Nonna Volosova****
Aleksei Lebedenko*****
Nikolai Bukaev******

ABSTRACT

The authors emphasize the importance of studying academic fraud among students. This phenomenon takes on large-scale dimensions. The authors are convinced that the solution of the problem depends on the scientific knowledge of the psychological portrait of students. Within the framework of the personalist approach, the authors present a review of the scientific literature. The authors identified a problematic field of empirical research that would reveal the dynamics of students' subjective perceptions of a person who resorts to academic fraud. A sample of the study was formed, the author's questionnaire was presented. The results of a longitudinal study of the dynamics of subjective perceptions of cognitive characteristics, emotional manifestations, and behavioral patterns of a student's personality are presented for discussion. To complete the psychological portrait of the students, valid psychodiagnostic techniques were used in the study. The stages of the study are presented. The analysis of empirical data is based on the evidence-based methods of the statistical thesaurus. The findings of the study revealed the students' ideas about the person resorting to plagiarism. In conclusion, the authors formulated step-by-step programs of psychological support for students to refuse to use various schemes of academic fraud.

KEYWORDS: longitudinal study; subjective representations; cognitive characteristics; emotional manifestations; behavioral patterns.

*Orenburg State University, Orenburg, Russian Federation, Orenburg. E-mail: galinamar@mail.ru

**Orenburg State University, Orenburg, Russian Federation, Orenburg. E-mail: zubowa@yandex.ru

***Orenburg State University, Orenburg, Russian Federation. E-mail: kozlovskajatn@mail.ru

****Orenburg State University, Orenburg, Russian Federation, Orenburg. E-mail: vasilii_vasiliev@rambler.ru

*****Orenburg Branch of the Russian Presidential Academy of National Economy and Public Administration under the, Orenburg, Russian Federation.

******Orenburg branch of Kutafin Moscow State Law University, Russia. E-mail: vasilii_vasiliev@rambler.ru

Fraude de estudiantes académicos en el diseño de investigación longitudinal

RESUMEN

Los autores señalan la importancia de estudiar el fraude académico entre los estudiantes. Este fenómeno adquiere dimensiones a gran escala. Los autores están convencidos de que la solución del problema depende del conocimiento científico del retrato psicológico de los estudiantes. En el marco del enfoque personalista, los autores presentan una revisión de la literatura científica. Los autores identificaron un campo problemático de investigación empírica que revelaría la dinámica de las percepciones subjetivas de los estudiantes sobre una persona que recurre al fraude académico. Se formó una muestra del estudio, se presentó el cuestionario del autor. Se presentan para discusión los resultados de un estudio longitudinal de la dinámica de las percepciones subjetivas de las características cognitivas, las manifestaciones emocionales y los patrones de comportamiento de la personalidad de un estudiante. Para completar el retrato psicológico de los estudiantes, en el estudio se utilizaron técnicas de psicodiagnóstico válidas. Se presentan las etapas del estudio. El análisis de datos empíricos se orienta por los métodos basados en evidencia del tesauro estadístico. Los hallazgos del estudio revelaron las ideas de los estudiantes sobre la persona que recurre al plagio. En conclusión, los autores formularon programas paso a paso de apoyo psicológico para que los estudiantes se negaran a utilizar varios esquemas de fraude académico.

PALABRAS CLAVE: estudio longitudinal; representaciones subjetivas; características cognitivas; manifestaciones emocionales; patrones de conducta.

Introduction

At the beginning of the XXI century, the scientific community became involved in the controversy over the concept of "double norms" proposed by D. Zyman, where the synchronous coexistence of the norms of academic ethics and their violations – "antinorm" is noted. In connection with this scientific controversy, a decline in the quality of higher education is openly noted all over the world. One of the important reasons for the loss of prestige of higher education is called academic fraud in the form of cheating and plagiarism. Sociologists, educators, and cultural scientists are actively involved in the study of this phenomenon. A large array of empirical data is accumulating, all kinds of projects are being formed that are aimed at eradicating this phenomenon. Years go by, but the phenomenon of academic fraud in the educational process is becoming more frequent. Psychologists often

reduce the phenomenon of fraud to the study of the phenomena of lies and deception. We have departed from this tradition. The purpose of our study is to identify the dynamics of changes in the subjective attitude to the student's personality and to recreate the psychological portrait of the respondent using the techniques of academic fraud. The study was conducted within the framework of a personological approach. We have clarified the main applied methods of the phenomenon under study. These methods include a survey and a cross-sectional experiment. In our study, survey methods are used, as in previous studies. Nevertheless, our study differs in that the main experimental data were revealed by the method of longitudinal experiment. It is this body of empirical data that will help interested researchers to turn to the study of academic fraud in a new scientific interpretation.

1. Literature review

The study of the psychological phenomenon of fraud is most often reduced to the study of the phenomena of lies and deception.

The main components of fraud-lies and deception are presented in countless foreign and domestic works of philosophers, lawyers, cultural scientists, sociologists, teachers: D. Diderot, I. Kant, F. Nietzsche, I. Feuerbach, I. Fischer, A. Schopenhauer, M. Weber, H. Ortega y Gasset, M. Heidegger, R. Merton (Chirikov, Shmeleva, Loyalka, 2019). Paul Ekman's classic research has made it possible to understand the nature of fraud (Ekman, 2013). Research Becker D., Ulstad I., (Becker, Ulstad, 2007), Stone T., Jawahar I., Kisamor J. (Stone, Jawahar, Kisamore, 2010), Adebayo S. (Adebayo, 2010), Anderman E. (Anderman, Griesinger, Westerfield, 1998), Freiburger T., Romain D., (Freiburger et al., 2017), Brandao M., (Brandao, Teixeira, 2005), Peled Yu., (Peled et al., 2019), Shmelevoy E., (Chirikov, Shmeleva, Loyalka, 2019), Dremovoy O. (Dremova, Maloshonok, Terentev, 2020), Efimova G., Golunova S. (Maloshonok, Shmeleva, 2019) expanded the concept of a psychological portrait of a person prone to fraud.

At the beginning of the XXI century, the scientific community became involved in the controversy over the concept of "double norms" proposed by D. Zaiman, which notes the synchronous coexistence of the norms of academic ethics and their violations –"antinorm". The emergence of the cognitive dissonance of the need to comply with the norms of scientific ethics actualized the birth of various applied research in foreign and domestic science (Ajzen,

2002; Grijalva, Nowell, Kerkvliet, 2006; Harding, Carpenter, Finelli, 2012). We will focus on a brief analysis of well-known psychological studies that focus on academic fraud in the student environment. First of all, we will note the research that describes the frequency of this phenomenon. Such studies include Bunn D., Caudill S.,Gropper D. (Bunn, Caudill, Gropper, 1992); Graham M., Monday J., (Graham et al., 1994); Grimes P. (Grimes, 2004); Brandao, Teixeira (Brandao, Teixeira, 2005); McCabe, Trevino (McCabe, Feghali, Abdallah, 2008); Adebayo (Adebayo, 2010); Jones (Jones, 2011), Giluk T.(Giluk, Postlethwaite, 2015). Empirical evidence from these studies has revealed threats to the quality of modern education, in which students are increasingly resorting to academic fraud. The main factor of academic dishonest behavior Grimes P., (Grimes, 2004), Stone, Jawahar, Kisamore (Stone, Jawahar, Kisamore, 2010); the conformity factor was named. This conclusion was confirmed by the data of subsequent studies by Harding T., Carpenter D., Finelli C. (Harding, Carpenter, Finelli, 2012). Grijalva, Kerkvliet, Nowell (Grijalva, Nowell, Kerkvliet, 2006) have identified unintended fraud (panic cheating), which, in all likelihood, is quite common than planned. The cross-cultural research conducted by J. Magnus, V. Polterovich, D. Danilov, and A. Kolesnikov turned out to be somewhat undeservedly unnoticed. Savvateev (Grimes, 2004), ("Tolerance of Cheating: An Analysis across Countries"), Lupton, Chapman (Hard, Conway, Moran, 2006), Radaeva, Chirikova, (Chirikov, Shmeleva, Loyalka, 2019).

Cross-cultural studies, so rare for our science, have revealed the peculiarities of the attitude of students to students who use cheating; the peculiarities of the attitude to students who support cheating, the peculiarities of the attitude to students who talk about cheating to teachers (Hensley, Kirkpatrick, Burgoon, 2013). Russian students turned out to be more tolerant than American and European students towards cheating by other students, but absolutely intolerant of reporting cheating by other students to teachers (Eremeva, 2018).

Researchers Dremova O., Shmeleva E., Moloshonok N., Terentyev E. we found that academic fraud is quite popular among Russian students: two-thirds of students admitted that they have ever cheated, and their fellow students resort to academic fraud in 94-95%. Efimova G. Z. and Kicherova M. N. when analyzing the causes of academic fraud, they point to the lack of motivation for original works and applied research among students, which leads to plagiarism, falsification and other forms of academic **fraud (**Chirikov, Shmeleva, Loyalka, 2019**).** Dremova O., Shmeleva E. in their study of the psychological and pedagogical

determinants of academic fraud in students ' research papers, they emphasize that students entering an educational institution are usually not ready for independent intellectual, thinking and analytical activities. They often do not have the skills to work with literature and correctly cite sources. They also raise the problem of "clip thinking" (Dremova, Maloshonok, Terentev, 2020).

Studies by Becker D., Ulstad I. (Becker, Ulstad, 2007), Hensley L., Kirkpatrick K., Burgoon J. (Hensley, Kirkpatrick, Burgoon, 2013) revealed that the level of general academic fraud among students was not found by gender, but young men resort to plagiarism in student papers more often.

The results of studies of the comparative correlation between academic fraud and the course of study are contradictory. Studies by Hensley L., Burgoon J. (Hensley, Kirkpatrick, Burgoon, 2013) found a positive association of the course with participation in academic fraud. An earlier study by Harding T., Carpenter D. (Harding, Carpenter, Finelli, 2012) revealed the presence of a negative relationship.

Studies by Anderman, Griesinger, and Westerfield (Anderman, Griesinger, Westerfield, 1998); Brandão, Teixeira (Brandao, Teixeira, 2006), Rettinger, and Kramer, (Rettinger, Kramer, 2009) show a strong association between academic fraud rates and academic motivation. Students with a dominant external learning motivation are more likely to use dishonest techniques when passing exams and defending a diploma than students with an internal learning motivation.

Studies by Stone T., Jawahar I., Kisamore J. (Stone, Jawahar, Kisamore, 2010); Kunts J., Batler C (Kuntz, Butler, 2014) are devoted to identifying links between certain personal characteristics and academic fraud.

Giluk T., Postlethwaite B. (Giluk, Postlethwaite, 2015) in the tradition of Goldberg's Five-factor Personality Model, presented a meta-study that found that students with high levels of conscientiousness and friendliness are less likely to engage in academic fraud in the educational space. Further, we found links between the fear of incompetence, high motivation to avoid failure, low self-esteem, and the test of internal uncertainty with the frequency of participation in academic fraud. The studies of McCabe D., Feghali T., Abdallah H. (McCabe, Feghali, Abdallah, 2008), Ozdemir O., LaneJ., MichouA have found the greatest

appreciation and popularity in foreign psychology (Ozdemir, Lane, Michou, 2016), which confirm the importance of having a code of academic integrity in an educational institution.

It is worth noting the research of E. D. Shmeleva, which can claim a high professional level of meta-research on such an urgent topic about academic fraud (Chirikov, Shmeleva, Loyalka, 2019; Maloshonok, Shmeleva, 2019).

2. Results and discussion

In our study, the main methods are the longitudinal method, the survey methods are presented by the author's questionnaire "Subjective perception of a fraudster", online surveys, statistical methods: A. Bormatov's questionnaire "Honesty", the Machiavellianism Test (Mach-IV), which was developed by American psychologists Richard Christie and Florence Geis (Christie, Geis, 1970) (adapted by V. V. Znakov (2000).

We also present an experimental method. Our experimental method is represented by cross-sections and the longitudinal method. This study was conducted for the first time in our country on a representative sample of students of 11 classes (31 students, 19 boys, 12 girls), students of Orenburg State University. The first experiment by the method of longitude was conducted from 2017-2020. with students of the full-time department of Orenburg universities (bachelor's degree), 43 students took part in it (according to gender characteristics-25 boys,18 girls). The second experiment was conducted using the longitudinal method from 2017-2020. with students of the full-time department of the specialty of Orenburg universities (specialty), 28 students took part in it, including 11 young men,17 girls. More than 700 students took part in online surveys, and more than 200 full-time and part-time students took part in open surveys.

Our research was based on the following hypotheses:

The purpose of the study: To identify the dynamics of changes in the subjective attitude to the personality of a student using the methods of academic fraud, using the method of longitudinal observation.

Hypotheses: 1. The personality of a student who uses academic fraud techniques becomes more positive according to subjective assessments in the reference group during longitudinal observation.

2. The personality of a student who uses academic fraud techniques becomes less positive according to subjective assessments during longitudinal observation.

The pilot study was conducted using the author's questionnaire "Subjective perception of the identity of a fraudster", which consisted of 12 personal characteristics of students who resort to academic fraud. The pilot study was performed in the tradition of the Campbell D. quasi-experiment (Campbell, 1958). The study was conducted in the tradition of a longitudinal experiment. This questionnaire was offered to students in grades 1-4, every year. The study involved 67 students (31 boys, 36 girls), as well as 31 students of 11 classes (19 boys, 12 girls). Below we present the data from this study. Respondents were asked to identify the most characteristic personality traits of a student who resorts to academic fraud.

Table 1. *"Subjective view of the identity of the fraudster" in %*

Personal qualities	Students of the 11th grade	1st year students	2nd year students	3rd year students	4th year students
1 Hypocrisy	78	71	58	43	24
2 Cynicism	79	65	54	34	21
3 High intelligence	56	61	75	79	90
4 Ingenuity	63	61	78	86	89
5 Isolation	76	45	34	23	19
6 Communication difficulties	85	76	56	37	23
7 Flexibility of thinking	45	48	67	78	94
8 Readiness for unexpected situations	85	76	87	86	89
9 Acting skills	78	81	86	91	98
10 Ability to manipulate	67	60	78	73	69
11 Deceitfulness	65	67	51	32	16
12 Emotionality	76	68	54	46	43

We see that the subjective perception of the identity of a student who resorts to academic fraud changes with age. If the students of the 11th grade are called hypocrisy, cynicism, emotionality, isolation and difficulty of communication leading in the portrait of a fraudster, then the senior students of these qualities were singled out among the insignificant, and noted the flexibility of thinking, high intelligence, ingenuity. It should also be noted that such a quality as "acting ability" was noted by all participants of the study. Also,

the respondents ' opinion regarding such qualities as "readiness for unexpected situations", "ability to manipulate" did not change. As for lying, this quality was noted by students of the 11th grade in more than half of the cases, but among senior students this quality is in last place.

We formed the survey according to three clusters: cognitive characteristics (3,4,7,8), emotional-volitional characteristics (5,6,10,12), and behavioral characteristics (1,2, 9,11).
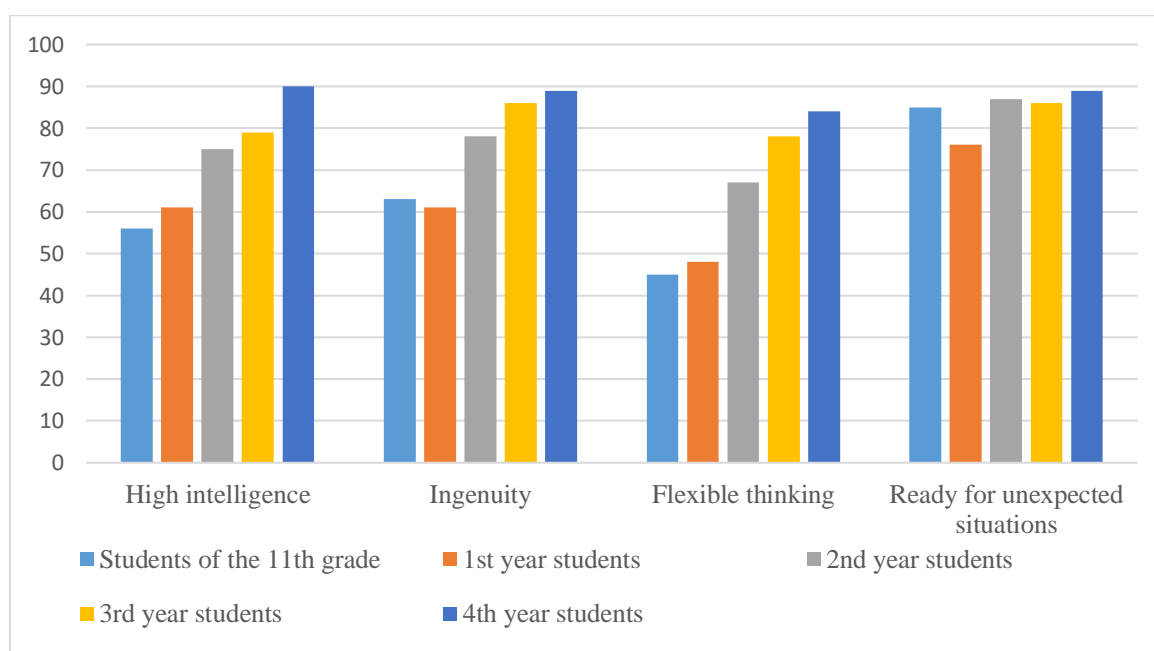
Figure 1. Cognitive characteristics in the compared groups

Figure 1 clearly shows the differences in the perceptions of the cognitive characteristics of a cheating student among different groups of respondents. High intelligence, ingenuity, and flexibility of thinking are rated higher with age.

The portrait of a student resorting to academic fraud, through the eyes of most students of the 11th grade, is a person, in most statistical values, characterized by low intelligence, average values of ingenuity, inability to think outside the box. However, there is a clear contradiction in the cognitive cluster. The personality shows high abilities when making decisions in a situation of uncertainty. For school students, the desire to be non-deceptive, to get out of it if necessary, to be ready for an unexpected situation ("I will come up with something to justify", "I will ride", "I will act according to the circumstances") is still leading.

The portrait of a student resorting to academic fraud, through the eyes of most students studying in the first year, is similar in all respects to the portrait presented by students of the 11th grade. Students of the 1st year also "deny" high intellectual development of students who resort to academic fraud. There is an undisguised disapproval of a rather unattractive type of cynical and deceitful personality. The perception of students resorting to academic fraud in the minds of the 2nd year is changing dramatically. A student who resorts to academic fraud is endowed with good intellectual abilities, this is a person who knows how to cope with any unusual situation.

Perhaps this is due to the personal experience of the students. The educational process is organized in the university in such a way that simple cheating is easily determined with the help of modern programs, for example, anti-plagiarism. And in order to raise the originality of the text, you have to resort to various manipulations, invent methods of bypassing programs. Efimova G. Z. and Kicherova M. N., when analyzing the causes of academic fraud, point to the lack of motivation for original works and applied research among students, which leads to plagiarism, falsification and other forms of academic dishonesty (Eremeva, 2018).
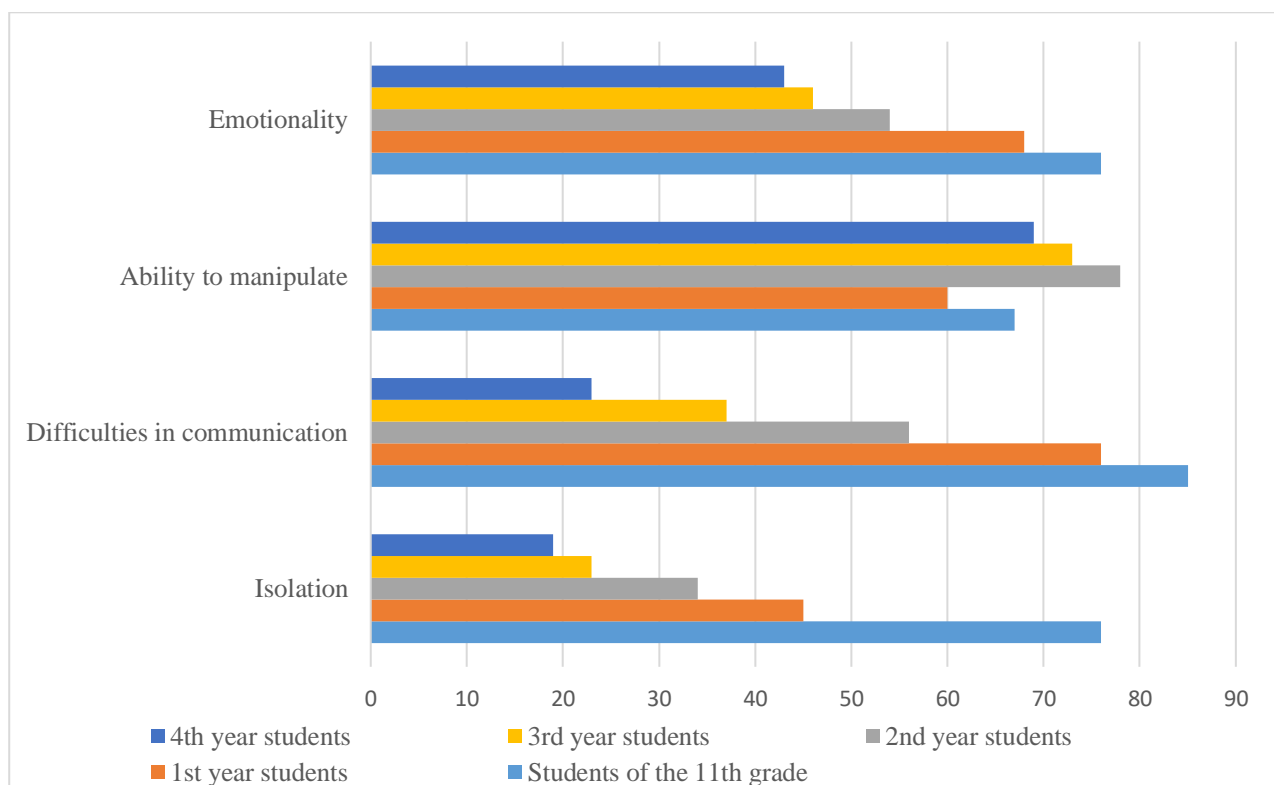
Figure 2. Emotional and volitional characteristics in the compared groups

Another characteristic difference of modern university education is project activity, which requires the student to have the knowledge, skills and abilities to achieve the project goal and complete the tasks set. However, this trend is sporadic and does not affect all educational programs.

Dremova O., Shmeleva E. in their study of the psychological and pedagogical determinants of academic fraud in students ' research papers, they emphasize that students entering an educational institution, as a rule, are not ready for independent intellectual, thinking and analytical activities. Often, they do not have the skills to work with literature and correctly cite sources. It also raises the problem of "clip thinking" (Chirikov, Shmeleva, Loyalka, 2019; Eremeva, 2018).

In emotional terms, high school students have high emotionality, high ability to manipulate, but high isolation, unsociability is revealed. From Figure 2, we can see that such a quality as "ability to manipulate" was identified by all groups of respondents. I.e., a fraudster necessarily turns a communication partner into an object, a thing, a means of achieving his own benefit through manipulative influence. In the responses of students, we see a contradiction. 6 On the one hand, they note "isolation" as a quality of a fraudster, and on the other hand, "emotionality", "difficulty in communication" and "ability to manipulate".
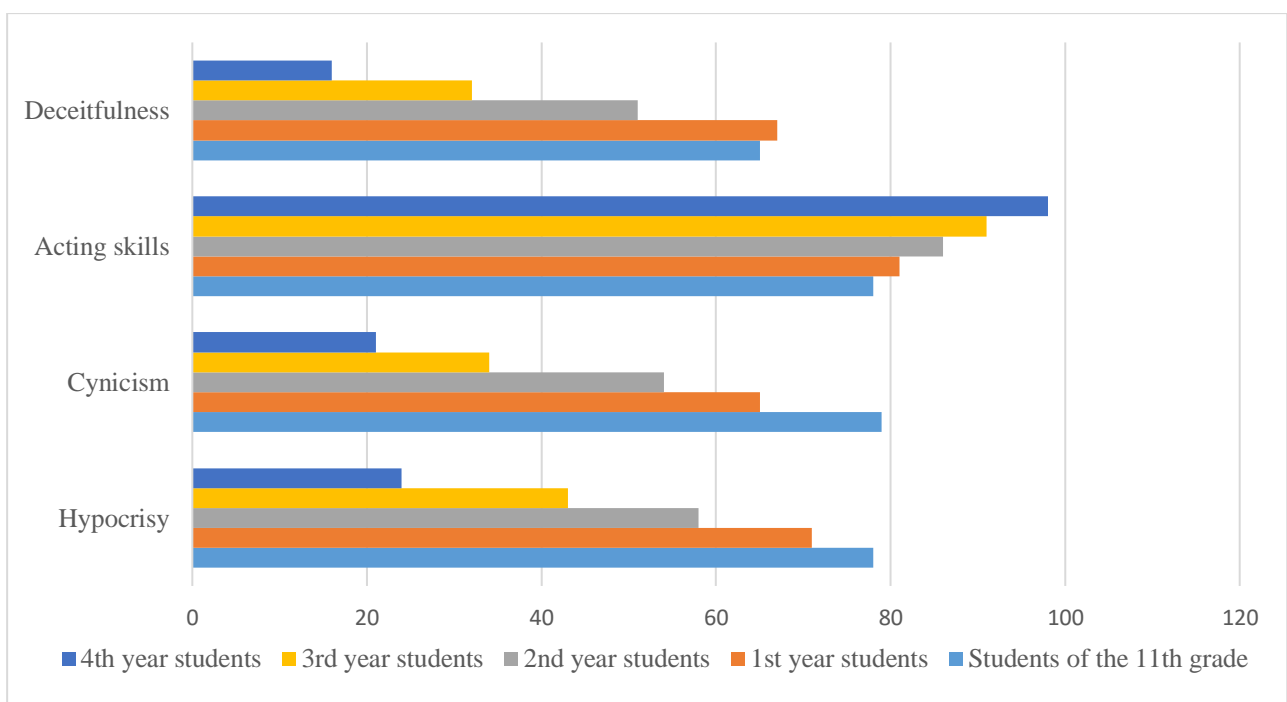
Figure 3. Behavioral characteristics in the compared groups

The behavioral patterns of 11th grade students are characterized by hypocrisy, cynicism, possession of manipulative techniques, and deceit.

Lying in the student environment, as we can see from the diagram, is not the leading characteristic of fraud. A comparative analysis of the results of student research in 2006 and 2010, conducted by experts in the field of academic fraud in America-Aushra A. (Aushra, 2006), D. Mccabe,T. Fegnali (McCabe, Feghali, Abdallah, 2008) shows that copying several sentences from the Internet when performing written tasks is the norm for 40.0% of students (out of 14,000 respondents). During this period, the number of those who believe that copying from the Internet is a "serious fraud" decreased-from 34.0% at the beginning of the decade, to 29.0% in 2010 (Chirikov, Shmeleva, Loyalka, 2019)

Our results also confirm the self-justification among students: "this will not make anyone worse", "everyone does it", "I couldn't send you a job", "I didn't have time", the belief in the formality of the violated norms, the routine of such actions, etc.

An interesting fact is that among students, in particular senior courses, a very low percentage of those respondents who identified among the behavioral qualities of a fraudster "hypocrisy, "cynicism" and "deceitfulness" in contrast to schoolchildren (Freiburger et al., 2017).

It is noted that this is a more sociable person than a closed one, but able to hide their emotions, having the ability to any kind of manipulation. In the behavioral field, a positive personality is more likely than a negative one. Moderately hypocritical, moderately ready to lie (Eremeva, 2018).

We specify that the same students took part in the survey. But in the second year, there are clear changes in the views of students who resort to academic fraud. The characterization of a person who resorts to academic fraud is becoming more and more lenient, and the attitude towards this person is becoming more and more tolerant. The personality is characterized by high intelligence. The qualities of intelligence are manifested in flexibility, ingenuity, and the ability to be active in non-standard social situations. The emotional characteristic changes qualitatively. The emotional person becomes more and more secretive, less sociable, rather closed, and has high manipulative skills. The personality reveals the average values of cynicism, deceit, has good acting skills. 3rd-year students report very high intelligence in students who resort to academic fraud. These students are inventive,

creative, and unconventional. Rather, they are not inclined to emotional actions, but they are very good at manipulating techniques, very secretive, and are not open to communication. They have rather low values in the characteristics of deceit and hypocrisy. Behavioral characteristics deserve quite positive assessments.

Students studying in the 4th year note that students who resort to academic fraud are highly intelligent, inventive, and ready to make non-standard decisions. The personality is characterized by sufficient restraint, closeness, often experiencing problems with communication. Behavioral patterns are represented by rather low values of the qualities of hypocrisy, deceit, and cynicism.

To assess the reliability of the shift of values after a longitudinal study, we used the Friedman criterion in the SPSS program, which allows us to establish the level of statistical reliability of differences in several dimensions at once, and at the same time, not the absolute values of the shifts are ranked, but the individual measurement values themselves.

We assume that there are only random differences between the results obtained in the longitudinal study. The results of the calculation of the Friedman criterion are presented in Table 2.

Table 2. Results of the evaluation of the reliability of the shift of the values of the longitudinal study conducted using the Friedman criterion

The indicator of the Friedmna criterion x2emp.	
1 Hypocrisy	12,18
2 Cynicism	12,12
3 High intelligence	12,08
4 Ingenuity	11,92
5 Isolation	12,025
6 Communication difficulties	12,23
7 Flexibility of thinking	12,46
8 Readiness for unexpected situations	6,89
9 Acting skills	11,64
10 Ability to manipulate	7,36
11 Deceitfulness	12,09
12 Emotionality	12,02

To determine the reliability of the shift of the results, we used a table of critical values depending on the level of significance of α and the degree of freedom, the value of which is x2cr.: x2cr. = 7.815 at α = 0.05 and χ2cr. = 11.345 at α = 0.01.

The obtained empirical values of the Friedman criterion on the scales "readiness for unexpected situations" and "ability to manipulate" fell into the zone of insignificance. Therefore, with respect to these scales, a hypothesis is accepted about the similarity of ideas among students of 1-4 courses about the presence of these qualities in the portrait of a student who resorts to academic fraud. All other scales received differences according to the Friedman criterion, i.e., respondents assess the personality of a student who resorts to academic fraud to varying degrees. The orientation of such representations can be seen in Figures 1-3.

Longitudinal studies of the subjective perception of the personality of a student who is prone to academic fraud were accompanied by a study of the level of honesty, openness, and ability to manipulate students ' interpersonal relationships. Next, we present the results of the study on the A. Bormatov questionnaire "Honesty".

The purpose of this study is to identify the level of honesty, openness of students, participants of the experiment.

The study of the phenomenon of honesty was also conducted as part of a longitudinal study in which 50 students participated.

The collection of empirical data was carried out sequentially for the training of these students in 1, 2, 4 courses. The diagram shows the results of the average values of the honesty phenomenon for the group in each course of study of students.
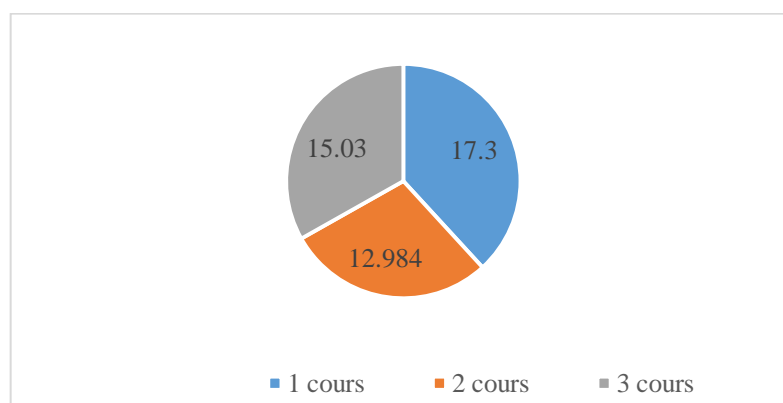
Figure 4. Results of the "Honesty" questionnaire»

Based on the results of the study, we came to the conclusion: 91% of students have average values of lie indicators according to the "Honesty" questionnaire. Such aggregated data indicate the threshold values of the level of honesty; some of the respondents are prone to lying. It is revealed that the majority of students like to embellish their achievements, their statements, and their lives. The share of probability that the interviewed students are prone to lying not only in everyday life, but also in educational activities is quite high. Only 8 % of students showed high values according to the results of the "Honesty" questionnaire, such results are interpreted as the absence of a tendency to lie. These respondents may occasionally embellish themselves or some facts related to their lives. But this happens within the normal range. It was found that only 1 % of the students surveyed have a low result on the "Honesty" questionnaire, which indicates a strong, pronounced tendency to lie

Next, we present the results of a study on the Machiavellianism Test (Mach-IV), which was developed by American psychologists Richard Christie and Florence Geis (Christie, Geis, 1970) (adapted by V. V. Znakov (2000). This scale is presented in the "Questionnaire for identifying the severity of Machiavellianism". We, following the concept of Richard Christie and Florence Geis, considered Machiavellianism as a personal characteristic that reflects the subject's lack of faith in the fact that most people can be relied on, that most people are altruistic, independent, and have a strong will.

It was the Mac scale that allowed us to identify the tendency of a person to manipulate other people in interpersonal relationships. Such a research line was planned by us to understand the portrait of the personality of students who are tolerant of the phenomenon of academic fraud.

At this stage, 75 respondents, 37 girls, 38 boys took part. All respondents were first -, second -, and fourth-year students of Orenburg universities. Age limits from 17 to 21 years. We present the following results. 22 (29%) of respondents revealed a low level of Machiavellianism, which characterizes them as open, sincere individuals who do not know how and do not want to manipulate other people. 45 (60%) of the respondents have an average level of Machiavellianism. Such indicators indicate the presence of sincerity and a desire to manipulate others, but due to their openness, they do not allow this action. A lower number of students, only 8 (11%) of the respondents, can be attributed to a high level of Machiavellianism. This result characterizes the respondents as people with the highest

degree of manipulation skills. Such people are able and often resort to manipulation as a way to achieve their goals.

Conclusions

1. A review of cultural, sociological and psychological studies has allowed us to identify the phenomenon of academic fraud among students as one of the reasons for the decline in the quality of higher education. The scale of this phenomenon is so great that it requires a scientific understanding of its causes and factors. The authors propose to resort to longitudinal studies of subjective ideas about the personality of a student who resorts to academic fraud. A point study of the psychological portrait of the personality of a student who resorts to academic fraud is presented.

2. To understand the personality of a student who resorts to academic fraud or translates tolerance to this phenomenon, we selected the following targets: subjective ideas about cognitive characteristics, emotional manifestations, behavioral patterns of a person who resorts to academic thinking, as well as the level of honesty and the level of Machiavellianism.

3. Subjective representations of the cognitive characteristics of a cheating student differ from different groups of respondents. Students of the 11th grade note that such students have low intelligence, average values of ingenuity, inability to think outside the box. High intelligence, ingenuity, flexibility of thinking by students of the 2nd, 3rd and 4th courses is rated much higher.

4. Students of the 11th grade note the isolation and difficulty of communication by the presenters in the portrait of a student who resorts to academic fraud. In the subjective view of students, the qualitative emotional assessment of students who resort to academic fraud is changing. It is noted that these students are rather not inclined to emotional actions, but they are very good at manipulating techniques, very secretive, not open to communication.

5. Students of the 11th grade note hypocrisy, cynicism, deceit as the main behavioral patterns of a student's personality who resorts to academic fraud. The characterization of a person who resorts to academic fraud, in the views of fellow students, is becoming more and more lenient; the attitude towards this person is becoming more and more tolerant. The assessment of behavioral manifestations becomes even more tolerant. Respondents of the 4th

year note rather low values in the characteristics of falsehood, hypocrisy among students who resort to academic fraud, refuse to condemn the behavior of these students.

6. The empirical values according to the Friedman criterion on the scales "readiness for unexpected situations" and "ability to manipulate" fell into the zone of insignificance, which indicates that there is a similarity of ideas among students of 1-4 courses in the portrait of a student who resorts to academic fraud. All other scales received significant differences according to the Friedman criterion. We assume that the more tolerant attitudes towards the phenomenon of academic fraud and the characteristics of a person who resorts to fraud are explained by the subjective experience of our respondents.

7. We found that only 8 % of students have high values according to the results of the "Honesty" questionnaire, such results are interpreted as the absence of a tendency to lie; In the majority(91%) of students resort to lying quite often, more than 90% demonstrate tolerance to the manifestation of lies in their comrades. Only 1 % of the surveyed students have a low result on the "Honesty" questionnaire, which indicates a strong, pronounced tendency to lie

8. 29% of respondents have a low level of Machiavellianism, which characterizes them as open, sincere personalities who do not know how and do not want to manipulate other people. It was revealed that 11% of students have high indicators in terms of the severity of machiviallism, which indicates the skillful use of manipulative techniques in the process of interpersonal interaction. This group of students is characterized by detachment and coldness towards people, lack of inclination to maintain friendly and social contacts selflessly.

References

Aushra A. (2006). Scientific electronic library as means of fight against Plagiarism // Educational Technology & Society. No. 9(3). Page 270 - 276. Available at: https://elibrary.ru/item.asp?id=9205011

Adebayo S. O. (2010). Correlation between Academic Cheating Behavior and Achievement Motivation. Nature and Science, vol. 8, no 12, pp. 130-134. Available at: https://www.researchgate.net/publication/235752831_Correlation_between_Academic_Che ating_Behavior_and_achievement_motivation

Ajzen I. (2002). Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior. Journal of Applied Social Psychology, vol. 32, pp. 665-683. DOI: https://doi.org/10.1111/j.1559-1816.2002.tb00236.x

Anderman E. M., Griesinger T., Westerfield G. (1998) Motivation and Cheating during Early Adolescence. Journal of Educational Psychology, vol. 90, pp. 84-93. DOI: https://doi.org/10.1037/0022-0663.90.1.84

Becker D.A., Ulstad I. (2007). Gender Differences in Student Ethics: Are Females Really more Ethical? Plagiary: Cross-Disciplinary Studies in Plagiarism, Fabrication, and Falsification, no 2, pp. 77-91. Available at: https://quod.lib.umich.edu/cgi/p/pod/dod-idx/gender-differences-in-student-ethics-are-females-really-more.pdf?c=plag;idno=5240451.0002.009;format=pdf

Brandao M., Teixeira A. C. (2005). Crime without Punishment: An Update Review of the Determinants of Cheating Among University Students. Research, Work in Progress, no 191, pp. 1-31. Available at: https://www.researchgate.net/publication/24111576_Crime_without_punishment_An_update_review_of_the_determinants_of_cheating_among_university_students

Bugrimenko A. G. (2006). Internal and External Motivation of Pedagogical University Students. Psihologicheskaja nauka i obrazovanie, no 4, pp. 51-60 (in Russian). Available at: https://psyjournals.ru/files/1486/psyedu_2006_n4_Bugrimenko.pdf

Bunn D. N., Caudill S. B., Gropper D. M. (1992). Crime in the Classroom: An Economic Analysis of Undergraduate Student Cheating Behavior. Journal of Economic Education, vol. 23, no 3, pp. 197-207. DOI: 10.1080 / 00220485.1992.10844753

Campbell, D. T. (1958). Common fate, similarity, and other indices of the status of aggregates of persons as social entities. Behavioral science, 3(1), 14. DOI: https://doi.org/10.1002/bs.3830030103

Chirikov I., Shmeleva E., Loyalka P. (2019). The Role of Faculty in Reducing Academic Dishonesty among Engineering Students. Studies in Higher Education, 2019, DOI: 10.1080/03075079.2019.1616169

Dremova O. V., Maloshonok N. G., Terentev E. A. (2020) Seeking Justice in Academia: Criticism and Justification of Student Academic Dishonesty Monitoring of Public Opinion: Economic and Social Changes Journal, nr 4 (158), pp. 366–394. DOI: https://doi.org/10.1080/21568235.2021.1987287

Eremeva N. V. Freedom, necessity and duty in the phenomenal and noumenal worlds in the teachings of M. Luther and the ethics of I. Kant [Electronic resource] N. V. Eremeva. Bulletin of the Northern (Arctic) Federal University. Humanities and Social Sciences series. 201. No. 5. pp. 123-131. DOI: 10.17238/issn2227-6564.2018.5.122. DOI: 10.17238/issn2227-6564.2018.5.122

Ekman Paul (2010). Telling Lies. Clues to Deceit in the Marketplace, Politics, And Marriage¹272P, Saint Petersburg.

Freiburger T. L., Romain D. M., Randol B. M., Marcum C. D. (2017). Cheating Behaviors among Undergraduate College Students: Results from a Factorial Survey. Journal of Criminal

Justice Education, vol. 28, no 2, pp. 222-247. DOI: https://doi.org/10.1080/10511253.2016.1203010

Giluk T. L., Postlethwaite B. E. (2015). Big Five Personality and Academic Dishonesty: A Meta-Analytic Review. Personality and Individual Differences, vol. 72, pp. 59-67. DOI: https://doi.org/10.1016/j.paid.2014.08.027

Graham M. A., Monday J., O'Brien K, Steffen S. (1994). Cheating at Small Colleges: An Examination of Student and Faculty Attitudes and Behaviors. Journal of College Student Development, vol. 35, pp. 255-260.

Grijalva T. C., Nowell C., Kerkvliet J. (2006). Academic Honesty and Online Courses. College Student Journal, vol. 40, no 1, pp. 180-185. Available at: https://www.learntechlib.org/p/101008/.

Grimes P. W. (2004). Dishonesty in Academics and Business: A Cross-Cultural Evaluation of Student Attitudes. Journal of Business Ethics, vol. 49, no 3, pp. 273-290. Available at: https://www.academia.edu/3146523/Dishonesty_in_Academics_and_Business_A_Cross_Cult ural_Evaluation_of_Student_Attitudes

Hard S. F., Conway J. M., Moran A. C. (2006). Faculty and College Student Beliefs about the Frequency of Student Academic Misconduct. Journal of Higher Education, vol. 77, no 6, pp. 1058–1080. DOI: https://doi.org/10.1080/00221546.2006.11778956

Harding T. S., Carpenter D. D., Finelli C. J. (2012). An Exploratory Investigation of the Ethical Behavior of Engineering Undergraduates. Journal of Engineering Education, vol. 101, no 2, pp. 346-374. Available at: https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1041.2&rep=rep1&type=pdf

Hensley L. C., Kirkpatrick K. M., Burgoon J. M. (2013). Relation of Gender, Course Enrollment, and Grades to Distinct Forms of Academic Dishonesty. Teaching in Higher Education, vol. 18, no 8, pp. 895-907. DOI: https://doi.org/10.1080/13562517.2013.827641

Jones D. L. R. (2011). Academic Dishonesty: Are More Students Cheating? Business Communication Quarterly, vol. 74, no. 2, pp. 141-150. Available at: https://www.learntechlib.org/p/110092/.

Kuntz J. R., Butler C. (2014). Exploring Individual and Contextual Antecedents of Attitudes Toward the Acceptability of Cheating and Plagiarism. Ethics & Behavior, vol. 24, no 6, pp. 478-494. DOI: 10.1080 / 10508422.2014.908380

McCabe D. L., Feghali T., Abdallah H. (2008). Academic Dishonesty in the Middle East: to-Face Courses. Computers & Education, 2019, vol. 131, pp. 49–59. DOI: 10.1007 / s11162-008-9092-9

Ozdemir Oz A., Lane J. F., Michou A. (2016). Autonomous and Controlling Reasons Underlying Achievement Goals during Task Engagement: Their Relation to Intrinsic Motivation and Cheating. Educational Psychology, vol. 36, no 7, pp. 1160-1172. DOI: https://doi.org/10.1080/01443410.2015.1109064

Maloshonok N., Shmeleva E. (2019). Factors Influencing Academic Dishonesty among Undergraduate Students at Russian Universities. Journal of Academic Ethics, vol. 17, nr 3, pp. 313–329. doi 10.1007/s10805-019-9324-y. Available at: https://link.springer.com/article/10.1007/s10805-019-9324-y

Peled Y., Eshet Y., Barczyk C., Grinautski K. (2019). Predictors of Academic Dishonesty among Undergraduate Students in Online and Face-to-Face Courses. Computers & Education, vol. 131, pp. 49–59. DOI: https://doi.org/10.1016/j.compedu.2018.05.012

Rettinger D. A., Kramer Y. (2009). Situational and Personal Causes of Student Cheating. Research in Higher Education, vol. 50, no 3, pp. 293-313. DOI: 10.1007 / s11162-008-9116-5

Stone T. H., Jawahar I. M., Kisamore J. L. (2010). Predicting Academic Misconduct Intentions and Behaviors Using the Theory of Planned Behaviors and Personality. Basic and Applied Social Psychological, vol. 32, pp. 35-45. DOI: 10.1080 / 01973530903539895

Barriers of people with disabilities in exercising constitutional right to higher education

Viktoriia Chorna *
Anja Broda **
Dmytro Golosnichenko ***
Olena Grushchenko ****
Maryna Sadchenko *****

ABSTRACT

Given that the disability of population, unfortunately, has negative dynamics to increase its number, it is increasingly attracting equal and free access to education for all categories of population, especially people with special needs. That is why the need to identify the problems faced by people with disabilities in exercising their constitutional right to higher education is becoming urgent. The methodological basis for writing this article is a system of general and special methods of scientific knowledge. The authors focus on the existing barriers to higher education for people with disabilities. It is stated that the legislation of Ukraine, which regulates the research issue, contains legal gaps and conflicts that complicate the opportunities for people with disabilities to obtain higher education. It is noted that higher education institutions need to pay more attention to the material and technical equipment of the educational process, which will increase the number of people with disabilities to obtain higher education. Also, the problem of psychological adaptation and socialization of people with disabilities in higher education is particularly acute. Of particular relevance is the need to identify the problems faced by people with disabilities in exercising their constitutional right to higher education that is becoming urgent.

KEYWORDS: Access to education; disabled people; educational policy; educational legislation; rights of the disabled; right to education.

* Associate Professor of the Administrative Law and Process Department, State Higher Educational Institution "Kyiv National Economic University named after Vadym Hetman", Kyiv, Ukraine. ORCID: https://orcid.org/0000-0002-6072-0283. Corresponding author: E-mail: chornaviktoriia@i.ua

** Associate Professor of the Law and Humanities Department, Vinnytsya Educational and Scientific Institute, Western Ukrainian National University, Vinnytsia, Ukraine. ORCID: https://orcid.org/0000-0003-2564-6521. E-mail: anexbroda@i.ua

*** Associate Professor, Professor of the Department of Economic and Administrative Law, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, Ukraine. ORCID: https://orcid.org/0000-0003-2299-562X. E-mail: golosnichenkodmytro@i.ua

**** Associate Professor at the Economic Security and Financial Investigations Department, National Academy of Internal Affairs, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0001-8167-0214. E-mail: elenagrushhenko@i.net

***** Associate Professor at the Economic Security and Financial Investigations Department, National Academy of Internal Affairs, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0002-3148-4744. E-mail: sadchenkomar@i.ua

Barreras de las personas con discapacidad en el ejercicio del derecho constitucional a la educación universitaria

RESUMEN

Dado que la discapacidad de la población, lamentablemente, va aumentando en su número, está atrayendo cada vez más el acceso igualitario y gratuito a la educación para todas las categorías de población, especialmente las personas con necesidades especiales. Es por ello que se hace urgente la necesidad de identificar los problemas que enfrentan las personas con discapacidad en el ejercicio de su derecho constitucional a la educación universitaria. La base metodológica para la redacción de este artículo es un sistema de métodos generales y especiales de conocimiento científico. Los autores se centran en las barreras existentes para la educación universitaria para personas con discapacidad. Se afirma que la legislación de Ucrania, que regula el tema de la investigación, contiene lagunas y conflictos legales que complican las oportunidades de las personas con discapacidad para obtener una educación superior. Se observa que las instituciones de educación superior deben prestar más atención al equipamiento material y técnico del proceso educativo, lo que aumentará el número de personas con discapacidad para acceder a la educación universitaria. Además, es particularmente grave el problema de la adaptación psicológica y la socialización de las personas con discapacidad en la educación universitaria. Es de especial relevancia la necesidad de identificar los problemas a los que se enfrentan las personas con discapacidad en el ejercicio de su derecho constitucional a la educación universitaria.

PALABRAS CLAVE: Acceso a la educación; personas discapacitadas; política educativa; legislación educativa; derechos de los discapacitados; derecho a la educación.

Introduction

Along with the general directions of educational policy in Ukraine, which correspond to the European integration course, there are problems and contradictions in their implementation. These problems are both public and partial. However, it should be noted that the analysis of the works of scientists who studied the issues of educational policy outside Ukraine leads to the idea that each state faces problems with the implementation of educational ideology and strategy. These issues are universal and vary by region, state, and specific locality (Bakalinska et al., 2020).

One of the constitutional rights of a man and a citizen is the right for education. At the same time, it is not allowed to restrict this right on the grounds of disability. It should be

noted that citizens with disabilities are among all segments of population of any society. These are people with health problems such as lesions of musculoskeletal system and central and peripheral nervous system; mental illness and mental retardation; lesions of organs of hearing and vision; lesions of internal organs; cancer. The number of people with special needs is constantly growing, although the causes and consequences of disability may be different: due to different socio-economic circumstances, and different degrees of state welfare of their citizens. Today we can talk about global nature of the problem of disability - worldwide, some opportunities are limited by about one from ten people (650 million people), of which almost 470 million people are of working age (Kravchenko, 2010). In Ukraine as of January 01, 2020, there are 2.7 million people with disabilities, including 222.3 thousand people with disability group I, 900.8 thousand people with disability group II, 1416.0 thousand people with disability group III and 163.9 thousand children with disabilities (Kravchenko, 2010).

It should be noted that today in Ukraine in the system of higher education institutions persons with: Group I disability do not receive higher education at all (such persons are incapable of learning); II group of disability (ability to study only in special educational institutions or under special programs at home) in 2020, about 60 such persons were recorded; Group III disability is the largest group of students who are able to study in general educational institutions in compliance with a special regime of the educational process and (or) with the use of aids, with the help of other persons (except teaching staff) - as of the end of 2020 There were about 300 of them in the whole of Ukraine in 2020, they are present in almost all higher educational institutions of Ukraine.

Thus, the purpose of the article is to identify the problems faced by people with disabilities in exercising their constitutional right to higher education is becoming urgent.

1. Literature Review

Some aspects of the problem of access of persons with disabilities to higher education were partially studied by Kravchenko M.V. «Actual problems of social protection of the disabled in Ukraine» (2010); issues of socialization of students with disabilities were the subject of research by Madhuri T. Sathe, Amol C. Adamuthe «Comparative Study of Supervised Algorithms for Prediction of Students» (2021); Arifur Rahaman, Sabrina Tasnim, Md Sohag Hossain Majumdar, Emam Hossen, Md Rafiqul Islam «A Comprehensive Study on

Excessive Mobile Phone Use and Preventive Measures» (2020) and Zoran Kotevski, Ivana Tasevska Evaluating the Potentials of Educational Systems to Advance Implementing Multimedia (2017); problems of social adaptation of people with disabilities in higher education were the subject of research V.S. Tserklevych «Implementation of the right to higher education for young people with disabilities in foreign practice» (2009) and I.L. Bulyk «Administrative and legal support of the right to education of the disabled» (2012).

2. Methods

The methodological basis for writing this article is a system of general and special methods of scientific knowledge. Using the structural-functional method, the procedure for admission of persons with special needs to higher education institutions was studied; the comparative legal method made it possible to determine the need for the use of modern mobile IT technologies in the inclusion of people with disabilities in the learning process in higher education; the method of analysis was used in the process of determining the content and features of obtaining higher education for persons with disabilities; using the statistical method and analysis, analytical data on the number of people with disabilities included in the educational process are presented.

3. Results and Discussion

3.1. Legislative provision of the right of persons with disabilities for higher education

At the international level the countries-members of the Convention on the Rights of Persons with Disabilities have agreed that the countries-members recognize the right of persons with disabilities for education. For the purposes of realization of this right, without discrimination and on the basis of equal opportunities, the countries-members shall ensure inclusive education at all levels and lifelong learning, seeking to: (a) full development of human potential, as well as a sense of dignity and self-respect, and strengthening of respect for human rights, fundamental freedoms and human diversity; (b) develop the personality, talents and creativity of persons with disabilities, as well as their mental and physical abilities to the fullest extent; c) enable persons with disabilities to take an active part in the life of a free society (UN, 2006).

In exercising this right, the countries-members shall ensure that: (a) Persons with disabilities were not excluded from the general educational system due to their disability, and children with disabilities were not excluded from the system of free and compulsory primary or secondary education; (b) Persons with disabilities have equal access to inclusive, quality and free primary and secondary education at their places of residence; (c) reasonable accommodation must be provided to take account of individual needs; (d) Persons with disabilities receive the necessary support within the general educational system to facilitate their effective learning; e) in conditions that best contribute to the acquisition of knowledge and social development, in accordance with the purpose of full coverage, effective measures must be taken to organize individualized support (UN, 2006).

The countries-members shall provide persons with disabilities with the opportunity to acquire life and social skills in order to facilitate their full and equal participation in education and as members of the local community. The countries-members shall take appropriate measures in this regard, in particular: (a) promote the acquisition of Braille alphabet, alternative fonts, amplification and alternative methods, communication methods and formats, as well as orientation and mobility skills, and promote peer support and mentoring; b) promote the acquisition of sign language and the promotion of the linguistic identity of the deaf; (c) Ensure that the education of persons, in particular children who are blind, deaf or deafblind, is carried out in the most appropriate languages, methods and means of communication for the person with disability and in an environment conducive to acquisition of knowledge and social development. To facilitate the realization of this right, the countries-members shall take appropriate measures to involve teachers, including teachers with disabilities, who speak sign language and / or Braille alphabet, and to train professionals and staff working at all levels of the education system. Such training covers disability education and the use of appropriate amplification and alternative methods, ways and formats of communication, teaching methods and materials to provide support to persons with disabilities. The countries-members shall ensure that persons with disabilities have access to general higher education, vocational training, adult education and lifelong learning without discrimination and on an equal basis with others. To this end, the countries-members shall ensure reasonable accommodation for persons with disabilities (UN, 2006).

National legislation stipulates that a person with special educational needs is a person with disability who needs additional support to ensure higher education.

The Law of Ukraine "On Higher Education" stipulates that special units may function in the structure of higher educational institutions, which take care of persons with disabilities in the process of providing them with educational needs. However, with the growing number of people with disabilities among the young population, the problem of obtaining higher education and, accordingly, the state guaranteeing of the right of people with disabilities for education is becoming more and more important. Therefore, we believe the availability of these units should not be a right or alternative choice, but a duty of higher educational institution, and this obligation should be fixed to one of the criteria for licensing higher educational institution or accreditation of relevant educational programs.

It should also be noted that Section V "Quality Assurance in Higher Education" does not provide the necessary conditions for implementation of quality of higher education specifically for people with special educational needs and disabilities, including training of qualified professionals to work at inclusive educational institutions.

Art. 49 of the Law of Ukraine "On Higher Education" stipulates that a person has the right to obtain higher education in various forms or a combination of them. The main forms of higher education are: institutional (full-time (day, evening), correspondence, distance, network); dual.

Given the special needs of people with disabilities, we consider it possible to introduce a third form of education for people with disabilities - inclusive education.

Art. 22 of the Law of Ukraine "On Fundamentals of Social Protection of Persons with Disabilities in Ukraine" establishes the guarantees for persons with disabilities to exercise the right for education by delegating to higher educational institutions the obligation to create necessary conditions for appropriate education.

Admission to higher educational institutions for persons with disabilities is carried out on a competitive basis in accordance with the Conditions of Admission to Higher and Professional Higher Educational Institutions approved by the Ministry of Education and Science of Ukraine. Special conditions for obtaining higher education by state order and at the expense of targeted preferential state orders are provided: - persons with disabilities who are unable to attend school (upon recommendation of health and social protection authorities); - persons who have diseases listed in the List of diseases and pathological

conditions that may be an obstacle to the external independent assessment; -persons with disabilities of the I, II groups and children with disabilities under the age of 18, who are not contraindicated to study in the chosen major (VRU, 1991, Art. 22).

The Law of Ukraine "On Rehabilitation of Persons with Disabilities in Ukraine" clearly defines the obligation of the state to provide free vocational education and related services, in accordance with the individual rehabilitation program for persons with disabilities. Persons with disabilities, children with disabilities, with severe disabilities, who need special conditions for vocational education, may, if they wish, study at special educational institutions or t general educational institutions, where appropriate conditions are created in accordance with state social standards, and in case of need - according to training programs adapted for training of persons in need of correction of physical and / or mental development. In case of impossibility to carry out vocational education of persons with disabilities, children with disabilities at general and special educational institutions, their education is organized (with their consent or with the consent of their legal representatives) at home according to individual curricula, if this form is allowed by vocational training (VRU, 2005).

The procedure for admission of persons with special needs to higher educational institutions is defined more particularly in the order of the Ministry of Education and Science of Ukraine "On approval of the Conditions of admission to higher educational institutions in 2021, October 15, 2020, No. 1274. In particular, persons with disabilities due to war in accordance with Article 7 of the Law of Ukraine "On status of war veterans, guarantees of their social protection" (including on the basis of the educational and qualification level of a junior specialist); persons who, by the Law of Ukraine "On Status and Social Protection of Citizens Affected by Chornobyl Accident", have been granted the right to be admitted to state higher educational institutions without examinations based on the results of an interview; Persons with disabilities who are unable to attend an educational institution (upon recommendation of health and social protection bodies) - pass the entrance exams in the form of an interview and in case of a positive conclusion about the interview are recommended for enrolment in higher educational institution on the basis of complete general secondary education (MESU, 2020).

In addition, persons with disabilities of the groups I, II and children with disabilities under the age of 18, who are not contraindicated to study in the chosen major; persons with

disabilities from among the participants in the liquidation of the consequences of Chornobyl accident and victims of Chornobyl disaster, in respect of which a causal link of disability with Chornobyl disaster, Chornobyl catastrophe radiation sickness (category 1), (compulsory) resettlement from the moment of the accident until the adoption of the resolution on resettlement (category 2); children of persons recognized as victims of the Revolution of Dignity, participants of hostilities, persons with disabilities as a result of the war in accordance with the Law of Ukraine "On status of war veterans, guarantees of their social protection"; miners who have at least three years of underground work experience, as well as within three years after completing general secondary education, persons whose parents are miners and have at least 15 years of underground work experience or who have died as a result of an accident at work or become persons with disability of the I or II group, - can be transferred to vacant places by state or regional order in the manner provided by these Conditions if they are enrolled on training on other sources of financing by open or fixed competitive offer and did not receive the recommendation for places of state or regional order (MESU, 2020).

3.2. Practical component

Creation of new information technologies led to the emergence of innovative forms of employment. Simultaneously, the modern state of economy is in contradiction with legal regulation of work, since the effective labour legislation of Ukraine practically does not reflect new forms of population employment (Vyshnovetska et al., 2018). It should be noted that KROK University is implementing the innovative project "Distance Education for People with Disabilities", which aims to expand opportunities for higher education for people with special educational needs. The project is designed to provide opportunities for remote access to people with reduced mobility and special educational needs. KROK University provides distance learning for students to receive a bachelor's and master's degree. First of all, this project is aimed at removing geographical, economic and psychological barriers for higher education, expanding its accessibility. KROK University provides the following opportunities for students with disabilities of distance learning: support of persons with disabilities during the study period, which provides a prompt response of the support service to the emergence of any student-related issues; flexible payment system, assistance in drawing up the necessary documents for submission to the local / regional

branch of the Fund for Social Protection of the Disabled of Ukraine in order to reimburse the cost of training for persons with disability (KROK, 2020).

The educational process takes place: by means of modern information and communication technologies; according to an individual schedule; at a convenient time for students; in a convenient place (there is no need to visit the University for lectures and practical classes).

Another example is the introduction of Academy of Labour, Social Affairs and Tourism (Kyiv) under the project "Believe in yourself", an opportunity for people with disabilities to receive higher education in "Social Work" at the expense of the Fund of Social Protection of Disabled Persons in the following areas: social -psychological counselling (bachelor's, master's degree); social prevention and rehabilitation (bachelor's degree); social project management (bachelor's degree); social project management (master's degree); mediation and conflict management (master's degree). In 2020, this opportunity was offered for the fifth time! Over the years of the project, more than 100 people with disabilities from different parts of Ukraine have become students and study for free, and some have already successfully completed their studies and received the coveted state diplomas. Full-time and part-time education is available (Huliayeva, 2020).

Such employees are able to work as: specialists at state and local government on social issues; specialists of state social services, social and psychological services of secondary and higher educational institutions; inspectors of employment and employment centres, specialists of personnel agencies; specialists of centres of social prevention, social rehabilitation, social services; specialists in mediation and conciliation services, mediation centres and legal campaigns; project managers and heads of public organizations working in the field of social protection; experts and consultants on social policy issues of political parties and trade unions; personnel managers, psychologists and consultants on social issues at enterprises, trainers, inspectors of personnel departments of public and private enterprises; trainers of consulting companies, employees of research institutes, research centres, teachers of higher educational institutions (Huliayeva, 2020).

3.3. International practice of using mobile forms of education for people with disabilities

The European researchers pay attention to the need to introduce IT-technologies in teaching and implementing distance learning for people with special abilities. They argue that higher education applicants with special needs should apply algorithms so called "machine learning", which subspecies are controlled, uncontrolled and auxiliary training (Madhuri & Amol, 2021; Kotevski & Tasevska, 2017).

Thus, we agree that in order to optimize the process of obtaining higher education for people with special needs, it is no doubt that video communication, multimedia technologies, etc. must be introduced to promote further development of globalization processes, which will help to improve the learning process.

However, despite the promising possibilities of using IT-technologies, mobile communications, yet there are thoughts about harm from use of these modern technologies due to their impact on proper functioning of biological systems of the human body and their lead to some serious diseases such as: heart disease, headache, impaired concentration and memory, as well as fatigue, brain cancer, brain tumour, Alzheimer's disease, Parkinson's disease, hormonal disorders, sleep disorders, cognitive impairment, behaviour, attention and long-term consequences (damage of DNA, male infertility) (Rahaman et al., 2020, 33).

Additionally, training of persons with disabilities in international practices is identified with so-called "mobile learning". Mobile learning is one of the major revolutions taking place around us that requires a change in the philosophy of learning. This is seen as the third wave of learning, where both traditional learning and e-learning are seen as the first and the second respectively. In order to explore the possibilities of the learning environment, we must reject and get some basic ideas, such as attention, rhythm, learning style for these new dimensions of learning (Mohaimen et. al., 2021, 34).

3.4. Steps to improve the process of higher education for persons with disabilities

Viktoriia Tserklevych (2009, 67) notes that the best way to solve the problem of the need for integrated / inclusive education is: choice of form of education (full-time, part-time, distance); presence of socio-psychological and socio-pedagogical support in the learning process; selection of teaching methods and technologies; availability of rehabilitation services; individualized approach and measures for integration into a group of classmates; availability of barrier-free architecture and technical support of the learning process; assistance in subsequent employment in the chosen major. These components in

general, the level of their implementation at a particular educational institution are an indicator of access to education for students with disabilities.

Iryna Bulyk (2012, 83) emphasizes that in modern conditions it is necessary to create conditions that would allow to acquire a profession for people with disabilities. First of all, it is necessary to develop: analysis of medical indications and contraindications to study at vocational schools; to provide priority funding for research and scientific and methodological developments aimed at stopping depopulation processes in Ukraine and preventing disability; search for new approaches and technologies in solving the problem of comprehensive social rehabilitation of people with special needs, their education and professional training; to coordinate activities on employment of disabled people with local executive bodies, to ensure differentiated reservation of jobs for disabled graduates of educational institutions; to ensure the release of special scientific, methodological, informational literature on legal, socio-economic issues, vocational guidance, reorientation, psychological support, audiovisual teaching aids, textbooks for vocational rehabilitation of the disabled; to ensure the purchase of PCs, professional materials, legal documents, literature on psychological issues for offices for vocational guidance and psychological support for the disabled at vocational schools; to ensure the elimination of natural, communication and architectural obstacles that impede free movement of persons with disabilities in the premises where training is carried out in accordance with the Law of Ukraine "On basis of social protection of persons with disabilities in Ukraine"; to develop a list of integrated professions for training of disabled people at vocational schools in majors that are in demand in the labour market.

There are contradictions in the content of Art. 45 and Art. 70. For example, the Art. 45 "External independent evaluation" states that "the state provides entrants with special educational needs with equal access to external independent evaluation at the place of residence (stay) of such persons. Buildings, structures and premises, where external independent evaluation is carried out must meet the requirements of accessibility in accordance with state construction norms and standards." As you can see, the article does not specify the accessibility of buildings and premises for people with special needs and disabilities. In paragraph 2 of Art. 70 "Material and technical base and legal regime of property of higher educational institutions" it is stated that "buildings, structures and premises of higher educational institutions must meet the requirements of accessibility in

accordance with state building codes and standards. If the relevant facilities cannot be fully adapted to the needs of persons with special educational needs, their reasonable adaptation shall be carried out taking into account the universal design. The design, construction and reconstruction of buildings, structures and premises of higher educational institutions are carried out taking into account the needs of persons with special educational needs". This discrepancy between the articles of the Law indicates the imperfection and inconsistency of the provisions of this Law and the need to refine it for equal access of persons with disabilities to qualitative higher education both at the stage of admission to higher educational institution and at the stage of receiving higher education (Malysheva, 2015, 32).

An important obstacle to obtaining special educational services for people with disabilities is the difficulty in obtaining a medical opinion and, accordingly, presenting it as a factual basis, which provides a person with guarantees of preferential education at higher educational institution (Pyvovar et. al., 2019; Kuzmenko et. al., 2018).

Conclusion

Based on the study, in our opinion, solving the problem of barriers in people with disabilities in higher education in higher education is possible by implementing the following steps:

1. Enshrining at the legislative level the provisions that oblige higher education institutions to organize the educational process so that the education of persons with special educational needs is carried out according to special educational programs using special educational literature and teaching aids;

2. Creation of special educational and rehabilitation subdivisions in the structure of higher educational institutions;

3. Organization of advanced training courses among the scientific and pedagogical staff to acquire special skills of presenting educational material to students from among persons with disabilities;

4. Introduction of a variable approach and special equipment of classrooms with free access to them for people with special needs;

5. Introduction of an effective state concept of inclusive education at the national level;

6. Development and adoption of long-term development programs to meet the special educational needs of persons with disabilities;

7. An effective information policy to promote inclusion in order to create the necessary conditions for changing negative stereotypes and attitudes towards people with disabilities in Ukrainian society based on the achievement of social solidarity and social justice.

References

Bakalinska, O., Belianevych, O., Honcharenko, O., Pyvovar, Y. (2020). Ukrainian educational policy on culture of entrepreneurship in globalization, europeanization, and glocalization. *Masyarakat, Kebudayaan dan Politik (MKP), 33(1),* 110-121. DOI: http://dx.doi.org/10.20473/mkp.V33I12020.110-121

Bulyk, I. (2012). *Administrative and legal support of the right for education of the disabled.* In Problems and state of observance of human rights protection in Ukraine, Ukrainian scientific-theoretical conference (p. 81-83). National Academy of Internal Affairs. Ukraine.

Huliayeva, L. (2020, July). *Free higher education for people with disabilities with major in "Social Work".* Public Space. https://www.prostir.ua/?grants=bezkoshtovna-vyscha-osvita-dlya-osib-z-invalidnistyu-za-spetsialnistyu-sotsialna-robota

Kotevski, Z., Tasevska, I. (2017). Evaluating the Potentials of Educational Systems to Advance Implementing Multimedia Technologies. *International Journal of Modern Education and Computer Science,* 9(1), 26-35.

Kravchenko, M. (2010). Actual problems of social protection of the disabled in Ukraine. *Public administration: theory and practice,* 2. http://academy.gov.ua/ej/ej12/txts/10kmvziu.pdf

Krok (2020). *Distance education for people with disabilities:* rules. Internet Portal - «KROK» University. https://www.krok.edu.ua/ua/pro-krok/pidrozdili/navchalni/tsentr-distantsijnogo-navchannya/distantsijna-osvita-dlya-lyudej-z-invalidnistyu

Kuzmenko, O., Matselyk, T., Chorna, V. (2018). Financial Offenses in the Circulation of Medicines in the Context of Globalization. *Baltic Journal of Economic Studies,* 4(5), 143–152.

Madhuri, T. Sathe, Amol, C. Adamuthe (2021). Comparative Study of Supervised Algorithms for Prediction of Students' Performance. *I. J. Modern Education and Computer Science,* 1, 1-21. http://www.mecs-press.org/ijmecs/ijmecs-v13-n1/IJMECS-V13-N1-1.pdf

Malyshevska, I. (2015). Right for higher education of persons with special needs and disabilities in the legislation of Ukraine. *A special child: education and upbringing,* 2, 27-34.

Ministry of Education and Science of Ukraine (MESU). (2020). On approval of the Conditions of admission to higher education in 2021: Order No. 1274. https://zakon.rada.gov.ua/laws/show/z1225-20#Text

Mohaimen-Bin-Noor, Ahmed, Z., Nandi, D., Rahman, M. (2021). Investigation of Facilities for an M-learning. *Modern Education and Computer Science*, 1, 34-48. http://www.mecs-press.org/ijmecs/ijmecs-v13-n1/IJMECS-V13-N1-3.pdf

Pyvovar, I., Kuzmenko, O., Chernaya, V., Muratova, D., Pyvovar, Yu. (2019). Conclusions of medical-social expert and military-medical commissions as an object of an appeal to public authorities: administrative legal analysis. *Georgian Medical News*, 3(288), 139-146.

Rahaman, A., Tasnim, S., Majumdar, Md Sohag H., Hossen, T., Islam, Md Rafiqul (Rafiq). (2020). A Comprehensive Study on Excessive Mobile Phone Use and Preventive Measures. *International Journal of Modern Education and Computer Science*, 12(.3), 33-39. http://www.mecs-press.org/ijmecs/ijmecs-v12-n3/v12n3-5.html

Tserklevych, V. (2009). Exercising the right for higher education for young people with disabilities in foreign practice: from discrimination to integration. *Collection of scientific works of Khmelnytskyi Institute*, 1, 67-71. http://nbuv.gov.ua/UJRN/Znpkhist_2009_1_18

United Nations (2006). Convention on the Rights of Persons with Disabilities of December 13, 2006. https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html

Verkhovna Rada of Ukraine (VRU). (1991). On the basis of social protection of persons with disabilities in Ukraine: Law No. 875-XII. https://zakon.rada.gov.ua/laws/show/875-12#Text

Verkhovna Rada of Ukraine (VRU). (2005). On Rehabilitation of Persons with Disabilities in Ukraine: Law No. 2961-IV. https://zakon.rada.gov.ua/laws/show/2961-15#Text

Vyshnovetska, S., Pyvovar, Y., Kmetyk, Kh. (2018). Distant Work: Essence and Perspective of Legal Regulation in Ukraine. *Advanced Science Letters*, *24*(12), 9405-9409. DOI: https://doi.org/10.1166/asl.2018.12285

Microlearning and microteaching: prospects of improvement in regions within crosscultural education

Selimov Timur Sergeyevich*
Bogoslovsky Vladimir Ivanovich**
Kiseleva Mariya Andreevna***
Zhukova Tatyana Anatolyevna****
Motchenko Anna Nikolaevna*****

ABSTRACT

The research article explores the evolving trends in modern education, which are microlearning and microteaching. The authors analyze microlearning and microteaching as the most progressive and up-to-date approach. This article brings up the role of the globalization in the process of education encompassing crosscultural education. Although micro learning and teaching embrace many demands of modern learning and teaching, the approaches catering to the needs of students from different regions, have not been developed yet. Therefore, the main objective is to demonstrate the opportunities which microlearning offers within crosscultural education. The authors consider theoretical and empirical review of the literature and a conceptual framework to be the basic methods. The results obtained can be formulated as follows: a regional model of the micro-learning education (learning and teaching) with a set of specific character traits of students to facilitate the ideas of microeducation has been developed. This article is aimed to discuss the evolvement, current perceptions, basic principles and tools of microteaching and microlearning; to analyze their efficiency in the modern world and to suggest its further development through analysis of cross-culturalism in education using Hoffstede's dimensions including the model for regional program developing within crosscultural education.

KEY WORDS: Microteaching; regionalism; crosscultural education.

*2nd year Bachelor degree student, «Foreign Languages and IT» program, Institute of International Education Moscow State Pedagogical University, Moscow, Russia. ORCID: https://orcid.org/0000-0003-3304-642X

**Professor, Department of digital education, Herzen State Pedagogical University, St. Petersburg, Russia. ORCID: https://orcid.org/0000-0001-7071-244X

***English Language Teacher, Department of foreign languages and intercultural communication Financial University under the Government of the Russian Federation Moscow, Russia. ORCID: https://orcid.org/0000-0001-5911-406X

****PhD in Education, Associate Professor Department of foreign languages and intercultural communication Financial University under the Government of the Russian Federation Moscow, Russia. ORCID: https://orcid.org/0000-0002-2184-4814

*****Senior English Language Teacher, Higher school of contemporary social sciences, Department of social science and management of social processes, Moscow State University, Moscow, Russia. ORCID: https://orcid.org/0000-0003-2710-2958

Microaprendizaje y microenseñanza: perspectivas de mejora en las regiones dentro de la educación intercultural

RESUMEN

El artículo de investigación explora las tendencias cambiantes en la educación moderna, que son el microaprendizaje y la microenseñanza. Los autores analizan el microaprendizaje y la microenseñanza como el enfoque más avanzado y actualizado. Este artículo plantea el papel de la globalización en el proceso educativo abarcando la educación intercultural. Aunque el microaprendizaje y la enseñanza tienen relación con muchas demandas del aprendizaje y la enseñanza modernos, los enfoques que atienden las necesidades de los estudiantes de diferentes regiones aún no se han desarrollado. Por lo tanto, el objetivo principal es demostrar las oportunidades que ofrece el microaprendizaje dentro de la educación intercultural. Los autores consideran la revisión teórica y empírica de la literatura y un marco conceptual como métodos básicos. Los resultados obtenidos se pueden formular de la siguiente manera: se ha desarrollado un modelo regional de la educación microaprendizaje (aprendizaje y enseñanza) con un conjunto de rasgos de carácter específicos de los estudiantes para facilitar las ideas de la microeducación. Este artículo tiene como objetivo discutir la evolución, las percepciones actuales, los principios básicos y las herramientas de la microenseñanza y el microaprendizaje; analizar su eficiencia en el mundo moderno y sugerir su posterior desarrollo a través del análisis del transculturalismo en la educación utilizando las dimensiones de Hoffstede, incluido el modelo para el desarrollo de programas regionales dentro de la educación transcultural.

PALABRAS CLAVE: Microenseñanza; regionalismo; educación intercultural.

Introduction

The world is changing as significantly as rapidly. The amount of information needed for being successful in one's occupation is growing year after year; hence, the matter of the best way to deliver this information turns up. What does it mean? The question how to teach and to be taught more efficiently is in the focus nowadays. Out of all models of education, microteaching and microlearning seem to be the most contemporary one, which fulfills the demands of the learners nowadays: convenient format of education, efficient use of time spent on learning and non-stop acquiring useful skills (Bruck, P.,2005; Giurgiu, Luminiţa,2017; Gona, Sirwan Mohammed, Karzan, Wakil, Sarkhell & Sirwan M. Nawroly, 2018). Moreover, the process of globalization has covered the sphere of education as well, making it cross-cultural. The initiatives such as Rasmus, Socrates, Tempus, Usaid, Irex, British Council,

DAAD, EduFrance that have been launched worldwide can prove this statement. This raises a question whether microlearning can be used as a part of crosscultural education. Crosscultural education requires teaching programs - *microteaching and microlearning as well – to be adjusted for students from different regions.* Crosscultural education is aimed to accomplish two goals: to improve efficiency of education by adjusting educational process for the needs of international learners and to build a community of tolerant learners. There are various models of cross cultural education, which explain how to perform communication and teaching. Among them, we can distinguish Hofstede cultural dimensions' theory.

Today crosscultural education is undergoing a number of major changes which means that researchers have to respond quickly to the newly emerging challenges. Among those are the impacts which multicultural processes may have on each region; and the advent of new educational technologies fostered by specifics of educational programs.

Although this theory of microlearning and microteaching is not concentrated on crosscultural education only, it gives perspectives for analysis of student's needs all over the world that may be taken into account in microteaching and microlearning in regions. Therefore, the question to be answered is the following: how to adjust microteaching and microlearning in regions for the demands of multicultural society of learners? The aim of the research was defined by the lack of full knowledge in the field. Thus, the research is expected to demonstrate the opportunities offered by microlearning in the context of crosscultural education and develop a set of relevant tools.

1. Methods

The literature review consists of two components: a theoretical and empirical review of the literature and a conceptual framework. The theories reviewed in this research article serve the purpose of explaining the problem of study. The empirical studies lend support to the theories, propose alternate suppositions, and highlight the need for further study. The conceptual framework identifies obstacles to the instruction of the research plan design. The research article relies on holistic systematic approach which enables to review microlearning as an integrated learning process. The structural and functional approach allows for examination of microlearning as a part of crosscultural education, identification of its main functions, outlining further prospects for development and areas for improvement.

2. Results

2.1. What has contributed to the evolvement of micro education (learning and teaching)?

By the common definition, micro education (learning and teaching) is a process of learning the material divided into «bite-sized» chunks that usually last no longer than a few minutes (up to 15), so lessons become much easier to digest and the likelihood of knowledge retention is increased (Hug, T.,2018; Jomah, O., Masoud, A.K., Kishore, X.P. & Aurelia, S., 2017). The way micro learning and teaching address short size of learning and teaching content is made up of fine-grained, interconnected and loosely coupled short learning activities, determines the focus on the individual needs (Hug, T., & Friesen, N., 2017).

Although microlearning and microteaching are known to be a modern term, it has deep roots in history. Ancient people drew rock paintings, which were small, but informative pictures, understandable instantly, illustrating how to make fire or what animals to hunt. This is the grand-predecessor of microlearning and microteaching.

After that, in Ancient Greece, Socrates presented rhetoric discipline and the art of making dialogues - the pieces that expressed the idea directly and entertainingly, keeping the listener engaged. Through the centuries, different scientists such as Plato, St. Thomas Aquinas, Comenius, J.J Rousseau, and J.F. Herbert B.F. Skinner contributed to Didactics and more effective performance of the learning and teaching processes. During the twentieth century among the other scientific breakthroughs, there were some in the above-mentioned spheres, which gave a boost to the development of what we presently know as microlearning and microteaching. For example, Leo Tolstoy in his «General notes for a teacher» stated that: «it is crucial for the content of the lesson to be entertaining and clear for student to understand it; the reason why the lesson is boring is that the explanation given by the teacher is too long and boring; it is essential not to let the student's mind to get tired, hence, the attention span of a certain pupil should be distinguished; the lesson should be in proportion with the student's level of knowledge - not too easy and not too hard».

In 1954, researches proved that the amount of information remembered in one try should be limited to make the process of learning more effective. In 1973, Sebastian Leitner came up with the idea of using flashcards for accelerated and increased learning by spaced repetition. In 1963, Hector Correa firstly used the term «microlearning» in a book «The Economics of Human Resources». Then, in 1990-s with the development of IT-technologies

and the Internet in particular the eLearning was developed, which was the direct presupposition for microlearning.

Eventually, in the 2010-s, microlearning and microteaching (Clarke, M., 2019) emerged from e-learning and was announced as the fastest growing trend in education. Nowadays it is said to be the future of the learning process, since its effectiveness in terms of fast-flowing and rapidly changing world is considerable.

2.2. Macro vs micro learning and teaching

«Indeed, microlearning often starts life as macro learning, which is distilled and repurposed to make it micro» (Lynch, 2019).

Macrolearning and microteaching is what we know as traditional learning and teaching: it involves instructors, coaches and mentors, and long-oriented approaches. We all have been exposed to macrolearning and macroteaching since school classroom. It is aimed at forming new skills from sketch, whereas microlearning and microteaching is about improving the skills the learner has already acquired (Lynch, 2010). Josh Bersin in his article «The Disruption of Digital Learning: Ten Things We Have Learned» described the learner's aim when picking macro learning and teaching as «I want to learn something new» and the learner's aim when picking micro learning as «I need help now». Moreover, he pinpointed that micro learning and teaching deal more with the problem-based cases and lets the student go «free sailing» for search of the information needed to solve the problem. Macrolearning and macroteaching is about another approach, since it engages a lot of support from tutors, teachers, classes and programs based on feedback and grades that the student gets (Lynch, 2019). Moreover, when we described macrolearning and macroteaching, we named a school classroom as the strongest association with this term, but talking about micro learning and macro teaching we cannot distinguish the exact room or place where it happens. Why? As far as micro learning and teaching are performed mostly on the Internet on the websites and in applications (Shail, 2019).

According to the classification published on learningcrafters.com, macrolearning and macroteaching is likely to be the best at: transformational programs (De Gagne, Jennie Chang; Hyeyoung; Park, Kate; Hall, Katherine; Woodward, Amanda; Yamane, Sandra & Kim Sang Suk, 2019) – training people on contemporary topics such as principles of data science,

design thinking, machine learning etc.; learning to use the organization's tool - training on how to use various software and information systems of the organization.

Regarding microlearning and microteaching, this classification states the following: «updating» knowledge and skills – New SOPs, new workplace practices, product updates and best practices; performance support – practical knowledge and information on how to perform specific tasks, delivered just in time; increasing retention (Hug, et al., 2005) – refreshers, knowledge checks and other spaced learning elements help to increase retention, even within a wider «macro learning» and «macro teaching» activity.

Another big difference is the time consumption of these different approaches. If micro learning / teaching usually takes from two to 15 (maximum) minutes, macro learning / teaching is to take up to hours. Summing up, we can say that there are some clear differences between these two methods of learning regarding time, approaches, aims and the level of knowledge of the learner. However, should we oppose microlearning and macro learning and teaching? Definitely no. They are closely interconnected and if the teacher applies both methods, it will definitely be fruitful.

2.3. Tools of micro learning and teaching. Principles of micro learning and teaching content.

What helps micro learning and teaching to be engaging and entertaining is diversity of different techniques of representing the content. Among them, we can list the following: videos (short educational videos, video tutorials and how-tos); articles; flash cards; presentations, short tests, spaced learning blogs, applications, game-based learning and teaching (Hug, T., & Friesen, N.).

The development of mobile apps and Internet resources gave a boost to development of micro learning and teaching. Different applications and platforms are widely used to divide content into «bite-sized chunks» and create an engaging atmosphere. Here are some examples: biteable – a tool for making short videos; kahoot - the platform that you can create tests on; quizlet – perfect digital replacement for analogue flash-cards; language drops – good example how the app can be used for micro learning and teaching; ted-ed – watch brief knowledgeable videos and acquire new skills.

All of above-mentioned techniques stick to some basic principles of micro learning and teaching: the content is divided into bite-sized chunks, the content is accessible

immediately anytime and anywhere (via the Internet); learners should get a specific outcome; adaptive and personalized learning and teaching is applied. We want to draw attention on the fact that micro learning is based on personalisation and customisation of learning content accordingly to the needs different students.

From the authors' point of view, these principles come accordingly with the basic principles of micro learning and teaching in general which represent the demands of millennial learners: customized education; accessible education; on-demand education within dominoes and co-orientation strategies of cooperation in regions, which provide push and pass activities.

Scheme 1. Personalization and customization in teaching
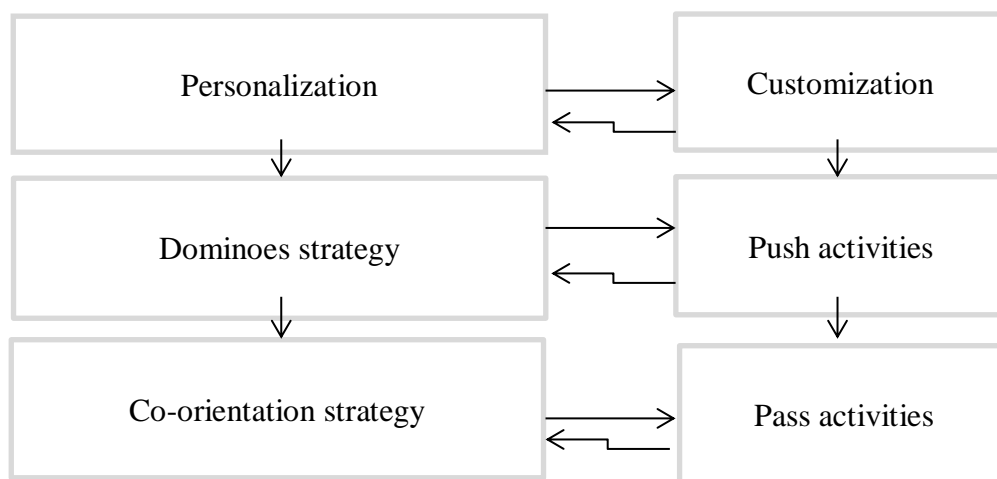
2.4. Effectiveness of micro learning and teaching. Why is it proper for modern learners?

Micro learning and teaching have made a boom in a global society (Shail, Mrigank, S., 2019). Some specialists reckon that this approach can replace traditional way of teaching, since it is less time-consuming and more effective. This is still a controversial question, although some researches have proven the effectiveness of microeducation (learning and teaching).

In many research studies the authors state the idea on how fruitful micro learning and teaching are diving seventh grades with approximately same academic performance into two groups that studied the same subjects for 5 weeks. One group was taught using traditional

way and another using micro learning and teaching. The authors stated that: «traditional learning and teaching group showed 64% passing rate, while Microlearning group's rate 82%». Therefore, the average difference is 18% with micro learning-group leading. In addition, the researchers stated, there were no fails observed in micro learning- group, while in the class taught traditionally the failing rate went up to 36% of the students. Moreover, there were 5 times less students in a «traditional group» that in a «microlearning group» that got the top marks.

Sigh, Ravi Pratap proved that micro learning fits the demand of modern learners. Regarding using micro learning and teaching as an approach for preparing for the final exams, most learners (93%) found the time invested in learning and teaching, i.e. 10 to 15 minutes per day, as appropriate. The content was interesting to all learners and 86% enjoyed learning together in the group. The majority of learners (93%) believed that what they learned was important for their final exam. All learners stated that they felt well supported by moderators, had enough opportunities to bring in their ideas, share information and decide on what, how, when and where to learn. All participants stated they would recommend this type of exam preparation to their peers.

Adding to that, the efficiency of micro learning and teaching is «dictated» by the modern world. What difficulties does a modern learner face? At first, a huge amount of information that is to be remembered. Secondly, complexity and diversity of jobs due to the constant changes in the world. The need to act flexibly and to change and improve work as well as other purposeful activities implies a continuous necessity to learn (Sood, Isha, 2018). In addition, finally, the lack of time is one of the issues in the modern world. According to pewresearch.com, in 2018 60% of participants of the survey said they sometimes felt like being too busy to enjoy life and among working parents 56% said it was too difficult to balance job duties and family time.

Here micro learning and teaching can come in handy. Literature shows that the anytime and anyplace learning opportunity of mobiles provides several benefits for the learning and teaching environment like allowing learners and instructors to utilize their spare time while traveling to finish their homework or lesson preparation. (Bruck, 2005). It allows to make educational process flexible and self-paced, so students can return to the mistakes and improve on their previous performance, hence, complex subjects can be

mastered and give an empowerment of the learner to choose time, place and pace of learning with personalized learning (Edge, D. et al., 2012).

Next, such micro learning and teaching technologies as flash cards or short videos – so called «bite-sized chunks» do not require much time and a busy person can continue learning standing in a queue via mobile devices, for example (De Gagne, Jennie Chang et al. 2019). Finally, regarding the huge amount of information that needs to be aggregated, micro education (learning and teaching) suggests different on-demand and informative trainings that do not require a lot of time and can be easily digested by a learner within a short period. Defining microlearning (teaching) and methods it uses, Isha Sood said: «That makes micro learning opportunities able to fit into hectic schedules and busy lives without a need to pause, hoping to resume at a later time... Microlearning and microteaching typically presents somewhat a casual ambiance, allowing learners to feel that they aren't forced to commit to time/place/tools».

Basically, micro learning and teaching can be applied in every occupation: from teaching students to teaching specialists. To sum up, micro learning and teaching cannot completely replace traditional learning, it is and effective tool which fits the demands of modern learners and helps to gain considerable outcomes in academic performance and acquiring new skills. We can list the advantages of this technology: personalized (self-paced), timesaving, always accessible, engaging.

In conclusion, it should be noted that microlearning is not a completely new technology in the field of education. However, it has not been actively employed in the educational process. The relevance of the research is highlighted by the lack of studies compared to the previous attempts to identify the meaning, advantages and further prospects which the technology in question offers, including the use of the microlearning as a part of cross cultural education.

3. Discussion

3.1. How further development of microeducation may be performed

Although applying micro learning and teaching demonstrate considerable results in students' academic performance, it is an evolving trend and there are some aspects that are to be improved to make an educational process more fruitful (Soula et al, 2017).

In this article we have pointed out that *one of the micro learning and teaching concepts are customization and personalization in the meaning it can be adjusted for the needs of the students from different ethnic groups to fulfill the demands of the students personally and pursue the aim of cross-cultural education.* This adjustment can be successfully made due the high level of flexibility in most tools used for micro learning and teaching and modern technologies and researches, including Geert Hoffstede's cultural dimensions, which are aimed at the analysis of multicultural society.

Another important tendency in the world education is globalization, internationalization and cross-cultural education. According to that, we can see that micro learning and teaching as a customized and a personalized approach should take into account demands and personal traits of students all over the world. How to succeed in it? Cross-cultural education is the approach in education that is aimed to uniting students from all over the world. The goal of this education is to prepare future citizens who will learn to confront critically and resist the mechanisms of manipulation, which create prejudice and stereotypes, to participate dynamically in decision making and in shaping their lives, to work individually or in groups to resolve social problems and improve the quality of life in their society and in the world. Thus, development of cross-cultural education is rather a necessity today, since it represents a key factor for efficient interaction and quality coexistence of members who culturally differ. Therefore, intercultural education plays special role in pluralistic societies.

As principles that may help in developing an open world community, increase the effectiveness of study, distinguish the following developing principles, and develop a regional microeducation program based on these principles: learning a foreign culture is, in fact, always a «two-way» process, with both groups affecting each other; communication between cultures contributes to changes within them, and it is a sort of «exchange» – readiness for responding to the presence of other forms of life; each form of exploring different cultures is also an opportunity to «explore one's own» culture.

Edward Dennehy in his work «Hofstede and learning in higher level education: An empirical study» conducted a research to find out whether Hoffstede's model can be applied for analysing needs and attitudes towards education of students from different regions of the world. Although there were not many clear differences between students from different regions distinguished, the study showed us that this approach in analysis may be used and it

needs further empirical research. It may be supposed that applying Hoffstede's cultural dimensions could increase the outcomes of the micro learning and micro teaching process in the regions also.

From the authors of the current research point of view, microeducation (learning and teaching) is closely interconnected with the personality of each student, since it pays close attention to the personal traits of the learner (in particular, for adjusting learning and teaching strategies, pace of studying and the aims of study). The following may be suggested: micro learning and teaching process, which has embraced the learners and teachers worldwide, might be improved if the needs of students from different countries will be analyzed and systemized. This may be performed using Hoffstede's cultural dimensions. *As an outcome of such study we may gain a better overview on the demands of learners and teachers from all over the world and an understanding what approaches, forms of content and techniques are to be applied to gain better outcomes on two levels:*

- *to provide a regional model of the microlearning education (learning and teaching);*

- *to provide a set of some specific character traits of students to develop the ideas of micro-education (learning and teaching) within the overview of students' cultural differences.*

There are some specific character traits of students from different regions according to Hofstede and we need to distinguish and consider them when working out recommendations for micro learning and teaching to enhance students' performance. In the following table, we can see some recommendations for the improvement of learning and teaching process (the second and the third column) which are based on the Hoffstede's dimensions.

Table 1. Overview of students' differences

Dimensions by G. Hofstede	Specific personal traits	Updating knowledge and skills	Tools
Individualism (High)	Students are more likely to speak than to listen; «I» - oriented approach;	Performing in groups; team-building	Group-quests, creating content in small groups

(Low)	«learn how to learn» approach Students are more likely to listen than to speak; «We» - oriented approach; «learn how to do» approach	Performing without strict group-approval; ability to speak up; passion for self-education	Quizzes with clearly distinguished winners, creating top-charts of the best students
Masculinity (High)	Distinctive division of male and female roles; male students are supposed to be assertive and tough; female students are supposed to be tender; students may be afraid of making mistakes; students are competitive and there is a clear strive to be the best	Orientation not only on materialistic values, but also on respect for modesty; accepting others' mistakes; creating friendly environment	Cheering students even after their failure; lessening comparing one's-self with others
(Low)	No distinctive division of male and female roles; failing is considered as a minor accident; students are modest and understate their personal achievments	Ability to be proud of your own achievments	Activities aimed to build a «leader-spirit» in students

Uncertainty avoidance (High)	Students want to feel sure that they will be given a clear answer in the end and all mistakes will be corrected by a teacher; students are afraid of ambiguous tasks; clear schedule and instructions during the lessons are to be applied	Ability to do open-ended tasks; passion to explore new things and think out of box	Encouraging students to use trial-and-error method; less emphasis on the marks
(Low)	Students are up to explore the learning content on their own, even if the question may be open-ended	Being aware of inability to solve some tasks	Encouraging of initiative and soothing in case of failure

Conclusion

To sum it up, the authors analyzed the evolving educational technology - micro learning and teaching. According to the previously stated information and the tendency in the world education – cross-cultural education – we have assumed that micro learning and teaching could be improved if a closer attention would be drawn to the personal needs of students form different countries of the world. Basing on this theory, the model of improving micro learning and teaching has been developed, which would include analysis of needs of learners from different countries based on Hoffstede's cultural dimensions, aggregating and systemizing the information, distinguishing common features of learners from different parts of the world and developing further steps for arranging educational process which would be more effective than it is now. In the position one, the further steps within the research are represented. At this point we have established the theory that micro-education (learning and teaching) may be improved with the techniques of cross-cultural education implemented.

In the position two, the first attempt for making recommendations (a model and a set of some specific character traits) for further development of micro learning and teaching model in regions in the context of cross-culturalism was made. Thus, we have distinguished the most characteristic personal traits for the students of different Hoffstede's dimensions, made an analysis of what knowledge and the representatives of different groups and what tools are to be used to accomplish our aim may acquire skills. The represented recommendations that would help build more tolerant society, since the cultural distance between the students from different dimensions will be lessened if they learn and accept each other's cultural features. We believe, that the efficiency of education will be improved, since learners would become more intelligent, broading their horizons with knowledge about different nations and people from all over the world in regions.

References

Bruck, P. (2005). Microlearning as strategic research field: An invitation to collaborate. *In Microlearning: Emerging Concepts, Practices and Technologies after eLearning. Proceeding of Microlearning*. Innsbruck university press, P.13–17.

Clarke, Mike (2019). History and Politics of Microlearning, 231 p.

De Gagne, Jennie Chang; Hyeyoung; Park, Kate; Hall, Katherine; Woodward, Amanda; Yamane, Sandra & Kim Sang Suk (2019). Microlearning in Health Professions Education, *Scoping Review, JMIR Med Educ.*, no 5(2): 13997. DOI: 10.2196/13997

Dennehy, Edward (2015). Hofstede and learning in higher-level education: An empirical study, *International Journal of Management in Education* 9(3), 323 p. DOI:10.1504/IJMIE.2015.070125

Edge, D., Fitchett, S., Whitney, M., & Landay, J. (2012). MemReflex: adaptive flashcards for mobile microlearning, MobileHCI'12, September 21–24, San Francisco, CA, USA, 218 p.

Giurgiu, Luminiţa (2017). Microlearning an Evolving ELearning Trend, *Scientific Bulletin*, 22(1), 19 p. DOI:10.1515/bsaft-2017-0003

Gona, Sirwan Mohammed, Karzan, Wakil, Sarkhell & Sirwan M. Nawroly (2018). The Effectiveness of Microlearning to Improve Students' Learning Ability, *International Journal of Educational Research Review*. 3(3), P. 32-38. DOI:10.24331/ijere.415824

Hug, T., & Friesen, N. (2007). Outline of a microlearning agenda. Didactics of Microlearning. Concepts, Discourses and Examples, p.1.

Hug, Theo, Lindner, Martin & Bruck, Peter A. (2005). Microlearning: Emerging Concepts, Practices and Technologies after e-Learning., Innsbruck University Press, 13p.

Hug, T. (2010). Mobile learning as microlearning. *International Journal of Mobile and Blended Learning*, 154 p. DOI: 10.4018/jmbl.2010100104

Jomah, O., Masoud, A.K., Kishore, X.P. & Aurelia, S. (2017). Micro Learning: A Modernized Education System, *Broad Research in Artificial Intelligence and Neuroscience*, Vol. 7 (1), 104 p.

Lynch, Mark (2019). Microlearning or Macrolearning, what are the benefits? 156 p.

Shail, Mrigank, S. (2019). Using Micro-learning on Mobile Applications to Increase Knowledge Retention and Work Performance: A Review of Literature. – *Cureus*, 11(8), 28 p. DOI:10.7759/cureus.5307

Sigh, Ravi Pratap (2014). Awesome resources on Micro-learning, 76 p.

Sood, Isha (2018). Microlearning Research: What, How, When, 65 p.

Soula, Mitakidou, Evangelia, Tressou & Eugenia Daniilidou (2007). Cross-Cultural Education: A Challenge or a Problem? *International Critical Childhood Policy Studies*, 2(1), 70p.

Proyectos enfocados en la resolución de problemas y el pensamiento crítico en el nivel inicial

Delci Herrera León *
Fiorela Anaí Fernández-Otoya **
Manuel Jesús Sánchez-Chero ***
Dennis Arias-Chávez****

RESUMEN

La sociedad requiere de ciudadanos competentes y capaces de pensar de manera crítica. Con el objetivo de determinar la influencia de los Proyectos de Resolución de Problemas en el Pensamiento Crítico de los infantes del Nivel Inicial de Instituciones Educativas de la Red Volcán, se efectuó una investigación cuantitativa, de tipo experimental, con diseño preexperimental, a una muestra de 205 infantes. Para conocer el nivel de pensamiento crítico se usó un test en dos momentos (pre y postest). Los resultados del pretest muestran al 100% de estudiantes en el nivel Inicio, mientras que, en el postest estos resultados mejoraron; un 63% estuvo En Proceso, 20% en Logro Esperado, 15% en Inicio y 2% en Logro Destacado. Se concluye que, existe una diferencia de 7,1 puntos entre los promedios obtenidos antes y después de aplicar los proyectos de resolución de problemas, demostrando su influencia positiva en el pensamiento crítico de los infantes.

PALABRAS CLAVE: Ciencias de la educación y ambiente educacional; pensamiento crítico; estudiantes reflexivos; educación.

*Docente. Unidad de Gestión Educativa. San Marcos, Cajamarca, Perú. ORCID: https://orcid.org/0000-0001-7626-4561.

**Docente a tiempo completo. Universidad Católica Santo Toribio de Mogrovejo, Chiclayo, Perú. ORCID: https://orcid.org/0000-0003-0971-335X.

*** Docente posgrado: Universidad César Vallejo. Piura, Perú. ORCID: https://orcid.org/0000-0003-1646-3037. E-mail: manuelsanchezchero@gmail.com.

**** Docente posgrado: Universidad Continental, Arequipa, Perú. ORCID: https://orcid.org/0000-0003-1500-8366.

Projects focused on problem solving and critical thinking at the initial level

ABSTRACT

Society requires competent citizens capable of thinking critically. In order to determine the influence of the Problem Solving Projects on the Critical Thinking of infants at the Initial Level of Educational Institutions of the Volcán Network, a quantitative investigation was carried out, an experimental type, with a pre-experimental design, in a sample of 205 infants. To know the level of critical thinking, a test in two moments (pre and post-test) was used. The pretest results show 100% of students at the Beginning level, while in the posttest these results improved; 63% were In Process, 20% in Expected Achievement, 15% in Startup and 2% in Outstanding Achievement. It is concluded that there is a difference of 7.1 points between the averages obtained before and after applying the problem-solving projects, demonstrating their positive influence on the critical thinking of infants.

KEY WORDS: Educational sciences and educational environment; critical thinking; thoughtful students; education.

Introducción

Desde la Educación se busca formar a las personas de manera integral, a fin de desarrollar el pensamiento crítico y reflexivo de los estudiantes desde pequeños; es así que, formar ciudadanos críticos resulta un ideal que supone formar a personas con pensamiento de autorrealización personal, profesional y ciudadana (Campos, 2007).

Desde un contexto internacional, la Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura (UNESCO, por su sigla en inglés), en el Foro Mundial sobre la Educación del 2015, planteó en los sistemas educativos la necesidad de satisfacer los requerimientos y tendencias locales, nacionales y mundiales de la población (UNESCO, 2015). Además, se resaltó que no solo se educa enseñando competencias básicas de lectura y aritmética, sino también mediante el fomento del pensamiento crítico y de la capacidad de aprender a lo largo de toda la vida.

En el Perú, el Ministerio de Educación (MINEDU) desde el 2007 viene promoviendo el desarrollo del pensamiento crítico en la Educación Básica Regular (EBR) al considerarlo en uno de sus propósitos al 2021. En ese sentido, las políticas educativas peruanas buscan formar ciudadanos que piensan críticamente, partícipes de la construcción de una nueva sociedad mediante la solución de los problemas que la aquejan (Zona y Giraldo, 2017). Pese a

los esfuerzos ejecutados a nivel nacional, los resultados aún no son los esperados, sobre todo en el nivel inicial; es así, que, en la evaluación del Desempeño Docente de Educación Inicial de 15 439 docentes evaluados, solo 4 166 (22%) promueven el razonamiento, creatividad y pensamiento crítico de sus estudiantes (MINEDU, 2018).

En cuanto a la región Cajamarca, de 950 docentes evaluados del nivel inicial, solo el 12% promueve el razonamiento, la creatividad y pensamiento crítico; y en el ámbito de la UGEL San Marcos, de las 60 instituciones focalizadas, solo un 5% de los docentes promueven el pensamiento crítico de sus infantes (UGEL-SM, 2019). Estos resultados muestran las deficiencias en el desarrollo del pensamiento crítico de los estudiantes desde una perspectiva nacional, regional y provincial en las Instituciones Educativas de la Educación Básica Regular. Asimismo, al evaluar a los infantes de la Red Volcán, éstos presentaron un bajo nivel del pensamiento crítico, manifestado en actitudes poco reflexivas, aprendizaje receptivo, escasa iniciativa para investigar, expresión de ideas poco claras, argumentación oral de algo sin fundamento.

Ante la necesidad expuesta, la pregunta de investigación fue: ¿En qué medida influyen los proyectos centrados en la solución de problemas para el fortalecimiento del pensamiento crítico de los estudiantes de Educación Inicial de la red Volcán, provincia de San Marcos, de la Región Cajamarca, 2019? A fin de estudiar cómo el pensamiento crítico desarrolla las capacidades de recopilar, organizar, analizar e interpretar la información en un determinado grupo de estudiantes que participaron en el estudio mediante trabajos experimentales que, según Campos (2007), les permitan evaluar el conocimiento adquirido, solucionar problemas vinculados a sus necesidades de aprendizaje o presentados en su vida cotidiana y validar sus ideas en función a la pertinencia y viabilidad para tomar decisiones de mejora, tanto de manera individual como cooperativa.

Frente a lo expuesto en líneas anteriores, se propone el objetivo general de determinar el grado de influencia del Programa basado en proyectos de resolución de problemas para desarrollar el pensamiento crítico en los estudiantes del nivel inicial de la Red Volcán, provincia de San Marcos de la Región Cajamarca, 2019; cuyos objetivos específicos fueron: diagnosticar el grado del desarrollo del pensamiento crítico de los infantes de la Red Volcán; diseñar y aplicar el programa centrado en proyectos de resolución de problemas para desarrollar el pensamiento crítico en los infantes y evaluar su impacto en el grado de pensamiento crítico de los infantes.

Cabe mencionar que la investigación se llevó a cabo en Instituciones Educativas Rurales del Nivel Inicial de la Red Volcán (I.E.I. La Primevera-012, I.E.I. Venecia-140, I.E.I. La Pauca-417, I.E.I. La Colpa -359 e I.E.I. Ichocán -163) de la provincia de San Marcos, perteneciente a la Región de Cajamarca del Perú, en el año 2019. Estas II.EE. cuentan con una moderna infraestructura educativa con áreas libres, jardines, módulos de aulas, baterías de servicios higiénicos, sala de uso múltiple, tópico de enfermería, cocina, depósito, comedor, tanque elevado, ambientes para dirección y archivo, estantes y equipos de cómputo, biblioteca y módulos educativos para actividades de formación artística, y para el desarrollo de materias de comunicación, matemática, ciencia, tecnología y ambiente, psicomotricidad.

1. Referentes teóricos

1.1. Resolución de Problemas

Existen muchos estudios que se han realizado en base a la resolución de problemas. Unos, han arrojado diferentes perspectivas que se orientan al reconocimiento de una habilidad del pensamiento crítico (Laskey y Gibson, 1997; Halpern, 1998). Otros, reconocen la resolución de problemas como actitud de los buenos pensadores (Paul *et al.*, 2003). Sin embargo, es necesario reconocer que el espacio donde se lleva a cabo el pensamiento crítico es la resolución de problemas (Bailin, 2002). En ese sentido, a continuación, se mencionan algunos sustentos teóricos en torno a las variables de la presente investigación.

Para definir a los proyectos enfocados a la resolución de problemas, se conceptualiza al problema, que según algunos autores es una situación prevista o espontánea que produce incertidumbre, y necesita una búsqueda para su solución (Garret, 1984; Woods *et al.*, 985; Chi y Glaser, 1986; Gil *et al.*, 1988; Perales, 1993; Herron, 1996). Por otro lado, hay quienes manifiestan que es un suceso en la que se desconoce la secuencia de acciones para dar una resolución (Newell y Simon, 1972; Saiz, 2009). Además, otro grupo de autores consideran que cada problema tiene una estructura diferente (Legardez y Simonneaux, 2006; Saiz, 2009; Jiménez, 2010).

Los problemas poseen diversas características como: su respuesta no es obvia, está contextualizada en la vida real, requiere que el alumnado lleve a cabo un proceso de indagación, diseñando el proceso, puede tener varias soluciones posibles, por todo ello,

permite trabajar muchos de los aspectos que forman parte de la competencia científica (Jiménez, 2003).

1.2. Aprendizaje Basado en Proyectos

Los proyectos enfocados en la resolución de problemas fueron propuestos por John Dewey y William Kilpatrick con el propósito de remplazar los paradigmas de enseñanza tradicional, donde los estudiantes aprenden pasivamente y sin oportunidad de practicar lo aprendido, por un modelo que promueve aprendizajes significativos y relevantes para la vida (Dewey, 1997; Dewey, 2007; Beyer, 1997; MINEDU, 2018). Al respecto, Zona y Giraldo (2017) expresan que los proyectos de aprendizaje son sistémicos, incorporan a estudiantes y profesores para desarrollar habilidades, actitudes y conocimientos, usando el método de resolución de problemas debidamente planificado. En consecuencia, es pertinente desarrollar proyectos de resolución de problemas y planificar el control de acciones de los estudiantes en la etapa preescolar.

En base a lo dicho, en esta investigación se propone a los proyectos enfocados en la resolución de problemas como una herramienta de ayuda en el diseño, gestión y desarrollo del pensamiento crítico; en el que cada docente experimenta, descubre y rediseña sus propias maneras de desarrollar proyectos con sus niños, tomando en cuenta los aspectos y elementos fundamentales que lo caracterizan. Según el MINEDU (2018) las dimensiones son: identificación del problema, reflexión de la problemática, planteamiento y diseño de la alternativa de solución, ejecución de la alternativa de solución, evaluación y socialización.

1.3. Aprendizaje Basado en Proyectos en niños de preescolar

Torres *et al.* (2017) manifiestan que un proyecto es un programa de actividades a mediano plazo que ofrece a los estudiantes posibilidades de movilización de sus capacidades, desarrollando su saber práctico, es decir, competencias y habilidades. De igual forma, el MINEDU (2018), concibe a los proyectos como un conjunto de actividades debidamente planificados, con la finalidad de lograr aprendizajes holísticos, centrado en el interés del estudiante en función de su contexto, fortaleciendo el trabajo colaborativo. En cambio, Chacón *et al.* (2012) manifiestan que un proyecto es un método que integra contenidos y disciplinas, seleccionado problemas de la vida.

Los proyectos de aprendizaje, favorecen la formación integral, dado que, el aprendizaje se genera en relación de los intereses, preocupaciones y problemas del estudiante (MINEDU, 2018). Desde esta perspectiva, los proyectos presentan diferentes ventajas como: valora la indagación como elemento importante en el proceso de aprendizaje y en la solución correcta de la problemática, permite que los infantes participen libremente, realicen sus tareas activamente y conforme a sus intereses y preocupaciones; promueve la confianza en sus juicios y favorece pensamientos flexibles y creativos; desarrolla el interés para investigar, intercambiar ideas y experiencias entre ellos; promueve dimensión lingüística y otras manifestaciones expresivas a través de distintos códigos; desarrolla el trabajo colaborativo, intercambio de ideas, consolidación de valores, reglas de coexistencia, y respeto mutuo entre estudiantes, familia y la sociedad.

Los proyectos enfocados en la resolución de problemas son aquellos proyectos en los que se propone solucionar un problema de la vida cotidiana que afecta a los niños y que se vincula a sus necesidades de aprendizaje (MINEDU, 2019), como la detección de una fuente de contaminación alrededor de la institución educativa, el descuido del jardín de la escuela, la cantidad de basura que se genera en el aula, entre otros. En este tipo de proyectos, los niños proponen alternativas de solución a las problemáticas que encuentran (acorde a su nivel), las ponen en práctica y las difunden a fin de mejorar, dentro de sus posibilidades, la calidad de vida en su comunidad más cercana (aula, institución educativa, vecindario), promoviendo una cultura participativa, solidaria y de compromiso ciudadano.

1.4. El Pensamiento Crítico

Ahora, en referencia al pensamiento crítico, hay autores que lo definen como un proceso intelectual; desde esa postura Sternberg (1986) lo define como procesos, estrategias y representaciones mentales usados para resolver problemas, tomar decisiones y aprender nuevos conceptos. De igual forma, Scriven (1996:5) lo concibe como un proceso intelectual, disciplinado y activo que desarrolla habilidades cognitivas como: "conceptuar, aplicar, analizar, sintetizar, evaluar y validar información, a través de la experiencia, reflexión, razonamiento y comunicación, como una guía hacia la creencia y la acción".

Por su parte, Baron (2000) refiere que es un pensamiento de orden superior, y como tal, no es automático, sino que requiere de autodeterminación, reflexión, esfuerzo, autocontrol y metacognición. Para Villarini (2011) es la capacidad para examinarse y

evaluarse a sí mismo (el pensamiento propio o el de los otros) que surge de la metacognición, es decir, hace referencia a la acción y efecto de razonar sobre el propio razonamiento, tomar conciencia y control de los procesos de pensamiento y aprendizaje.

En cambio, hay definiciones que trasciende el campo intelectual para incorporarlo a la acción y toma de decisiones. En ese sentido, Ennis (1985) así como Norris y Ennis (1989) coinciden en definirlo como un proceso cognitivo complejo del pensamiento que acepta la supremacía de la razón, es decir, un pensamiento racional y reflexivo interesado en decidir qué hacer o en qué creer distinguiendo lo justo y verdadero de lo que no es. Para Lipman (1997) el pensamiento crítico busca razones para tomar decisiones, mediante la elaboración de juicios que respalden la postura del pensante. Esto supone de operaciones previas como establecer conexiones entre las cosas, buscar coherencia y analizar las situaciones (Tébar, 2005). Desde el aporte de Lipman (1997), el pensamiento crítico se sustenta en el razonamiento y juicio autocorrectivo (corregir los errores propios); en tanto que para Halpern (1998) es el pensamiento que busca resolver problemas, formular inferencias, calcular probabilidades y tomar decisiones seguras y conscientes en diferentes contextos.

Para fines de este estudio, se considera al pensamiento crítico como un proceso de reflexión donde la razón utiliza los conocimientos y experiencias previas para contrastarlas con la nueva realidad que está viviendo. Este proceso de reflexión requiere poseer la capacidad de controlar la forma de pensar y actuar de uno mismo, mediante la toma de conciencia de nuestras propias fortalezas, así como limitaciones, reconociendo a su vez, la debilidad de nuestros planteamientos para mejorarlos.

Según Rojas (2009), Villarini (2011) y Remache-Bunci (2019), las dimensiones del pensamiento crítico son: Lógica, facultad para el autoexamen en cuanto se refiere a la precisión y la claridad en los conceptos que se expresan. Sustantiva, capacidad para autoevaluarse en aspectos informativos, sistemas de conocer la realidad de acuerdo con el conocimiento disciplinar que se haya internalizado. Contextual, capacidad de autoevaluarse en el colectivo social en que vive. Dialógica, permite auto examinar su pensamiento en relación con la interacción con los demás, permite asimilar otras ideas y valorar su importancia. Pragmática, capacidad de autoevaluarse en la dimensión ontológica del pensamiento y las consecuencias que pueden producir la disputa del poder de pasiones que despierta el pensamiento crítico.

Desarrollar el pensamiento crítico consiste en reconocer y fomentar las habilidades, actitudes y criterios que permitan solucionar diferentes situaciones problemáticas que se puedan presentar en la sociedad. El pensador crítico cuestiona con argumentos la información y los diferentes puntos de vista con naturalidad, sin ofender a los demás, ya que lo que se cuestiona son las ideas no las personas (Villarini, 2011). Desde esta perspectiva, los docentes tienen la responsabilidad de estimular la capacidad de cuestionamiento y reflexión de sus estudiantes por medio de preguntas cuyas respuestas requieren de un análisis argumentativo que va más allá de aprendizajes repetitivos y memorísticos.

2. Metodología

2.1. Participantes

La población estuvo conformada por los 454 infantes del nivel inicial de la Red Volcán de la provincia de San Marcos, la cual estuvo conformada por la I.E.I. La Primevera-012, I.E.I. Venecia-140, I.E.I. La Pauca – 417, I.E.I. Chancay – 065 y la I.E.I. Ichocán – 163; de los cuales a través del método de muestreo no probabilístico por conveniencia se seleccionó a una muestra de 205 niños y niñas de 5 años.

2.2. Variables, instrumento y puntuaciones

Las variables del presente estudio fueron proyectos enfocados en la resolución de problemas y el pensamiento crítico, cuyos instrumentos para recolectar los datos fueron la observación y la encuesta, teniendo como instrumentos a la ficha de observación y la prueba pedagógica. Estos instrumentos fueron validados mediante el criterio de juicio de expertos y para su confiabilidad se utilizó el método de dos mitades.

La ficha de observación buscó evaluar a los proyectos enfocados en la resolución de problemas mediante sus dimensiones identificación del problema, reflexión de la problemática, planteamiento y diseño de la alternativa de solución, ejecución de la alternativa de solución, evaluación y socialización. La prueba pedagógica permitió recabar datos de del pensamiento crítico mediante sus dimensiones: lógica, sustantiva, contextual, dialógica y pragmática; cada dimensión estuvo conformado por 5 ítems, los cuales fueron valorados mediante la escala de valoración numérica: Inicio (1), proceso (2), Logro esperado (3) y Logro destacado (4); haciendo un total de 25 puntos como mínimo y 100 puntos como máximo.

2.3. Procedimiento

Se solicitó consentimiento informado a cada una de las familias. Luego, se aplicó el instrumento de recolección de datos, es decir un pretest para diagnosticar el nivel de pensamiento crítico de los estudiantes, a partir de los resultados obtenidos, se diseñaron los proyectos enfocados en la resolución de problemas de acuerdo a las necesidades e intereses de los estudiantes. Seguidamente se pidió a cada una de las docentes de las instituciones educativas que constituyen la muestra de estudio que ejecuten los proyectos diseñados con sus respectivas sesiones de aprendizaje. Después de la ejecución de los proyectos se procedió a comunicar los resultados a toda la comunidad educativa. Finalmente, se evaluó la efectividad de la propuesta a través del postest.

2.4. Análisis de datos

Se llevó a cabo una investigación cuantitativa cuyos datos fueron medidos y cuantificados con un determinado nivel de error y nivel de confianza. La información fue organizada con uso de tablas, en cuyo marco se ha explicado los resultados empleando la estadística descriptiva a través de los programas Excel y SPPS. Para el análisis de los datos obtenidos se utilizó las medidas de tendencia central como: la media aritmética, la desviación estándar y la varianza. Analizados los resultados obtenidos, éstos fueron sintetizados en tablas. Para el análisis de datos pareados se utilizaron la diferencia promedio (pre y postest) y la "t" Student para muestras relacionadas

3. Resultados

Los resultados de presente estudio responden al nivel de pensamiento crítico que poseen un grupo de infantes (205) de 5 años del Nivel Inicial de Instituciones Educativas de la Red Volcán, provincia de San Marcos, antes y después de aplicar los Proyectos de Resolución de Problemas. Así, en la Tabla 1, se evidencia que, inicialmente, el nivel de Pensamiento Crítico de los infantes, se halló En Inicio con un promedio de 5,39; en tanto que, después de aplicar la propuesta, este promedio del postest mejoró a 12,49 puntos, ubicándose en un nivel En Proceso, demostrando que el promedio de los estudiantes mejoró después de aplicar el estímulo.

3.1.   Influencia de los proyectos enfocados en la resolución de problemas en el pensamiento crítico de los infantes del Nivel Inicial.

Tabla 1. Estadísticos descriptivos de los proyectos enfocados en la resolución de problemas en el nivel de pensamiento crítico

Estadísticos descriptivos	Grupo de estudio	
	Pretest	Postest
Varianza	0,24	3,51
Promedio	5,39	12,49
Desviación Estándar	0,49	1,87
Coeficiente de variabilidad	11,02	6,67

Fuente: Pre y postest aplicado a los infantes de Educación Inicial de la red el Volcán.

En la Tabla 1 se presentan los descriptivos del test (pre y postest) aplicado a niños y niñas de Educación Inicial de la Red Volcán, provincia de San Marcos, 2019. Se puede apreciar que, la varianza del pensamiento crítico en el pretest fue de 0,24 y 3,51 en el postest, demostrándose una mayor varianza después de aplicar el estímulo. En referencia al promedio del pensamiento crítico de los niños y niñas, en el pretest se obtuvo 5, 39 puntos situándose en el nivel En Inicio y 12,49 puntos en el postest, ubicándose en un nivel En Proceso, demostrando de esta manera que el promedio de los estudiantes mejoró después de aplicar el estímulo. Respecto a la Desviación Estándar se obtuvo que 0,49 en el pretest y 1,87 en el postest. Finalmente, en cuanto al Coeficiente de variabilidad en el pretest y postest fueron de 11,02 y 6,67 respectivamente.

3.2.   Diagnóstico a través del pretest: el pensamiento crítico de niños y niñas de Educación Inicial de la Red El Volcán.

Del diagnóstico realizado sobre el nivel del pensamiento crítico de niños y niñas de Educación Inicial de la Red El Volcán, se halló que todos, en un 100%, se situaron en el nivel En Inicio. Asimismo, en términos de promedio es de 5,39 puntos que se circunscribe como una puntuación muy baja. De igual manera, los datos numéricos de la desviación estándar fueron de 0,49 puntos. Por su parte, en la impresión del grupo representativo se considera que el coeficiente de variabilidad fue de 11,02 (Tabla 2).

Tabla 2. Diagnóstico del pensamiento crítico de niños y niñas mediante el pretest

Nivel	F	%	Estadígrafos
En Inicio	205	100	
En Proceso	0	0	$\overline{X}$ = 5,39
Logro Esperado	0	0	S = 0,49
Logro Destacado	0	0	CV = 11,02
TOTAL	205	100	

Fuente: Resultados del pretest aplicado a los infantes de Educación Inicial de la red el Volcán.

3.3. Diseño y ejecución de los proyectos enfocados en la resolución de problemas para desarrollar el pensamiento crítico de infantes de Educación Inicial de la Red El Volcán, provincia de San Marcos, 2019.

Se diseñó una propuesta de proyectos enfocados en los aspectos de la resolución de problemas como identificación del problema, reflexión sobre la problemática, planteamiento y diseño de alternativas de solución, ejecución de la alternativa de solución y evaluación y socialización a fin de desarrollar el pensamiento crítico de niños y niñas de Educación Inicial de la Red El Volcán, provincia de San Marcos, 2019.

Para cumplir con este objetivo, se ejecutaron 3 proyectos enfocados en la resolución de problemas a lo largo de casi 2 meses, con 5 actividades por semana, con una duración de 45 minutos cada una, haciendo un total de 30 actividades, orientadas a desarrollar las dimensiones lógica, sustantiva, contextual, dialógica y pragmática del pensamiento crítico de niños y niñas de las 6 Instituciones Educativas de Educación Inicial de la red el Volcán, provincia de San Marcos, 2019.

3.4. Evaluación del pensamiento crítico de infantes de Educación Inicial de la Red El Volcán, provincia de San Marcos, 2019, después de aplicar la propuesta.

De la evaluación ejecutada sobre el nivel de pensamiento crítico de los infantes del Nivel Inicial de la Red El Volcán, se halló que un 15% se ubicaron en un nivel En Inicio, a diferencia de un 63% que se situaron en el nivel En Proceso; en tanto que, el 19% se encontraron en el nivel Logro Esperado; y solo un reducido 2% se situó en el nivel Logro Destacado. Asimismo, en cuanto al promedio de los puntajes de los infantes se obtuvo un

promedio de 12, 49 puntos que se circunscribe como una puntuación En Proceso. De igual manera, los datos numéricos de la desviación estándar fueron de 1,87 puntos. Por su parte, el grupo de estudio tuvo un coeficiente de variabilidad de 6,67 (Tabla 3).

Tabla 3. Evaluación del pensamiento crítico de infantes de Educación Inicial de la Red El Volcán, provincia de San Marcos, 2019, después de aplicar la propuesta

Nivel	F	%	Estadígrafos
En Inicio	31	15	
En Proceso	130	63	$\overline{X}$ = 12,49
Logro Esperado	39	19	S = 1,87
Logro Destacado	5	2	CV = 6,67
TOTAL	205	100	

Fuente: Resultados del postest aplicado a niños y niñas de Educación Inicial de la Red El Volcán, provincia de San Marcos, 2019

3.5. Comparación del nivel de pensamiento crítico de los de estudiantes de Educación Inicial de la Red El Volcán, provincia de San Marcos, 2019 antes y después de aplicar la propuesta

En la tabla 4 se aprecia la calificación del Pensamiento Crítico, por niveles, obtenida de los 205 niños y niñas de Educación Inicial de la Red El Volcán, provincia de San Marcos, 2019, antes y después de aplicar la propuesta de proyectos enfocados en la resolución de problemas. En el pretest, se aprecia que todos los niños y niñas presentaron un nivel En Inicio, demostrando así deficiencias en el nivel del pensamiento crítico de sus estudiantes. Ya en el postest, el porcentaje disminuyó favorablemente el 15% presentó un nivel En Inicio, el 63% un nivel En Proceso, el 20% un nivel Logro Esperado y solo el 2% un nivel Logro Destacado. En suma, se evidencia que el puntaje total obtenido en el test del pensamiento crítico fue mayor en el postest.

Tabla 4. Influencia de proyectos enfocados en la resolución de problemas para en el nivel de pensamiento crítico de estudiantes de Educación Inicial de la Red El Volcán, provincia de San Marcos, 2019

Nivel de pensamiento crítico	Pretest		Postest	
	N	%	N	%
En Inicio	205	100	30	15
En Proceso	0	0	129	63
Logro Esperado	0	0	41	20
Logro Destacado	0	0	5	2
TOTAL	205	100	205	100

Fuente: Resultados del pre y postest aplicado a niños y niñas de Educación Inicial de la Red El Volcán, provincia de San Marcos, 2019

4. Discusión

Los resultados recabados con los instrumentos aplicados en este estudio, permitieron recabar información sobre el grado de pensamiento crítico de los estudiantes con sus respectivas dimensiones como: lógica, sustantiva, contextual, pragmática y dialógica. Los niveles que utilizaron para su respectiva evaluación fueron los propuesto por el MINEDU: En Inicio (0-10), En Proceso (11 – 13), Logrado Esperado (14-16) y Logro Destacado (17-20). En el diagnóstico sobre el nivel de pensamiento crítico de 205 infantes, se halló que todos los niños (100%) alcanzaron el primer nivel, que es el nivel En Inicio, resultando una problemática de interés por los investigadores. Estos resultados se asemejan con el estudio realizado por Sánchez (2019) acerca del pensamiento reflexivo en estudiantes de 5 años de Inicial, cuyos resultados mostraron que solo el 10% alcanzó el nivel alto, el 20% se situó en el nivel Medio y el 70% se ubicó en el nivel Bajo. En suma, afirmaron que el rendimiento es bajo.

A partir de las deficiencias detectadas se diseñó la propuesta de proyectos centrados en la solución de problemas, los cuales son concebidos por el MINEDU (2018) como una forma de planificación integradora que permite fortalecer competencias de los infantes, con orientación holística e intercultural, promoviendo plena participación durante el desarrollo de los proyectos. La propuesta tuvo en cuenta los siguientes procesos de planificación, implementación, ejecución y evaluación de las actividades propuestas considerando los

propósitos, encuadrados siempre en el interés, necesidad o problema de los estudiantes. Adicionalmente, se comunicaron las vivencias y experiencias de los infantes durante el período de duración de ejecución del proyecto. Además, cada proyecto de aprendizaje centrado en la solución de problemas tuvo en consideración aspectos propuestos por el MINEDU (2018): identificación del problema, reflexión de la problemática, planificación y elaboración de opciones de solución para la problemática, ejecución de la alternativa de solución, evaluación y socialización. Además, se consideraron las orientaciones propuestas por Rojas *et al.* (2017) quienes refirieron que, para ejecutar el proceso de planificación detallada y progresiva de todo aspecto del conocimiento especulativo, se debe considerar los propósitos del saber científico, delineando cómo, qué y para qué se aprende.

Durante la ejecución de la propuesta se consideraron los proyectos como sistema de afianzar aprendizajes de manera holística, permitiendo que los intereses y obligaciones de los estudiantes, así mismo de las situaciones problemáticas relacionadas a su vida y a su contexto (MINEDU, 2018). En la planificación y selección de las situaciones problemáticas se incluyó la participación de los infantes a fin de otorgarles la oportunidad de investigar y motivarlos a diseñar alternativas de solución. Esto con el propósito de afianzar sus competencias en el marco de un participación colaborativa y creativa.

Después de aplicar la propuesta, los resultados presentados inicialmente, mejoraron de manera sustantiva. La mayoría de estudiantes se situaron en el nivel Logrado (71%), indicando la significatividad de la propuesta. Estos resultados coinciden con los obtenidos por Díaz y Díaz (2018) en su estudio preexperimental, donde se observó el incremento de la calidad y cantidad del desarrollo del razonamiento inferencial y de la metacognición. De igual forma, estos resultados favorables también coincidieron con los de Sharp *et al.* (2016), quienes consideran que los proyectos de aprendizaje surgen de un campo particular donde se obtiene mucha orientación con lectura selectiva.

Asimismo, Manayay (2018), en su investigación sobre aplicación de un programa de metodología de Aprendizaje centrado en Problemas en los estudiantes obtuvo los resultados esperados. Así, en el Pretest en función al pensamiento reflexivo fue de nivel deficiente el 40%, nivel regular el 55% y nivel bueno el 5%, mejorando en el Postest, siendo el nivel bueno el 95%, lo que evidencia que la aplicación del método de aprendizaje centrado en problemas tuvo un impacto positivo en el desarrollo del pensamiento crítico de los estudiantes.

Como se pudo notar existe una estrecha relación entre las variables estudiadas. Al respecto, Valencia (2018) en su estudio concluyó que existe una correlación positiva y considerable entre la ejecución de las fases de Polya en la resolución de problemas matemáticos y pensamiento crítico. De allí, el empeño de trabajar proyectos enfocados en la solución de problemas para desarrollar el pensamiento crítico de los estudiantes de Inicial.

Existe una diferencia positiva de 7,1 puntos entre los promedios obtenidos antes (5.39) y después (12.49) de aplicar los proyectos de resolución de problemas, demostrando una influencia positiva de los proyectos enfocados en la resolución de problemas en el desarrollo del pensamiento crítico de los infantes del Nivel Inicial de la Red Volcán. Se diagnosticó que existieron deficiencias en el pensamiento que el 100% de los infantes obtuvieron en el nivel "En Inicio", demostrando crítico de los niños y niñas.

Se diseñó una propuesta de proyectos enfocados en los aspectos de la resolución de problemas basados en la identificación del problema, la reflexión sobre la problemática, la planificación y elaboración de alternativas de solución, la ejecución de dichas alternativas de solución y finalmente, su evaluación y socialización de los resultados.

Se ejecutaron 3 proyectos centrados en la resolución de problemas a lo largo de casi 2 meses, con 5 actividades por semana, con una duración de 45 minutos cada una, haciendo un total de 30 actividades, orientadas a desarrollar las dimensiones: lógica, sustantiva, contextual, dialógica y pragmática del pensamiento crítico de estudiantes de las 6 Instituciones Educativas de Educación Inicial de la Red El Volcán, provincia de San Marcos, 2019. Se evaluó, a través del postest, el nivel de pensamiento crítico de estudiantes de Inicial de la Red El Volcán, provincia de San Marcos, 2019, hallándose que en el nivel de "Inicio" hubo una disminución del porcentaje de este nivel, de 85%, los cuales estuvieron distribuidos en el nivel "En Proceso" con 63%, nivel "Logro Esperado" con 20% y "Logro destacado" con el 2%.

Conclusiones

Se determinó que los Proyectos de Resolución de Problemas tienen una influencia positiva en el Pensamiento Crítico de los infantes del Nivel Inicial de Instituciones Educativas de la Red Volcán. De esta manera, en el pretest, todos los estudiantes estuvieron en el nivel En Inicio, demostrando así deficiencias en el pensamiento crítico de los infantes; mientras que en el postest, el porcentaje disminuyó favorablemente: un 15% en el nivel En

Inicio, el 63% un nivel En Proceso, el 20% en nivel Logro Esperado y solo el 2% en el nivel Logro Destacado. En suma, se evidencia que el puntaje del pensamiento crítico fue mejor en el postest respecto al pretest.

Se diseñó una propuesta de proyectos enfocados en los aspectos de resolución de problemas basados en la identificación del problema, reflexión sobre la problemática, la planificación y elaboración de alternativas de solución, la ejecución de dichas alternativas de solución y finalmente su evaluación y socialización de los resultados. Se ejecutaron 3 proyectos centrados en la resolución de problemas a lo largo de casi 2 meses, con 5 actividades por semana, con una duración de 45 minutos cada una, haciendo un total de 30 actividades, orientadas a desarrollar las dimensiones: lógica, sustantiva, contextual, dialógica y pragmática del pensamiento crítico de estudiantes de las 6 Instituciones Educativas de Educación Inicial de la Red El Volcán, provincia de San Marcos, 2019.

Referencias

Bailin, S. (2002). Critical Thinking and Science Education. New York: Editorial matter and selection.

Baron J. (2000). Thinking and Deciding. Cambrigde University Press. UK. https://books.google.com.pe/books?hl=es&lr=&id=H3nCwyx8bf8C&oi=fnd&pg=PR13&dq=baron+2000+thinking+and+deciding&ots=ymeX41hFM9&sig=RkQAwypRpwUzsUoGo8a AegNcQmU#v=onepage&q=baron%202000%20thinking%20and%20deciding&f=false

Beyer, L. E. (1997). William Heard Kilpatrick (1871–1965). *Prospects*, 27(3), 468-485.

Campos, A. (2007). Pensamiento crítico. Técnicas para su desarrollo. Bogotá: Cooperativa Editorial Magisterio.

Chacón, M. A., Chacón, C. T. y Alcedo, Y. A. (2012). Los proyectos de aprendizaje interdisciplinarios en la formación docente. *Revista Mexicana de Investigación Educativa*, 17(54), 877-902. http://www.scielo.org.mx/pdf/rmie/v17n54/v17n54a9.pdf

Chi, M. y Glaser, R. (1986). Capacidad de resolución de problemas. Barcelona: Labor.

Dewey, J. (1997). Mi credo pedagógico. Buenos Aires, Argentina: Centro editor de América Latina.

Dewey, J. (2007). Cómo pensamos. Barcelona: Paidós.

Díaz, J. A. y Díaz, R. (2018). Los métodos de resolución de problemas y el desarrollo del pensamiento matemático. *Bolema, Rio Claro*, 32(60), 57 – 74. http://www.scielo.br/pdf/bolema/v32n60/0103-636X-bolema-32-60-0057.pdf

Ennis, R. (1985). Critical Thinking. California. https://www.scirp.org/(S(i43dyn45teexjx455qlt3d2q))/reference/ReferencesPapers.aspx?ReferenceID=278889

Garret, R. M. (1984). Resolución de problemas, creatividad y originalidad. *Revista Chilena de Educación Química*, 14(1-2), 21-28.

Gil, D., Dumas, A., Caillot, M., Martínez, J. y Ramírez, L. (1988). La resolución de problemas de lápiz y papel como actividad de investigación. *Investigación en la Escuela*, 6, 3-19.

Halpern, D. (1998). La enseñanza del pensamiento crítico para transferir todos los dominios. *American Psychologist*, 53(4), 449-455.

Herron, J. D. (1996). The Chemistry Classroom. Formulas for Successful Teaching l aula de química. Washington: American Chemical Society.

Jiménez, M. P. (2003). El aprendizaje de las ciencias: construir y usar herramientas. Enseñar Ciencias. *Mathematics Teacher*, 8(7).

Jiménez, M. P. (2010). 10 Ideas Clave. Competencias en argumentación y uso de pruebas. Barcelona: Graó.

Laskey, M. L. y Gibson, P. W. (1997). College study strategies: Thinking and learning. Needham Heights: Allyn and Bacon.

Legardez, A. y Simonneaux, L. (2006). L'école à l'épreuve de l'actualité. Enseigner des questions vives. Paris: ESF.

Lipman, M. (1997). Pensamiento complejo y educación. Madrid: Ediciones de la Torre

Manayay, M. (2018). Programa de estrategia de Aprendizaje Basado en Problemas para desarrollar el pensamiento crítico en las asignaturas teórico-prácticas de los estudiantes del sexto ciclo de Enfermería de la Universidad "Señor de Sipán" [tesis doctoral, Universidad César Vallejo]. Repositorio Institucional UCV. http://repositorio.ucv.edu.pe/handle/UCV/31777

Ministerio de Educación (2018). ¿Cómo desarrollamos proyectos en el aula? Perú: MINEDU. Recuperado de http://www.minedu.gob.pe/minedu/archivos/a/002/03-bibliografia-para-ebr/25-proyecto-organizador-de-bibliotecas.pdf

Newell, A. y Simon, H. A. (1972). Human problem solving. New Jersey: Prentice Hall.

Norris, S. y Ennis, R. (1989). Evaluating critical thinking. New York: Pacific Grove Midwest Publications.

Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura (2015). Foro Mundial sobre la Educación del 2015. e https://unesdoc.unesco.org/ark:/48223/pf0000243724_fre?posInSet=1&queryId=N-EXPLORE-5356f9ec-726d-49d5-9455-4f3b92a635ef

Paul, R., Elder, L. y Bartell, T. (2003). Study of 38 Public Universities and 28 Private Universities to Determine Faculty Emphasis on Critical Thinking in Instruction (Executive Summary). www.criticalthinking.org/schoolstudy.htm

Perales, F. J. (1993). La resolución de problemas: Una revisión estructurada. *Enseñanza de las Ciencias*, 11(2), 170-178

Remache-Bunci, M. G. (2019). Las dimensiones sustantivas y dialógicas del pensamiento crítico en estudiantes de bachillerato y universitarios. *Revista Cátedra*, 2(1), 60-75

Rojas, A. J., Rosas, G. y Sanabria, Y. (2017). Desarrollo de la competencia de indagación en la enseñanza de las ciencias naturales en básica primaria del Instituto Técnico Ambiental San Mateo de Yopal-Casanare [tesis de maestría, Universidad de la Salle]. Repositorio Institucional LASALLE. https://ciencia.lasalle.edu.co/cgi/viewcontent.cgi?article=1020&context=maest_docencia_yo pal

Rojas, C. (2009). ¿Qué es pensamiento crítico? Sus dimensiones y fundamentos histórico filosóficos. Puerto Rico: Universidad de Puerto Rico.

Saiz, C. (2009). Pensamiento crítico: conceptos básicos y actividades prácticas. España: Ediciones Pirámide.

Sánchez, M. I. (2019). El nivel del pensamiento crítico de los estudiantes de 5 años de educación inicial de la Institución Educativa Privada Santa María la católica – distrito de Nuevo Chimbote, año 2017 [tesis de maestría, Universidad Los Ángeles de Chimbote]. Repositorio Institucional ULADECH. http://repositorio.uladech.edu.pe/bitstream/handle/123456789/11444/DESARROLLO_ESTU DIANTES_SANCHEZ_IPARRAGUIRRE_MARA_ISABEL.pdf?sequence=1&isAllowed=y (2 citas)

Sharp, J., Peters, J. y Howard, K. (2016). The Management of a Student Research Project Third Edition. New York: Oxon OX14 4RN 711 Third Avenue. https://books.google.com.pe/books?hl=es&lr=&id=2b9JGVcRPZwC&oi=fnd&pg=PP1&dq= Sharp,+J.,+Peters,+J.,+%26+Howard,+K.&ots=cn4qwXTFHM&sig=uK4Q_dEoeze0p3g34lH QOBthFBI#v=onepage&q=Sharp%2C%20J.%2C%20Peters%2C%20J.%2C%20%26%20Ho ward%2C%20K.&f=false

Sternberg, R. (1986). Critical thinking: Its nature, measurement, and improvement. USA: Department of Education

Tébar, B. L. (2005). Filosofía para niños de Mathew Lipman. Un análisis crítico y aportaciones metodológicas, a partir del Programa de Enriquecimiento Instrumental del profesor Reuven Feuerstein. *Boletín de Estudios e Investigación*. Núm. 6, 103-116. Madrid: La Salle Centro Universitario

Torres, D. L., Fonseca, W.P. y Pineda, B. N. (2017). Las vivencias como estrategia de fortalecimiento del pensamiento crítico en educación rural. *Praxis & Saber*, 8(17), 201-224. http://www.scielo.org.co/pdf/prasa/v8n17/2216-0159-prasa-8-17-00201.pdf

UGEL-SM. (2019). Monitoreo a la práctica pedagógica. Cajamarca: UGEL

Valencia, N. Ch. (2018). Resolución de problemas y su relación con el pensamiento crítico en la resolución de problemas matemáticos, en los estudiantes de la IEP Nº 72 114 de Pampa Cariguita del distrito de Samán, provincia de Azángaro, 2017 [tesis de maestría, Universidad Cesar Vallejo] Repositorio Institucional UCV. http://repositorio.ucv.edu.pe/bitstream/handle/UCV/29921/valencia_pn.pdf?sequence=1&isAllowed=y

Scriven, P. (1996). Manual del pensamiento crítico, conferencia Atlanta. https://educacion.gob.ec/wpcontent/uploads/downloads/2013/03/SiProfe-Didactica-delpensamientocritico.pdf

Villarini, J. Á. (2011). Teoría y Pedagogía del Pensamiento Crítico. *Perspectivas Psicológicas*, 3(4), 35 - 42. https://www.academia.edu/7042914/Teoria_y_pedagogia_del_pensamiento_PDF

Woods, D. R., Crowe, C. M., Hoffman, T. W. y Wrig, J. D. (1985). Challenges to teaching problem-solving skills. *Chem*, 13(155), 1-12

Zona, J. R. y Giraldo, J. D. (2017). Resolución de problemas: Escenario del pensamiento crítico en la didáctica de las ciencias. *Revista Latinoamericana de Estudios Educativos*, 13(2). https://www.redalyc.org/jatsRepo/1341/134154501008/html/index.html

La indagación en el desarrollo del pensamiento crítico en infantes de 5 años

Fiorela Anaí Fernández Otoya *
Brisaida Gallardo Yrigoín **
Manuel Jesús Sánchez-Chero ***
Mercedes Alejandrina Collazos Alarcón ****
Dennis Arias-Chávez*****

RESUMEN

El objetivo del estudio es determinar la influencia del Programa basado en proyectos de indagación en el desarrollo del Pensamiento Crítico de infantes. La metodología utilizada es de carácter cuantitativo, tipo aplicada, de diseño cuasiexperimental. Los participantes fueron 100 infantes de 5 años, distribuidos en los grupos experimental (n=50) y control (n=50). Los resultados del pretest demostraron que, todos los infantes se situaron en el nivel en inicio; mientras que, en el postest, el grupo experimental tuvo una mejora significativa, con un 66% en logro esperado, 24% en proceso y 10% en logro destacado; en tanto que, los del grupo control alcanzaron los niveles inicio, en proceso y logro esperado con 18, 74 y 8% respectivamente. Se determinó que, el Programa basado en proyectos de indagación tuvo una influencia significativa en el desarrollo del pensamiento crítico de los infantes, mejorando su capacidad de argumentación, solución de problemas y metacognición.

PALABRAS CLAVE: investigación; reflexión; razonamiento; solución de problemas.

*Docente a tiempo completo. Universidad Católica Santo Toribio de Mogrovejo, Chiclayo, Perú. ORCID: https://orcid.org/0000-0003-0971-335X.

** Especialista de Educación Inicial en La Unidad de Gestión Educativa Local de Chota - Cajamarca, Perú. ORCID: https://orcid.org/0000-0002-2030-6256.

*** Docente posgrado. Universidad César Vallejo. Piura, Perú. ORCID: https://orcid.org/0000-0003-1646-3037. E-mail: manuelsanchezchero@gmail.com.

**** Docente de la Escuela de Postgrado: Universidad César Vallejo. Chiclayo, Perú. ORCID: https://orcid.org/0000-0002-5656-2243.

***** Docente. Universidad Continental, Arequipa, Perú. ORCID: https://orcid.org/0000-0003-1500-8366.

Inquiry in the development of critical thinking in 5-year-old infants

ABSTRACT

The objective of the study is to determine the influence of the Program based on inquiry projects on the development of Critical Thinking in infants. The methodology used is quantitative, applied type, of quasi-experimental design. The participants were 100 infants, 5-year-old, distributed in the experimental (n=50) and control (n = 50) groups. The results of the pre-test showed that all infants were at the starting level; while, in the post-test, the experimental group had a significant improvement, with 66% in expected achievement, 24% in process and 10% in outstanding achievement; whereas, those of the control group reached the beginning level, in process and expected achievement levels with 18, 74 and 8% respectively. It was determine that the program based on inquiry projects had a significant influence on the development of critical thinking in infants, improving their capacity for argumentation, problem solving and metacognition.

KEY WORDS: research; reflection; reasoning; problem solving.

Introducción

La sociedad actual requiere de ciudadanos competentes que sepan desenvolverse con éxito en su vida personal y social; siendo el pensamiento crítico una de las competencias esenciales para ello, porque permite manejar información para obtener nuevos conocimientos, tomar decisiones y resolver problemas (EducarChile, 2019). Contar con ciudadanos críticos resulta un ideal de la educación porque supone formar a personas con pensamiento de autorrealización personal, profesional y ciudadana (Campos, 2007), así como reconocer y desarrollar habilidades, actitudes y criterios que permitan solucionar diferentes situaciones problemáticas del contexto (Machaca, 2016). De allí que, se debe fomentar su desarrollo desde los primeros años de la Educación Básica Regular (EBR), aplicando diversas actividades educativas que impliquen indagar a través de la búsqueda y análisis de información y de experiencias para aplicarlas en situaciones de la vida cotidiana.

En este orden de ideas, la Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura (UNESCO, por su sigla en inglés), planteó la necesidad de satisfacer los requerimientos que exige la sociedad; por lo que manifestó que, no solo basta con enseñar las competencias básicas de leer, escribir y contar a los estudiantes, sino que es sumamente necesario fomentar en ellos el pensamiento crítico y la capacidad de aprender a lo largo de

toda la vida (Scott, 2015) porque son elementos imprescindibles para cambiar el mundo (UNESCO, 2018).

Por su parte, el Perú, desde el 2005, a través del Ministerio de Educación (MINEDU), viene promoviendo el desarrollo del pensamiento crítico en los tres niveles de la EBR, considerándolo como una capacidad de orden superior que debe ser trabajada desde las aulas (MINEDU, 2005) porque permite analizar todo tipo de información, inferir sus propósitos y proponer argumentos válidos para reforzar las opiniones, afianzar la toma de decisiones y contribuir a solucionar problemas del aula y de la vida diaria (MINEDU, 2006). Además, desde el 2016, se viene desarrollando el pensamiento crítico y reflexivo de los infantes promoviéndoles oportunidades para que hagan ciencia mediante procedimientos científicos y tecnológicos desde las aulas y, además, desarrollen actividades físicas que busquen contribuir en el proceso de formación y desarrollo personal y el de su entorno (MINEDU, 2016b).

Sin embargo, existe una brecha entre lo que se dice en la teoría y lo que se observa en la práctica, es decir en el diario vivir, aún hay mucho por trabajar en ello. Así por ejemplo, en el 2017, el MINEDU realizó la Medición de la Calidad y de los Resultados del Aprendizaje Temprano (MELQO, por su siglas en inglés), con el fin de conocer la calidad de los ambientes y evaluar el desarrollo de los preescolares de 5 años de edad en todo el Perú; los resultados reflejaron que, solo el 3% de los docentes promueve un nuevo vocabulario y fomenta su uso, el 19% lee materiales impresos a los niños y un elevado 92% realiza preguntas dicotómicas induciendo a respuestas cerradas y/o de sí o no; y, un reducido 8% de docentes desarrolla el pensamiento crítico de sus estudiantes.

A estos porcentajes, se le añaden los resultados de la Evaluación del Desempeño Docente de Educación Inicial del Tramo I aplicada durante el año 2017 a 3844 docentes de la tercera escala, donde se halló que, el 11.9% promueve el razonamiento, creatividad y pensamiento crítico. Así también, en el 2018, al evaluar a 4 141 docentes del II tramo (primera y segunda escala), se encontró que, a nivel nacional, regional y local un 22, 16 y 16% respectivamente, promueven el razonamiento, creatividad y el pensamiento crítico en sus estudiantes (MINEDU, 2019); indicando que la mayoría de los docentes no toman conciencia de la importancia de la promoción del pensamiento crítico desde la edad preescolar.

Situación semejante se observa en Chota, donde los resultados del monitoreo realizado a 112 docentes del nivel inicial durante el 2019, demostraron que, solo el 8% promueve el

razonamiento, creatividad y pensamiento crítico; ante un 92% que no lo hace (UGEL-CH, 2019). Asimismo, se halló que los docentes no han promovido las habilidades de orden superior en sus estudiantes, por ello, en el primer trimestre, la mayoría de infantes, en un 50%, se ubicaron en el nivel inicio, el 30% en proceso y un 20% en logro esperado. En el segundo trimestre, el 30% alcanzó el nivel inicio, 40% en proceso, 25% en logro esperado y solo un 5% en logro destacado. Ya en el tercer trimestre, los porcentajes mejoraron, con un 15, 40, 35 y 20% en los niveles de inicio, proceso, logro esperado y logro destacado respectivamente.

Entonces, ante la ausencia de un impulso que busque desarrollar el pensamiento crítico en los infantes del distrito de Chota - Cajamarca, el presente estudio se propuso como objetivo desarrollar el nivel de pensamiento crítico mediante el Programa basado en proyectos de indagación, en niños y niñas de 5 años de Educación Inicial. Esto, considerando los contextos de análisis: estático (los métodos para desarrollar en cada etapa del pensamiento crítico) y dinámico o procesal (métodos que pueden activarse con tareas específicas en todas las etapas de la enseñanza y el aprendizaje) (Mirela y Hurjui, 2015). Asimismo, creando situaciones de aprendizaje y asignación de tiempo necesario; animando a los niños a pensar de forma independiente, a especular y reflexionar, aceptar la diversidad de opiniones e ideas, participar activamente la confrontación de ideas, cooperación y colaboración para encontrar soluciones apropiadas.

1. Fundamentos del pensamiento crítico

Formar ciudadanos críticos resulta un ideal de la educación porque supone formar a personas con pensamiento de autorrealización personal, profesional y ciudadana (Campos, 2007). El pensamiento crítico para unos autores es la forma cómo el ser humano procesa información (Bachelard, 1948); es decir, es el pensamiento racional y reflexivo que decide qué hacer o en qué creer (Ennis, 1985). Mientras que, para otros (Laskey y Gibson, 1997; Villarini, 2011), consiste en examinar y evaluar el pensamiento propio o el de los demás, es decir, razonar sobre el propio razonamiento mediante un conjunto de actividades cognitivas (pensamiento lógico, percepción de ideas, análisis, evaluación, resolución de problemas y toma de decisiones) que actúan conjuntamente para desarrollar conciencia y control sobre los procesos de pensamiento y aprendizaje.

En esa misma línea, Facione (2020) lo concibe como un juicio autorregulado (manera cómo los seres humanos regulan sus inquietudes, entendimientos, conductas y elementos del entorno). De allí que se le considera como un pensamiento de orden superior que requiere autodeterminación, reflexión, esfuerzo, autocontrol y metacognición (Baron, 1985). Además, Halpern (1998) lo definió como aquel pensamiento que busca resolver problemas, a través de la práctica de habilidades (formulación de inferencias, cálculo de probabilidades y toma de decisiones) en una gran variedad de contextos. No obstante, Machaca (2016) sostiene que consiste en reconocer y desarrollar las habilidades, actitudes y criterios que permitan solucionar diferentes situaciones problemáticas que se puedan presentar en la sociedad.

En este estudio, se considera al pensamiento crítico como un proceso de reflexión donde la razón utiliza los conocimientos y experiencias previas para contrastarlos con la nueva realidad. Este proceso controla la forma de pensar y actuar, tomando conciencia de las fortalezas y limitaciones propias, reconociendo las debilidades de los propios planteamientos para mejorarlos. La finalidad de pensamiento crítico es reconocer lo justo y verdadero (Ennis, 1985) creando un punto de vista reflexivo (Facione, 2020) que cuestiona el pensamiento e ideas, mas no a las personas (Villarini, 2003). Por lo que, los docentes tienen la responsabilidad de estimular en los infantes el cuestionamiento, análisis, reflexión mediante preguntas y argumentación caminando más allá de aprendizajes repetitivos y memorísticos.

En cuanto a las dimensiones del pensamiento crítico, según Revel *et al.* (2005) y Tamayo *et al.* (2015) son: Argumentación (actividad intelectual, verbal y social que fundamenta un punto de vista, siendo sensible a las motivaciones y a los afectos); solución de problemas (proceso cognoscitivo, afectivo y conductual por el cual un individuo trata de encontrar una resolución a una dificultad o situación problemática precisando y planteando el problema, generando alternativas de solución, tomando decisiones, aplicando la solución y verificando su significatividad); metacognición (percepción o apreciación del propio pensamiento, es decir, pensar sobre el pensamiento) y emociones (experiencia corporal dinámica, verdadera, focalizada, transitiva e interna que impregna en la conciencia del ser humano).

2. Necesidad de fortalecer el pensamiento crítico

Diversos estudios muestran la necesidad de fortalecer el nivel de pensamiento crítico en los estudiantes de todas las edades y niveles educativos (Alejo, 2017; Núñez *et al.*, 2017;

Rímac *et al*., 2017; Arazo *et al*., 2018; Olivera, 2018; Ossa *et al*., 2018; Steffens *et al.,* 2018; Bilik *et al.,* 2020; López *et al.*, 2020; Muhammad et al., 2020), siendo imprescindible fortalecer habilidades como el razonamiento, resolución de problemas, metacognición y reflexión, que además contribuirán a mejorar los aprendizajes de los estudiantes; mientras que, en otras investigaciones se especifican las deficiencias del nivel de pensamiento crítico de los infantes de 5 años de edad (Arhuis y Gutiérrez, 2015; Mirela y Hurjui, 2015; Valencia *et al*., 2016; Ossa, 2017; Sánchez, 2019; Ossa *et al*., 2020).

Estos y otros hallazgos subrayan la necesidad de fomentar las habilidades del pensar crítico realizando intervenciones educativas que permitan al infante responder de manera exitosa a los desafíos y demandas de la sociedad contemporánea y convertirse en actores activos en la transformación de contexto familiar y social. Ante ello, Tamayo *et al.* (2015), señaló que la escuela constituye el escenario clave para su desarrollo, por lo que, Steffens *et al.* (2018) propusieron la implementación de estrategias de formación y capacitación docente a fin de que interioricen la importancia de fomentar el pensamiento crítico en el proceso enseñanza - aprendizaje, es decir, de formar niños capaces de crear, indagar, pensar de manera constructiva y crítica, capaces de argumentar su posición, que sepan solucionar problemas obteniendo una formación integral de los infantes.

3. Propuestas para desarrollar el pensamiento crítico

Para comprender y analizar las diferentes construcciones que se tejen cuando se orientan acciones que conllevan a formar pensadores críticos que se encuentren en condiciones para afrontar las diferentes dificultades de su entorno y potencien cambios en la sociedad actual, a continuación, se presentan diversas estrategias que han propuesto varios autores, cada cual, atendiendo a las particularidades del grupo de estudio:

Muhammad *et al.* (2020) propusieron el aprendizaje basado en casos. Por su parte, Ccollana (2018) recomienda las estrategias didácticas. En tanto que Chan (2019), para promover la mentalidad crítica y reflexiva de los estudiantes, propuso una práctica de narración de cuentos entrelazado con los medios digitales en los que se incluyen imágenes, textos, sonidos y otros elementos. Igualmente, Steffens *et al.* (2018) usó las TIC como herramientas didácticas para mejorar los niveles de pensamiento crítico. Por otro lado, Iñurrategi (2018) propuso desarrollar el pensamiento crítico de los estudiantes mediante una

secuencia didáctica compuesta por actividades y varios hábitos aplicables a diario en las sesiones de aprendizaje, que permitieron obtener resultados positivos desarrollando su espíritu autocrítico y afán de aprender y mejorar.

Rímac *et al.* (2017) elaboraron propuestas de estrategias innovadoras y metacognitivas de autoconocimiento y autorregulación para contribuir al desarrollo del pensamiento crítico e investigación de los estudiantes. Otra propuesta para afianzar el pensamiento crítico en infantes de 5 años es la aplicación de programas de intervención (Ossa, 2017; Ossa *et al.*, 2020; Segundo *et al.*, 2020). Por su parte, Moreno y Velázquez (2017) junto a Llanquiche y Sebastiani (2018) coincidieron en plantear modelos didácticos cuya acción didáctica se sustentó en referentes de naturaleza científica, ordenados en el cuerpo teórico y guiando el proceso de enseñanza aprendizaje hacia la motivación, la cooperación, el análisis e investigación.

Por otro lado, Fascione (2009) propuso un conjunto de estrategias metodológicas (debate, aprendizaje basado en problemas, estudio de casos, cuentos, fábulas, dramatización, juego de roles, crucigramas y cuestionamiento) que orientan a la participación activa del estudiante en el aula de clase y desarrollan las habilidades de interpretación, análisis, evaluación, inferencia, explicación y autorregulación, cuando se resuelven problemas y, con ello, el nivel de pensamiento crítico.

En tanto que, Arhuis y Gutiérrez (2015), Sharp *et al.* (2016) y Rojas *et al.* (2017) coincidieron en proponer proyectos de indagación como estrategia de principios y metodologías para actuar en favor del ejercicio reflexivo y crítico en niñas y niños de 5 años de educación inicial, logrando un aprendizaje perdurable y relevante al emplear habilidades de naturaleza crítica que permite pensar para qué, qué y cómo aprende.

Como se puede evidenciar, muchas estrategias o actividades para elevar el pensamiento crítico en el aula de clase, pero, la presente investigación propone un Programa de proyectos de indagación que promueve el proceso de aprendizaje de los infantes y su desarrollo integral, así como la comprensión y fortalecimiento del pensamiento crítico. Es importante señalar que, durante el proceso de indagación, la actitud del docente debe ser abierta y de escucha activa a los intereses e inquietudes de los niños y niñas, de manera que, sus preguntas y acciones se conviertan en el eje central del aprendizaje; asimismo, debe generar situaciones de curiosidad, incógnita, duda, que los conlleve a expresar sus ideas y

posibles explicaciones de lo observado; también, debe conllevarlos a imaginar formas de poner a prueba sus ideas y alternativas de solución; y promover la búsqueda de información, así como la construcción de aprendizajes de manera colaborativa (MINEDU, 2019)

4. Programa basado en Proyectos de Indagación

El Programa basado en Proyectos de Indagación, se sustenta en el aprendizaje basado en proyectos, el cual es una metodología innovadora que propone un conjunto de tareas de aprendizaje basada en la resolución de preguntas y/o problemas, que involucran al estudiante en el diseño y planificación del aprendizaje, en la toma de decisiones y en procesos de investigación, dándoles la oportunidad para trabajar de manera relativamente autónoma durante la mayor parte del tiempo, que culmina en la realización de un producto final presentado ante los demás (Jones *et al.*, 1997)

Esta metodología, al abordar el proceso de enseñanza-aprendizaje desde una perspectiva interdisciplinar, en el nivel inicial permite que los estudiantes protagonicen su propio aprendizaje, desarrollando un proyecto de aula que permita aplicar los saberes adquiridos mediante un proceso de investigación sobre un producto o proceso específico, poniendo en práctica todo el sistema conceptual para resolver problemas reales y que responder a las diferentes demandas que actualmente se proponen desde los distintos campos profesionales, sociales y científicos (Markham *et al.*, 2003; Medina y Tapia, 2017).

Es importante mencionar que, esta metodología fue propuesta por Dewey (1930) para dejar atrás los modelos de enseñanza tradicional (los estudiantes aprenden pasivamente y sin oportunidad de practicar lo aprendido), por un modelo que promueve aprendizajes significativos y relevantes para la vida (MINEDU, 2018); donde el aprendizaje es asumido como la adquisición activa de la construcción de ideas y formas de aprender de los niños, otorgándoles un rol protagónico; y a los docentes, el rol de facilitadores o mediadores de dicho proceso.

Además, esta metodología comprende procesos de planificación, implementación, comunicación y evaluación de un conjunto de actividades articuladas, de carácter vivencial o experiencial, permitiendo desarrollar aprendizajes de manera integral, porque parte de los intereses y necesidades de los niños, así como de las problemáticas relacionadas a su vida y a su contexto. Se planifican, desarrollan y evalúan con la activa participación de los niños, ello implica su intervención en la toma de decisiones de las actividades que se desarrollan,

brindándoles oportunidades para investigar, diseñar o plantear alternativas de solución; desarrollando así sus competencias de manera activa, creativa y colaborativa (MINEDU, 2018).

Las dimensiones del programa fueron las que propone el MINEDU (2019): Planificación (el docente debe identificar un interés, necesidad o problema relacionado con el contexto del infante, mediante el recojo de sus saberes previos y proposiciones que busquen solucionar el problema; para luego establecer los propósitos de aprendizaje y elegir las competencias y desempeños); ejecución (consiste en preparar e implementar las actividades planificadas con los estudiantes y las van surgiendo en el devenir, a fin de conducir al logro del propósito del proyecto, mediante un rol dinámico y cooperativo que los infantes deben asumir para asegurar que sean prácticas significativas); y comunicación (es la socialización de los resultados y aprendizajes logrados de los infantes, que puede ser de manera interna con sus pares, o externa con otros compañeros, padres de familia, comunidad educativa o colectividad. Para ello, los infantes deben ser capaces de verbalizar y comunicar todo lo que han aprendido, siendo esencial definir qué es lo que quieren transmitir, quiénes serían sus invitados y de qué manera pretenden realizar la verbalización de lo aprendido en el proyecto).

5. Metodología

La investigación fue cuantitativa y de tipo aplicada, de carácter cuasiexperimental con un grupo control y experimental, con diseño pre y postest a fin de definir la eficacia de sus resultados. La población muestral lo conformaron 100 infantes, de los cuales 50 conformaron el grupo experimental y los otros 50 el grupo control.

En cuanto al instrumento para evaluar el pensamiento crítico de los infantes, se utilizó una escala de apreciación numérica con 20 ítems, cuya validez se supeditó al juicio de tres profesiones expertos en este campo del conocimiento; mientras que la fiabilidad se determinó usando el Alfa de Cronbach cuya fiabilidad fue 0,835. Los ítems estuvieron distribuidos en las tres dimensiones del pensamiento crítico: argumentación, resolución de problemas y metacognición.

Para valorar cada ítem se utilizó la escala valorativa propuesta por el MINEDU (2016a), la cual presenta cuatro niveles de logro del pensamiento crítico: En Inicio, En Proceso, Logro Esperado y Logro Destacado, con una valoración numérica de 1, 2, 3 y 4

respectivamente; teniendo los siguientes rangos: En Inicio fueron con 20-39 puntos, En Proceso de 40-49 puntos, Logro Esperado con 50-59 y Logro Destacado de 60-80 puntos.

En la dimensión argumentación se recabó información sobre si el estudiante argumenta sus juicios y opiniones con claridad, demuestra una posición a favor o en contra frente a una temática, analiza información y explica el porqué de los hechos justificando su respuesta, escucha la opinión de sus compañeros y da su punto de vista razonable frente a la temática, profundiza sobre un tema de interés para dar respuesta a las interrogantes planteadas, construye información partiendo de los saberes previos justificando su información.

En la dimensión resolución de problemas se buscó saber si el preescolar usa sus saberes previos para comprender un problema, explica lo que debe hacer para resolverlo, si hace preguntas cuando no comprende el problema, registra datos para resolverlo, revisa el proceso, detecta si hay errores y procede a su rectificación, propone estrategias para resolver el problema y si explica en su propio lenguaje sus logros a partir de las acciones realizadas.

En tanto que, en la dimensión metacognición, se buscó conocer si el infante explica cómo se sintió durante el desarrollo de la actividad, reflexiona sobre su aprendizaje en la actividad realizada, menciona cuál fue el propósito de la actividad de aprendizaje, propone acciones de mejora para realizar indagación y aplica las mejores prácticas en beneficio del trabajo en equipo.

El instrumento fue aplicado de manera individual y durante 60 minutos a cada integrante de la muestra representativa, bajo responsabilidad de la investigadora.

6. Resultados

Los resultados del presente estudio buscan demostrar la influencia del Programa basado en Proyectos de Indagación para desarrollar el Pensamiento Crítico en Estudiantes del Nivel Inicial del distrito de Chota - Cajamarca, 2019, se tuvo que probar las hipótesis estadísticas tanto la nula como la alterna mediante pruebas de bondad de ajuste a la curva normal de Kolmogorov Smirnov y Shapiro Wilk, con un nivel de significancia del 95%, las cuales estuvieron planteadas de la siguiente manera: Hipótesis nula (H_0): Si no se aplica el Programa basado en Proyectos de Indagación, entonces, no se desarrollará el Pensamiento Crítico en Estudiantes del Nivel Inicial del distrito de Chota - Cajamarca, 2019. Hipótesis alterna (H_1): Si se aplica el Programa basado en Proyectos de Indagación, entonces, se

desarrollará el Pensamiento Crítico en Estudiantes del Nivel Inicial del distrito de Chota - Cajamarca, 2019.

Tabla 1. Prueba de bondad de ajuste a la curva normal de Shapiro Wilk y Kolmogorov Smirnov

	Pruebas de normalidad					
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Estadístico	gl	Sig.	Estadístico	gl	Sig.
Experimental Pretest	,105	50	,000	,882	50	,005
Experimental Postest	,029	50	,022	,963	50	,016
Control Pretest	,208	50	,000	,920	50	,002
Control Postest	,132	50	.027	,951	50	,037

a. Corrección de significación de Lilliefors

Fuente: Pre y postest del grupo experimental y control

En la Tabla 1, se indica que al aplicar la prueba de bondad de ajuste Kolmogorov Smirnov, de la puntuación del pre y postest ($p < 0.05$), se debe rechazar la hipótesis nula. Estos resultados son corroborados con la prueba Shapiro-Wilk, usando distribución normal de cola derecha, dado que, el valor $p < 0.05$, se rechaza la hipótesis nula, demostrándose que la significancia de los diferentes grupos es <0.05, determinándose que los datos no se ajustan a una distribución normal, entonces, se aplicó la estadística No paramétrica con la prueba de Diferencias de Medianas de H Kruskal Wallis entre grupos para muestras independientes, a un nivel de significancia de 0,05 (Sig <=0.05) se halló p=0.352, entonces usando el enfoque del valor P: El valor p es $p = 0p=0$, y desde $p = 0 < 0.95p=0<0.95$, se concluye que la hipótesis nula es rechazada, aceptándose la hipótesis alterna, es decir, que si se aplica el Programa basado en Proyectos de Indagación, entonces, se desarrollará el Pensamiento Crítico en Estudiantes del Nivel Inicial del distrito de Chota - Cajamarca, 2019. Estos resultados son corroborados con los estadísticos descriptivos de la Tabla 2, cuyas calificaciones del pretest difieren del postest, siendo las del postest mayores, por lo que, existe diferencia positiva entre las calificaciones del pretest y postest, es decir, Programa basado en Proyectos de Indagación para desarrollar el Pensamiento Crítico en Estudiantes del Nivel Inicial del distrito de Chota - Cajamarca, 2019.

Tabla 2. Estadísticos del Pensamiento Crítico de Estudiantes del Nivel Inicial del distrito de Chota - Cajamarca, 2019

Estadísticos descriptivos	Grupo experimental		Grupo control	
	Pretest	Postest	Pretest	Postest
Varianza	11,44	33,05	11,76	19,35
Promedio	28,48	52,88	25,58	42,80
Desviación Estándar	3,38	5,75	3,43	4,40
Coeficiente de variabilidad	0,12	0,11	0,13	0,10

Fuente: Pre y postest del grupo experimental y control

Aquí se exponen los estadísticos descriptivos de los resultados obtenidos en el pre y postest, en el pretest, la varianza del pensamiento crítico del grupo experimental fue 11,44, y del grupo control de 11,76; en tanto, en el postest, el grupo experimental consiguió 33,05 de varianza, siendo esta mayor que la del grupo control con un 19,35. Referente al promedio del pensamiento crítico, en el pretest de ambos grupos estudiados se situaron en el nivel En Inicio, así el grupo experimental (28,48) logró mayor promedio que el grupo control (25,58); mientras que, en el postest, ambos grupos aumentaron su promedio, ubicándose en el nivel En Logro esperado para el grupo experimental con un promedio de 52,88 puntos, en tanto que el grupo control se situó en el nivel En Proceso con 40,82 puntos de promedio.

Asimismo, en el pretest, se halló que el 100% de los estudiantes de los grupos experimental y control se situaron en el nivel inicio, tal como se proyecta en la Tabla 3; mientras que, en el postest, estos porcentajes mejoraron en ambos grupos, destacando los resultados del grupo experimental, dado que, la casi el 75% se halló en el nivel logro esperado, en tanto que, los estudiantes del grupo control, la mayoría de ellos, se situó en el nivel en proceso con un 68%, demostrándose así, la efectividad de la propuesta.

En la Tabla 3, se muestran los resultados del nivel de pensamiento crítico en el pretest aplicado a los infantes de 5 años del grupo experimental y control, evidenciándose que, ambos grupos se situaron en un 100% en el nivel En Inicio, es decir, tuvieron un bajo nivel. Finalmente, en los niveles en proceso, logro esperado y logro destacado, ningún infante del grupo experimental, ni control se situó en estos niveles.

Tabla 3. Nivel de pensamiento crítico en el pretest aplicado a los infantes de 5 años del grupo experimental y control y grupo

	Pretest			
Nivel	Grupo experimental		Grupo control	
	N	%	N	%
En Inicio	50	100	50	100
En Proceso	0	0	0	0
Logro esperado	0	0	0	0
Logro destacado	0	0	0	0
Total	50	100	50	100

Fuente: Pretest aplicado al grupo control y experimental

7. Diseño del programa

Una vez diagnosticado el nivel de pensamiento crítico de los infantes, se diseñó la propuesta, es decir, el Programa basado en Proyectos de Indagación para desarrollar el pensamiento crítico de infantes de 5 años de Educación Inicial del distrito de Chota, Cajamarca, 2019. Este programa constó de 10 sesiones de aprendizaje, en el que se realizaron actividades que permitieron elevar y mejorar el nivel de pensamiento crítico de los infantes. En el diseño se propusieron trabajos de indagación en grupo, ejercitaciones individuales, situaciones de vida cotidiana y otros que favorezcan el desarrollo de sus procesos cognitivos, afectivos y el fortalecimiento de sus relaciones hacia los demás. A su vez, se diseñaron instrumentos para evaluar la competencia y desempeños durante y después de cada sesión.

Cada sesión del proyecto ofrece a los infantes oportunidades para indagar, elaborar o formular opciones de solución de modo activo, creativo y colaborativo, abordando temáticas de la vida diaria o de interés emergidas de las inquietudes y curiosidad de los infantes, que los impulsa a explorar, experimentar o resolver situaciones, buscando probables soluciones, desarrollando sus facultades de investigación y promoviendo la actividad creadora, el trabajo colectivo, el respeto de las normas de convivencia comprendiendo e involucrando a la comunidad educativa; con el fin de fomentar el desarrollo del pensamiento crítico de los infantes mediante un aprendizaje significativo y trascendente para la vida. En la Figura 1 se esquematiza el diseño de la propuesta que se viene mencionando en líneas anteriores.
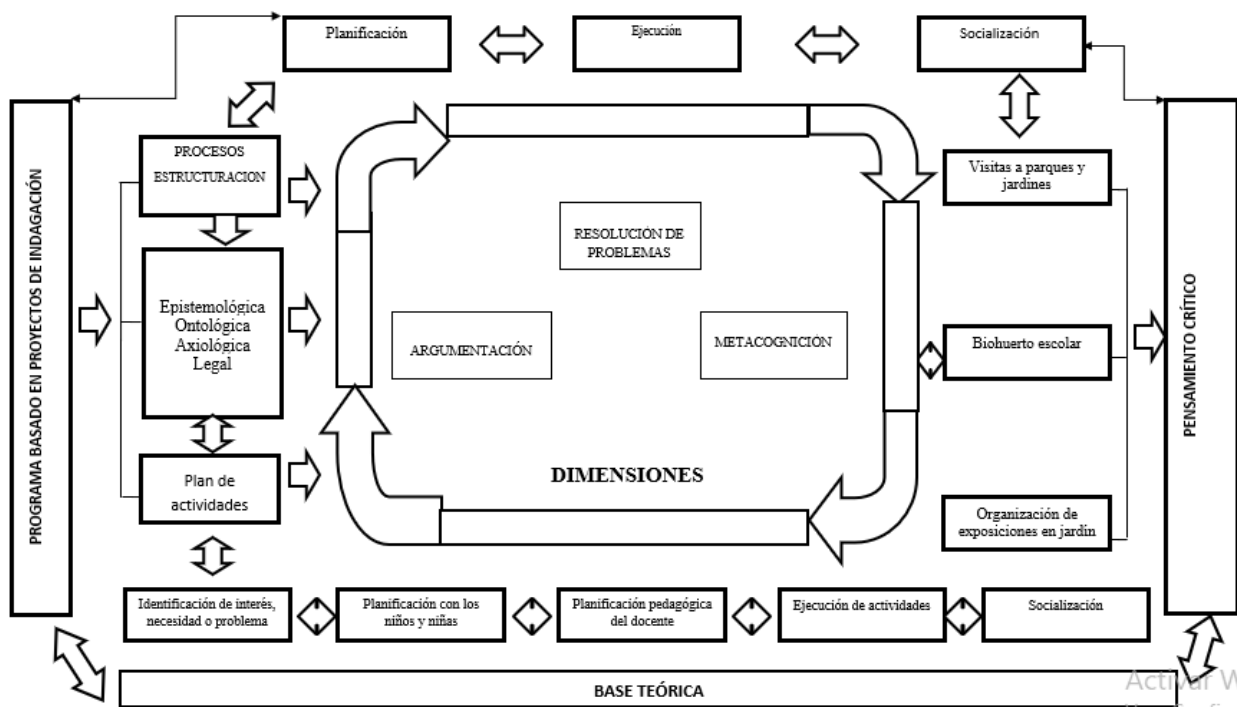
Figura 1. Programa basado en Proyectos de Indagación para desarrollar el pensamiento crítico de infantes de 5 años de Educación Inicial del distrito de Chota, Cajamarca, 2019

8. Ejecución del programa

Se ejecutó el programa basado en proyectos de indagación para desarrollar el pensamiento crítico de los infantes de educación inicial de Chota, el cual estuvo estructurado desde la óptica de la epistemología, ontología, axiología, considerando los diferentes procesos un proyecto de indagación, entre las cuales resaltan: la planificación, la ejecución y la socialización:

Proceso de planificación: consistió en la identificación de un interés, necesidad o problema. En ese sentido la docente, debería estar atenta a situaciones del día a día. Para ello, la docente realizaba una asamblea con sus infantes en el aula a fin de identificar un interés, necesidad o problema motivador para iniciar un proyecto de aprendizaje. Esto mediante preguntas que generen en los infantes curiosidad y deseo por aprender más sobre aquello que les interesa. Una vez identificado el interés necesidad o problema procedieron a plantear preguntas se planificó con los niños las actividades a trabajar, luego se analizó la competencia a desarrollar. En esta fase se define el tema a investigar y se realiza el planteamiento de preguntas.

Proceso de ejecución: consistió en la realización de las actividades. Para ello, la docente antes de llevar a cabo cada proyecto, en esta fase, previamente tuvo que investigar acerca de la temática a desarrollar, para tener los conocimientos esenciales que le permitieron mediar el aprendizaje de los infantes, guiándolos a que construyan sus propias teorías e hipótesis. Una vez elaborada sus hipótesis, los infantes con ayuda de la docente procedieron a buscar información necesaria para argumentar sus respuestas a la posible solución del problema, interés o necesidad identificado en la fase de planificación. La información obtenida fue extraída de diferentes fuentes informativas: textos, videos, visita de personas con amplia experiencia en la temática y con la observación del contexto.

Después de analizar y contrastar la información, los infantes llegaron a realizar sus propias conclusiones, reflexionando sobre lo aprendido mediante preguntas metacognitivas como: ¿Qué aprendimos?, ¿Cómo lo aprendimos?, ¿Para qué lo aprendimos? ¿Qué dificultades tuvimos? ¿Cómo hemos superado esas dificultades? Además, cabe mencionar que, en esta fase la docente recogió evidencias de los aprendizajes mediante preguntas y respuestas de los infantes, registros de sus diálogos, discusiones y representaciones, utilizando a los anecdotarios, fichas de registro y portafolios como instrumentos para recoger la información.

Proceso de socialización: consistió en la socialización de las propuestas obtenidas de su indagación. Para ello, la docente, al término de cada proyecto realizaba una convocatoria a toda la comunidad educativa para que los infantes, en un espacio acogedor, presenten sus propuestas con las respectivas evidencias de lo que hicieron y aprendieron de la temática desarrollada.

8.1. Resultados del postest sobre el nivel de pensamiento crítico

En la Tabla 4, se observa que el grupo experimental tuvo un avance positivo en los porcentajes de los niveles de pensamiento crítico, donde el mayor porcentaje se evidencia en el nivel Logro esperado con un 66%, seguido del nivel En Proceso con 24%, un 10% alcanzó el nivel Logro destacado y ningún infante se situó en el nivel En Inicio; mientras que, en el grupo control, la mayoría de los infantes lograron alcanzar el nivel En Proceso con un 74%, seguido de un 18% en Inicio, un 8% en Logro esperado y ningún estudiante alcanzó el nivel más alto u óptimo, es decir, logro destacado.

Tabla 4. Nivel de pensamiento crítico en el postest aplicado a los infantes de 5 años del grupo experimental y control y grupo

	Postest			
Nivel	Grupo experimental		Grupo control	
	N	%	N	%
En Inicio	0	0	9	18
En Proceso	12	24	37	74
Logro esperado	33	66	4	8
Logro destacado	5	10	0	0
Total	50	100	50	100

Fuente: Postest aplicado al grupo control y experimental

Estos resultados determinaron una influencia significativa del Programa basado en proyectos de indagación en el desarrollo del pensamiento crítico en infantes del Nivel Inicial del distrito de Chota, Cajamarca, 2019.

9. Discusión

Los resultados obtenidos del estudio permitieron recoger información sobre el nivel de pensamiento crítico de los infantes a través de las dimensiones de: argumentación, solución de problemas y metacognición propuestas por con Revel *et al.* (2005) y Tamayo *et al.* (2015). Al diagnosticar el nivel de pensamiento crítico, los resultados mostraron que todos los infantes, tanto del grupo experimental como control, se encontraron en el nivel en inicio, constituyendo una situación preocupante por parte de la investigadora; porque los infantes presentaron dificultad para argumentar sus ideas ante sus compañeros, así también para encontrar una solución a problemas o hacer frente de manera eficaz a las dificultades que se le presentaban; y para reflexionar sobre su propio aprendizaje, es decir, interrogarse a sí mismo y responder sobre lo que aprendió, cómo lo hizo, qué dificultades tuvo y cómo lo solucionó.

Estos resultados tuvieron mucha coincidencia con el estudio realizado por Sánchez (2019) sobre el pensamiento crítico en niños y niñas de 5 años de Educación Inicial, cuyos resultados mostraron que casi el 10% de los niños alcanzaron un nivel alto, mientras que el 20% se encuentra en un nivel medio y el 70% de los niños estuvo en un nivel bajo. En suma, el rendimiento fue bajo.

A partir de las deficiencias detectadas en líneas anteriores, se procedió a diseñar el Programa basado en Proyectos de Indagación para desarrollar el pensamiento crítico. Los proyectos de indagación fueron concebidos por el MINEDU (2018) como una forma de planificación integradora que permite desarrollar competencias en los estudiantes, con sentido holístico e intercultural, promoviendo su participación en todo el desarrollo del proyecto. En ese sentido, los proyectos del programa se estructuraron en 10 sesiones de aprendizaje, los cuales fueron diseñados considerando los procesos de: planificación, ejecución, comunicación y evaluación de un conjunto de actividades articuladas, de carácter vivencial o experiencial, durante un periodo de tiempo determinado, según su propósito en el marco de una situación de interés de los infantes o problema del contexto.

Cada sesión contenía actividades con estrategias de metodología activa como trabajos de indagación en grupo, ejercitaciones individuales, situaciones de vida cotidiana y otros que favorezcan el desarrollo de sus procesos cognitivos, afectivos y el fortalecimiento de sus relaciones hacia los demás, que permiten elevar y mejorar su nivel de pensamiento crítico; cabe señalar que antes, durante y después de cada actividad programada se realizó una evaluación de la competencia y desempeños.

Durante la ejecución de la propuesta se consideraron a los proyectos como una forma de desarrollar aprendizajes de manera integral, partiendo de los intereses y necesidades de los infantes, así como de las problemáticas relacionadas a su vida y a su contexto (MINEDU, 2018), en el que se planificaron, desarrollaron y evaluaron situaciones problemáticas con la activa participación de los niños en la toma de decisiones de las actividades que se desarrollan, brindándoles oportunidades para investigar, diseñar o plantear alternativas de solución; desarrollando así sus competencias de manera activa, creativa y colaborativa.

Después de aplicar el programa, los resultados presentados inicialmente, mejoraron de manera sustantiva, ya que la mayoría de los infantes se situaron en el nivel Logrado, indicando la significatividad de la propuesta. Estos resultados coinciden con los obtenidos por Sharp *et al.* (2016), quienes consideran que los proyectos de aprendizaje surgen de un campo particular donde se obtiene mucha orientación con lectura selectiva. Asimismo, Ossa (2017) en su investigación cuasi experimental determinó los efectos del programa educación ambiental en el afianzamiento del pensamiento crítico en niños y niñas de cinco años de las II.EE. de Huancayo, en el que se concluyó que entre la prueba de entrada y salida existió diferencia

significativa de frecuencias entre el grupo control y el grupo experimental en la aplicación del programa de educación.

A partir de los resultados obtenidos en esta y en diferentes investigaciones desde un contexto local, nacional e internacional, se valora la importancia de trabajar proyectos basados en la indagación para desarrollar el pensamiento crítico de los infantes de Educación Inicial.

Conclusiones

En el presente estudio se encontró que existen diferencias estadísticas entre los promedios obtenidos en el pre y postest del grupo experimental y control. En el pretest, el grupo experimental obtuvo como promedio 28,48 puntos, situándose en el nivel En Inicio, al igual que el grupo control que obtuvo 25,58 puntos de promedio; mientras que en el postest, el grupo control obtuvo un promedio de 40,82 puntos ubicándose en el nivel En Proceso; en cambio, el grupo experimental obtuvo 52,88 puntos, tras la intervención del programa basado en proyectos de indagación que constó de 10 sesiones de aprendizajes, situándose en el nivel Logro Esperado; determinándose que el Programa basado en Proyectos de Indagación tuvo una influencia significativa en el desarrollo del pensamiento crítico de los infantes.

Referencias

Alejo, L. (2017). Pensamiento crítico en estudiantes de grado de maestro en Educación Primaria desde la didáctica de las ciencias sociales [tesis doctoral, Universidad de Málaga]. Repositorio Institucional UMA. https://riuma.uma.es/xmlui/bitstream/handle/10630/15997/TD_ALEJO_LOZANO_Laura.pdf?sequence=1yisAllowed=y

Arazo, E., Wattanatorn, A. y Tagong, K. (2018). The development and validation of the Blended Socratic Methodof Teaching (BSMT): An instructional model to enhance criticalthinking skills of undergraduate business students [El desarrollo y validación del método socrático combinado de enseñanza (BSMT): un modelo de instrucción para mejorar las habilidades de pensamiento crítico de los estudiantes universitarios de negocios]. *Kasetsart Journal of Social Sciences*, 39(1), 81 – 89. doi.org/10.1016/j.kjss.2018.01.001

Arhuis, W. E. y Gutiérrez, R. (2015). Método de proyectos para desarrollar el pensamiento científico en los niños de 5 años. *In Crescendo. Educación y Humanidades*, 2(2), 51-159. https://www.researchgate.net/publication/328199503_Metodo_de_proyectos_para_desarrollar_el_pensamiento_cientifico_en_los_ninos_de_5_anos

Bachelard, G. (1948). La formación del espíritu científico. Argos.

Baron, J. (1985). Rationality and Intelligence [Racionalidad e inteligencia]. Cambridge University Press. doi.org/10.1017/CBO9780511571275.009

Bilik, O., Ayten, E. y Deveci, Z. (2020). Effects of web-based concept mapping education on students' concept mapping and critical thinking skills: A double blind, randomized, controlled study [Efectos de la educación en mapas conceptuales basada en la web sobre los mapas conceptuales y las habilidades de pensamiento crítico de los estudiantes: un estudio doble ciego, aleatorizado y controlado]. *Nurse Education Today*, 86(10), 2-5. doi.org/10.1016/j.nedt.2019.104312

Campos, A. (2007). Pensamiento crítico. Técnicas para su desarrollo. Cooperativa Editorial Magisterio.

Ccollana, L. H. (2018). Estrategias didácticas para el logro de aprendizajes de ciencia y ambiente en educación básica alternativa [tesis de maestría, Universidad César Vallejo]. Repositorio Institucional UCV. http://repositorio.ucv.edu.pe/handle/UCV/12604

Chan, Ch. (2019). Using digital storytelling to facilitate critical thinking disposition in youth civic engagement: A randomized control trial [Uso de la narración digital para facilitar la disposición del pensamiento crítico en la participación cívica de los jóvenes: un ensayo de control aleatorio]. *Children and Youth Services Review*, 107, 1-10. doi.org/10.1016/j.childyouth.2019.104522

Dewey, J. (1930). Human nature and conduct [Naturaleza y conducta humanas]. The Modem Library.

EducarChile. (2019). Fomentando el pensamiento crítico. EducarChile. https://www.educarchile.cl/fomentando-el-pensamiento-critico

Ennis, R. (1985). Critical Thinking [Pensamiento crítico]. Prentice Hall.

Facione, P. (2020). Critical Thinking: What It Is and Why It Counts [Pensamiento crítico: qué es y por qué cuenta]. Loyola University. https://www.insightassessment.com/wp-content/uploads/ia/pdf/whatwhy.pdf

Fascione, P. (2009). Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction. Research Findings and Recommendations [Pensamiento crítico: una declaración de consenso de expertos para fines de evaluación e instrucción educativas. Resultados de la investigación y recomendaciones]. Eric. https://eric.ed.gov/?id=ED315423

Halpern, D. F. (1998). Teaching critical thinking for transfer across domains - Dispositions, skills, structure training, and metacognitive monitoring [Enseñar el pensamiento crítico para la transferencia entre dominios: disposiciones, habilidades, entrenamiento de estructuras y monitoreo metacognitivo]. *American Psychologist*, 53(4), 449-455. doi.org/10.1037/0003-066X.53.4.449

Iñurrategi, A. (2018). Pensamiento crítico en educación primaria [tesis de Maestría, Universidad del país Vasco]. Repositorio Institucional ADDI.

https://addi.ehu.es/bitstream/handle/10810/30130/TFG_I%C3%B1urrategi.pdf?sequence=1yis
Allowed=y

Jones, B. F., Rasmussen, C. M. y Moffitt, M. C. (1997). Real-life problem solving: A collaborative approach to interdisciplinary learning [Resolución de problemas de la vida real: un enfoque colaborativo para el aprendizaje interdisciplinario]. American Psychological Association. DOI: 10.1037/10266-000

Laskey, M. L. y Gibson, P. W. (1997). College study strategies: Thinking and learning [Estrategias de estudios universitarios: pensar y aprender]. Allyn and Bacon.

Llanquiche, P. D. y Sebastiani, Y. (2018). Modelo didáctico co-sujeto en las competencias investigativas [tesis doctoral, Universidad Nacional Pedro Ruiz Gallo]. Repositorio Institucional UNPRG. https://alicia.concytec.gob.pe/vufind/Record/UPRG_586f875419f0b92d94ebaa60ccee2933/Description#tabnav

López, M., Jiménez, J. M., Martín, B., Fernández, M., Cao, M. J., Frutos, M. y Castro, M. J. (2020). The impact of an educational intervention on nursing students' critical thinking skills: A quasi-experimental study [El impacto de una intervención educativa en las habilidades de pensamiento crítico de los estudiantes de enfermería: un estudio cuasi-experimental]. *Nurse Education Today*, 85. doi.org/10.1016/j.nedt.2019.104305

Machaca, N. (2016). La cruz categorial como estrategia para desarrollar el pensamiento crítico n los estudiantes de la facultad de Ciencias de la Educación de la Universidad Nacional del Altiplano - Puno, 2015 [tesis Doctoral, Universidad Nacional del Altiplano]. Repositorio Institucional UNE. http://repositorio.une.edu.pe/handle/UNE/266

Markham, T., Larmer, J. y Ravitz., J. (2003). Project-Based Learning. Handbook: A Guide to Standards Focused Project-Based Learning for Middle and High School Teachers [Aprendizaje en base a proyectos. Manual: Una guía para el aprendizaje basado en proyectos enfocado en estándares para maestros de escuelas intermedias y secundarias]. Buck Institute for Education.

Medina, M. A. y Tapia, M. P. (2017). El aprendizaje basado en proyectos una oportunidad para trabajar interdisciplinariamente. *Revista de la Facultad de Cultura Física de la Universidad de Granma*, 14(46), 236-246. https://dialnet.unirioja.es/descarga/articulo/6220162.pdf

Ministerio de Educación. (2005). Diseño Curricular Nacional de Educación Básica Regular. Ministerio de Educación. http://www.minedu.gob.pe/normatividad/reglamentos/DisenoCurricularNacional2005FINAL.pdf

Ministerio de Educación. (2006). Guía para el desarrollo del pensamiento crítico. Ministerio de Educación.

Ministerio de Educación. (2016). Currículo Nacional de la Educación Básica. Ministerio de Educación. http://www.minedu.gob.pe/curriculo/pdf/curriculo-nacional-de-la-educacion-basica.pdf

Ministerio de Educación. (2016b). Programa Curricular de Educación Inicial. Ministerio de Educación. http://www.minedu.gob.pe/curriculo/pdf/programa-curricular-educacion-inicial.pdf

Ministerio de Educación. (2018). Guía de orientación para desarrollar proyectos de aprendizaje en educación inicial. Ministerio de Educación.

Ministerio de Educación. (2019). ¿Cómo desarrollamos proyectos en el aula?. Ministerio de Educación.

Mirela, N. y Hurjui, E. (2015). Critical Thinking in Elementary School Children [Pensamiento crítico en niños de escuela primaria]. Procedia - Social and Behavioral Sciences, 180, 565-572. doi.org/10.1016/j.sbspro.2015.02.161

Moreno, W. E. y Velásquez, M. E. (2017). A Strategy For Developing Student´s Critical Thinking Skill [Una estrategia para desarrollar la habilidad de pensamiento crítico del estudiante]. REICE. *Revista Iberoamericana sobre Calidad, Eficacia y Cambio en Educación*, 15(2), 53-73. doi.org/10.15366/reice2017.15.2.003

Muhammad, A., Sapenia, R. y Syahrul, S. (2020). The effectiveness of case-based learning in increasing critical thinking of nursing students: A literature review [Una estrategia para desarrollar la habilidad de pensamiento crítico del estudiante]. *Enfermería Clínica*, 30(2), 182-185. doi.org/10.1016/j.enfcli.2019.07.073

Núñez, S., Ávila, J. E. y Olivares, S. L. (2017). El desarrollo del pensamiento crítico en estudiantes universitarios por medio del Aprendizaje Basado en Problemas. *Revista Iberoamericana de Educación Superior*, 8(23), 84-103. http://www.scielo.org.mx/pdf/ries/v8n23/2007-2872-ries-8-23-00084.pdf

Olivera, R. (2018). Pensamiento crítico y logros de aprendizaje [tesis de Maestría, Universidad de San Pedro]. Repositorio Institucional USANPEDRO. http://repositorio.usanpedro.edu.pe/bitstream/handle/USANPEDRO/6367/Tesis_60677.pdf?sequence=1yisAllowed=y

Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura. (2018). Aprender a vivir en la era de la inteligencia artificial. https://es.unesco.org/courier/2018-3/aprender-vivir-era-ia

Ossa, C. (2017). Impacto de un programa de pensamiento crítico en habilidades de indagación y pensamiento probabilístico en estudiantes de pedagogía [tesis Doctoral, Universidad de Concepción]. Repositorio Institucional UDEC. http://repositorio.udec.cl/jspui/bitstream/11594/2514/3/Tesis_impacto_de_un_programa_de_pensamiento.pdf

Ossa, C. J., Díaz, C. H., Pérez, V. M., Da Costa, S. y Páez, D. (2020). El Efecto de un programa de pensamiento crítico en habilidades de indagación y pensamiento probabilístico en estudiantes de pedagogía. *Revista de psicólogos de la educación*, 26(1), 87-93. doi.org/10.5093/psed2019a18

Ossa, C. J., Palma, M. R., Lagos, N. G. y Díaz, C. H. (2018). Evaluación del pensamiento crítico y científico en estudiantes de pedagogía de una universidad chilena. *Revista Electrónica Educare*, 22(2), 1-18. http://dx.doi.org/10.15359/ree.22-2.12

Revel, A., Coulól, A., Erdurán, S., Furman, M., Iglesisa, P. y Adúriz, A. (2005). Estudios sobre la enseñanza de la argumentación científica escolar. https://ddd.uab.cat/pub/edlc/edlc_a2005nEXTRA/edlc_a2005nEXTRAp400estens.pdf

Rímac, D. G., Velázquez, M. E. y Hernández, R. (2017). Estrategias innovadoras para contribuir al desarrollo del pensamiento crítico. *Revista de Educación*, 8(10), 31-60. http://fh.mdp.edu.ar/revistas/index.php/r_educ/article/download/2040/2429

Rojas, L. M., Rosas, J. H. y Sanabria, Y. R. (2017). Desarrollo de la competencia de indagación en la enseñanza de las ciencias naturales en básica primaria del Instituto Técnico Ambiental San Mateo de Yopal-Casanare [tesis de Maestría, Universidad de la Salle]. Repositorio Institucional ULASALLE. https://ciencia.lasalle.edu.co/cgi/viewcontent.cgi?article=1020ycontext=maest_docencia_yopal

Sánchez, M. I. (2019). El nivel del pensamiento crítico de los estudiantes de 5 años de educación inicial de la Institución Educativa Privada Santa María la Católica – distrito de Nuevo Chimbote, año 2017 [tesis de Maestría, Universidad Los Ángeles de Chimbote]. Repositorio Institucional ULADECH. http://repositorio.uladech.edu.pe/bitstream/handle/123456789/11444/DESARROLLO_ESTU DIANTES_SANCHEZ_IPARRAGUIRRE_MARA_ISABEL.pdf?sequence=1yisAllowed=y

Scott, C. L. (2015). El futuro del aprendizaje 2 ¿Qué tipo de aprendizaje se necesita en el siglo XXI? Investigación y Prospectiva en Educación. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000242996_spa

Segundo, R. I., López, V., Daza, M. T. y Phillips, J. (2020). Promoting children's creative thinking through reading and writing in a cooperative learning classroom [Promover el pensamiento creativo de los niños a través de la lectura y la escritura en un aula de aprendizaje cooperativo]. *Thinking Skills and Creativity*, 36(2), 1-13. doi.org/10.1016/j.tsc.2020.100663

Sharp, J. A., Peters, J. y Howard, K. (2016). The Management of a Student Research Project [La gestión de un proyecto de investigación de estudiantes]. Oxon OX14 4RN 711 Third Avenue.

Steffens, E. J., Ojeda, D. C., Martínez, J. L., Hernández, H. G. y Moronta, Y. H. (2018). Presencia del pensamiento crítico en estudiantes de educación superior de la Costa Caribe Colombiana. *Revista Espacios*, 39(30), 1-14. https://www.revistaespacios.com/a18v39n30/a18v39n30p01.pdf

Tamayo, O. E., Zona, R. y Loaiza, Y. E. (2015). El pensamiento crítico en la educación. Algunas categorías centrales en su estudio. *Revista Latinoamericana de Estudios Educativos*, 11(2), 111-133. https://www.redalyc.org/articulo.oa?id=134146842006

Unidad de Gestión Educativa Local de Chota. (2019). Monitoreo a la práctica pedagógica. UGEL-CH. http://ugeldechota.gob.pe/

Valencia, J. L., Vallejo, S. T. y Olivares, S. L. (2016). La simulación clínica como estrategia para el desarrollo del pensamiento crítico en estudiantes de medicina. *Investigación en educación médica*, 10(37) http://riem.facmed.unam.mx/node/856

Villarini, J. Á. (2011). Teoría y Pedagogía del Pensamiento Crítico. Perspectivas Psicológicas, 3(4), 35-42. http://pepsic.bvsalud.org/pdf/pp/v3-4/v3-4a04.pdf

Villarini, R. (2003). Teoría y pedagogía del pensamiento crítico. Trillas.

La investigación formativa en los modelos de acreditación de programas universitarios en el Perú

Edwin Roger Esteban Rivera*
María Lourdes Piñero Martín**
Amancio Ricardo Rojas Cotrina***
Sonia Fiorella Callupe Becerra****
Zósimo Pedro Jacha Ayala*****

RESUMEN

La sociedad exige a las universidades cumplir con sus ejes rectores, entre ellos, el desarrollo de investigaciones, de ahí que no hay modelo de acreditación universitaria que omita la formación de investigadores. El presente trabajo tiene como propósito analizar cómo se aborda la investigación formativa en los modelos de calidad del sistema universitario peruano, a través de una revisión bibliográfica, para mejorar el talento humano que produce el sistema educativo. En el transcurrir histórico, el Perú estableció dos modelos de calidad para la acreditación de carreras profesionales: el primero entró en vigencia el año 2009 y menciona explícitamente a la investigación formativa, además, brinda pautas de cómo debe desarrollarse en los programas; el segundo, vigente desde el año 2016, la aborda implícitamente. Ambos modelos consideran que el proceso de enseñanza y aprendizaje debe estar articulado con la investigación, desarrollo tecnológico, innovación y responsabilidad social, a fin de garantizar la formación integral de los estudiantes.

PALABRAS CLAVE: Investigación formativa; acreditación; universidad; modelo de calidad.

* Docente en la Universidad Nacional Hermilio Valdizán, Huánuco, Perú. ORCID: https://orcid.org/0000-0003-4669-1268. E-mail: edroer@gmail.com

** Docente de la Universidad Pedagógica Experimental Libertador. Instituto Pedagógico de Barquisimeto, Venezuela. ORCID: http://orcid.org/0000-0002-7038-2871. E-mail: malopima11@gmail.com

*** Docente en la Universidad Nacional Hermilio Valdizán, Huánuco, Perú. ORCID: https://orcid.org/0000-0002-5767-8416. E-mail: amancio212@hotmail.com

**** Docente en la Universidad Nacional Hermilio Valdizán, Huánuco, Perú. ORCID: https://orcid.org/0000-0001-9199-0449. E-mail: sofy3122@hotmail.com

***** Docente en la Universidad Nacional Hermilio Valdizán, Huánuco, Perú. ORCID: https://orcid.org/0000-0003-0745-7751. E-mail: zjacha3@hotmail.com

Formative research on accreditation models of the university programs in Peru

ABSTRACT

Society requires universities to comply with their guiding principles, including the development of research; hence there is no university accreditation model that omits the training of researchers. The present work aims to analyze how formative research is approached in the quality models of the Peruvian university system, through a bibliographic review, to improve the human talent produced by the educational system. In the past, Peru established two quality models for the accreditation of professional careers, the first entered into force in 2009 and explicitly mentions formative research, in addition, it provides guidelines on how it should be developed in the programs; the second, in force since 2016, addresses it implicitly. Both models consider that the teaching and learning process must be articulated with research, technological development, innovation and social responsibility, in order to guarantee the comprehensive training of students.

KEYWORDS: Formative research; accreditation; university; quality model.

Introducción

La revolución tecnológica expresada en la nanotecnología, microelectrónica y programación está creando nuevas formas de producción y nuevas configuraciones sociales. La mano de obra no calificada está siendo sustituida por procesos automatizados cada más expandidos y complejos, con trabajadores simbólicos que a su vez requieren trabajadores con alta formación y en constante preparación (Rama, 2009). La pandemia por COVID-19 puso en evidencia la importancia de la digitalización en todos los sectores (Cabero & Llorente, 2020; Esteban et al., 2020; Piñero et al., 2021).

Como vemos, en el mundo actual es tan importante el conocimiento que se han introducido en el ámbito académico términos como: capital educativo, capital intelectual, capital cultural, y capital mental, en reemplazo del meramente capital humano. La propiedad del conocimiento se ha expandido y se han implementado políticas a escala mundial para regular los derechos intelectuales, derechos de autor, patentes y marcas.

La educación como elemento de la superestructura se adecúa paulatinamente al desarrollo de las sociedades, a los cambios de la estructura productiva; pero además, la educación se

constituye en un medio para la difusión y generalización de esas transformaciones en diversas aristas, sean estas en el aspecto cultural, social y económico (Rama, 2009). Si la nueva configuración económica y social ha generado nuevas competencias laborales, nuevos campos disciplinarios; las instituciones educativas, entre ellas las universidades, se encuentran frente a nuevas tendencias y desafíos (Piñero et al., 2021).

En este escenario, la misión de la universidad es generar en sus estudiantes el pensamiento científico, transformar el conocimiento en sapiencia, la información en sabiduría, y transferirlo a la sociedad. Todo ello es posible con la investigación. Si las universidades se ven privadas de desarrollar investigaciones, quedan reducidas a centros de información, conocidas como *enseñanza terciaria*, que son la prolongación de la educación primaria y secundaria.

Las nuevas formas de generación de conocimientos exigen cambios sustantivos en las instituciones educativas, se requiere la desestructuración del currículo, traspasar los currículos rígidos y apostar por la flexibilidad curricular, incorporar nuevas estrategias y recursos que permitan la creación de espacios que optimicen los aprendizajes, además de nuevos componentes curriculares o de nuevas formas de apropiación, como la movilidad estudiantil y de docentes, implementación de pasantías, mayor articulación entre la teorías y la práctica, integración de actividades de simulaciones cuando sea posible, como parte de una nueva educación (Rama, 2009).

En el caso peruano, la Ley Universitaria 30220 conceptúa a la universidad como una comunidad académica orientada a la investigación, sustentada, entre otros, en los siguientes principios: búsqueda y difusión de la verdad, calidad académica, espíritu crítico y de investigación, pertinencia y compromiso con el desarrollo del país, mejoramiento continuo de la calidad académica, creatividad e innovación, internacionalización, pertinencia de la enseñanza e investigación con la realidad social (Congreso de la República, 2014).

Para el mejoramiento de la calidad de las universidades, el año 2009 entró en vigencia el Modelo de Calidad para la Acreditación de Carreras Profesionales Universitarias, lográndose que la comunidad universitaria del país se familiarizara con la autoevaluación, implementación de planes de mejora, evaluación externa y acreditación; es decir, todo un proceso cíclico de investigación-acción como vía de mejora continua (Esteban et al., 2017; 2018). Sin embargo, el

modelo hacía énfasis en los procesos y no en los resultados, además el número de estándares era excesivo (SINEACE, 2017).

El año 2016 se aprueba un nuevo modelo, denominado Modelo de Acreditación para Programas de Estudios de Educación Superior Universitaria que, considera a la evaluación de la calidad como un "proceso formativo que ofrece a las instituciones oportunidades para analizar su quehacer, introducir cambios para mejorar de manera progresiva, permanente y sostenida, fortalecer su capacidad de autorregulación e instalar una cultura de calidad" (SINEACE, 2017: 24).

La investigación, como una actividad consciente y metódica que busca hallazgos significativos para incrementar el conocimiento humano y enriquecen la ciencia (Rivera et al., 2017), está contemplada en ambos modelos de calidad. Por consiguiente, las universidades están llamadas a implementar un conjunto de acciones sistemáticas que contribuyan a formar nuevos investigadores que se incorporen paulatinamente a la comunidad científica. Es preciso advertir que no es posible generar conocimientos si no se forman investigadores, si no se fomenta la investigación formativa.

La investigación formativa concibe que "el aprendizaje es un proceso de construcción del conocimiento, que la enseñanza debe ser objeto de reflexión sistemática sobre la base de la vinculación entre teoría y experiencia pedagógica" (CONEAU, 2009: 48). En esta tarea, el docente debe reflexionar con frecuencia sobre su quehacer pedagógico, analizar sus aciertos y desaciertos, logros y dificultades; emprender acciones para transformar su praxis y mejorar su saber pedagógico. Es decir, debe deconstruir y reconstruir de manera permanente su práctica pedagógica (Esteban et al., 2018).

Teniendo en consideración la importancia de la investigación formativa para la formación de investigadores y consecuentemente para la generación de conocimientos científicos en las universidades, el presente trabajo tiene como propósito analizar cómo se aborda la investigación formativa en los modelos de calidad del sistema universitario peruano, a través de una revisión bibliográfica, para mejorar el talento humano que produce el sistema educativo.

1. Metodología

Para el desarrollo del presente artículo se optó por la perspectiva metodológica cualitativa (Piñero et al., 2019), específicamente la investigación documental. En ese sentido, se consultó materiales académicos en formato físico y virtual, entre ellos: libros, modelos de calidad para la acreditación de programas universitarios, artículos de revistas indizadas en bases de datos Scopus, Web of Science, SciELO, Dialnet, ProQuest.

2. Resultados

2.1. La investigación formativa en el modelo de calidad del 2009

El Modelo de Calidad para la Acreditación de la Carrera Profesional Universitaria de Educación, vigente del año 2009 al 2016, hace referencia a la investigación formativa en los siguientes criterios y estándares.

a) Criterio: "Estrategias de enseñanza-aprendizaje. Las estrategias de los procesos de enseñanza-aprendizaje e investigación formativa, así como los medios y materiales utilizados en la docencia, son coherentes con el proyecto educativo considerando las diferentes clases de asignaturas" (CONEAU, 2009: 20).

b) Estándar 47. "La Unidad Académica tiene un sistema implementado de evaluación de la investigación formativa y de trabajo final de carrera profesional" (CONEAU, 2009: 35).

c) Estándar 50. "Los sistemas de evaluación de la investigación y del aprendizaje se articulan para tener una evaluación integral del estudiante" (CONEAU, 2009: 35).

d) Estándar 51. "Los sistemas de evaluación de la investigación, información y comunicación, se articulan para tener una efectiva difusión de los proyectos y sus avances" (CONEAU, 2009: 35)

La investigación formativa es un proceso básicamente pedagógico de familiarización con la investigación, consiste en formar estudiantes capaces de realizar procesos de investigación, "pero en la investigación o a través de la investigación, con miras a aprender a investigar investigando, aunque esta actividad no conduzca necesariamente a descubrimiento de conocimiento nuevo y universal. El propósito es más bien pedagógico" (Restrepo, 2009: 21). El currículo es elemento fundamental en la formación de estudiantes para que se interesen por y en la misma investigación.

La investigación formativa se concibe como pedagogía investigativa, "configura un espacio de formación orientado a la indagación, problematización, reflexión, etc. y, por ende, de iniciación en la investigación" (Turpo et al., 2020).

2.2. La investigación formativa en el modelo de calidad del 2016

La Ley Universitaria 30220, que entró en vigencia el año 2014, considera en el artículo 30: "El proceso de acreditación de la calidad educativa en el ámbito universitario, es voluntario, se establece en la ley respectiva y se desarrolla a través de normas y procedimientos estructurados e integrados funcionalmente" (Congreso de la República del Perú, 2014: 19).

No obstante que la acreditación no es obligación legal en la mayoría de los programas académicos, existe una obligación social en el *mercado*. Las posibilidades para que los padres matriculen a sus hijos en programas no acreditados es remota; por tanto, el programa que no logre su acreditación tiende a cerrarse por falta de estudiantes.

Teniendo como marco legal la Ley Universitaria 30220, se aprobó el Modelo de Acreditación para Programas de Estudios de Educación Superior Universitaria, primera versión el 21 de marzo y la segunda el 24 de noviembre, ambas el año 2016.

Si bien el modelo de acreditación no considera de manera expresa el término *investigación formativa*, hace referencia a esta investigación de manera implícita. Así, en el factor 4: Proceso de enseñanza aprendizaje, menciona: "El programa de estudios gestiona el currículo, incluyendo un plan de estudios flexible que se orienta a asegurar una formación integral y el logro de las competencias a lo largo de la formación" (SINEAE, 2017: 33). El modelo de calidad también considera: "El proceso de enseñanza aprendizaje está articulado con la investigación, desarrollo tecnológico, innovación y responsabilidad social, así como fortalecido por el intercambio de experiencias nacionales e internacionales" (SINEACE, 2017: 33).

En el enunciado: *El proceso de enseñanza aprendizaje está articulado con la investigación*, se entiende como el proceso enseñanza y aprendizaje permite el desarrollo de la investigación y viceversa, porque una forma de desarrollar la investigación formativa es concebirla como eje articulador del currículo. Para Sánchez (2017: 72), "la investigación formativa constituye la

forma más didáctica y pedagógica de articular los conocimientos o principios teóricos científicos con la práctica".

Las universidades han propuesto diferentes alternativas para fortalecer la relación docencia-investigación, a través del desarrollo de competencias investigativas en el desarrollo de las asignaturas, proyectos o módulos del plan de estudios. Se ha puesto en práctica diversas estrategias, entre ellas destacan: el aprendizaje basado en problemas, el aprendizaje por descubrimiento, el portafolio, el ensayo, el seminario investigativo, la elaboración de estados del arte, los proyectos, semilleros de investigación, grupos de estudio, grupos de discusión, grupos de redacción de textos y programas de jóvenes investigadores que trabajan en torno a un profesor investigador (Castañeda & Ossa, 2005; Cerda, 2007; Esteban et al., 2021).

Cuando el docente asume el rol de guía, mostrando predisposición para respaldar permanente al estudiante en la actividad investigativa, promueve la motivación y el aprendizaje del estudiante, "derivando en sentimientos de admiración y enamoramiento por la investigación y la carrera. En este caso, el docente se convierte en un formador transformativo, contribuyendo a construir una cultura de la investigación, así también un sentido positivo de la misma" (Iriarte, 2020: 319-320).

No basta que los docentes sean guías solo en el discurso, para formar estudiantes investigadores íntegros se requieren docentes críticos reflexivos, que desarrollen procesos reflexivos a nivel individual y colectivo, que cuestionen el por qué y para qué de los hechos y fenómenos, que investiguen y develen significados, que promuevan la construcción de propuestas pertinentes y relaciones humanas a favor de la equidad y la justicia social. Una de las estrategias para formar docentes críticos, reflexivos y generadores de saber pedagógico y que articule la docencia con la investigación, es la investigación-acción pedagógica (Esteban et al., 2018).

La investigación formativa no es exclusiva de la universidad, existen experiencias exitosas del desarrollo de la investigación desde la etapa preescolar. Castillo (1999) plantea diez estrategias para la formación de investigadores:

a) Desarrollar la autoconfianza en el ser humano. La autoconfianza en sus potencialidades del ser humano, dada la capacidad natural de éste para el aprendizaje, es primordial para construir nuevos aprendizajes.

b) Desmitificar la investigación científica. El ser humano no viene predeterminado por la naturaleza para ser investigador, artista, negociante, médico o profesor, él se va construyendo y reconstruyendo paso a paso; si bien es cierto que, la persona nace con talentos potenciales y ciertas aptitudes, él se va haciendo continuamente

c) Estimular la curiosidad, actitud natural del niño como investigador. Todo niño es curioso e investigador por naturaleza. Por tanto, el futuro científico se forma desde el hogar, por ende, es deber del entorno familiar en un primer momento, luego de la escuela, promover la curiosidad de los niños.

d) Propiciar el goce por la lectura. El acto de aprender a leer y escribir tiene que partir de algo que le genera una sensación agradable al niño, de lo que se denomina aprendizaje significativo. Las lecturas deben ser seleccionadas considerando los intereses de los niños y no de los docentes. La gran tarea de los padres y docentes está en hacer que la lectura no se convierta en un deber para los niños, sino en una actividad que le genere placer y en una oportunidad para penetrar en el bello y maravilloso mundo del saber.

e) Propiciar el desarrollo de la creatividad. Los padres y docentes deben propiciar espacios donde el niño tenga la posibilidad de dar rienda suelta a su creatividad e imaginación, pero también donde experimente trabajo en equipo, forme su responsabilidad y sus sentimientos de solidaridad y cooperación, aspectos fundamentales en la formación integral de la persona al permitirle educarse en un ambiente de tolerancia, de respeto a los compromisos y de convivencia pacífica y afectiva con quienes le rodean

f) Avivar la pasión y el entusiasmo. La pasión constituye el fundamento de muchos desarrollos, es la fuerza interna que nos impulsa a desarrollar las actividades, sin ella las cosas se hacen por cumplir o simplemente se abandonan. Para formar investigadores es necesario formar niños que sientan pasión y se entusiasmen al ir descubriendo nuevas experiencias.

g) Fomentar la realización de los sueños. Los niños y jóvenes son soñadores por excelencia, se debe fomentar en ellos la creatividad y el logro de sus proyectos e ilusiones.

h) Generar conciencia que en la ciencia no existe verdades definitivas. Nada es estático en el mundo, la realidad está en constante cambio y transformación. Si la realidad cambia, los conocimientos que se tienen sobre ella merecen ser actualizadas, ningún conocimiento garantiza la verdad absoluta.

i) Generar alto grado de compromiso con el estudio. El camino que lleva del sueño a su realización es el compromiso, he ahí la trascendencia del desarrollo del compromiso con el estudio en los niños y estudiantes en general. Recordemos frases tan populares como: *El buen profesor enseña; el buen maestro inspira;* o *Enseñar a un niño, no es llenar un vacío, es encender el fuego.*

j) Motivar la elección de una carrera para investigar en ella. La mayoría de las personas elige una carrera por la *moda* o por la rentabilidad, son pocos los que eligen una carrera por investigar o ampliar los horizontes de ese campo del saber. Si en la formación profesional no se incentiva la investigación se dará pie a una educación terciaria y no a una educación superior.

2.3. Cultura investigativa y la investigación formativa

El desarrollo de la investigación formativa está asociado a la cultura investigativa, por cuanto la cultura hace referencia al conjunto de bienes materiales de un grupo social, pero también al aspecto espiritual que se institucionaliza con el tiempo dentro de ese grupo social. Están incluidos los modos de vida, lengua, costumbres, tradiciones, hábitos, valores, patrones, herramientas y la forma de como se hace investigación. La investigación formativa se ve limitado sin una cultura investigativa. Según Berrouet (2007), la cultura de la investigación son prácticas en un campo disciplinar, espacio geográfico o en una institución, mediante la cual los sujetos inmersos en ese colectivo social aceptan y hacen suyo los significados, normas, rituales y estrategias que le dan sentido y valía a la experiencia investigativa. La cultura de la investigación es el "escenario propicio para el aprendizaje y práctica de la investigación, como conjunto de

organizaciones, normas, actitudes y valores que hacen posible la preparación en y para la investigación" (Osorio, 2008: 32).

La cultura investigativa de una institución no se refiere a lo que hace un docente o estudiante en particular, sino a lo que se hace como institución. Entendiéndose que la organización no son los individuos en particular que la componen, sino la interacción, relaciones que los individuos establecen entre sí (Serrano, 1997).

La cultura investigativa en la universidad se desarrolla mediante múltiples formas, sean curriculares o extracurriculares, intra o extra institucionales. Se delinea desde el plan estratégico y el modelo educativo de la universidad, se visibiliza en los currículos, en la planificación curricular y se operativiza en el desarrollo de las sesiones de aprendizaje, en las interacciones entre autoridades, docentes, estudiantes y miembros de la comunidad, en las actividades de extensión y proyección social,

Restrepo (2007) propone los siguientes elementos de la cultura investigativa.

a) Organizaciones. La cultura de la investigación se inicia por docentes de manera individual, pero paulatinamente se integran a los equipos de trabajo, unidades académicas y otros colectivos de la institución.

b) Normas. Realizar investigaciones acordes a estándares propuestos por una determinada comunidad científica, tanto en el proceso como en la comunicación de los resultados.

c) Actitudes. Toda investigación necesita de disposición positiva hacia la duda metódica, curiosidad, el deseo de búsqueda permanente, el trabajo en equipo, entre otras actitudes.

d) Valores. La investigación es cada vez más un proceso social, sin valores la cultura investigativa no se posiciona. El florecimiento de la investigación va paralelo al trabajo en equipo, se requiere de un código de ética con regulaciones internas y externas de la práctica investigativa.

e) Método y técnicas. Constituyen las políticas de gestión de las investigaciones y las perspectivas metodológicas de cómo realizar las investigaciones.

f) Objetos. Laboratorios, herramientas, equipos, bibliotecas, base de datos, redes de investigación.

g) Temas o líneas de investigación. Son áreas de interés de una institución y que se considera prioritario realizar investigaciones dentro de esas áreas.

Por su parte, Serrano (1997) sostiene que en la formación de investigadores intervienen cinco (05) grandes sistemas: Representaciones funcionales, recursos humanos, interacciones, expresión y manejo de recursos:

a) Representaciones funcionales. Esta dimensión está constituida por las condiciones de la organización como tal. Aquí se encuentran la estructura, referida al marco legal, políticas institucionales para la formación de investigadores en la universidad y la difusión de las investigaciones, criterios para evaluar a los investigadores e incentivos. Es importante explicitar el rol que cumple dentro de la estructura el docente-investigador. En el Perú el Reglamento de Calificación, Clasificación y Registro de los Investigadores del Sistema Nacional de Ciencia, Tecnología e Innovación Tecnológica (RENACYT) regula el procedimiento para la calificación, clasificación y registro de investigadores, también los deberes y derechos de los investigadores.
En esta dimensión juega un papel importante los sistemas de trabajo de los docentes investigadores, los métodos y rutinas que los investigadores siguen para mantener su formación y los efectos de ello en su ejercicio investigativo.

b) Recursos humanos. Está vinculado a cómo se administra el recurso humano y los procesos que vive, la formación inicial y la formación continua que se brindan a los investigadores. En formación inicial resulta esencial la formación en el pregrado y el trabajo de grado. La formación continua se refiere a los procesos que complementan la formación inicial y contribuyen al crecimiento personal y profesional del docente-investigador.

c) Interacción. La formación de investigadores es un proceso de interacción; interacción entre maestro y alumno, entre pares, entre conocimientos y entre experiencias vitales en las cuales se enseña y aprende. Las interacciones entre estos elementos pueden constituirse en dinamizadoras de una cultura investigativa o, caso contrario, en obstaculizadoras.

d) Expresión. Las emociones, afectos y símbolos que se producen en las interacciones con los pares y con las actividades que se realizan pueden constituirse elementos positivos o

negativos para el desarrollo de procesos investigativos y la formación de investigadores. A decir de Serrano (1997), los elementos más sensibles de la investigación en una universidad se manifiestan en múltiples aspectos de su cultura, básicamente en el clima organizacional, referido al ambiente cotidiano que la caracteriza y las formas de relación entre los sujetos conforman la institución.

e) Uso y distribución de recursos. Las investigaciones requieren de mucha creatividad, pero también de determinadas condiciones materiales de existencia. La asignación de presupuestos, apoyo a la participación en eventos, publicaciones, acceso a fuentes de información, tecnologías e instalaciones es necesario para la formación de investigadores y para el ejercicio investigativo.

De los planteamientos analizados, la formación de investigadores y fomento a la investigación debe abordarse desde tres niveles: ontológico, epistemológico metodológico. El primero se preocupa por la relación entre la formación, investigación y creación de conocimiento científico. El segundo se preocupa por la naturaleza de la formación: ¿Qué es formar?, ¿Qué es investigar? El tercero resulta del análisis de cómo se promueve la investigación en la universidad, enmarcados en las cinco dimensiones grandes sistemas: Representaciones funcionales, recursos humanos, interacciones, expresión y manejo de recursos (Serrano, 1997).

2.4. Aspectos básicos a considerar en investigación formativa

Existen muchas propuestas para desarrollar la investigación formativa. Teniendo en consideración a Castillo, 1999; Berrouet, 2007; Castañeda & Ossa, 2005; Iriarte, 2020; los aspectos básicos a tener en consideración en el fomento de la investigación formativa se sintetizan en la tabla 1.

Conclusiones

Las universidades que aspiren a no ser denominadas centros superiores especializadas en la enseñanza terciaria, están llamadas a desarrollar actividades de investigación formativa y formar estudiantes investigadores; es decir, a desarrollar la investigación formativa y formación científica. Estas dos actividades no son opuestas ni aisladas para Turpo et al (2017); a pesar que investigación formativa e investigación científica tienen sus propias particularidades, como dos

formas distintas de trabajo académico, predomina un sentido de continuidad entre ambas, como dinámicas que conllevan afrontar con mayores posibilidades de éxito a los desafíos planteados por la sociedad. A decir de Restrepo (citado por Osorio, 2007: 66), "donde hay buena y variada investigación formativa hoy, florecerá mañana la investigación científica productiva".

Tabla 1. Aspectos básicos para el fomento de la investigación formativa

Aspecto	Indicador
Políticas de investigación formativa	- Políticas para la investigación formativa a nivel de universidad. - Políticas para la investigación formativa a nivel de carreras profesionales. - Evaluación de políticas para la investigación formativa.
Estrategias de investigación formativa	- Semilleros de Investigación. - Jornadas de investigación. - Asignaturas de metodología o técnicas de investigación. - Asignaturas que incluyen metodologías que privilegien la construcción y sistematización de conocimientos. - Fondos de apoyo para la investigación formativa.
Participación de docentes en investigación formativa	- Participación de profesores en semilleros de investigación - Proyectos de sistematización de experiencias realizadas por profesores y estudiantes.
Participación de estudiantes en investigación formativa	- Participación de estudiantes en semilleros de investigación. - Participación de estudiantes en sistematización de experiencias. - Participación de estudiantes en proyectos de investigación.

Los modelos de acreditación de programas universitarios en el Perú y el mundo consideran la articulación del proceso enseñanza y aprendizaje con la investigación, dando lugar a la investigación formativa, concebida como aquella investigación que promueve el docente con una finalidad pedagógica y que se desarrolla dentro de un marco curricular formalmente establecido, con la finalidad de fortalecer los aprendizajes de los estudiantes. La articulación de la investigación con el proceso de enseñanza y aprendizaje es una tarea ineludible de toda

universidad, como paso previo para realizar investigaciones rígidas de gran impacto en el mundo académico.

Para la promoción de la investigación formativa se requieren de ciertas condiciones, tanto en la política institucional, como en el diseño curricular, recursos, logística y, sobre todo, en el rol del docente. Es responsabilidad de quienes dirigen las universidades propiciar condiciones favorables y promover el desarrollo de las competencias docentes para formar investigadores capaces de realizar investigaciones acordes a los tiempos actuales. Ante todo, la investigación, formación académica y responsabilidad social son funciones fundamentales de toda universidad.

Referencias

Berrouet Marimón, F. R. (2007). *Experiencia de iniciación en cultura investigativa con estudiantes de pregrado desde un semillero de investigación.* [Tesis de maestría, Universidad de Antioquia]. Repositorio de la Universidad de Antioquia. https://bit.ly/3tgL2cj

Cabero, J., & Llorente, C. (2020). Covid-19: transformación radical de la digitalización en las institucionesuniversitarias. *Campos Virtuales, 9*(2). 25-34. https://bit.ly/2WXwORe

Castañeda, B., & Ossa, J. (Edits.). (2005). *Por los caminos de los semilleros de investigación.* Medellín, Colombia: Biogénesis.

Castillo, M. (1999). *Manual para la formación de investigadores.* Bogotá:Magisterio.

Cerda Gutierrez, H. (2007). *La investigación formativa en el aula.* Bogotá, Colombia: Magisterio.

CONEAU. (2009). Modelo de calidad para la acreditación de carreras profesionales universitarias. Lima: CONEAU. https://bit.ly/3kYJks5

Congreso de la República. (2014). Ley 23220, Ley Universitaria. *Diario Oficial El Peruano.* https://bit.ly/2YuxZIW

Esteban, E.R., Portocarrero, E., & Bustamante, N. (2017). La investigación-acción como estrategia en el proceso de acreditación. En Sineace, *II Congreso Nacional Acreditación y Evaluación de Competencias: exposiciones en torno a la educación superior universitaria* (pp. 171-187). Lima: SINEACE. https://bit.ly/3n2J7Ha

Esteban Rivera, E.R., Cámara Acero, A. A., Rojas Cotrina, A. R., & Chávez Albornoz, J. (2018). *Investigación-Acción Pedagógica: Transformación de la práctica docente.* Huánuco: UNHEVAL.

Esteban Rivera, E. R., Cámara Acero, A. A., & Villavicencio Guardia, M. (2020). La educación virtual de posgrado en tiempos de COVID-19. *Revista de Estilos de Aprendizaje, 13*(Especial), 82-94. https://bit.ly/3tjtoof

Esteban, E.R., Portocarrero, E., Rojas, A.R., & Piñero, M.L. (2021). La transdisciplinariedad desde el modelo educativo: una experiencia universitaria. *Revista Inclusiones, 8*(1), 241-261. https://bit.ly/3n9FTBE

Iriarte, A. J. (2020). Fenomenología-hermenéutica de la investigación formativa. El formador de formadores: de la imposición a la transformación. *Revista de Investigación y Desarrollo e Innovación, 10*(2), 311-322. https://doi.org/10.19053/20278306.v10.n2.2020.10722

Osorio Álvarez, M. M. (2008). *La investigación formativa o la posibilidad de generar cultura investigativa en la educación superior: El caso de la práctica pedagógica de la licenciatura en educación básica con énfasis en Humanidades, Lengua Castellana de la Universidad de Antioquia.* [Tesis de pregrado, Universidad de Antioquia]. Repositorio de la Universidad de Antioquia. https://bit.ly/3BLe4Uw

Piñero Martín, M. L., Rivera Machado, M. E., & Esteban Rivera, E. R. (2019). *Proceder del investigador cualitativo: Precisiones para el proceso de investigación.* Lima: UPEL-UNHEVAL. https://doi.org/10.46498/upelipb.lib.0001

Piñero Martín, M. L., Esteban Rivera, E. R., Rojas Cotrina, A. R., & Callupe Becerra, S. F. (2021). Tendencias y desafíos de los programas de posgrado latinoamericanos en contextos de COVID-19. *Revista Venezolana de Gerencia*, 26(93), 123-138. https://doi.org/10.52080/rvg93.10

Rama, C. (2009). *Tendencias de la educación superior en América Latina y el Caribe en el siglo XXI* (Vol. II). Lima: Asamblea Nacional de Rectores.

Restrepo, B. (2003). Investigación formativa e investigación productiva de conocimiento en la universidad. *Nómadas* (18), 195-202. https://bit.ly/3n62xLh

Restrepo, B. (2007). Cultura investigativa y maestro investigador: aprendizajes de una experiencia. En R. Parra, B. Restrepo, R. Jaramillo, E. Castañeda, M. Camargo, O. Herrera, & G. Marín, *Cultura investigativa y formación de maestros.* (pp. 85-112). Litoimpresos. https://bit.ly/3n5EjRf

Restrepo Gómez, B. (2009). Investigación Formativa. En Universidad Centroamericana, *La investigación como eje del desarrollo universitario. Memorias del VII Encuentro de Universidades Jesuitas de Centroamérica y III Congreso Interdisciplinario de Investigación* (pp. 19-36). Managua: UCA. https://bit.ly/2Yw4kPB

Rivera, C.G., Espinosa, J.M., & Valdés, Y.D. (2017). La investigación científica en las universidades ecuatorianas. Prioridad del sistema educativo vigente. *Revista Cubana de Educación Superior, 36*(2), 113-125. https://bit.ly/3n7sw4P

Sánchez, H. H. (2017). La investigación formativa en la actividad curricular. *Revista de la Facultad de Medicina Humana*, 17(2), 71-74. https://doi.org/10.25176/RFMH.v17.n2.836

Serrano A., J. F. (1997). Nacen, se hacen o los hacen: Formación de investigadores y cultura organizacional en las universidades. *Nómadas* (7), 52-62. https://bit.ly/3jMCZAU

SINEACE. (2017). Modelo de acreditación para programas de estudios de educación superior universitaria. Lima: Sistema Nacional de Evaluación, Acreditación y Certificación de la Calidad Educativa. https://bit.ly/3jM40nV

Turpo Gebera, O., Mango Quispe, P., Cuadros Paz, L., & Gonzales Minan, M. (2017). Los sentidos subjetivos sobre la enseñanza de la investigación formativa del profesorado de una facultad de Educación. En O. Turpo Gebera, L. A. Acuna Gamboa, & Edit., *Investigación formativa y formación de investigadores en Educación I* (pp. 49-63). Arequipa: Unsa.

Turpo, O., Mango, P., Cuadros, L., & Gonzales, M. (2020). La investigación formativa en la universidad: sentidos asignados por el profesorado de una Facultad de Educación. *Educação e Pesquisa*, 46(e215876), 1-19. https://dx.doi.org/10.1590/s1678-4634202046215876

REVISTA DE LA UNIVERSIDAD DEL ZULIA. 3ª época. Año 12 N° 35, 2021

Iuliia Pinkovetskaia et al. /// Regional differentiation of higher education in Russian regions ... 428-445

Regional differentiation of higher education in Russian regions in 2020

Iuliia Pinkovetskaia*
Magomedsaid Yakhyaev**
Elena Sverdlikova***
Daniela S. Veas Iniesta****

ABSTRACT

The aim of this study was to evaluate the specific values of the indices that describe the spread of higher education institutions in all regions of Russia and the number of their students in the total working-age population living in these regions. The initial empirical data were the results of official statistical surveys conducted on information on the development of higher education, as well as the number of working-age population in eighty-two regions of the Russian Federation for 2020. In the course of the research, four mathematical models were developed. The study showed that on average, there are almost 14.8 higher education organizations per million working-age residents in the regions. It is proved that every twenty-fourth person of working age in 2020 studied under higher education programs. The conducted analysis showed the presence of a significant differentiation of the values of the considered indicators by region. The regions with the maximum and minimum values of the considered indicators were identified. It is shown that higher education has received significant development in Russia.

KEYWORDS: Higher education; university students; Russia; higher education institutions; working population.

*Department of Economic Analysis and State Management, Ulyanovsk State University, Ulyanovsk, Russia. ORCID: http://orcid.org/0000-0002-8224-9031. E-mail: pinkovetskaia@gmail.com

**Department of Economics and Management, Institute of Social Sciences, Moscow, Russia. ORCID: https://orcid.org/0000-0002-2938-7689 .

***Department of Economic Sociology and Management, Lomonosov Moscow State University, Moscow, Russia. ORCID: https://orcid.org/0000-0003-3518-4455 .

**** Institute of Engineering Economics and Humanities, Moscow Aviation Institute, National Research University, Moscow, Russia. ORCID: https://orcid.org/0000-0002-8473-0670 .

Diferenciación regional de la educación superior en las regiones de Rusia en 2020

RESUMEN

El objetivo de nuestro estudio fue evaluar los valores específicos de los indicadores que caracterizan la dispersión de las instituciones de educación superior en todas las regiones de Rusia, y el número de sus estudiantes en el número total de la población activa que vive en estas regiones. Los datos empíricos iniciales fueron los resultados de las encuestas y estadísticas oficiales realizadas sobre el desarrollo de la educación superior, así como el número de personas en edad de trabajar en ochenta y dos regiones de la Federación de Rusia para el año 2020. Durante el estudio, se desarrollaron cuatro modelos matemáticos. El estudio reveló que, en promedio, hay casi 14,8 organizaciones de educación superior por millón de habitantes en edad de trabajar en las regiones. Se ha demostrado que una de cada 24 personas en edad de trabajar en 2020 se inscribió en programas de educación superior. El análisis mostró una diferencia significativa entre los valores de los indicadores examinados por región. Se identificaron las regiones con valores máximos y mínimos de los indicadores considerados. Se muestra que la educación superior ha recibido un desarrollo significativo en Rusia.

PALABRAS CLAVE: Educación superior; estudiantes universitarios; Rusia; instituciones de educación superior; población activa.

Introduction

The role of the higher education system has significantly increased in recent years in developed and developing countries. According to many authors (for example, Pinheiro et al., 2015; Avdeeva et al., 2017) this is due to the fact that organizations specializing in teaching students in higher education programs provide significant economic growth and have a positive impact on the social climate in modern countries. Without specialists with higher education, both enterprises that produce various goods and specialized in providing various services cannot work in the twenty-first century. The introduction of technological and managerial innovations also requires highly qualified employees (Tamayo & Huergo, 2017; Schaarschmidt & Kilian, 2014). Therefore, conditions have been created in most states that provide access to higher education for the population (Guri-Rosenblit et al., 2007). As shown in the study (La mobilité internationale, 2019), in 2016, the number of students of

higher education institutions in all countries increased by one and a half times compared to 2006 and reached 218 million people.

As indicated in scientific publications (Stiglitz, 2014; Douglas, 2011), one of the most urgent problems for modern national economies is the study of the achieved level of accessibility of education in higher education organizations. Our research is devoted to assessing the level of accessibility of higher education in the regions of Russia. Previous studies (for example, Abel & Deitz, 2011; Ciriaci, 2014) have proved the importance of developing the higher education system in the regions. This is especially true for countries with a large number of regions, where there is a need to consolidate young people in regional labor markets. The possibility of obtaining higher education in your region significantly improves the social climate and promotes higher education without moving to a new place of residence. In addition, the social status of the regions is increasing, and the prerequisites for their further economic growth are being created.

All this determines the increased interest in the study of regional aspects of the development of higher education. Calls for an in-depth study of the regional features of such education and the identification of differences between regions were expressed in the works (Cervantes, 2017; Unger & Polt, 2017).

In 2020, there were 1,259 institutes of higher education in Russia (Official statistical information on additional professional and higher education, 2021). Of these, 710 were independent organizations, in which 3550137 students studied. In addition, there were 549 separately located branches, which enrolled 499,196 students. Of the total number of students, 60% studied during the day with a break from work, 35% of students studied in the evening after finishing work. The remaining 5% of students received education by correspondence.

The purpose of our study was to evaluate the indicators describing the distribution of higher education organizations by regions of Russia, the share of students in the total population of working age in each of the regions, as well as the share of students admitted to study and graduated in 2020.

Our article makes a certain contribution to the knowledge about the regional features of the higher education system in Russia. The theoretical contribution is related to the methodology proposed by the authors, which allows us to estimate the distribution of

the values of the indicators of the level of higher education by regions based on the development of mathematical models that represent the density functions of the normal distribution. Based on empirical data, in the course of the study, new knowledge was obtained about the number of higher education organizations per million working-age residents, the share of students receiving higher education in the working-age population by region, as well as the share of students admitted to higher education organizations in the working-age population and the share of students who received higher education. In addition, the regions with the maximum and minimum values of indicators characterizing the regional features of the higher education system are determined.

The structure of this work is as follows. The first section of the article presents a literary review devoted to scientific research on the problems of higher education in Russia. The second section demonstrates the methodological approach to the study of the problem under consideration, as well as the sources of empirical information used in the research process. The results of a computational experiment related to the development of normal distribution density functions are given in the third section. The fourth section contains a discussion of the results obtained, as well as a description of the regions with maximum and minimum values of indicators. The penultimate section is devoted to conclusions. The following is a list of the bibliography used.

1. Literature review

A brief analysis of scientific papers devoted to general issues of higher education in Russia and some of its regions is given in Table 1. The first column of the table shows the authors of scientific publications, the second column shows the main issues described in the publications and related to the assessment of the number of higher education institutions and the number of students studying in these organizations. The articles have been published in recent years.

As the data in Table 1 show, the problem of studying the indicators of the higher education system, and in particular the number of higher education institutions and the number of students studying in them, is relevant in Russia. Most of the scientific publications listed in Table 1 analyzed such indicators for Russia as a whole and its individual federal districts.

Table 1. Scientific publications on the volume of higher education development in Russia

Authors	Problems under study	Objects of study	Type of indicators
1	2	3	4
Bekmurzaev & Shamilev (2015)	Dynamics of the number of students in 2010-2014 studying at higher education institutions	Russian Federal districts	Comparative
Kashepov (2019)	The number of higher education organizations and students studying in them for the period from 2000 to 2018. Average duration of training	Russia	Factual
Krivich (2019)	The share of students who studied at state and non-state institutions of higher education in the total number of students for the period from 2013 to 2018	Russian Federal districts	Factual
Sudakova (2018)	Change in the number of universities and their students for the period from 2011 to 2016	Russia	Factual
Ushakova (2017)	Distribution by year from 2000 to 2016 of the number of students who studied under the master's, specialist's and bachelor's degree programs	Russia	Factual
Yudina (2019)	Analysis of the number of new students admitted to universities. The dynamics of changes in the indicator for 2001-2019 shows its decline for demographic reasons	Russia	Factual
Zborovsky (2018)	From 2013 to 2017, the number of independent higher education	Ural Federal district	Factual

	organizations decreased by 25% (from 71 to 53)		
Cherednichenko (2018)	Forms of study and the number of students enrolled in higher education organizations in 2000-2017	Russia	Factual
Bezhanova, Shkhagoshev, Shetov (2019)	Forecast of the dynamics of changes in the number of students at universities	Russia	Factual
Dorofeeva (2020)	Provision of educational services for the period 2007-2019	Russia	Factual
Belyaev (2021)	Comparative analysis of the change in the number of students in 2019 compared to 2015	Russia and federal districts	Factual
Kurbatova, Donova, Kranzeeva (2021)	Accessibility of higher education in mineral-rich regions	27 Russian regions	Comparative

Source: The table is compiled by the author on the basis of the information provided in the RSCI.

The issues of a comprehensive analysis of regional features of accessibility of higher education have been studied to a small extent in published works. Accordingly, there was no comparative analysis of the number of educational organizations in the regions of Russia, as well as the number of students in these organizations. Data in table 1 show that in the majority (83%) discussing publications we analyze factual values of indicators, that does not allow to make comparative analyze, since the regions differ from each other in the number of population, territorial features and economic development. Taking into account this conclusion, it is advisable to conduct a comparative analysis on the basis of comparative values of indicators, for example, taking into account the number of able-bodied population in the regions.

2. Methodology and design

Our paper examines information on all universities and other institutions of the higher education system that are located in each of the regions of Russia in 2020. As you

know, in Russia, students receiving higher education study for a different number of years. Thus, students study for four years in bachelor's degree programs, students belonging to the specialty degree study for five years, and students who additionally receive a master's degree study for two years. The number of students belonging to these three groups was considered in our study.

Our study consisted of four main stages. The first stage was associated with the definition of the initial empirical data, which for each of the 82 regions of Russia described such indicators as the number of public and private institutions of higher education, as well as the number of students who studied in them. At the same stage, data on the working-age population living in the regions in 2020 were determined. The second stage was devoted to the calculation of indicators that describe the number of higher education institutions per million residents of working age, as well as the share of the number of students in the total number of people of working age. The third stage was associated with the development of density functions for the normal distribution of indicators across the regions of Russia. The fourth stage was devoted to the discussion of the results obtained and the identification of regions with maximum and minimum values of indicators.

The study was based on data included in the official statistical report (Official statistical information on additional vocational and higher education, 2021). Data on the number of working-age population by region were taken on the basis of information from Rosstat (Official statistical information on the population of the Russian Federation by municipalities, 2021).

In our study, three hypotheses were tested:

- the first hypothesis is that higher education institutions operated in each of the regions of Russia in 2020;

- the second hypothesis is that there are significant differences in regional indicators that characterize the development of higher education;

- the third hypothesis is that the minimum and maximum values of the indicators were in the regions of Russia, which belong to different federal districts.

Mathematical modeling of the distribution of indicator values across the regions of Russia was based on the development of density functions of the normal distribution. The corresponding technique was demonstrated in the articles (Pinkovetskaya & Slepova, 2018;

Pinkovetskaya et al., 2021). Both the average values of the indicators and the average square deviations of the indicators for the totality of all regions are indicated directly in the functions.

The development of mathematical models describing the distribution of indicators using the density functions of the normal distribution is based on the construction of histograms. With a large amount of empirical input data (35 or more), we can group this information into intervals to make working with the data more comfortable. To do this, the source data is divided into a certain number of intervals.

The general form of the density function of the normal distribution is as follows:

$$y(x) = \frac{A}{\sigma \times \sqrt{2\pi}} \cdot e^{\frac{-(x-m)^2}{2 \times \sigma \times \sigma}} \ ,$$

where:

x - the indicator whose distribution we are studying;

m - the average value of the indicator for all observed objects;

σ - the mean square (standard) deviation.

The obtained functions allow us to estimate the average values of each of the five indicators in the regions under consideration, as well as their variations typical for most regions. In addition, the study identifies regions where the indicators considered are above the maximum and below the minimum ranges. The limits of the indicator ranges for the majority (68%) of the regions are calculated based on the average values and the corresponding standard deviations. The lower bound of the range is equal to the difference between the mean and the standard deviation, and their sum corresponds to the upper bound of the range.

3. Modeling and results

The assessment of the distribution of indicators characterizing the activity of the higher education system in the regions of Russia was based on the development of mathematical models. Results of the development of models representing the density functions of the normal distribution (y_1 ; y_2 ; y_3 ; y_4) on such indicators (x_1 , %; x_2 , %; x_3 ; x_4) across all regions of Russia are specified further:

- the quantity of higher education institutions in calculation on million working-age people in the region

$$y_1(x_1) = \frac{398.29}{5.36 \times \sqrt{2\pi}} \cdot e^{-\frac{(x_1-14.79)^2}{2 \times 5.36 \times 5.36}};$$
(1)

- the proportion of university students in the whole quantity working-age people in the region, %

$$y_2(x_2) = \frac{140.57}{1.72 \times \sqrt{2\pi}} \cdot e^{-\frac{(x_2-4.20)^2}{2 \times 1.72 \times 1.72}};$$
(2)

- the proportion of students admitted in 2020 in universities in the whole quantity working-age people in the region, %

$$y_3(x_3) = \frac{44.51}{0.47 \times \sqrt{2\pi}} \cdot e^{-\frac{(x_3-1.07)^2}{2 \times 0.47 \times 0.47}};$$
(3)

- the proportion of students finished universities in 2020 in the whole quantity working-age people in the region, %

$$y_4(x_4) = \frac{32.80}{0.38 \times \sqrt{2\pi}} \cdot e^{-\frac{(x_4-0.85)^2}{2 \times 0.38 \times 0.38}}.$$
(4)

The quality of functions (1)-(4) we tested using such criteria: by the Kolmogorov-Smirnov, the Pearson and the Shapiro-Wilk. Calculated values of criteria are given in Table 2.

The data shown in the second table shows that all four models well approximate the original empirical information. This conclusion is confirmed by comparing the calculated statistics and critical values. So, the calculated statistics on the Kolmogorov-Smirnov test in the second column of the table are in the range from 0.05 to 0.06, that is, less than the critical value equal to 0.174. Similarly, the calculated statistics on the Pearson test (the third column of table 2) are in the range from 2.35 to 4.49, that is, less than the critical value equal to 9.49. It is known that the critical value of the Shapiro-Fork test is 0.93, and the calculated statistics for this test are in the range from 0.95 to 0.98. Thus, the test showed that the requirements of all three criteria are met and the developed functions are of high quality.

Table 2. Calculated values of criteria

Indicators	Criteria		
	The Kolmogorov-Smirnov test	The Pearson test	The Shapiro-Wilk test
The quantity of higher education institutions in calculation on million working-age people in the region	0.06	4.48	0.95
The proportion of university students in the whole quantity working-age people in the region	0.06	4.13	0.96
The proportion of students admitted in 2020 in universities in the whole quantity working-age people in the region	0.06	4.49	0.95
The proportion of students finished universities in 2020 in the whole quantity working-age people in the region	0.05	2.35	0.98

Source: The data in the table are based on the results of calculated functions.

Based on the developed functions (1)-(4), an assessment of the average values of indicators, average square deviations and intervals in which the values of indicators characteristic of most regions of Russia are located, which are demonstrated in Table 3, was carried out.

4. Discussion

The analysis showed that in 2020 there were institutes of higher education in all 82 Russian regions. Therefore, the first hypothesis was confirmed. It should be noted that this fact seems to be fundamental, since it indicates the availability of higher education directly in the regions where adults live.

The information given in column 2 of Table 3 shows that for every million of the working-age population, on average, there are 14.8 institutes of higher education in Russia. The number of universities and their branches in most regions is in the range from 9.4 to 20.1 per million people of working age.

Table 3. The values of indicators describing the level of development of higher education in the regions of Russia in 2020

Indicator numbers	Average values	Standard deviation	Values for most regions
1	2	3	4
The quantity of higher education institutions in calculation on million working-age people in the region	14.79	5.36	9.43-20.15
The proportion of university students in the whole quantity working-age people in the region, %	4.2	1.72	2.48-5.92
The proportion of students admitted in 2020 in universities in the whole quantity working-age people in the region, %	1.07	0.47	0.6-1.54
The proportion of students finished universities in 2020 in the whole quantity working-age people in the region, %	0.85	0.38	0.47-1.23

Source: The calculations are carried out by the authors on the basis of functions (1)-(4).

The average share of university students is almost 4.2% of the total population of working age. Accordingly, out of twenty-four people of working age, one in 2020 was a student who studied at the institute of higher education. In most regions, the share of students in the working-age population was in the range from 2.5% to 5.9%.

In 2020, about 1.1% of all people of working age entered higher education institutions. For most regions, this indicator was in the range from 0.6% to 1.5%.

About 0.8% of the working-age population of Russia in 2020 successfully graduated from higher education institutions and became qualified specialists. For most regions, the

values of this indicator were in the range from 0.5% to 1.2%. It should be noted that the number of students who successfully graduated from higher education institutions was less compared to those who entered the training. This seems logical, since not all those who have started their studies fully master the programs and become certified specialists.

Using the data in Table 3, the coefficients of variation for all four indicators were calculated. The coefficient of variation is the ratio between the mean square deviation and the average value of the indicator. The calculated coefficients of variation are given below:

- the first indicator is 36%;
- the second indicator is 41%;
- the third indicator is 44%;
- the fourth indicator is 45%.

The obtained coefficients of variation indicate that there was a significant (more than 33%) differentiation of the regional values of the considered indicators. Thus, the second hypothesis was confirmed.

The minimum and maximum values of the indicators were noted in the regions of Russia, the lists of which are shown in the fourth table. In the regions with the maximum values, the indicators exceeded the upper limits of the intervals indicated in the fourth column of the third table. Accordingly, in regions with minimal values, the indicators were less than the lower limit of these intervals. The fourth table for each of the regions shows not only the value of the indicator, but also the location of the region.

Table 4 provides information on the values of indicators for each of the regions (column 3), as well as their territorial location (column 4). The analysis of this information showed that there is no connection between the maximum and minimum values of the indicators and the territorial location of the regions. That is, the regions with high and low values of indicators are located in different federal districts. Thus, we can state the confirmation of hypothesis 3.

Table 4. Characteristics of Russian regions with maximum and minimum indicator values

Indicators	Region	Value	Federal district
1	2	3	4
The quantity of higher education institutions in calculation on million working-age people in the region	With maximum values of indicators		
	Moscow city	20.54	Central
	Saint Petersburg city	21.87	North-West
	Yaroslavl region	21.89	Central
	Orel region	22.45	Central
	Astrakhan region	23.26	South
	Pskov region	23.60	North-West
	Sevastopol city	23.64	South
	Kamchatka territory	26.18	Far Eastern
	Sakha republic	26.34	Far Eastern
	Smolensk region	30.35	Central
	Chukotka autonomous district	31.53	Far Eastern
	With minimum values of indicators		
	Chechen republic	4.81	North Caucasian
	Tyumen region	4.90	Ural
	Kostroma region	5.87	Central
	Kabardino-Balkar republic	5.93	North Caucasian
	Novgorod region	6.31	Privolzhsky
	Ingushetia republic	6.68	North Caucasian
	Sakhalin region	7.13	Far Eastern
	Mari El republic	8.04	Privolzhsky
	Altai republic	8.41	Siberian
	Leningrad region	9.24	North-West
The proportion of university students in the whole quantity working-age people in the region	With maximum values of indicators		
	Kursk region	6.12%	Central
	Novosibirsk region	6.17%	Siberian
	Tatarstan republic	6.50%	Privolzhsky
	Voronezh region	6.55%	Central
	Orel region	6.85%	Central
	Omsk region	6.85%	Siberian
	Tomsk region	9.15%	Siberian
	Moscow city	9.89%	Central

	Saint Petersburg city	9.99%	North-West
	With minimum values of indicators		
	Chukotka autonomous district	0.44%	Far Eastern
	Leningrad region	0.58%	North-West
	Murmansk region	1.49%	North-West
	Moscow region	1.76%	Central
	Sakhalin region	1.96%	Far Eastern
	Jewish autonomous region	2.17%	Far Eastern
	Altai republic	2.23%	Siberian
	Tyumen region	2.24%	Ural
The proportion of students admitted in 2020 in universities in the whole quantity working-age people in the region	With maximum values of indicators		
	Sevastopol city	1.59%	South
	Oryol region	1.67%	Central
	Novosibirsk region	1.73%	Siberian
	Voronezh region	1.75%	Central
	Tatarstan republic	1.75%	Privolzhsky
	Omsk region	2.04%	Siberian
	Tomsk region	2.63%	Siberian
	Saint Petersburg city	2.98%	North-West
	Moscow city	3.01%	Central
	With minimum values of indicators		
	Chukotka autonomous district	0.08%	Far Eastern
	Leningrad region	0.09%	North-West
	Murmansk region	0.36%	North-West
	Jewish autonomous region	0.43%	Far Eastern
	Sakhalin region	0.43%	Far Eastern
	Moscow region	0.45%	Central
	Tyumen region	0.55%	Ural
	Magadan region	0.56%	Far Eastern
	Kamchatka territory	0.56%	Far Eastern
The proportion of students finished universities in 2020 in the whole quantity working-age people in the region	With maximum values of indicators		
	Kursk region	1.28%	Central
	Omsk region	1.38%	Siberian
	Tatarstan republic	1.41%	Privolzhsky
	Voronezh region	1.42%	Central
	Adygea republic	1.45%	North Caucasian
	Oryol region	1.50%	Central

	Tomsk region	1.69%	Siberian
	Saint Petersburg city	2.04%	North-West
	Moscow city	2.26%	Central
	With minimum values of indicators		
	Chukotka autonomous district	0.05%	Far Eastern
	Leningrad region	0.09%	North-West
	Sakhalin region	0.31%	Far Eastern
	Murmansk region	0.31%	North-West
	Moscow region	0.35%	Central
	Magadan region	0.43%	Far Eastern
	Altai Republic	0.45%	Siberian
	Tyumen region	0.46%	Ural

Source: Developed by the authors on the basis of data from Table 3.

Conclusion

The research described in this article allowed us to gain new knowledge about the regional features of the development of the higher education system in Russia. The study contributed to the assessment of the accessibility of students' education in higher education institutions in regions where young people who want to study according to the relevant programs permanently live. In addition, a certain contribution was made to the study of the share of students in the working-age population of each of the 82 regions of Russia. The methodology proposed by the authors was based on the development of mathematical models describing the distribution of indicators by region. The purpose of our study was to evaluate the indicators describing the distribution of higher education organizations by regions of Russia, the share of students in the total population of working age in each of the regions, as well as the share of students admitted to study and graduated in 2020. The results of the study have a certain novelty and originality. Thus, based on empirical data, it was found that there are higher education organizations in each of the Russian regions. Consequently, people could receive higher education in the territory of the region in which they live. The study was based on the calculation of relative indicators that describe the relationship between the number of institutions of higher education and the number of university students and such a generalizing indicator as the number of able-bodied people. The study proved that the saturation of higher education institutions in

2020 was almost 14.8 institutes for every million people of working age on average in Russian regions. Calculations showed that out of twenty-four people of working age, one person studied at the Institute of higher education. In 2020, about 1.1% of people of working age started studying at higher educational institutions, and more than 0.8% of people of this age successfully completed their studies and became qualified specialists.

The results of the mathematical modeling of empirical data allowed us to conclude that there are significant differences in the values of each of the four indicators under consideration for different regions. A list of regions was compiled, which included regions in which the values of each of the four considered indicators were maximum and minimum.

The proposed author's methodology and the results of calculations are of interest to researchers, and can also be used in monitoring regional features of higher education in Russia and other countries. Especially those that have a significant number of territorial elements. In addition, the research results can be used in the practical activities of governments and public organizations directly related to the regulation and support of higher education institutions and the development of educational systems and technologies. The data directly related to the Russian regions can be used by applicants when choosing the direction and place of study.

The study used official statistical information on the quantity of institutions of higher education and the number of university students in all 82 regions of Russia, that is, there were no restrictions on empirical data in the study. Future research may be related to the assessment of the gender structure of university students in Russia.

References

Abel, J.R., Deitz, R. (2011). Do colleges and universities increase their region's human capital? Journal of Economic Geography, 12(3), 667-691. DOI: 10.1093/jeg/lbr020.

Avdeeva, T.I., Kulik, A.D., Kosareva, L.A., Zhilkina, T.A., Belogurov, A.Y. (2017). Problems and Prospects of Higher Education System Development in Modern Society. European Research Studies Journal, XX(4B), 112-124.

Bekmurzaev, I.D., Shamilev, S.R. (2015). Trends in higher education in Russian regions. Modern problems of science and education, 2-3, 134.

Belyaev, S. (2021). Devaluation of the prestige of higher education as a factor in reducing the number of students studying by correspondence. Baltic Humanitarian Journal, 10, 1(34), 21-24. DOI: 10.26140/bgz3-2021-1001-0003.

Bezhanova, E., Shkhagoshev, R., Shetov, A. (2019). Analysis and assessment of the influence of various factors on the dynamics of the number of Russian university students. State and municipal administration. Scientific notes, 4, 90-95. DOI: 10.22394/2079-1690-2019-1-4-90-95.

Cervantes, M. (2017). Higher education institutions in the knowledge triangle. Foresight and STI Governance, 11(2), 27-42. DOI: 10.17323/2500-2597.2017.2.27.42.

Cherednichenko, G.A. (2018). Students of the higher school of the Russian Federation 2000-2017 (statistical characteristics). Education and science in Russia: the state and potential of development, 3, 217-241. Available at: https://www.elibrary.ru/item.asp?id=36721351

Ciriaci, D. (2014). Does university quality influence the interregional mobility of students and graduates? The case of Italy. Regional Studies, 48(10), 1592-1608. DOI: 10.1080/00343404.2013.821569.

Dorofeeva, T.P. (2020). The relationship of economic and demographic factors and the demand for higher education services. Bulletin of the Kemerovo State University. Series: Political, Sociological and Economic Sciences, 5(4), 534-542. DOI: 10.21603/2500-3372-2020-5-4-534-542.

Douglass, J. (2011). Higher education's new global order: How and why governments are creating structured opportunity markets. Educational Studies Moscow, 1, 73-98. DOI: 10.17323/1814-9545-2011-1-73-98.

Guri-Rosenblit, S., Sebkova, H., Teichler, U. (2007). Massification and diversity of higher education systems: interplay of complex dimensions. Higher Education Policy, 20(4), 373-389. DOI: 10.1057/palgrave.hep.8300158.

Kashepov, A.V. (2019). Socio-economic factors and results of higher education reforms. Actual problems of the humanities and natural sciences, 7, 33-42.

Krivich, S.V. (2019). Dynamics of the number of students of higher education institutions of Russia. Problems of management, economics and law on a national and regional scale. Collection of articles of the VI All-Russian Scientific and Practical Conference, 83-87.

Kurbatova, M.V., Donova, I.V., Kranzeeva, E.A. (2021). Higher education in resource-type regions: between the tasks of departmental and regional development. Terra Economicus, 19(1), 109-123. DOI: 10.18522/2073-6606-2021-19-1-109-123.

La mobilité internationale des étudiants: S'organiser pour les défis à venir. (2019). Paris. La Documentation Française. 248 p. Available at: https://www.vie-publique.fr/sites/default/files/rapport/pdf/194000726.pdf

Official statistical information on additional vocational and higher education. (2021). Ministry of Science and Higher Education of the Russian Federation. Available at: https://minobrnauki.gov.ru/action/stat/highed/

Official statistical information on the population of the Russian Federation by municipalities. (2021). Federal State Statistics Service. Available at: https://rosstat.gov.ru/compendium/document/13282?print=1

Pinheiro, R., Wangenge-Ouma, G., Balbachevsky, E., Cai, Y. (2015). The Role of Higher Education in Society and the Changing Institutionalized Features in Higher Education. In: Huisman J., de Boer H., Dill D.D., Souto-Otero M. (eds) The Palgrave International Handbook of Higher Education Policy and Governance. Palgrave Macmillan, London. DOI: 10.1007/978-1-137-45617-5_13.

Pinkovetskaia, I., Nuretdinova, Y., Nuretdinov, I., Lipatova, N. (2021). Mathematical modeling on the base of functions density of normal distribution. Revista de la Universidad Del Zulia, 3ª época, 12, 33. DOI: 10.46925//rdluz.33.0434.

Pinkovetskaia, I., Slepova, V. (2018). Estimation of Fixed Capital Investment in SMEs: the Existing Differentiation in the Russian Federation. Business Systems Research, 9(1), 65-78. DOI: 10.2478/bsrj-2018-0006.

Schaarschmidt, M., Kilian, T. (2014). Impediments to Customer Integration into the Innovation Process: A Case Study in the Telecommunications Industry, European Management Journal, 32(2), 350-361.

Stiglitz, J.E. (2014). Creating a Learning Society: A New Approach to Growth, Development, and Social Progress (Kenneth Arrow Lecture Series). Columbia: Columbia University Press, 680 p.

Sudakova, A.V. (2018). Russian universities and students: the abundance dynamics and analysis of the structure. Science and world, 3(55), II, 29-31.

Tamayo, M., Huergo, E. (2017). Determinants of Internal and External R&D Offshore: Evidence from Spanish Firms. Industry and Innovation, 24(2), 143-164.

Unger, M., Polt, W. (2017). The knowledge triangle between research, education and innovation – A conceptual discussion. Foresight-Russia, 2, 10-26. DOI: 10.17323/2500-2597.2017.2.10.26.

Ushakova, D.Y. (2017). Statistical analysis of the number of students accepted for bachelor's, specialist's, master's degree programs in higher education institutions of the Russian Federation. Materials of the 3rd International Correspondence Scientific and Practical Conference, 428-432.

Yudina, T.A. (2019). Prediction of the number of potential applicants of Russian universities in the current demographic conditions in the country in order to update the problems of reputational management. The Eurasian Scientific Journal, 5(11). Available at: https://esj.today/PDF/04ECVN519.pdf. DOI: 10.15862/04ECVN519

Zborovsky, G.E. (2018). Is it possible to preserve higher education in the regions of Russia? Higher education in the Russian regions: challenges of the XXI century: a collection of materials of the All-Russian Scientific and Practical Conference, September 17, UrFU, Yekaterinburg, Cabinet Scientist, 9-18.

Characteristics that act in young people as psychological prerequisites to avoid psychological intimacy in relationships

Tatyana V. Skutina

Yulia G. Yudina

Vera V. Korshunova

Dmitry N. Kuzmin

Ekaterina V. Potapova

ABSTRACT

The article empirically substantiates the hypothesis about the severity of the characteristics of avoiding psychological intimacy in young people: low autonomy, self-doubt, the presence of an avoidant type of attachment, counter-dependence, the experienced lack of intimacy in relationships with significant adults in childhood and the needs for isolation and security in subjective perceptions of psychological intimacy. These characteristics were compared in two groups of boys and girls aged 20-25 years, the sample was 60 people. Methods were used: "Questionnaire of interpersonal dependence" (p. Girshfield, adapted by O.P. Makushina), the questionnaire "The experience of close relationships" by K. Brennan and R.K. Fraley, adapted by T.V. Kazantseva, the test for counter-dependence (B.K. Weinhold, D.B. Weinhold). The severity of closeness by significant adults in childhood, the peculiarities of subjective ideas about psychological closeness were revealed by the method of conversation and through the creation of a drawing "The image of the desired relationship". The results of the study showed that the differences between the groups are significant in all parameters stated in the hypothesis ($p \leq 0.01$). Subjective ideas about intimacy differ in the severity of the needs to be the center of your world in a relationship; in community; in observing personal boundaries; ($p \leq 0.01$); to feel safe in a relationship ($p \leq 0.05$).

KEY WORDS: youth; attitude; individual differences; parental attitude; psychological closeness; autonomy; type of attachment; young people; subjective perceptions of closeness.

*Candidate of Psychological Sciences, Associate Professor of the Department of Developmental Psychology and Counseling, Siberian Federal University, Krasnoyarsk, Russia. ORCID: https://orcid.org/0000-0002-1772-8108. E-mail: tvforte@mail.ru

**Candidate of Pedagogical Sciences, Associate Professor of the Department of Developmental Psychology and Counseling, Siberian Federal University, Krasnoyarsk, Russia. ORCID: https://orcid.org/0000-0003-2063-7079. E-mail: yudish@mail.ru

***Candidate of Pedagogical Sciences, Associate Professor of the Department of Information Technologies of Education and Continuing Education, Siberian Federal University, Krasnoyarsk, Russia. ORCID: https://orcid.org/0000-0002-2042-2417. E-mail: wera7@mail.ru

****Candidate of Pedagogical Sciences, Associate Professor of the Department of Information Systems, Siberian Federal University, Krasnoyarsk, Russia. ORCID: https://orcid.org/0000-0002-8489-4683. E-mail: kuzmin_d_n@mail.ru

*****Candidate of Psychological Sciences, Associate Professor of the Department of Developmental Psychology and Counseling, Siberian Federal University, Krasnoyarsk, Russia. ORCID: https://orcid.org/0000-0001-9302-5810. E-mail: potapowa.catia2011@yandex.ru

Características que actúan en los jóvenes como prerrequisitos psicológicos para evitar la intimidad psicológica en las relaciones

ABSTRACT

El artículo fundamenta empíricamente la hipótesis sobre la gravedad de las características de evitación de la intimidad psicológica en los jóvenes: baja autonomía, duda de uno mismo, presencia de un tipo de apego evitativo, contradependencia, la falta de intimidad experimentada en las relaciones con adultos significativos en la infancia y las necesidades de aislamiento y seguridad en las percepciones subjetivas de la intimidad psicológica. Estas características se compararon en dos grupos de jóvenes de 20 a 25 años; la muestra fue de 60 personas. Se utilizaron métodos: "Cuestionario de dependencia interpersonal" (p. Girshfield, adaptado por O.P. Makushina), el cuestionario "La experiencia de las relaciones cercanas" de K. Brennan y R.K. Fraley, adaptado por T.V. Kazantseva, la prueba de contradependencia (B.K. Weinhold, D.B. Weinhold). La severidad de la cercanía de los adultos importantes en la infancia, las peculiaridades de las ideas subjetivas sobre la cercanía psicológica fueron reveladas por el método de conversación y mediante la creación de un dibujo "La imagen de la relación deseada". Los resultados del estudio mostraron que las diferencias entre los grupos son significativas en todos los parámetros planteados en la hipótesis (p ≤ 0.01). Las ideas subjetivas sobre la intimidad difieren en la severidad de las necesidades de ser el centro de su mundo en una relación; en comunidad, en la observación de los límites personales; (p ≤ 0,01); sentirse seguro en una relación (p ≤ 0,05).

PALABRAS CLAVE: juventud; actitud; diferencias individuales; actitud parental; cercanía psicológica; autonomía; tipo de apego; jóvenes; percepciones subjetivas de cercanía.

Introduction

The desire to create and maintain close relationships is viewed by most researchers as a fundamental human need (Kulikov, Pastushik, 2009). It becomes more difficult for a person to build harmonious relations in the modern world, in the world of technology and the influence of the media. There is a lengthening of the period of searching for a partner, an increase in the age of marriage, a short duration of relationships and low satisfaction with them, which can also be considered a manifestation of a deficit in the ability to form harmonious relationships. Increasingly, there are cases when a person refuses close relationships and chooses, for example, material benefits, building a career, considering romantic relationships a waste of its time.

In modern psychology, this problem is associated with a tendency to exaggerate the role of independence, personal autonomy, freedom and personal achievement and to play down the role of attachment. All this leads to various kinds of difficulties in establishing psychological closeness (Dergacheva, 2002; Melnikova, 2014).

Independence, understood as freedom from all attachments and influences, is inherently an avoidance of responsibility and an inability to create true intimacy. The fear of rejection, of losing oneself lies in alienation from people. Attachment theorists see the struggle between two competing needs for intimacy and autonomy as the central dilemma of human life (Sytko, 2011).

The ability to establish and maintain psychological closeness in interpersonal relationships is one of the most important tasks of the sixth psychosocial stage according to E. Erickson's periodization, which lasts from 20 to 25 years and marks the formal beginning of adulthood (Erickson, 1996). Avoiding situations and contacts that lead to intimacy for fear of "losing independence" can lead to self-isolation, the feeling of loneliness threatens psychological well-being at this age and in the future. It is noted that young people aged 18-24 are one of the most vulnerable groups in terms of psychological well-being (Yaremchuk, Bakina, 2021).

In addition, the importance of creating psychological and pedagogical development practices that develop the universal abilities of young people, capable of helping in resolving interpersonal and intrapersonal difficulties and problems, is noted (Smolyaninova et al., 2021).

The relationship between psychological well-being, resources for the development of interpersonal relationships and the individual characteristics of young people has been studied in a number of works (Garaa-Alandete, 2015; Fedorenko et al, 2018; Krok, 2018; Borodovitsyna, 2020).

In addition, it is noted that people with a higher level of psychological well-being are more likely to talk about their understanding of happiness in terms of intimacy and relationships with other people, and people with lower indicators - in terms of personal self-development, their own autonomy and dominance (Kartasheva, Grishina, 2015).

With such a high importance of psychological closeness for individual psychological well-being of a person, with all the relevance of the development of psychological resources for young people to create and maintain close relationships in their future family, it seems

important to us to identify not only individual psychological characteristics of young people that hinder intimacy, as has been done in a number of studies.

The aim of our research was to identify theoretically and consider in a complex a number of features of young people who act as psychological prerequisites for their avoidance of psychological intimacy in relationships. And empirically check for differences in the selected parameters in young people who do not have psychological closeness in a relationship and do not seek it, compared with boys and girls who seek and have psychological closeness in a relationship.

1. Literature Review

As a result of analyzing the psychological literature, we identified a number of individual characteristics of young people who do not seek closeness in relationships, as well as the characteristics of their interpersonal relationships with significant adults, which, in our assumption, may distinguish them from young people seeking psychological closeness.

One of the characteristics associated with the desire for an individual lifestyle, rather than close relationships, may be the desire for autonomy. However, when considering personal autonomy in the context of interpersonal interaction, it is very important to distinguish true autonomy from psychological distancing from other people and avoidance of attachment to people (Stankovskaya, 2014; Melnikova, 2014; Sergeev, 2018). E. Erickson considered autonomy in the context of the process of growing up - separation, development of the boundaries of freedom of their actions. He understood autonomy as the ability for self-regulation associated with the desire to assert itself as an independent individual who has the right to freedom of choice. From the point of view of E. Erickson, autonomy is the main new formation at the stage of development of the personality of a child aged from one to three years (Erickson, 1996; Sabelnikova, 2008). The concept of personal autonomy as a self-regulation mechanism was most fully developed within the framework of the theory of self-determination by E. Desi and R. Ryan (Ryan, R.M., Deci, E. L., 2000; Dergacheva, 2002). R. Girshfield defines autonomy as self-sufficiency, the tendency to distance from others, avoidance of long-term interpersonal relationships, the desire for loneliness. In the presence of autonomy, a person experiences its behavior as self-determined and corresponding to its values and interests (Makushina, 2007).

Counterdependence is also discussed as a characteristic of a person leading to "escape from intimacy" in psychological research (Weinhold, J.B. Weinhold, B.K., 2004; Winehold B.K., Winehold J.B., 2011); Counterdependence is understood as a form of human behavior characterized by independence, a tendency to avoid closeness with another person, distrust of the world around us (Avdeeva, 2017), as well as a violation of attachment, in which, despite the high need for relationships, a person is afraid of intimacy. B.K. Winehold and D.B. Wineholddescribes people with a pronounced counterdependence as self-sufficient, not experiencing cravings for other people. The main reason for this behavior is the trauma received by a person during its early development, in families where the parents were estranged from each other or were emotionally insensitive to the child (Winehold B.K., Winehold J.B., 2011).

Indeed, it is generally accepted that the family, relationships with parents make the most significant contribution to the formation of the child's personality and its subsequent relationships with other people (Hanson, 2002; Collins, N.L., Feeney B.C., 2004).

Disruption of the parent-child bond, which implies a lack or lack of emotional disposition, can have a very significant impact on self-perception and emotional connections with others. If this disconnect is not identified and overcome, it creates a habit of isolation and aloofness, which can have a profound effect on attitudes toward intimacy in adulthood. Adults who were mistreated as children, especially if they were people they trusted, learned to erect physical and psychological walls to protect them from the experiences of their unhealed childhood traumas. They may tend to fear that they will experience the same abuse or rejection when they try to bond with others in later ages (Avdeeva, 2017).

Traumatic is the lack of care and tenderness, insufficient attention to the needs of the child, as well as various negative actions in relation to him, which destroys the feeling of security and leads to a feeling of helplessness and the perception of the world as potentially hostile. Under the influence of traumatic experience, a distorted self-image is formed.

According to attachment theory, human relationships are based on a system of close and strong emotional ties established as a result of a long-term relationship between a child and a mother in the first years of its life. Attachment differs from other emotional ties in that a person experiences a sense of security and comfort, if it is reliable, or anxiety, insecurity, acute dependence and similar negative states in an attachment relationship (Bowlby, 2003; Brish, 2012). In the avoidant type of attachment, the type manifests a feeling of discomfort in

close relationships, a feeling of dependence on a person, vulnerability and emotional closeness. This type of attachment is formed when parents reject a child, do not respond to its needs, and do not support him emotionally. A person in adulthood usually avoids close relationships, keeps a partner at a distance, and also, as a rule, hides its feelings(Vasilenko, 2011). Therefore, we assumed that this type of attachment would be expressed in young people who do not seek psychological closeness.

A person's self-confidence is also an important factor in interpersonal relationships. This is not only the most important component of self-esteem, but also a person's attitude to life, where the relationship of a person to himself, to activities and to other people. Confidence (lack of confidence) of a person in himself is formed from early childhood and then manifests itself throughout its life, influencing its social position and the semantic characteristics of its life. Lack of sufficient positive attention on the part of an adult or, on the contrary, pronounced guardianship and excessive protection of the child leads to the formation of self-doubt as an experience of disbelief in oneself, in one's capabilities, which reduces activity in the process of further life and communication (Zobkov, 2019).

Based on the analysis of the literature, we put forward the following assumption for empirical verification: "Young people who do not strive for psychological closeness are distinguished from young people who seek and have psychological closeness in relationships with greater severity: the need for separateness than for compatibility, for the content of subjective ideas about psychological closeness; striving for autonomy; self-doubt; lack of closeness with significant adults in childhood; counterdependence, as well as a high frequency of avoidance type of attachment among them".

2. Methodology

Sample: 60 respondents took part in the study.

Group 1: young people - boys and girls 20-25 years old, striving and having psychological closeness at the moment or had earlier, in the amount of 30 people.

Group 2: young people - boys and girls 20-25 years old, not striving for psychological closeness in relationships, who have no experience of psychological closeness with a partner at the moment or earlier, in the amount of 30 people.

Research procedure. The work with the participants consisted of three stages.

Stage 1 of work:

- preliminary conversation;

- conducting techniques to determine the severity of autonomy, self-doubt, the presence / absence of the avoidant type of attachment, the presence / absence of counterdependence.

Stage 2 of work:

- Conversation with each member of both groups to identify relationships with parents and other significant adults in childhood and the presence of closeness with them;

Stage 3 of work:

- each respondent creates a picture on the theme "Image of the desired relationship";

- Conducting a conversation, mediated by a drawing, with each participant separately.

YuliaKiseleva, a master's student of the Department of Developmental Psychology and Consulting of the Institute of Pedagogy, Psychology and Sociology of the Siberian Federal University, took part in the implementation of the scientific research under our scientific supervision.

2.1. Methods

The Interpersonal Dependency Questionnaire, developed by R. Girshfield in 1977, adapted by O.P. Makushina (Makushina, 2007), is used to identify the desire for autonomy and self-doubt. To determine the type of attachment, the questionnaire "Experience of close relationships" by K. Brennan and RK Frehley is used in the adaptation of T.V. Kazantseva (Kazantseva, 2008) Thecounterdependence test developed by B.K. Winehold and D.B. Winehold(Diagnostic portfolio, 2019). The severity of intimacy by significant adults in childhood was revealed by the method of conversation. To study subjective ideas about psychological intimacy, the creation of a drawing "The image of the desired relationship" and a method of conversation based on it were used.The method of qualitative analysis of the narrative of G.M. Breslav was used to analyze materials from interviews (Breslav, 2010). Statistical data processing was performed using Fisher's F-test.

3. Results and Discussion

1 stage of work. Expression of autonomy, self-doubt, avoidant type of attachment, counterdependence in young people who are striving and not striving for psychological closeness.

All 60 respondents took part in the study at all stages, and completed all the proposed methods. On the basis of the data obtained, we compared the values of the signs of autonomy, self-doubt, avoidant type of attachment, counterdependence in young people seeking and not seeking psychological closeness and made the differences found for statistical significance using the Fisher test. The results are shown in Table 1.

Table 1. Differences in autonomy, self-doubt, avoidant type of attachment, counterdependence between groups of young people seeking and not seeking psychological closeness

Comparisoncriteria	Fisher's φ^* criterion
desireforautonomy	5,68
self-doubt	5.31
counterdependence	3.23
having an avoidant type of attachment	6.54

As can be seen from Table 1, the differences between the compared groups turned out to be significant for all parameters put forward in the hypothesis, at the level of significance: $p \leq 0.01$ according to Fisher's test.

2nd stage of work.Differences in the severity of psychological closeness in relationships with parents and other significant adults in childhood.

While studying the severity of closeness with significant adults in childhood, we conducted a conversation with each participant about their childhood experiences of relationships with parents and other significant people. The participants were not able to openly and easily talk about their relationships in childhood, but, nevertheless, the analysis of the collected materials of conversations made it possible to highlight significant differences between the groups.

In Group 1 (young people, aspiring and having psychological closeness), most of the participants fondly recalled their childhood. Here are some typical statements for this group: "Yes, of course. As a child, I liked to spend more time with my dad, we were constantly together. When I got older, I began to communicate more with my mother, we got secrets. We can discuss anything you like "," Yes, I love these guys very much. In childhood, they worried about me and protected me, but now it's the other way around. Sometimes there are moments when it becomes so sad and sad, you come to your dad with the book

"PippiLongstocking", sit next to him and ask him to read like in childhood "," Yes, now, having matured, these moments are lacking. When you are tired or something doesn't work out, you run to your mother with tears, and she hugs you, calms you down, strokes your head. Or you get up in the morning and have delicious pancakes for breakfast","Parents have always believed in me and still believe in me as in childhood. When I was little, I was constantly kissed and hugged, talked about a lot with me, discussed my "tragic" love. They believed in me, always supported my self-confidence, calling me a clever and beautiful woman. Next to them I am always that little girl", "I do not know people closer than my parents. They love you with all your shoals and cockroaches. When I was little, my parents always arranged joint activities: hiking in nature, going to the theater. Even earlier, I studied in a vocal studio, so my mother left work to travel with me to competitions, supported me in every possible way so that I would not worry. Thanks to its for that".

The answers of the participants in group 2 (young people who do not seek psychological closeness) are mostly opposite to the answers of the participants in group 1. In this group, most of the participants note the absence of close relations with their parents in childhood: "Since childhood I have not been close enough with my mother , often turned down when asked to kiss, hug, or tell a bedtime story. My parents didn't show me a model of how to love", "They are not at all close, as my parents divorced when I was seven years old. Everyone started to arrange their life, but I don't seem to be there", "It seems to me that only a mark in the passport reminds them that they have a son. Since childhood, we don't really get along with them, so I was more with my grandmother. Here is a close relationship with its", "I would not call our relationship close, because there are still topics and experiences that I do not tell them about. Since childhood, we are at a distance with them, I lived all the time with my grandparents in another city. We are not strangers, but we are not close either". "My grandmother says: "You were born for me". My parents, when I was born, worked, built a career, I practically do not remember them and do not know them. Then they began to travel, but they did not take me with them, they say, traveling with children is more difficult, you will not visit all places and other excuses. I lived with my grandmother, she is my parent", "My parents built market relations with me, as I said. If you behave yourself, you will get a toy. If you finish a quarter or half of the academic year with excellent marks, you will receive a telephone; if you finish like this for a whole year, you get a game console. After graduating from school, I got a car. While you are little, it's still funny, but then you realize that it would

be better if they just praised you or said "son, we are proud of you", I don't remember this since my birth".

Having singled out the most common units of judgment, we can note that 60% of the participants from Group 2 (young people who do not seek psychological closeness) note the lack of closeness with their parents, only 17% of the participants from the opposite group note the lack of closeness with their parents. The differences between the samples are significant according to Fisher's test at $p \leq 0.01$ (φemp. = 2.75).

Stage 3 of work. Differences in the content of subjective ideas about psychological closeness.

The third, final stage of the study was a conversation mediated by a drawing on the topic: "The image of the desired relationship."Currently, images are increasingly used in psychological research and in various areas of psychotherapy, their specific effectiveness is noted in comparison with verbal means (Curtis, R. 2016; Faranda, F. 2016, Zalevskaya, 2019). The drawing, according to our plan, allowed the participants to express both conscious and unconscious, including emotional, aspects of their ideas about psychological closeness in a figurative and symbolic form, to come into contact with their inner experience of close relationships or their absence in the process of creating the drawing, which created favorable conditions for subsequent conversation.

To create a drawing, the participants were offered paints (watercolors, gouache), brushes, white paper. The process of creating a picture and a conversation for each participant was given 35-40 minutes. After the participant completes the drawing, the participant is invited to talk about its feelings, about the image he made. If it is difficult for the participant to talk about its feelings on its own behalf, then he is offered the option to identify himself with any part of the picture and talk about its feelings.

In addition, each participant, if it was not voiced by him independently, was asked to describe its ideas about psychological closeness, to answer in detail the questions: "What kind of relationship would I like with my partner?", "How do I see my desired relationship?".

After analyzing the participants' drawings, together with the material from the drawing-mediated conversation, we identified the phenomena characteristic of each of the groups. It is noteworthy that the works of the two groups differ significantly in color.

Figures 1, 2, 3, drawn by young people not seeking psychological intimacy, were considered typical examples.

Figure 1."Image of the desired relationship" of young people, not seeking psychological closeness.

Figure 2."Image of the desired relationship" of young people, not seeking psychological closeness.

Figure 3. "Image of the desired relationship" of young people, not seeking psychological closeness

In the pictures above, group members who are not seeking psychological intimacy use darker, colder shades. Most of the drawings have a compositional center around which dark colors prevail. If there is an image of a light spot, often with a predominance of warm tones, then the authors associated it with their inner world, their personal space.

The members of this group are characterized by the description of themselves as the center of their world, and an indication of caution to let someone into their world: "I see myself as the center, I feel good in my world. It is quite interesting here, but I will let you into my world carefully, gradually. I don't want people to burst into my territory and build their own rules "," I am the sun here, and my rays can reach the ground, but they seem to be afraid and direct their light and warmth to themselves, and not to the outside world. It's already more usual when you give warmth to yourself "," I see myself here as the center of everything. Such a bright yellow sun, and around me is a whirlpool of events, and these events are very diverse".

Describing the drawings, the participants note the importance of personal boundaries and freedom: "One of the most important for me is that they are not "strong" hugs, not close, but there is space around me. This means that relationships are not some kind of shackle, but I have personal freedom (personal space)", "It is important not to merge into each other, but to have my own space (at this point the girl separated the sheets), knowing that you are loved and support, even when not around. It is important for me to have something of my own, where the partner has no place where I can take care of myself ","I did not completely paint over this space between a man and a woman, but left small distances so that everyone had freedom. That was where to take a breath of fresh air, and not completely immerse yourself in a relationship". Figures 4 and 5, drawn by young people seeking psychological closeness, are discussed below.

The first thing we can notice in the pictures above in the text is the presence of bright colors. This is typical for most of the drawings of the respondents in this group. Participants compare relationships with an "explosion" of emotions, thereby depicting bright flashes, fireworks, intertwining bright colors ("For me, relationships are an explosion, fireworks of emotions! I want to keep this feeling of fireworks, brightness, colors, as long as possible", "Relationships are a whole fountain of emotions. The most different, colorful, bright.Moments of dark and sad. But all these emotions go to the middle, and in it your union.

And you live all these emotions together", "Relationship is a spark between two, which grows into such a fire. It burns hot that no one and nothing can approach it").

Figure 4. "Image of the desired relationship" of young people, seeking psychological closeness

Figure 5. "Image of the desired relationship" of young people, seeking psychological closeness

Drawings are dominated by red, a bright, warm color that evokes strong emotions that creates a sense of excitement or intensity. In contrast to the color red, participants often use blue in their drawings, associating it with feelings of calmness or serenity. One of the participants, describing its drawing, said: "On the orange path, you already have small problems, but if you overcome them, you will find yourself in a calm, peaceful, blue background. Blue here for me is a stable, strong relationship".

Most often, the entire paper space is covered in the drawings of this group of participants. In the conversation, the participants report that they see this as a reflection of the relationship as complementarity, where they are separate, and together create an alliance,

complement each other with the best qualities: "It is important for me that there are some common values, interests, and the white strokes are an image of the fact that, in spite of the fact that there is something in common, everyone in a relationship has its own interests, its own affairs, and they sometimes intersect in the spheres of another"; "I started to drip colored spots and they started to combine so well that I realized that this is the relationship. You can be completely different, not combining and not matching each other at first sight, but now you have connected, and something incredible and beautiful has formed", "a relationship is an exchange of energies. Ideally, you give and receive in return. Together you form something beautiful, such a huge whirlwind of emotions and feelings".

For the analysis of the conversation, semantic units were identified, grouped by categories and concepts, according to the method of narration of G.M. Breslava (Breslav, 2010). The differences between the groups in terms of the analyzed aspects of perceptions of psychological closeness in relationships are presented in Table 2.

Table 2. Differences in the content of subjective ideas about psychological closeness between groups of young people seeking and not seeking psychological closeness.

Comparisoncriteria	Fisher's φ* criterion		
	number of respondents in the group		Fisher's φ* criterion
	seekingpsychologicalcloseness	notseekingpsychologicalcloseness	
confidence	16	13	0,78
need for community, for unity	17	4	3.71
need for a separate personal space	8	23	4.06
the need to respect and respect personal boundaries in a relationship	7	17	2.70
the need to feel secure in a relationship	5	12	2.04
the need to be the center of your world in a relationship with a loved one	4	14	2.94

Statistical analysis according to Fisher's criterion showed that the differences found are significant at the level of p ≤ 0.01 in terms of the following parameters: the need for

community; the need for unity; the need to respect and respect personal boundaries in relationships; the need to be the center of your world in a relationship with a loved one. At a significance level of $p \leq 0.05$, the need to feel secure in a relationship. There were no significant differences in the gender parameter of confidence.

As can be seen from Table 2, at a significance level of $p \leq 0.01$ according to Fisher's criterion, a group of young people who do not strive for psychological closeness are distinguished by: a greater severity of needs associated with separateness, separation, such as: needs in a separate personal space, in respecting personal boundaries in a relationship. The expressiveness of the need to be the center of one's world in relations with a loved one is also more consistent with the egocentric tendency. As the statements in the conversation showed, the expressed need to feel safe in relationships, the experience of the threat of being hurt in relationships, prevents the young people of this group from opening their inner world and their personal boundaries to another, to get closer. In contrast, a group of young people seeking psychological closeness is distinguished by a more pronounced need for community and unity. At the same time, according to the results of the conversation, they do not experience community and closeness as a threat to their individuality, separateness, or their inner world. Differences between the groups in terms of the severity of the need to feel secure in relationships also turned out to be significant at the significance level of $p \leq 0.05$ according to Fisher's test. However, more often than not, young people with different attitudes towards psychological closeness put different meanings into understanding security in relationships. So, young people who do not seek psychological closeness associated safety with keeping a distance in a relationship with a partner, building solid boundaries, keeping significant areas of their inner experience inaccessible to a partner. While young men and women seeking intimacy in a relationship talked about security as trusting a partner, confidence in its support in a difficult situation, confidence that purely personal information given to him during close communication will not be disclosed to them.

There were no significant differences in subjective perceptions in such an aspect of psychological closeness as trust in the compared groups.

Thus, our assumption that among young people who do not strive for psychological closeness, in the content of subjective ideas about psychological closeness, the need for separateness is more pronounced than for compatibility, has found its empirical confirmation.

Thus, summing up the results of the empirical research, we can say that our assumption that young people who do not seek psychological intimacy have a more pronounced need for isolation than for togetherness in the content of subjective ideas about psychological intimacy, and in particular in observing and respecting personal boundaries in relationships; to be the center of their world in relationships ($p < 0.01$); to feel safe in relationships ($p < 0.05$), has found its empirical confirmation. The assumption was also confirmed about the differences between young people striving and not striving for intimacy in terms of the severity of the desire for autonomy; self-doubt; lack of intimacy with significant adults in childhood; counter-dependence, as well as a high frequency of occurrence among them of the avoidant type of attachment ($p \leq 0.01$).

A comparison of the quantitative change in the desire for autonomy according to the method of "Interpersonal Dependence Questionnaire" (Makushina, 2007) and the content of the respondents' individual ideas about the desired relationship allows us to conclude that young people who avoid psychological intimacy autonomy looks more like a tendency to distance themselves from others, avoiding long-term interpersonal relationships associated with the fear of being hurt in a relationship, the desire to protect themselves from perceived threats from a partner.

This is consistent with what T. V. notes. Kazantseva "avoidance of intimacy is a personality trait that indicates the lack of formation of personal autonomy" (Kazantseva, 2011), meaning genuine mature personal autonomy. In a collective psychological portrait of a person with a fear of intimacy, the author lists such traits as workaholism, perfectionism, negativism, arrogance, narcissism. Our study revealed other distinctive features of young people who do not show the desire for psychological intimacy, not necessarily because of fear. Moreover, the severity of a number of them, such as self-doubt, counter-dependence, can be significantly reduced in therapeutic or developmental practices, which in the future can increase the level of psychological well-being of such young people and contribute to their building healthier partnerships and family relationships in the future, since the level of psychological well-being is higher in people for whom happiness is more associated with love, friendship, intimacy and relationships (Kartasheva, Grishina, 2015).

Conclusion

Young people today are increasingly replacing the basic need for intimacy with the need for self-sufficiency. The study of the psychological characteristics of young people, boys and girls who do not strive for psychological closeness, can shed light on the understanding of the psychological background of this phenomenon.

As a result of the analysis of the literature, we can say that the topic of avoidance of intimacy in modern society is gaining more and more relevance and is increasingly becoming a subject of study. The originality and novelty of our research is in the use of both quantitative and qualitative methods. In addition to quantitative techniques, we included drawing-mediated conversation in the study.

The conducted empirical research has confirmed our hypotheses. We can imagine a more complete portrait of a person who does not seek psychological closeness. Such young people are distinguished by the desire for independence and autonomy, they respect their personal boundaries, treat their personal space with trepidation, not wanting to let others near them who are not ready to accept them as they are. These are people who have avoidant attachment and counterdependency. All of this is due to the lack of sufficient intimacy with significant adults in childhood, which also makes a significant contribution to the development of self-doubt.

The combination of verbal and figurative-symbolic means, namely the proposal to express in the drawing the image of the desired relationship, made it possible to more fully understand the subjective ideas of young people about psychological closeness, the peculiarities of their experience of psychological closeness in childhood and current experience. We saw that a group of young people who do not strive for psychological closeness are distinguished by describing themselves as the center of their world, and an indication of caution and even fear of letting someone into their world. Letting someone into their lives means breaking their personal boundaries. Participants of the second group, on the contrary, see relationships as complementary, where each of the partners is isolated, but together they create a union, into which each brings its own unique qualities, enriching and complementing each other.

The study concluded that the lack of desire for psychological closeness is not equal to the desire for healthy personal autonomy. Our research shows that this is often not a personal choice of a person, but a result associated with a lack of reliable close relationships in

childhood and with incomplete separation processes in the future. As shown by the results obtained, this is due to the feeling of a child who grew up in such conditions of distrust of the world, self-doubt, and isolation, which are the reasons why young people do not strive to build close relationships. Thus, the lack of striving for a close attitude of young people looks like a "choice without choice" made from a lack of psychological resources, and not from equally available alternatives.

The results obtained prompt us to raise the question of the need to develop and implement practices to support young people in the development of opportunities for a positive experience of psychological intimacy. The practices will be aimed at psychological education of parents about the consequences of preference for such individualistic values as career, personal life, self-development to the detriment of investing strength and resources in building psychologically safe close healthy relationships in the family, with their children.

References

Avdeeva, N.N. (2017). Attachment theory: modern research and perspectives. Modern foreign psychology.Electronic journal.Vol. 6.No. 2. P. 7–14.DOI: HTTPS://DOI.ORG/10.17759/JMFP.2017060201

Borodovitsyna, T.O. (2020). Features of psychological well-being of students of various training profiles.World of Science.Pedagogy and psychology, No. 4(8). Available at: https://mir-nauki.com/PDF/45PSMN420.pdf

Bowlby, J. (2003). Affection. Edited and introductory article by G. V. Burmenskaya; Translated from English by N.G. Grigorieva and G.V. Burmenskaya. Moscow: Gardariki, (OJSC Mozhaiskpolygraphic combine). P. 447.

Breslav, G.M. (2010). Fundamentals of psychological research. Moscow: Publishing house Academy. P. 496.

Brish, K.H. (2012). Attachment disorders therapy: From theory to practice. Moscow: Cognito-Center. P. 316.

Collins, N.L., Feeney B. C. (2004). An attachment theory perspective on closeness and intimacy.Handbook of closeness and intimacy. New Jersey, P. 163 – 189.

Curtis, R. (2016). The Use of Imagery in Psychoanalysis and Psychotherapy.Journal Psychoanalytic Inquiry, No. 36 (8), P. 593 – 602. DOI:10.1080/07351690.2016.1226033

Dergacheva, O.E. (2002). Autonomy and self-determination in the psychology of motivation: the theory of E. Desi and R. Ryan. Modern psychology of motivation. Moscow: Smysl, 2002. P.103 - 121.

Diagnostic portfolio for determining the propensity to addictive behavior. Tula: Regional Center "Development", 2019. P. 80.

Erickson, E. (1996). Identity: youth and crisis. Moscow: Progress.

Faranda, F. (2016). Image and Imagination: Deepening Our Experience of the Mind. Journal Psychoanalytic Inquiry, No. 36 (8), P. 603 – 612.DOI.org/10.1080/07351690.2016.1226037

Fedorenko, E. Yu., Skutina, T.V., Kalinovskaya, K.S., Potapova, E.V. (2018). Trait Anxiety Index Among Students with Different Levels of Xenophobia. Journal of Siberian Federal University.Humanities & Social Sciences.No. 11(2). P. 185 – 191.DOI: 10.17516/1997-1370-0179.

Garaa-Alandete J. (2015). Does meaning in life predict psychological well-being? The European Journal of Counselling Psychology.Vol. 3 (2).DOI: https://doi.org/10.5964/ejcop.v3i2.27

Hanson, R, J. (2002). Mother Nurture: A Mother's Guide to Health in Body, Mind, and Intimate Relationships. New York: Penguin.

Kartasheva Yu. V., Grishina N.V. (2015) Existential correlates. Psychological well-being.Scientific research of graduates of the Faculty of Psychology of St. Petersburg State University / ed. A.V.Shaboltas. - St. Petersburg: Publishing house C.- St. Petersburg University.

Kazantseva, T.V. (2008). Adaptation of the modified methodology "experience of close relations".Izvestia of the Russian State Pedagogical University named after A.I. Herzen. P. 139 - 144.

Kazantseva T. V. (2011) New in the research of psychological intimacy. Bulletin of St. Petersburg State University. Ser. 12. 2011. Issue 2.

Krok, D. (2018) When is Meaning in Life Most Benefical to Young People? Styles of Meaning in Life and Well-Being Among Late Adolescents. Journal of Adult Development.No. 25. P. 96 – 106. HTTPS://DOI.ORG/10.1007/S10804-017-9280-Y

Kulikov, L.V., Pastushik, M.M. (2009). Review of foreign studies on the problem of emotional closeness. Bulletin of St. Petersburg State University.Series 12.Issue. 4.

Makushina, O. P. (2007) Portfolio for determining the propensity to addictive behavior. Tula: Regional Center "Development", 2007. P. 80.

Melnikova, V.B. (2014). Autonomy of personality: an overview of foreign approaches to problems. Psychological research.Vol. 7.No. 37.P. 9.

Ryan, R. M., Deci, E. L. (2000). Self-determination theory and facilitation of intrinsic motivation, social development and well-being.American Psychologist.Vol. 55. P. 68 – 78.

Sabelnikova, N.V. (2008). Methods of studying attachment in the process of age-related development in modern foreign psychology.Bulletin of St. Petersburg University.Series 12.Issue 3. P. 36 - 47.

Sergeev, S.M. (2018). Autonomy as a factor of social identity.Materials of the IV International Scientific and Practical Conference, Armavir State Pedagogical University. P. 95 - 98.

Smolyaninova, O.G., Rostovtseva, M.V., Yudina, Yu.G.,Korshunova, V.V., Potapova, Ye.V. (2021). Project-based activity as a mechanism of reflection development in students of psychology and education studies. J. Sib. Fed. Univ. Humanit. Soc. Sci. No 14(3). P. 385 – 395. DOI: 10.17516/1997–1370– 0730.

Stankovskaya, E.V. (2014). To say «yes» to oneself: existential-analytical perspective on autonomy. Psychology.Journal of the Higher School of Economics.Vol. 11.No. 4.P. 136 – 145

Sytko, M.V. (2011). Emotional attachment in the structure of significant personality relationships.Young Scientist.No. 11.Vol. 2. S. 119 - 122.

Vasilenko, M.A. (2011). Child's attachment to mother as an early factor.Izvestiya of the Russian State Pedagogical University named after A.I. Herzen. P. 20 - 28.

Winehold B.K., Winehold J.B. (2011). Escape from proximity. Getting rid of your relationship from counterdependence - the other side of codependency. St. Petersburg: IG Ves.

Weinhold, J.B. Weinhold, B.K. (2004). Counter-Dependency: The Flight from Intimacy. Trafford Publishing. P. 272

Yaremchuk, S.V., Bakina, A.V. (2012). Subjective well-being of young people and its relationship with the psychological distance to objects of the socio-psychological space of the individual in the context of the COVID-19 pandemic.Social Psychology and Society.Vol. 12.No. 1. P. 26 - 43. DOI: 10.17759/sps.2021120103

Zalevskaya, Ya.G. (2019). Psychological analysis of drawings.Problems of modern pedagogical education.P. 32. DOI: 10.15507/1991-9468

Zobkov, V.A. (2019). Substantive characteristics of a person's self-confidence.Bulletin of the Udmurt University.Vol. 29.Issue 1.P. 128.

Trastorno de Atención por Hiperactividad (TDAH): caracterización, evolución teórica y estrategias pedagógicas para su superación

Verónica Alexandra Jaramillo Galarza*
Mildred Paola Sánchez-Hidalgo**

RESUMEN

En este artículo se plantea una discusión pedagógica acerca de la caracterización del Trastorno de Déficit de Atención e Hiperactividad (TDAH) como uno de esos síndromes cuya notoriedad ha ido ganando terreno en el contexto educativo. En ese orden de ideas se plantea como objetivo general, proyectar estrategias pedagógicas de enseñanza-aprendizaje que se pueden construir para desarrollar las habilidades cognitivas en alumnos con TDAH y superar sus efectos negativos. Por la naturaleza del tema tratado, se utiliza un enfoque de investigación cualitativo que, en el campo del método, se apoya en la hermenéutica. Desde el punto de vista del diseño, esta es una investigación documental y teórica de nivel descriptivo y que, previo al proceso de investigación formal, se guía en información de primera mano, obtenida de padres, representantes y de docentes de una escuela en la ciudad de Machala, por lo que el debate refiere en algunos aspectos a la educación ecuatoriana.

PALABRAS CLAVE: psicología de la educación; psicopedagogía; rendimiento escolar; estrategias educativas.

*Magister en Educación, Mención Pedagogía. Licenciada en Ciencias de la Educación, Mención Educación Básica. Licenciada en Ciencias de la Educación, Especialización Informática. ORCID https://orcid.org/0000-0002-2901-6239. Machala - Ecuador. E-mail: vajaramillog.est@uteg.educ.ec; vero.alexis@hotmail.es

**Licenciada en psicopedagogía, Magíster en Educación, Mención Inclusión Educativa y Atención a la Diversidad, Machala-Ecuador. ORCID: https://orcid.org/0000-0001-7472-7382. E-mail. mildredpsh@hotmail.com

Attention-Deficit Hyperactivity Disorder (ADHD): characterization, theoretical evolution and methodological strategies to overcome it

ABSTRACT

This article presents a pedagogical discussion about the characterization of Attention Deficit Hyperactivity Disorder (ADHD) as one of those syndromes whose notoriety has been gaining ground in the educational context. In this order of ideas, the general objective is to project pedagogical teaching-learning strategies that can be built to develop cognitive skills in students with ADHD and overcome its negative effects. Due to the nature of the subject, a qualitative research approach is used which, in the field of method, relies on hermeneutics. From the design point of view, this is a descriptive-level documentary and theoretical research that, prior to the formal research process, is guided by first-hand information, obtained from parents, representatives and teachers of a school in the city from Machala, as the debate refers in some aspects to Ecuadorian education.

KEY-WORDS: Educational psychology; psychopedagogy; Academic achievement; educational strategies

Introducción

La pertinencia social de una discusión sobre la educación actual, no está en duda; tampoco lo está la necesidad científica de seguir trabajando en algunos temas que, relacionados con ella, son importantes para elevar su calidad. Además, si se toma en cuenta lo que ha ocurrido en el último año, a raíz de la pandemia del Covid-19 y los cierres obligatorios de los centros educativos, se puede decir que la situación es cada vez más compleja, tanto en Ecuador como en el resto del mundo.

En ese orden de ideas, este trabajo supone una aproximación al debate pedagógico que implican las dificultades para desarrollar estrategias pedagógicas, que aminoren los problemas educativos causados por el Trastorno por Déficit de Atención e Hiperactividad (TDAH). Según la literatura especializada, es un hecho que este trastorno se presenta con una mayor frecuencia de la que muchos se imaginan y/o aceptan. Es así como, en la educación de los primeros años, se

ha convertido en una de las principales causas de dificultades para el aprendizaje, tratadas por neurólogos, psicólogos y psicopedagogos (Muñoz et al., 2020).

Los estudios acerca del TDAH, si bien han explorado con mayor profundidad sus dimensiones psicológicas, arrojan también importantes conclusiones sobre la manera en que este síndrome puede presentarse en las aulas. Cuando esto ocurre, muchos docentes, no solo en Ecuador sino en otras latitudes, deben replantear sus estrategias pedagógicas y sus recursos para el aprendizaje. Esa exigencia, es propia de una educación que busque ser equitativa e inclusiva, tal como lo demanda la realidad nacional, en congruencia con las tendencias mundiales y, más aún, con la legislación educativa en Ecuador.

La importancia de abordar este tema pasa también por una cuestión social, pues de acuerdo con Llanos et al (2019), los niños que manifiestan el TDAH, no solo presentan limitaciones para las actividades académicas, sino que pueden arrastrar dificultades en sus procesos de socialización, tanto en la familia como con sus pares. Lo más peligroso es que estos problemas suelen confundir tanto a padres como a docentes y, en consecuencia, los afectados pueden ser objeto de situaciones discriminatorias que atentan contra el libre desarrollo de su personalidad.

Partiendo de estas consideraciones, el objetivo central de esta investigación es la caracterización del Trastorno de Atención por Hiperactividad (TDAH), así como el análisis e interpretación de la manera en que ha ido evolucionando su conocimiento. Consideramos así, que la efectividad con la que los docentes actuales pueden concebir estrategias pedagógicas para contrarrestar las circunstancias que conlleva el TDAH, tiene que ver con el manejo correcto de la información y su comprensión.

Igualmente, desde un punto de vista más empírico, la intención es realizar una aproximación hermenéutica a las estrategias pedagógicas que, desde la docencia, pueden diseñarse y ponerse en práctica, al momento de detectar la presencia de estudiantes que pueden tener dificultades de aprendizaje producto del TDAH.

1. Fundamentos históricos y teóricos

La pandemia del Covid-19, los cierres obligatorios de los centros educativos en la mayoría de los países y la necesidad de repensar los procesos pedagógicos en ese contexto, ha activado la preocupación en muchos temas que tienen que ver con la calidad de la educación y las dificultades que enfrentan algunos educandos para el aprendizaje. Muchos de esos temas pueden ser nuevos porque están vinculados con un mayor uso de la tecnología para la educación; otros, sin embargo, están enraizados con viejos debates sobre el aprendizaje y sus dificultades. En esta última esfera de cavilaciones se encuentra el tema del TDAH y la pedagogía.

1.1. El origen de la discusión sobre el TDAH

El TDAH es un tema complejo que, desde finales del siglo XIX, ha ocupado a muchos investigadores de áreas bastante diversas. Su complejidad, lo ubica como un problema que puede ser estudiado desde la Medicina, pasando por la Psicología, hasta llegar a la Pedagogía, sin que pierda importancia su conocimiento. Según Guerrero (2016, pág. 39), los primeros argumentos científicos en torno al TDAH fueron esgrimidos en el año 1798, por un médico escocés, de apellido Crichton, quien lo calificó como una "inquietud mental", que provocaba en los niños, dispersión al momento de concentrar su atención.

Posteriormente, en el año 1902, el Dr. George Still en un estudio realizado con estudiantes que presentaban problemas conductuales concluye que, "...la etiología de estos síntomas no estaba basada en la educación que recibía el niño de sus padres, sino que era un trastorno neurológico en el que la herencia jugaba un papel muy importante" (Guerrero, 2016: 41). En adelante, este tema ha interesado a muchos especialistas en el área, quienes, en diferentes contextos lo han abordado para promover la difusión de su conocimiento.

1.2. Elementos conceptuales del TDAH

Conceptualmente es casi obligatorio acudir al *Manual diagnóstico y estadístico de los trastornos mentales* (DSM), editado por la Asociación Estadounidense de Psiquiatría, para realizar una primera aproximación teórica al TDAH. Si bien en materia de salud mental no existe una última palabra, con este instrumento científico se logra homologar una clasificación de trastornos

mentales, necesaria para superar la ambigüedad por parte de los psiquiatras y psicólogos para definir algunas de estos trastornos.

La versión de este manual, de Mayo de 2013, establece una definición del TDAH que le asocia a un "Patrón persistente de inatención y/o hiperactividad-impulsividad que interfiere con el funcionamiento o desarrollo que se caracteriza por inatención, hiperactividad e impulsividad" (TDAHYTU, 2020). Allí mismo se explican las tres formas en que se puede presentar esta afección: con predomino de la inatención; con prevalencia de la hiperactividad, o con una combinación sostenida de ambos síntomas.

En otras áreas hay menos unificación de criterios conceptuales respecto al TDAH. Sin embargo, en el terreno educativo, hay cierto consenso en cuanto a su concepción como una serie de cambios en los procesos neurológicos de los educandos, cuyo origen suele ser desconocido pero que se manifiesta, en episodios de impulsividad e incapacidad para mantener la atención, por parte de aquellos que la padecen (Orteso, 2019). Esto es lo que reafirma Treviño (2017: 11) al señalar que:

> El TDAH, si no se trata, tendrá en el niño un impacto adverso significativo en el proceso de su integración familiar y su adaptación a su entono educativo, ocasionándole numerosos problemas en su interacción con otros niños, con sus padres y profesores.

También, desde la perspectiva educativa, Soroa et al., (2016) consideran que el TDAH presenta síntomas de carácter neurológicos y psicológicos, y refuerzan la tesis de los dos elementos: la inatención y la hiperactividad. En cuanto a la primera, puede tener diferentes manifestaciones, que incluyen lo social y lo académico. De hecho, en algunos casos, ese déficit de atención se detecta cuando se le hace un seguimiento a la actuación de los niños en sus actividades de interacción, ya sea en la familia o en la escuela.

En cuanto a la hiperactividad, esta implica situaciones en las que los afectados presentan movimientos o acciones con poco control y poca coherencia, es decir, no proporcionales a lo que se espera que ocurra. Cuando se trata de la conducta de los niños, niñas y adolescentes, los mismos pueden demostrar un alto grado de dispersión en sus actividades y mucha dificultad para mantenerse disciplinadamente en un sitio o concentrados en una tarea.

En definitiva, la teoría nos aclara las consideraciones tecno-científicas de este síndrome, pero en general siguen existiendo muchos enigmas en el análisis de sus consecuencias para el proceso pedagógico. Para comprender con mayores certezas esta correlación, es conveniente explorar el nivel de difusión que ha tenido el conocimiento del TDAH, entre los educadores y las reacciones positivas que muestran en la adecuación de sus estrategias para trabajar en un aula donde haya niños que manifiesten el trastorno.

1.3. Dificultades de aprendizaje que derivan del TDAH

En el contexto pedagógico y en el aula especificamente, la presencia del TDAH tiene una serie de implicaciones para los profesores y los estudiantes. En el caso de los alumnos, la hiperactividad puede impedirles quedarse quietos y mantener la calma en aquellas situaciones que las clases asi lo ameriten. Asi mismo, el deficit de atención les acarrea dificultades para el pensamiento analítico y el establecimiento de relaciones causales que "...se traduce en falta de flexibilidad cognitiva, es decir en la habilidad para cambiar rápidamente y de forma correcta de un pensamiento o acción a otro" (Valda, et al., 2018).

Por su parte, Blazco et al. (2020) afirman que este sindrome puede ser la causa de la discapacidad de los niños y niñas a la hora de controlar sus emociones o sus respuestas frente a las circunstancias que les plantea el ambiente externo, bien sea en el hogar o en la escuela. Esa situación suele generar estados de angustia e inhibición para la socialización de los afectados y, por ende repercuten en su desarrollo personal y sus capacidades cognitivas.

En sintesis, en la tabla 1 se muestran de forma más sistematizada las necesidades que tienen los alumnos que presentan el TDAH, las cuales deberían orientar las estrategias pedagógicas para impulsar la superación de este síndrome, tanto en el aula como en sus manifestaciones sociales de mayor amplitud.

En lo que respecta a la relación que hay entre el TDAH y los problemas académicos de algunos estudiantes, hay nuevos hallazgos invetigativos que van desde la concepción médica del sindrome, que incluye las alternativas para su tratamiento farmacológico, hasta los avances en materia de terapia psicológica y cognitiva. De todo ello, se deduce que la escuela ha de aprovechar tales avances, para aplicarlos en las estrategias pedagógicas de cara al TDAH en el aula.

Tabla 1. Principales necesidades identificadas en alumnado con TDAH

Sintomatología	Dificultades	Necesidades educativas
Déficit de atención	Problemas para permanecer atento, concentrarse o seguir instrucciones. Pérdidas frecuentes y olvidos de material o actividades. Dificultades para organizarse, seleccionar los aspectos importantes de un conjunto o realizar de modo autónomo tareas.	Desarrollo de habilidades para mantener la atención. Enseñanza de autoinstrucciones.
Impulsividad	Dificultades para controlar las reacciones ante una situación frustrante con conductas de ira o rabia. Problemas para respetar el turno de palabra (respuestas anticipadas y sin procesar). Falta de control para identificar cuándo procede intervenir. Conductas problemáticas por exceso	Entrenamiento de habilidades para la solución de problemas. Desarrollo de habilidades sociales. Llevar a cabo estrategias para la modificación de conductas.
Hiperactividad	Dificultades para permanecer en estado pasivo. Excesivos movimientos, habla descontrolada y problemas para permanecer realizando la misma acción por períodos prolongados	Disponer de estrategias metodológicas que permitan el movimiento. Habilidades para controlar el estado de relajación y acción. Desarrollar aprendizajes en entornos con controlados estímulos, organizados y muy estructurados.

Fuente: (Orteso, 2019)

1.4.   En cuanto a las estrategias pedagógicas frente al TDAH

En términos generales, una estrategia remite a la manera en que se organizan las acciones para lograr el éxito en una determinada actividad. Así, toda estrategia implica un orden y una disciplina para llevar a cabo algo, casi siempre con un objetivo predeterminado. Cuando se trata de la pedagogía, las estrategias tienen que ver con aquellos procedimientos, métodos y recursos que los docentes activan en los escenarios de aprendizaje, con la meta de acelerar y acertar en el proceso de formación intelectual.

En ese sentido, las estrategias de enseñanza-aprendizaje dependen en mucho de la formación que tengan los docentes. En este caso, nuestra reflexión se ocupa de la manera en que los educadores pueden enfrentar el reto de la formación de niños con TDAH. Hay que considerar, en tal sentido, que el éxito pedagógico en estas circunstancias, obedece a la complementariedad de estrategias tanto cognitivas, como afectivas y motivacionales (Valda et al., 2018).

2. Procesos metodológicos

Para este articulo se desarrolló una investigación teórica soportada en un diseño documental. Los procesos operacionales del estudio implican una búsqueda ordenada y sistemática de información en sitios como: Google Académico, Scielo y Dialnet, para seleccionar información científica sobre el tema, de fuentes confiables y especializadas. Atendiendo a esa situación, no hay un instrumento de investigación particular con el cual se recolecta la información, más bien existe una dinámica de busqueda y obtención de esa información, de manera general, que podría describirse de la siguiente manera:

• Una instancia de recolección: en ella se procede a una exploración exhaustiva de variadas fuentes documentales, tales como: sitios web, libros en línea, trabajos de investigación, documentos pedagógicos, tesis, revistas electrónicas, entre otras, teniendo como fundamento el tema del TDAH, su caracterización, evolución teórica y estrategias pedagógicas para su superación

Ahora bien, dada la cantidad de material que se cargó en la primera búsqueda, se delimitó el tiempo desde el 2017. En este lapso de tiempo la cantidad de documentos registrados en Google Académico fue de 4200, entre libros, artículos e investigaciones de carácter científico. En

esta fase se realizó una selección aleatoria, guiada solo por los títulos de los documentos y sus resúmenes.

• Una Instancia Organizativa: en esta instancia es importante destacar la inclusión de la búsqueda en las bibliotecas o repositorios de algunas universidades que fueron fundamentales para la incorporación de aquellos trabajos que tienen como referencia el tema del TDAH vinculado a las estrategias de enseñanza-aprendizaje. Asi se logra una cobertura completa de los dos elementos conceptuales más importantes para este estudio

• Una instancia analítica: finalmente se encuentra la última fase que lleva implicitas las dos instancias precedentes, pero integrándolas de manera que incluya cada uno de los elementos requeridos para tener una visión general de la información. Se trata de detenerse en el detalle de los documentos, y pormenorizar aspectos como: la concepción y el área de estudio al que pertenece; características determinantes del trastorno, relacionados con el aprendizaje; clasificación de las dificultades de aprendizaje asociadas al TDAH; y estrategias para afrontar con éxito este tipo de trastorno.

3. Análisis de la información y discusión de los resultados

El proceso de organización, sistematización y analisis de la información se orienta por los objetivos de investigación planteados. En cuanto a la caracterización y evolución de su comprensión teórica, desde finales del siglo XIX hasta la actualidad, el Déficit de Atención ha sido el centro de un debate importante, tanto desde el punto de vista fisiológico como en sus aspectos farmacológicos.

Es verdad que en la actualidad hay ciertos acuerdos teóricos en cuanto a la complejidad del tema, pero lo cierto es que sigue siendo muy dificil, su diagnóstico y el perfilamiento de aquellos niños, niñas y adolescentes que, estando en la escuela, presentan este problema. Así, como parte de los resultados de esta investigación, en la tabla 2 se muestra cómo ha evolucionado el concepto de hiperactividad y su relación con el TDAH.

Tabla 2. Síntesis histórica de la evolución del concepto de hiperactividad

PRIMERAS EXPLICACIONES MÉDICAS		
Año	Autor	Concepción del TDAH
1902	George Still	- Falta de atención - Búsqueda de gratificación inmediata y poco control voluntario para inhibir su búsqueda - Poca preocupación por la consecuencia de sus acciones - La conducta no estaba vinculada a patrones de crianza
1924	Strecker y Ebaugh	"Síndrome hipercinético", consecuencia según exponen de traumatismos craneales o encefalopatías. Esto propició que se adscribiera claramente la hiperactividad a una alteración neurológica
1936/1938	Blau y Levin	Lesiones en el lóbulo frontal
1957	Laufer, Denhoff y Solomons	Déficit en el área talámica del SNC
1966	Clements	Trastorno de conducta y también del aprendizaje que se presenta en niños de una inteligencia normal, asociado con disfunciones del sistema nervioso central
1971	Satterfield y Dawson	Débil control inhibitorio de la corteza frontal sobre las funciones límbicas
1972	Douglas	Incapacidad de mantener la atención y la impulsividad como deficiencia básica de los niños afectados, por encima de la propia hiperactividad
1980	Asociación Psiquiátrica Americana	Trastorno por Déficit de la Atención, el cual puede presentarse con o sin hiperactividad
1981	Barkley	Deficiencia en el desarrollo de la atención y de la conducta gobernada por reglas que se manifiesta en el niño a partir de los 2-4 años en distintas situaciones y que no puede atribuirse a retraso mental, psicosis, o alteraciones neurológicas graves, sensoriales o motóricas

Fuente: elaboración propia

En esta tabla se puede apreciar claramente la diversidad de perspectivas que se han venido sumando al diagnóstico y definición del TDAH, desde los primeros estudios realizados por George Still, a principios del siglo pasado. También hay que aclarar que, aunque muestra datos hasta el año de 1981, eso no quiere decir que hasta allí se haya investigado. De hecho, una actualización en la caracterización y definición del TDAH se encuentra en la quinta edición del

Manual de Diagnóstico Estadístico de los Trastornos Mentales, de la Asociación Americana de Psiquiatría, que lo define como: "Un patrón persistente de inatención y/o hiperactividad-impulsividad que interfiere con el funcionamiento o desarrollo del niño, que puede prolongarse a su edad de adulto"

Una sinopsis hermenéutica de lo que ha sido la conceptualización del TDAH a partir de sus primeras aproximaciones y, la evolución del debate científico en torno a el, se muestra en la figura 1.
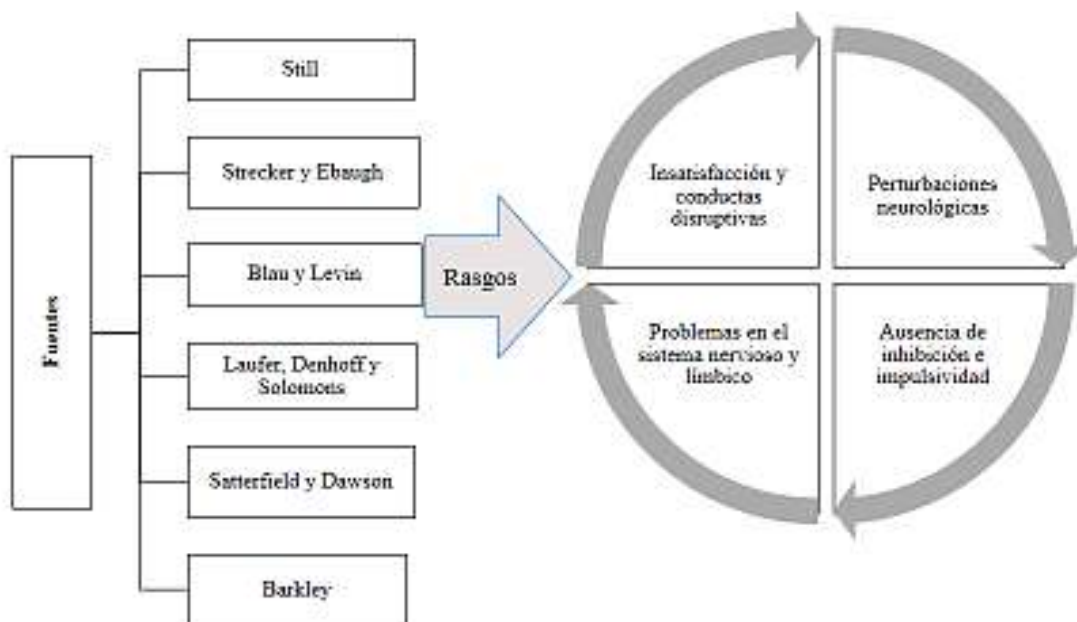
Figura 1. Sinopsis hermeneútica de los ragos histórico-conceptuales del TDAH
Fuente: elaboración propia

Así mismo, el enfoque médico en el diagnóstico y caracterización del TDAH también ha sido desarrollado ampliamente por autores que le consideran una enfermedad que se debe controlar para garantizar un desarrollo idóneo de la personalidad de los niños hasta su vida adulta. Se trata de sopesar las diferentes vertientes teóricas en las que se mueve la discusión sobre este trastorno, sin olvidar que hay posiciones encontradas al respecto.

En el terreno médico, no son pocas las polémicas que han surgido porque, incluso hay estudiosos del TDAH que le consideran una ficción, como es el caso de Marino Pérez, psicólogo

clínico, catedrático de Psicología de la Personalidad, Evaluación y Tratamientos Psicológicos de la Universidad de Oviedo (Marina, 2019).

En este sentido, la figura 1 resume otros planteamientos que, siendo el resultado de la investigación que origina este artículo, profundizan en el campo de las disciplinas vinculadas con el área de la medicina y arrojan resultados que amplían las perspectivas sobre el tema del TDAH.

Tabla 3. Registro descriptivo e interpretativo del enfoque médico acerca del TDAH

Fuente	Discurso de la fuente	Hermeneusis
Rusca y Cortez (2020). Trastorno por déficit de atención con hiperactividad (TDAH) en niños y adolescentes. Una revisión clínica.	El TDAH está relacionado con una disfunción en las redes neuronales relacionadas a la capacidad de introspección y conciencia de sí mismo. SU origen es biológico pero varios factores etiológicos genéticos y ambientales contribuyen a su desarrollo	El énfasis de este estudio se coloca en el aspecto neurológico del trastorno y, en consecuencia, abunda en las acciones que se deben activar clínicamente, para disminuir su prevalencia para la población de riesgo. En algunos pasajes del texto, los autores vinculan los efectos médicos del TDAH, a los rasgos culturales de las familias en cuyo seno se manifiesta. Estas ideas, debilitan el planteamiento original de los autores, acerca de su perspectiva clínica del problema.
Prego y otros (2019). Ejes de evaluación diagnóstica de niños con déficit de atención e hiperactividad	El TDAH requiere un proceso de evaluación complejo que considere la evolución sistémica de los síntomas y la contextualización-personalización del tratamiento. Un alto porcentaje de casos de TDAH se acompañan de trastornos psicopatológicos como la depresión y la ansiedad.	Estos autores profundizan en los efectos clínicos correlaciónales del TDAH. Su perspectiva es amplia y aportan datos sobre la prevalencia del trastorno que aclara sus vinculaciones con cierta sintomatología psiquiátrica, esclarecedora para la posibilidad de valorar las consecuencias para la socialización de las personas que manifiestan el TDAH.
Portela y otros (2016). Trastorno por déficit de atención e hiperactividad: algunas	Las causas del TDAH no están claras pero es probable la existencia de una base biológica y la influencia de factores hereditarios, ambientales y sociales. En el	Algo novedoso, respecto a los otros artículos encontrados con este enfoque, tiene que ver con las especificaciones que dan estos autores de las complicaciones durante el embarazo y el parto, que pueden estar entre las causas clínicas del

consideraciones sobre su etiopatogenia y tratamiento	diagnóstico es muy importante incluir los factores hereditarios y los problemas en la gestación y parto de los niños que son diagnosticados.	TDAH. Más allá de las certezas que encierran estos planteamientos, consideramos que amplía las perspectivas y las posibilidades de prevención del trastorno.
Francia y otros (2018). Trastorno por déficit de atención con hiperactividad, algunas consideraciones en su diagnóstico y su tratamiento	Para el diagnóstico del TDAH, es importante el uso de la evaluación clínica, la anamnesis, el examen físico y los antecedentes familiares. Es indispensable que el tratamiento sea integral pero incluye el uso de estimulantes del sistema nervioso central	Aunque su enfoque es clínico, en estos autores hay un planteamiento interesante que les permite enlazar, lo estrictamente médico, como el uso de fármacos psiquiátricos, con terapias de carácter familiar. Su enfoque incluye como aporte novedoso, los vínculos del TDAH con problemas de estrés y sus consecuencias para la dinámica económica del contexto social en el que persiste este trastorno.
Sais (2018). Psicoestimulantes para el TDAH: análisis integral para una medicina basada en la prudencia	El TDAH se presenta como un fenómeno con prevalencia variable que ha venido siendo tratado, cada vez más, con fármacos psiquiátricos. Su etiología sigue siendo ambigua, por lo que el uso de medicamentos es eficaz a corto plazo, sin garantía de mejora en variables relevantes a largo plazo.	Este autor muestra cierta suspicacia a la hora de aceptar el tratamiento farmacológico del trastorno. Esta concepción, es novedosa en el contexto del análisis del enfoque médico, porque agrega la necesidad de ir más allá de las evidencias clínicas que puede mostrar un paciente con TDAH.

Fuente: Elaboración propia

Atendiendo a los resultados que arroja esta documentación sobre el enfoque médico del TDAH, y a la pluralidad con que se presenta su abordaje clínico, en la figura 2 se realiza una síntesis de los rasgos destacables que se encuentra en esta bibliografía, alertando que esta es solo una muestra pequeña de los artículos que respecto a este tema pueden ser hallados en los motores de búsqueda especializados.
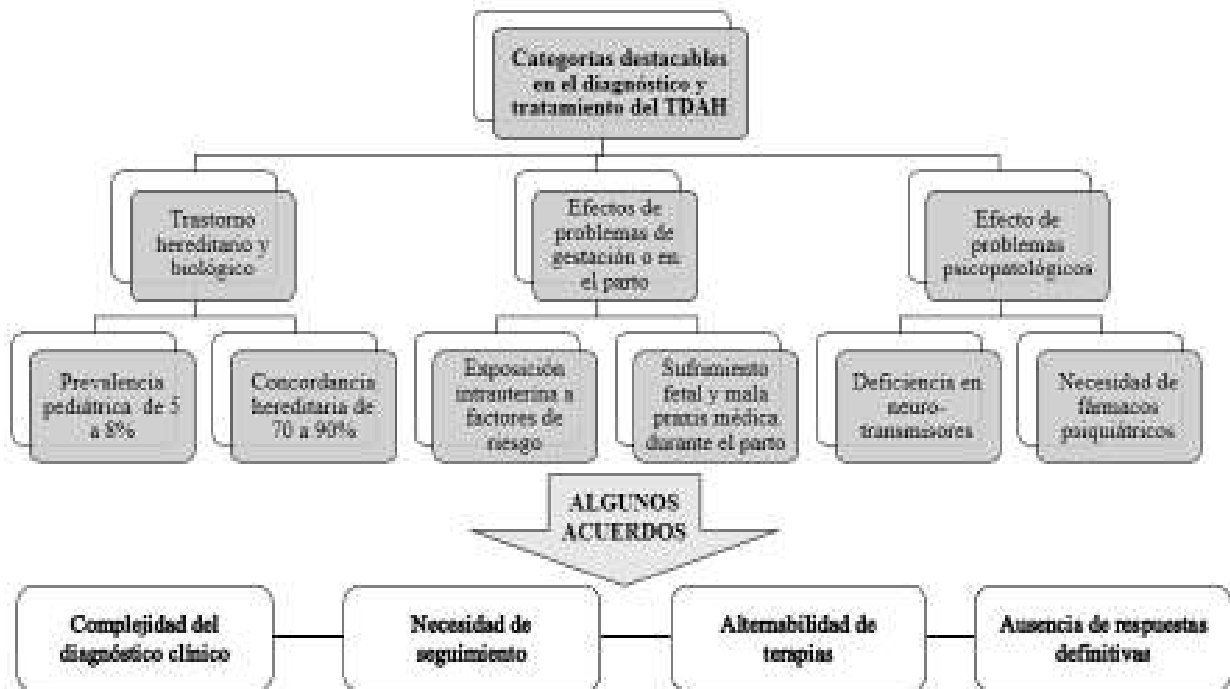
Figura 2. Sinopsis hermeneútica del enfoque médico del TDAH.
Fuente: elaboración propia

Ahora bien, hemos destacado como el TDAH ha sido tratado preferentemente como un tema de la medicina, específicamente de la biología y posteriormente de la psicología, por lo que, en muchas ocasiones se ha dicho que está fuera del ámbito de las Ciencias Sociales. Sin embargo, como se muestra en la tabla 3, ya son muchos los autores, a nivel mundial que vinculan el TDAH con el tema educativo.

La hermenéutica que conduce a la construcción de este cuadro, muestra como la mayoría de los autores investigados coinciden en que este trastorno es multifactorial y enfrentarlo en el aula siempre será un reto para cualquier docente, más allá de su grado de preparación pedagógica. Esto se debe a que el TDAH tiene importantes causas y consecuencias de carácter neurológico que no siempre están al alcance de la comprensión del docente.

Tabla 4. Registro descriptivo e interpretativo del enfoque educativo acerca del TDAH

Fuente	Discurso de la fuente	Hermeneusis
Orteso, Paloma (2019) Respuesta educativa a la neurodiversidad del TDAH	Se encontró que hay factores determinantes para el aprendizaje de los niños con TDAH asociados a su ubicación espacial en el aula, la utilización de grupos interactivos que fomentan la inclusión y la consideración de la organización del tiempo	Hay una relación directa entre las variables: Ubicación en el aula, fomento de la socialización y uso del tiempo. Parece imperioso que se atienda a la necesidad de la inclusión como un elemento decisivo en el progreso educativo de los niños con este trastorno.
Chico, Priscilla (2019) Proyecto de revisión teórica. TDAH en la escuela: el control de la infancia	Recoge una serie de planteamientos entre ellos: a) el diagnóstico del TDAH es complejo, la mayoría apunta a la necesidad de controlar para lograr éxito en lo educativo; b) Se deben probar todas las opciones terapéuticas desde la educación antes que medicamentos	El conocimiento y manejo teórico del TDAH, es una condición previa necesaria para contrarrestar sus consecuencias educativas. De esta manera, en medida en que se profundiza en esos conocimientos, se esclarecen perspectivas para desarrollar herramientas psicopedagógicas para disminuir sus efectos
Chamba, Jenny (2020) Las adaptaciones curriculares y su incidencia en la inclusión educativa de los Estudiantes de Básica Superior con TDAH.	A pesar de los diagnósticos no se realizan las adecuaciones necesarias para estudiantes con TDAH, ni en teoría, ni en la práctica	Se evidencia una acción institucional muy débil frente a la presencia del TDAH en las aulas, con poco seguimiento de leyes y disposiciones que existen en Ecuador para una educación inclusiva

Fuente: Elaboración propia

Siendo así, las estrategias pedagógicas para la acción docente frente al TDAH, se nutren entonces del conocimiento en diversas áreas y, en consecuencia, no es posible que esa tarea se le deje únicamente al docente de aula. En todo caso, como parte del objetivo general de este artículo, en la figura 3 se proyectan algunas de las estrategias pedagógicas que pueden ser desarrolladas por los docentes, en su labor de aula contra el TDAH.
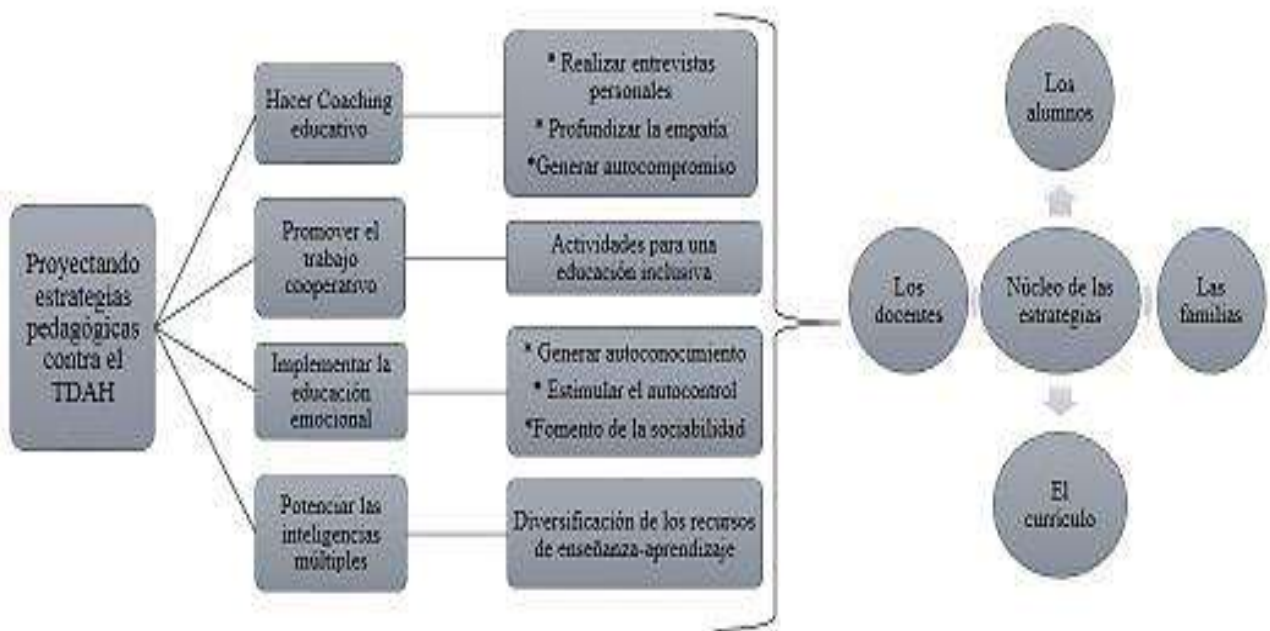
Figura 3. Sinopsis hermeneútica de las estrategias pedagógicas para superar el TDAH
Fuente: elaboración propia. Basado en: Balbuena y otros (2014); Barahona y Alegre (2018); García (2018); Duda y Echeragaray (2018); Ripoll y Bonilla (2018);

En cualquier circunstancia, la posibilidad de construir estrategias de enseñanza-aprendizaje orientadas a la pedagogía con alumnos que presentan TDAH, se relaciona con un modelo de Educación Inclusiva; es decir, una pedagogía no discriminatoria en la que lo más importante es tener respuestas y mecanismos de atención adecuadas para esos casos, en los que las necesidades educativas son diversas o diferentes según el tipo de alumno.

Conclusiones

Las dificultades de aprendizaje en términos generales tienen una larga trayectoria teórica. No obstante, en el caso del TDAH, su presencia es más reciente en el horizonte de los estudios educativos. Inicialmente fue tratado como un fenómeno de carácter neurobiológico, que debía ser estudiado en el campo de la psiquiatría y tratado como una enfermedad, ante la cual era siempre necesaria la medicación. Solamente la evolución de la neurociencia y de la

psicopedagogía, ha logrado ampliar el radio de atención científica frente a este trastorno y llevar su análisis al ámbito educativo.

Asi mismo, como se ha visto a lo largo de este análisis, existe ya una demanda específica para que el personal docente -particularmente aquel que se desempeña en los primeros niveles educativos-, asuma una actitud profesional para enfrentar los retos que le supone las dificultades de aprendizaje que muestran los niños con TDAH, retos que van, desde una mayor preparación en áreas secundarias de la docencia, hasta la necesidad de innovar constantemente estrategias de enseñanza-aprendizaje para una incorporación efectiva de todos sus estudiantes en las actividades planificadas.

Es un hecho, tambien mostrado en esta investigación, que los estudios sobre el TDAH en el área educativa no son un problema de un país en particular. En todo el mundo, incluyendo por supuesto, Ecuador, se han encontrado referencias que reafirman la preocupación que genera este trastorno en los profesionales de la docencia. A pesar de no haber profundizado en el caso de un centro educativo específico, por las limitaciones de la pandemia, queda como convicción la necesidad de hacerlo en la procura de una educación ecuatoriana con un perfil más inclusivo e igualitario.

Referencias

Balbuena, F., Barrio Emilia, González, C., Pedrosa, B., Rodríguez , C., & Yágüez, L. (2014). *Orientaciones y estrategias dirigidas al profesorado para trabajar con alumnado con trastorno por déficit de atención e hiperactividad.* Oviedo: Consejería de Educación, Cultura y Deporte.

Barahona, L., & Alegre, A. (2018). Inteligencia emocional y TDAH: Un análisis comparativo en estudiantes de Lima Metropolitana. *Propósitos y Representaciones, 4*(1), 61-114. doi:http://dx.doi.org/10.20511/pyr2016.v4n1.87

Blazco, A., Herrera , B., González, I., Lozada , M., Mancilla, M., & Marín, Y. (2020). Estrategias de Intervención Pedagógica para la mejora del aprendizaje en niños y adolescentes diagnosticados con Trastorno por Déficit Atencional e Hiperactividad. *Revista Memoriza.com*, 52-61.

Duda, B., & Echegaray, M. (2018). *Atención al TDAH en la escuela.* Lima: Asociación Peruana de Déficit de Atención.

Francia, A., Migues, M., & Peñalver, Y. (2018). Trastorno por déficit de atención con hiperactividad, algunas consideraciones en su diagnóstico y su tratamiento. *Acta Médica del Centro, 12*(4), 485-496.

García, A. (2018). La teoría de las inteligencias múltiples en la educación. *Polo del conocimiento*, *3*(10), 94-111. doi:10.23857/pc.v3i10.732

Guerrero, R. (2016). *Trastorno por deficit de atención con hiperactividad entre la patología y la normalidad.* Madrid: Planeta.

Marina, P. (2019). TDAH: Más sensatez y menos fármacos. *Revista de la Asociación Especialistas en Neuropsiquitría*, *39*(135), 271-274. doi:doi: 10.4321/S0211-57352019000100016

Muñoz, M., Almonacid, A., Merellano, E., & Sousa de Carvallo, R. (2020). Estrategias pedagógicas de profesores con niños que presentan TDHA. Un estudio de caso en dos establecimientos públicos. *Espacios*, 1-11.

Orteso, P. (2019). Respuesta educativa a la neurodiversidad del TDAH. *Revista de Educación, Innovación y Formación*, 72-94.

Portela , A., Carbonell, M., Hechavarría, M., & Jacas, C. (2016). Trastorno por déficit de atención e hiperactividad: algunas consideraciones sobre su etiopatogenia y tratamiento. *MEDISAN*, *20*(4), 556-607.

Prego, C., Almaguer, C., Novellas, A., Machín, D., García, N., & Suárez, Y. (2019). Ejes de evaluación diagnóstica de niños con déficit de atención e hiperactividad. *Correo científico médico*, *1*(23), 187-209.

Ripoll, J., & Bonilla, L. (2018). Atención escolar al trastorno por déficit de atención/hiperactividad en las comunidades españolas. *Revista de neurología*(66), 104-112.

Rusca, F., & Cortez, C. (2020). Trastorno por déficit de atención con hiperactividad (TDAH) en niños y adolescentes. Una revisión clínica. *Revista de Neuropsiquiatría*, *3*(83), 148-156. doi:10.20453/rnp.v83i3.3794

Saiz, L. (2018). Psicoestimulantes para el TDAH: análisis integral para una medicina basada en la prudencia. *Revista d ela asociación de especialistas en neuropsiquiatría*, *38*(133), 301-330. doi:10.4321/S0211-57352018000100016

Soroa, M., Gorostiaga, A., & Balluerca, N. (2016). Conocimiento de los docentes sobre el TDAH: relevancia de la formación y de las percepciones individuales. *Revista de Psicodidáctica*, 205-226.

Tancara, C. (1998). La investigación documental. *Revista del Centro Nacional de Documentación científica y Tecnológica*, 91-106.

TDAHYTU. (29 de mayo de 2020). *Manual para diagnosticar el TDAH: DSM5*. Obtenido de ¿Qué es el DSM?: https://www.tdahytu.es/2020/05/29/manual-para-diagnosticar-el-tdah-dsm-5/

Treviño, J. (Marzo de 2017). Revisión del Concepto del TDAH. Madrid, España.

Valda, V., Suñagua, R., & Coaquira Roxana. (2018). Estrategias de intervencion para niños y niñas con tdah en edad escolar. *RIP*(20), 19-135.

Variables psicológicas que influyen en el rendimiento académico en estudiantes de nivel universitario y bachillerato

Teresa Zambrano Ortega*
Ángel Ramón Sabando García**
Mikel Ugando Peñate***
Doris María Celi Pinza****
Jajayra Elizabeth Miranda Rojas*****

RESUMEN

El trabajo de investigación tuvo como objetivo principal estudiar las variables psicológicas que influyen en el rendimiento académico en estudiantes de nivel universitario y bachillerato de la Provincia de Santo Domingo de los Tsáchilas, Ecuador. Se emplearon como variables psicológicas el ajuste escolar, las estrategias de aprendizaje y la disposición hacia el estudio y su relación con el rendimiento académico. La metodología utilizada fue cuantitativa, análisis inferencial empleando los estadísticos de T Student y prueba de Fisher, aplicado a los datos generados a través de los test para un total de casos de 1486 estudiantes de bachillerato y universidad. Mediante los resultados se evidenció que los estudiantes de bachillerato presentaron puntuaciones muy significativas en el rendimiento académico y ajuste escolar, y que los estudiantes del primer curso de universidad tuvieron mejor disposición hacia el estudio y estrategias de aprendizaje. Y a su vez, este estudio demostró que existe relación entre el nivel de estudio, las variables psicológicas y el rendimiento académico en los diferentes niveles educativos.

PALABRAS CLAVE: Aprendizaje; estrategias educativas; estudios sociales; datos estadísticos; rendimiento escolar.

*Docente. Pontificia Universidad Católica del Ecuador, Sede Santo Domingo, Ecuador, PUCESD. ORCID: https://orcid.org/0000-0003-4900-0469. E-mail: zotj@pucesd.edu.ec

**Docente. Pontificia Universidad Católica del Ecuador, Sede Santo Domingo, Ecuador, PUCESD. Miembro del Proyecto de Investigación Grupo Finnovaplan, PUCESD. ORCID: https://orcid.org/0000-0003-2696-015X. E-mail: arsabando@pucesd.edu.ec

***Docente. Pontificia Universidad Católica del Ecuador, Sede Santo Domingo, Ecuador, PUCESD. Director del Proyecto de Investigación Grupo Finnovaplan, PUCESD. ORCID: https://orcid.org/0000-0002-3021-0717. E-mail: mugandop@pucesd.edu.ec, ugando75@gmail.com

****Docente. Pontificia Universidad Católica del Ecuador, Sede Santo Domingo, Ecuador, PUCESD. ORCID: https://orcid.org/0000-0002-1593-5509. E-mail: cpdm@pucesd.edu.ec

*****Docente. Pontificia Universidad Católica del Ecuador, Sede Santo Domingo, Ecuador, PUCESD. ORCID: https://orcid.org/0000-0002-3528-597X. E-mail: yemirandar@pucesd.edu.ec

Psychological variables that influence academic performance in college and high school students

ABSTRACT

The main objective of the research work was to study the psychological variables that influence academic performance in university and high school students in the Province of Santo Domingo de los Tsáchilas, Ecuador. School adjustment, learning strategies and willingness to study and their relationship with academic performance were used as psychological variables. The methodology used was quantitative, inferential analysis using the T Student statistics and Fisher's test, applied to the data generated through the tests for a total of 1486 high school and university students. Through the results, it was evidenced that high school students presented highly significant scores in academic performance and school adjustment, and that students in the first year of university had a better disposition towards study and learning strategies. And in turn, this study showed that there is a relationship between the level of study, psychological variables and academic performance at different educational levels.

KEY-WORDS: Learning, educational strategies, social studies, statistical data, school performance.

Introducción

Actualmente el rendimiento del estudiante se ha convertido en una de las variables esenciales en el análisis de la educación y la calidad de cualquier oferta académica (Albán, J., & Calero, J. 2017). Dado este escenario, se ha realizado la presente investigación, considerando variables que influyen en el rendimiento escolar como las variables psicológicas: disposición hacia el estudio, ajuste escolar, estrategias de aprendizaje, y como variable educativa el nivel de estudio de los estudiantes.

Sobre la disposición hacia el estudio se establece que tiene gran importancia, pues dependiendo de si ésta es positiva o negativa se pueden presentar dificultades en el aprendizaje o no. Este aspecto es tan básico y primordial que ha tenido una gran acogida por parte de los profesionales de la educación (Bazán y Aparicio, 2006). De hecho, la disposición que tienen los estudiantes hacia el estudio no es un tema de investigación nuevo; por el contrario, ha sido una constante preocupación desde hace mucho tiempo. Sin embargo, es ahora cuando adquiere una mayor preocupación; encontrándose diversas investigaciones que buscan determinar los procesos implicados en el aprendizaje a fin de valorar cómo las actitudes de los estudiantes influyen en el aprendizaje y el rendimiento académico (Gargallo,

et al., 2007). A su vez, Cava, M., Povedano, B., & Musitu, G. (2015), destacan que la percepción del profesor del ajuste escolar de sus alumnos puede ser un importante indicador de su bienestar psicosocial y aportar información útil para el desarrollo de intervenciones encaminadas a mejorar su ajuste psicosocial.

El objetivo de esta investigación es analizar las variables psicológicas seleccionadas en función del nivel educativo del alumnado y como repercuten en el rendimiento académico; es por ello, que a través de esta investigación se pretende dar a conocer resultados de la investigación realizada, ya que así se podrá orientar a autoridades y profesores sobre las medidas a tomar en pro del mejoramiento del rendimiento escolar.

1. Evaluación de las estrategias de aprendizaje

En esta investigación se han considerado también las estrategias de aprendizaje, ya que si bien es cierto en un principio se valoraban sólo los factores cognitivos y metacognitivos del estudio, actualmente, se hace referencia a un concepto más integrador, incluyendo elementos afectivos, afectivo-motivacionales y de apoyo (Gargallo, Suárez-Rodríguez, y Pérez-Pérez. 2009). Para estos autores las estrategias de aprendizaje pueden definirse como un conjunto organizado, consciente y deliberado de lo que hace un estudiante para alcanzar un objetivo propuesto en un contexto determinado.

Por su parte, Chávez, L. (2018) describe que sobre la base de las pruebas de independencia de los 88 ítems para determinar si las estrategias relacionadas con estos ítems son significativas en el rendimiento académico de los estudiantes, se concluye que solo cuatro de las veinticinco estrategias están incidiendo significativamente en el rendimiento académico y estas son: planificación, que mide el ítem 33; control y autorregulación, que mide el ítem 42; habilidades de interacción social y aprendizaje con compañeros, que miden los ítems 48 y 52, y, finalmente, manejo de recursos para usar la información adquirida que mide el ítem 85. De estas, solo la estrategia de planificación es la que no están utilizando los estudiantes de bajo rendimiento. Por otra parte, Betancourt, J. (2020), manifiesta que existe relación significativa entre las estrategias de aprendizaje y el rendimiento académico de los estudiantes con un nivel de confianza del 95%.

A su vez, Freiberg, A., Ledesma, R., & Fernández, M. (2017), demostraron la influencia de determinadas estrategias y estilos sobre el rendimiento académico. Estilos y estrategias varían en los estudiantes de acuerdo a características académicas y sociodemográficas. Se han

aislado algunos estilos y estrategias que afectan significativamente el rendimiento académico de los estudiantes.

En esta línea, Norzagaray, C., Sevillano, M., & Valenzuela, B. (2021), muestran que las estrategias más empleadas por los estudiantes son la gestión de recursos, cognitivas, seguida de las metacognitivas. Asocian las estrategias de aprendizaje con rendimiento académico ubicando a estas como un factor positivo para su desarrollo académico; los factores que intervienen en el cambio de las estrategias son el rol del profesor y variables motivacionales. Las estrategias colaborativas emergieron como una de las empleadas para el aprendizaje.

En este mismo sentido, Vásquez, A. (2021) indica que las estrategias de aprendizaje que utilizan los estudiantes universitarios son predictores de su rendimiento académico, resultado que debería ser utilizado por las autoridades universitarias para orientar el diseño de políticas y estrategias educativas para el logro de mejores aprendizajes. Del mismo modo, Añez, M. (2016) demostró que existe asociación entre las variables de estrategias de aprendizaje y rendimiento académico, por lo cual se puede aseverar que del empleo adecuado de las estrategias de aprendizaje dependerá el alcance del rendimiento académico.

Es necesario señalar que las estrategias de aprendizaje están integradas por: a) elementos afectivo-motivacionales y de apoyo, lo cual significa "querer" y tener disposiciones y clima apropiado para aprender; b) metacognitivos, que consiste en la toma de decisiones y su respectiva evaluación, lo cual implica una autorregulación por parte del estudiante; y c) cognitivos, que implica el poder para el manejo de las estrategias, habilidades y técnicas relacionadas con el procesamiento de la información (Gargallo et al, 2009).

2. El rendimiento académico y ajuste escolar en el contexto educativo

En cuanto al rendimiento académico se hace referencia a la evaluación del conocimiento adquirido ya sea en el transcurso de una etapa de estudio o al final de ésta. De hecho, se suele caracterizar a los estudiantes que tienen calificaciones positivas como alumnos con un buen rendimiento académico. Hay autores que, tomando como referencia el origen de la palabra en latín, señalan que es una relación entre lo obtenido y el esfuerzo empleado para lograrlo (Quintero y Vallejo, 2013); además, es valorar en términos cualitativos y cuantitativos todo lo que el alumno ha aprendido en el proceso de su formación. Es por ello, que un bajo rendimiento significaría que un estudiante no ha adquirido de forma adecuada los conocimientos recibidos en el aula, además de que no tendría las herramientas y

habilidades necesarias para solventar problemas referentes a la asignatura de estudio. Por esta razón, el bajo rendimiento académico ha dejado de ser un problema meramente educativo y actualmente es un tema que preocupa a diversos sectores, como economistas, políticos y sociedad en general (Cascón, 2000).

El ajuste escolar implica la unión de varios aspectos como los comportamentales, sociales, actitudinales y cognitivos referentes a la relación del alumnado con el entorno escolar; se dice que es una variable multifacética ya que recoge la percepción que el alumnado tiene de sí mismo y como miembro social activo del entorno escolar y de la comunidad (Santa Lucía et al., 2000).

Además, es importante señalar que actualmente el concepto de ajuste escolar continúa asociado a la adaptación y relacionado en la competencia social que permite llevar a cabo conductas de éxito respecto a las tareas que se presentan durante el desarrollo de una persona (Rodríguez-Fernández, et al., 2016). Así, el ajuste escolar es un indicador de adaptación social a las exigencias y características del sistema educativo que representa el grado en el que el alumnado se percibe satisfecho, integrado y comprometido con la escuela (Azpiazu, Esnaola y Ros, 2014). Por ello, es una variable que se la ha incluido en este estudio.

Por su parte, Bernal, F. y Gálvez, F. (2017) indicaron que los estudiantes chilenos obtienen puntuaciones superiores en el autoconcepto general, el autoconcepto físico y en la mayoría de las variables de la motivación. Además que existen diferencias estadísticamente significativas en el ajuste escolar y rendimiento académico a favor de la muestra chilena.

Según Fuentes, M. C., et al., (2015) el mejor ajuste académico se correspondía con los hijos de familias indulgentes, destacando la importancia de la implicación parental, el apoyo, el afecto y la comunicación para el adecuado ajuste escolar de los hijos en el contexto cultural español.

A su vez, Fernández, O., et al., (2018) describen que el autoconcepto mantiene relaciones significativas con el ajuste escolar. Por otra parte, las mujeres informan de un mayor ajuste escolar y autoconcepto académico verbal, mientras que los hombres perciben un mayor autoconcepto académico matemático y global. Además, el autoconcepto y el ajuste escolar son mayores en la adolescencia temprana que en la adolescencia media. Por último, el autoconcepto académico y global tiene una capacidad predictiva grande-moderada sobre las dimensiones del ajuste escolar, siendo destacable la influencia del autoconcepto académico sobre el rendimiento escolar.

Mera J., Martínez, K., y Elgorriaga, E. (2014), detallan que existe diferencias estadísticas significativas en las percepciones de rendimiento escolar entre ambos colectivos. Por otro lado, si bien no se registraron diferencias significativas en lo que atañe al grado de ajuste escolar ni a los niveles de IE de ambos colectivos, se identificó en cada grupo una manera distinta de relacionar la IE con el rendimiento académico percibido y el ajuste escolar. La presencia de una relación negativa y significativa entre la atención emocional y el ajuste escolar del alumnado inmigrante, confirma resultados de estudios anteriores.

Por otra parte, Torres, S., Hidalgo, G., & Suarez, K. (2020) determinaron que el nivel de habilidades sociales alto se relaciona con rendimiento académico alto, mientras que el nivel de habilidades sociales bajo se relaciona con niveles de rendimiento académico bajo.

3. Materiales y métodos

La investigación realizada es cuantitativa de tipo transversal, análisis inferencial, en la que participaron 1486 estudiantes, de los cuales 1053 corresponden al nivel universitario (70,9%) y 433 al nivel de bachillerato (29,1%), siendo 553 (37.2%) hombres y 933 (62.8%) mujeres para el periodo lectivo 2019-2020 de la Provincia de Santo Domingo de los Tsáchilas, Ecuador. Para la validación de las variables aplicadas se empleó el estadístico t de Student (t ‹ 0,05) para muestra independiente y el análisis de las varianzas entre sujetos (F ‹ 0,05) con su respectiva prueba HSD de Tukey y Games Howel al 0,05 en aquellas variables que presentaron significancias estadísticas; para llevar a cabo este análisis estadístico se utilizó el programa estadístico aplicado a la ciencias sociales, SPSS versión 25.

Para cada variable psicológica se utilizó un instrumento, como se detalla a continuación:

• Para evaluar las estrategias de aprendizaje se aplicó el Cuestionario para la Evaluación de las Estrategias de Aprendizaje en Estudiantes Universitarios (CEVEAPEU) (Gargallo, Suárez-Rodríguez, Pérez-Pérez, 2009) representado por un formato en escala Likert de 5 grados y consta de 88 ítems, organizado en dos escalas, seis subescalas y veinticinco estrategias.

• Para determinar la disposición hacia el estudio se utilizó el cuestionario de evaluación de las actitudes hacia el aprendizaje de los estudiantes universitarios (CEVAPU) (Gargallo, Pérez-Pérez, Fernández y Jiménez, 2007), conformado por un formato de escala 5 tipo Likert. Este cuestionario está constituido por once ítems agrupados en tres dimensiones: valoración

y actitud positiva hacia el aprendizaje profundo, valoración y actitud positiva hacia el trabajo en equipo y atribuciones internas.

• Para medir el ajuste escolar se utilizó la escala de rendimiento académico de la Escala Breve de Ajuste Escolar (EBAE) de: Moral, Sánchez y Villarreal (2010), constando de 10 ítems con un formato tipo Likert con 6 opciones de respuesta.

• Y por último, se determinó el rendimiento académico, para lo cual, se contó con el promedio de calificaciones obtenido por los estudiantes hasta el momento de la aplicación de los instrumentos.

4. Resultados y discusión

Secuencialmente se plasman los resultados de la investigación de forma analítica e inferencial y con su respectiva discusión.

Tabla 1. Relación del nivel educativo, bachillerato y universidad, con el rendimiento académico y el ajuste escolar

	Nivel educativo	n	M	DT	T	P
Rendimiento académico	Nivel universitario	1024	6.26	1.30	-18.16	.000***
	Nivel de bachillerato	429	7.22	0.69		
Ajuste escolar	Nivel universitario	1024	34.39	5.63	-4.15	.000***
	Nivel de bachillerato	429	35.73	5.47		

***< .001.

En la tabla 1, se evidencia la comparación de medias simple (o T-test) para muestras independiente, demostrando que el nivel educativo que corresponde a los estudiantes de bachillerato y universidad son factores que influyen en el rendimiento de los estudiantes (rendimiento académico: (t(1453) = -18.16, p < .000) y por su parte el ajuste escolar: (t(1453) = -4.15, p < .000) donde se observa que los estudiantes con el nivel de estudio bachillerato presentan puntuaciones más significativas en el rendimiento académico y ajuste escolar, tal como lo describe (Bazán y Aparicio, 2006) y (Gargallo et al., 2007), quienes destacan que los estudiantes que mantienen un buen ajuste escolar por defecto poseen mayor rendimiento académico.

Con respecto al contraste de los datos, en la tabla 2 se muestra el efecto que poseen las variables psicológicas de estrategias de aprendizaje, correspondiente a las escalas I y II con sus respectivas dimensiones sobre el nivel educativo, mediante la valoración de cada variable: escala I (estrategias afectivas de apoyo y control: t(1453) = 4.96, p < .000); estrategias motivacionales: t(1453) = 6.27, p < .000); estrategias metacognitivas: t(1453) = 4.11, p < .000), los hallazgos encontrados permiten inferir que los estudiantes universitarios tienen mayor estrategias de aprendizaje que los estudiantes de bachillerato, compartiendo los hallazgos con Chávez, L. (2018) y Betancourt, J. (2020), quienes describen que las estrategias de aprendizaje están correlacionadas con el rendimiento académico de los estudiantes. Sin embargo, los componentes afectivos: t(1453) = 1.78, p > .075) y estrategias de control de contexto y control: t(1453) = 1.91, p > .057)) no presentaron significancia estadística.

Con respecto a la escala II (estrategias relacionada con el proceso de la información: t(1453) = 5.84, p < .000); acompañada de las dimensiones de estrategias de búsqueda y recogida de selección de la información: t(1453) = 8.29, p < .000); estrategias de procesamiento y usos de la información: t(1453) = 4.49, p < .000); y a su vez, en la misma tabla, se visualiza de forma global que las estrategias de aprendizaje: t(1453) = 5.76, p < .000) presentan significancia estadística, y por defecto se observa que los estudiantes con un estudio universitario son quienes presentan mejores estrategias de aprendizaje; estos hallazgos concuerdan con Chávez, L. (2018), demostrando que las estrategias de aprendizaje están relacionadas con ítems de significancias en el rendimiento académico de los estudiantes y compartiendo criterio con Betancourt, J. (2020), manifestando que existe relación significativa entre las estrategias de aprendizaje y el rendimiento académico de los estudiantes con un nivel de confianza del 95%.

Tabla 2. Relación del nivel educativo con la variable psicológica estrategias de aprendizaje en las escalas I y II

	Variable psicológica	Nivel educativo	n	M	DT	T	P
	Estrategias de aprendizaje	Nivel universitario	1024	338.57	34.19	5.76	.000***
		Nivel de bachillerato	429	326.68	36.61		
ESCALA I	Estrategias afectivas. de apoyo y control	Nivel universitario	1024	204.05	19.78	4.96	.000***
		Nivel de bachillerato	429	198.40	19.80		
		Nivel universitario	1024	79.19	7.62	6.27	.000***

Estrategias motivacionales	Nivel de bachillerato	429	76.39	8.07		
Componentes afectivos	Nivel universitario	1024	28.72	4.33	1.78	.075
	Nivel de bachillerato	429	28.29	3.94		
Estrategias metacognitivas	Nivel universitario	1024	57.46	6.99	4.11	.000***
	Nivel de bachillerato	429	55.69	7.67		
Estrategias de control de contexto y control	Nivel universitario	1024	38.69	5.68	1.91	.057
	Nivel de bachillerato	429	38.03	6.08		
Estrategias relacionada con el proceso de la información	Nivel universitario	1024	134.52	16.89	5.84	.000***
	Nivel de bachillerato	429	128.28	19.25		
Estrategias de búsqueda y recogida de selección de la información	Nivel universitario	1024	30.16	4.44	8.29	.000***
	Nivel de bachillerato	429	27.73	5.35		
Estrategias de procesamiento y usos de la información	Nivel universitario	1024	104.36	13.50	4.49	.000***
	Nivel de bachillerato	429	100.55	15.27		

***‹ .001.

Tabla 3. Relación del nivel educativo, bachillerato y universidad, con la variable psicológica estrategias de aprendizaje en la escala I

Variable psicológica	Nivel educativo	n	M	DT	T	P
Motivación intrínseca	Nivel universitario	1024	12.95	1.71	3.90	.000***
	Nivel de bachillerato	429	12.52	1.96		
Motivación extrínseca	Nivel universitario	1024	7.00	1.96	1.75	.081
	Nivel de bachillerato	429	6.79	2.15		
Valor tarea	Nivel universitario	1024	17.36	2.22	6.97	.000***
	Nivel de bachillerato	429	16.44	2.50		
Atribuciones internas	Nivel universitario	1024	13.04	1.76	3.39	.001**
	Nivel de bachillerato	429	12.68	1.93		
Atribuciones externas	Nivel universitario	1024	5.61	2.04	3.46	.001**
	Nivel de bachillerato	429	5.21	2.00		
Autoeficacia expectativas	Nivel universitario	1024	16.46	2.26	1.00	.318
	Nivel de bachillerato	429	16.31	2.57		

(Estrategias motivacionales) / ESCALA II

	Concepción inteligencia	Nivel universitario	1024	6.77	1.48	3.75	.000***
		Nivel de bachillerato	429	6.45	1.47		
Componentes afectivos	Estado físico anímico	Nivel universitario	1024	14.49	2.99	1.01	.311
		Nivel de bachillerato	429	14.31	3.02		
	Ansiedad	Nivel universitario	1024	14.23	2.66	1.70	.089
		Nivel de bachillerato	429	13.97	2.56		
Estrategias metacognitivas	Conocimientos objetivos criterios	Nivel universitario	1024	7.58	1.51	2.82	.005**
		Nivel de bachillerato	429	7.33	1.52		
	Planificación	Nivel universitario	1024	13.87	2.50	1.71	.088
		Nivel de bachillerato	429	13.60	2.88		
	Autoevaluación	Nivel universitario	1024	11.90	1.72	1.59	.113
		Nivel de bachillerato	429	11.73	1.94		
	Control de autorregulación	Nivel universitario	1024	24.10	3.24	5.01	.000***
		Nivel de bachillerato	429	23.03	3.92		
Estrategias de control de contexto y	Control contexto	Nivel universitario	1024	15.42	2.77	2.98	.003**
		Nivel de bachillerato	429	14.89	3.24		
	Habilidades interacción aprendizajes	Nivel universitario	1024	23.26	3.84	0.54	.586
		Nivel de bachillerato	429	23.14	3.98		

***< .001; **< .01.

En la misma línea, los datos plasmados en la tabla 3 indican que también las dimensiones de la variable psicológica de estrategias motivacionales con sus respectivas dimensiones presentaron significancia estadística como la motivación intrínseca: t(1453) = 3.90, p < .000); valor tarea: t(1453) = 6.97, p < .000); atribuciones internas: t(1453) = 3.39, p < .001); atribuciones externas: t(1453) = 3.46, p < .001) y concepción inteligencia: t(1453) = 3.75, p < .000). Sin embargo, la autoeficacia expectativas: t(1453) = 1.00, p > .3.18) y motivación extrínseca: t(1453) = 1.75, p > .081) no aportan significativamente y por defecto su hipótesis es nula.

Al respecto, los componentes afectivos y sus respectivas subdimensiones como el estado físico anímico: t(1453) = 1.01, p > .311) y ansiedad t(1453) = 1.70, p > .089) en relación al nivel educativo no tributa significativamente a las estrategias de aprendizaje, según tabla 3. En este mismo marco de las estrategias metacognitivas la subdimensión conocimientos objetivos criterios: t(1453) = 2.82, p < .005) y control de autorregulación: t(1453) = 5.01, p <

.000) mostraron significancia estadística y prevaleciendo las mayores puntuaciones para los estudiantes universitarios, información que se comparte con Freiberg, et, al., (2017), quienes determinaron que las influencias de algunas estrategias influyen sobre el rendimiento académico. Sin embargo, la subdimensión planificación: t(1453) = 1.71, p < .088); autoevaluación: t(1453) = 1.59, p > .113) siendo su valor superior al (p>.05), se detalla que no aporta significativamente los datos de la escala I.

Finalmente, la subdimensión control de contexto: t(1453) = 2.98, p < .003) arrojó significancia estadística, en concordancia con Vásquez, A. (2021), quien indica que las estrategias de aprendizaje que utilizan los estudiantes universitarios son predictores de su rendimiento académico; mientras que la subdimensión habilidades de interacción de aprendizajes: t(1453) = 0.54, p > .586), reportó una hipótesis nula, por lo que no incide sobre las estrategias de la escala I (tabla 3).

A su vez, es necesario señalar que las estrategias de aprendizaje están integradas por:

a) elementos afectivo-motivacionales y de apoyo, lo cual significa "querer" y tener disposiciones y clima apropiado para aprender;

b) metacognitivos, que consiste en la toma de decisiones y su respectiva evaluación, lo cual implica una autorregulación por parte del estudiante; y c) cognitivos, que implica el poder para el manejo de las estrategias, habilidades y técnicas relacionadas con el procesamiento de la información (Gargallo et al, 2009).

A lo observado se concluye que estas variables en función al nivel de estudio con las variables psicológicas de aprendizaje, los estudiantes de nivel universitario utilizarían mejores estrategias de aprendizaje; lo mencionado se comparte con Norzagaray et, al. (2021), quienes muestran que las estrategias más empleadas por los estudiantes son la gestión de recursos, cognitivas, seguida de las metacognitivas. Asocian las estrategias de aprendizaje con rendimiento académico ubicando a estas como un factor positivo para su desarrollo académico; y a su vez, Freiberg, et, al. (2017), demostraron la influencia de determinadas estrategias y estilos sobre el rendimiento académico, y que éstos varían en los estudiantes de acuerdo a características académicas y sociodemográficas, aportando significativamente el rendimiento académico.

Tabla 4. Relación del nivel educativo, bachillerato y universidad, con la variable psicológica estrategias de aprendizaje en la escala II

Variables psicológicas		Nivel educativo	N	M	DT	*T*	*P*
Estrategias de búsqueda y recogida de selección de la información	Conocimiento búsqueda de información	Nivel universitario	1024	14.61	2.82	9.44	.000***
		Nivel de bachillerato	429	12.85	3.41		
	Selección de información	Nivel universitario	1024	15.55	2.18	4.61	.000***
		Nivel de bachillerato	429	14.88	2.63		
Estrategias de procesamiento y usos de la información	Adquisición de información	Nivel universitario	1024	16.49	2.28	2.03	.043*
		Nivel de bachillerato	429	16.17	2.87		
	Elaboración	Nivel universitario	1024	11.44	2.16	6.78	.000***
		Nivel de bachillerato	429	10.47	2.63		
	Organización	Nivel universitario	1024	18.92	3.85	3.23	.001**
		Nivel de bachillerato	429	18.16	4.20		
	Personalización pensamiento critico	Nivel universitario	1024	19.46	2.94	3.19	.001**
		Nivel de bachillerato	429	18.86	3.46		
	Almacenamiento memorización	Nivel universitario	1024	11.39	2.22	3.90	.000***
		Nivel de bachillerato	429	10.84	2.58		
	Almacenamiento simple repetición	Nivel universitario	1024	6.80	1.87	-0.84	.402
		Nivel de bachillerato	429	6.90	1.90		
	Transferencia de información	Nivel universitario	1024	11.96	1.83	4.18	.000***
		Nivel de bachillerato	429	11.44	2.29		
	Manejo de recursos de información	Nivel universitario	1024	7.89	1.36	1.78	.075
		Nivel de bachillerato	429	7.72	1.69		

***‹ .001; **‹ .01; *‹0.05

Del mismo modo, el análisis en la tabla 4 correspondiente a la escala II, con respecto a las estrategias de búsqueda y recogida de selección de la información y con respecto a la subdimensión conocimiento búsqueda de información: $t(1453) = 9.44$, $p < .000$); selección de información: $t(1453) = 4.61$, $p < .000$) presentaron significancia estadística, por lo tanto estas variables son influidas por el nivel académico del estudiantes, y aportando con mayores puntuaciones los estudiantes del nivel universitario.

Para el caso de las estrategias de procesamiento y usos de la información, la subdimensión adquisición de información: $t(1453 = 2.03$, $p < .043$); elaboración: $t(1453) = 6.78$, $p < .000$); organización: $t(1453) = 3.23$, $p < .001$); personalización pensamiento crítico: $t(1453) = 3.19$, $p < .001$); almacenamiento memorización: $t(1453) = 3.90$, $p < .000$); transferencia de información: $t(1453) = 4.18$, $p < .000$), presentaron significancia estadística, por lo tanto, de manera general se deduce que los estudiantes de nivel de estudio universitario presentan más puntuaciones significativas en las estrategias de aprendizaje en la escala II. Estos resultados se comparten con Vásquez, A. (2021), el cual indica que las estrategias de aprendizaje que utilizan los estudiantes universitarios son predictores de su rendimiento académico, resultado que debería ser utilizado por las autoridades universitarias para orientar el diseño de políticas y estrategias educativas para el logro de mejores aprendizajes. Además se comparte con Añez, M. (2016), demostrando que existe asociación entre las variables de estrategias de aprendizaje y rendimiento académico, por lo cual se puede aseverar que del empleo adecuado de las estrategias de aprendizaje dependerá el alcance de un rendimiento académico.

No obstante, las subdimensiones almacenamiento simple repetición: $t(1453) = -0.84$, $p > .402$) y manejo de recursos de información: $t(1453) = 1.78$, $p > .075$) demuestran una hipótesis nula, es decir. no existe una aportación para las estrategias de aprendizaje en función al nivel de estudio.

En la tabla 5, se hace una comparación de las medias mediante el análisis de la varianza (ANOVA) para las variables psicológicas y rendimiento académico en relación del nivel educativo.

Tabla 5. Relación del curso y del nivel educativo, bachillerato y universidad, con el rendimiento académico, el ajuste escolar, y las variables psicológicas

		n	M	DT	F	P
Rendimiento académico	Primer curso de universidad	358	6.60	1.20	38.42	.000***
	Segundo curso de universidad	190	6.03	1.39		
	Tercer curso de universidad	180	6.07	1.30		
	Cuarto curso de universidad	219	6.16	1.30		
	Quinto curso de universidad	78	6.03	1.21		
	Primer curso de bachillerato	75	7.43	0.59		
	Segundo curso de bachillerato	143	7.13	0.78		
	Tercer curso de bachillerato	210	7.20	0.65		
Ajuste escolar	Primer curso de universidad	358	33.67	5.58	5.56	.000***
	Segundo curso de universidad	190	34.37	5.13		
	Tercer curso de universidad	180	35.42	6.19		
	Cuarto curso de universidad	219	34.85	5.71		
	Quinto curso de universidad	78	34.13	5.09		
	Primer curso de bachillerato	75	37.31	6.69		
	Segundo curso de bachillerato	143	35.57	4.65		
	Tercer curso de bachillerato	210	35.28	5.44		
Disposición hacia el estudio	Primer curso de universidad	358	42.89	4.65	5.42	.000***
	Segundo curso de universidad	190	42.12	4.01		
	Tercer curso de universidad	180	42.13	3.89		

	Cuarto curso de universidad	219	42.07	5.08		
	Quinto curso de universidad	78	41.94	3.60		
	Primer curso de bachillerato	75	40.39	5.02		
	Segundo curso de bachillerato	143	41.56	4.81		
	Tercer curso de bachillerato	210	40.97	3.67		
Estrategias de aprendizaje	Primer curso de universidad	358	343.29	34.26	6.66	.000***
	Segundo curso de universidad	190	336.08	31.72		
	Tercer curso de universidad	180	337.43	32.45		
	Cuarto curso de universidad	219	334.95	37.53		
	Quinto curso de universidad	78	335.56	31.90		
	Primer curso de bachillerato	75	327.32	41.89		
	Segundo curso de bachillerato	143	328.75	37.11		
	Tercer curso de bachillerato	210	325.05	34.38		

***‹ .001.

De manera general se evidencian diferencias significativas en las cuatro dimensiones del rendimiento académico y las variables psicológicas en función al curso o nivel de estudio Rendimiento académico: $F_{(2;1453)} = 38.42$, $p < .000$; Ajuste escolar: $F_{(2;1453)} = 5.56$, $p < .000$; Disposición hacia el estudio: $F_{(2;1453)} = 5.42$, $p < .000$; Estrategias de aprendizaje: $F_{(2;1453)} = 6.66$, $p < .000$); según el nivel de percepción de las variables psicológicas, teniendo una diferencia media de 2 puntos por grupo; haciendo tales inferencias en los datos plasmados se observa que los estudiantes de primer curso de bachillerato son quienes presentan una puntuación más alta en el rendimiento académico y en el ajuste escolar, mientras que los estudiantes del primer curso de universidad son quienes tienen mejor disposición hacia el estudio y estrategias de aprendizaje. Estos resultados concuerdan con Azpiazu, et, al. (2014), teniendo en consideración que el ajuste escolar es un indicador de adaptación social a las exigencias y características del sistema educativo que representa el grado en el que el alumnado se percibe satisfecho, integrado y comprometido con la vida académica. A su vez,

Bernal y Gálvez (2017) indicaron que los estudiantes chilenos obtienen puntuaciones superiores en la mayoría de las variables de la motivación; además que existen diferencias estadísticamente significativas en el ajuste escolar y rendimiento académico.

Tabla 6. Comparaciones múltiples del nivel educativo, bachillerato y universidad, con el rendimiento, ajuste escolar, disposición hacia el estudio y estrategias de aprendizaje

Comparaciones múltiples post hoc 5%		Variable dependiente			
		Ajuste escolar HSD de Tukey	Disposición hacia el estudio HSD de Tukey	Estrategias de aprendizaje HSD de Tukey	Rendimiento académico Games-Howell
Nivel universitario y bachillerato	1ºU vs 2ºU	ns	Ns	ns	.000*
	1ºU vs 3ºU	.013*	Ns	ns	.000*
	1ºU vs 4ºU	ns	Ns	ns	.001*
	1ºU vs 5ºU	ns	Ns	ns	.005*
	1ºU vs 1ºB	.000*	.000*	.008*	.000*
	1ºU vs 2ºB	.013*	.047*	.001*	.000*
	1ºU vs 3ºB	.020*	.000*	.000*	.000*
	2ºU vs 3ºU	ns	Ns	ns	ns
	2ºU vs 4ºU	ns	Ns	ns	ns
	2ºU vs 5ºU	ns	Ns	ns	ns
	2ºU vs 1ºB	.003*	Ns	ns	.000*
	2ºU vs 2ºB	ns	Ns	ns	.000*
	2ºU vs 3ºB	ns	Ns	.034*	.000*
	3ºU vs 4ºU	ns	Ns	ns	ns
	3ºU vs 5ºU	ns	Ns	ns	ns
	3ºU vs 1ºB	ns	Ns	ns	.000*
	3ºU vs 2ºB	ns	Ns	ns	.000*
	3ºU vs 3ºB	ns	Ns	.011*	.000*
	4ºU vs 5ºU	ns	Ns	ns	ns
	4ºU vs 1ºB	ns	ns	ns	.000*
	4ºU vs 2ºB	ns	ns	ns	.000*
	4ºU vs 3ºB	ns	ns	ns	.000*
	5ºU vs 1ºB	ns	ns	ns	.000*
	5ºU vs 2ºB	ns	ns	ns	.000*
	5ºU vs 3ºB	ns	ns	ns	.000*

*‹ .05.

U = Universidad   B = Bachillerato   ns = no significativo

Al presentar significancia estadística al 5% según la prueba de Fisher, se procede a realizar las comparaciones múltiples de Tukey y Games-Howel. Por lo concerniente en la tabla 6, se ofrecen los resultados de comparaciones entre las variables dependientes en relación al nivel universitario y bachillerato, en el cual se observa que el rendimiento académico incide en su mayoría con el nivel de estudio en los datos (1ºU hasta1 el 5ºU); así mismo (1ºU hasta1 el 3ºB) en este caso sucede que las variables disposición hacia el estudio, ajuste escolar y estrategias del aprendizaje también se ven influenciadas según los datos; lo que no se evidencia en si con las otras variables del nivel de estudio; en los casos de (2ºU hasta1 el 3ºB); (3ºU hasta1 el 3ºB); (4ºU hasta1 el 3ºB); (5ºU hasta1 el 3ºB) estas últimas comparaciones se dan más en el nivel universitario-bachillerato, mas no el universitario-universitario; cabe mencionar que no se presenta significancia con el resto de variables. Lo descrito se comparte con Fernández, et, at., (2018), quienes describen que las variables psicológicas mantienen relaciones significativas con el rendimiento académico y una capacidad predictiva grande-moderada sobre las dimensiones del ajuste escolar. Por su parte, Mera et. al. (2014), detallan que existe diferencias estadísticas significativas en las percepciones de rendimiento escolar entre ambos colectivos. Además, se identificó en cada grupo una manera distinta de relacionar la institución educativa con el rendimiento académico percibido y el ajuste escolar. En este mismo marco de las estrategias de aprendizajes, Añez, M. (2016), demostró que existe correlación entre las variables de estrategias de aprendizaje y rendimiento académico, por lo cual se puede aseverar que del empleo adecuado de las estrategias de aprendizaje dependerá el alcance de un rendimiento académico.

Conclusiones

A través de las hipótesis planteadas, se pudo cumplir el objetivo de esta investigación, el cual consistía en analizar el ajuste escolar, el rendimiento académico, las estrategias de aprendizaje y las actitudes hacia el estudio en función de las variables socio personales de los estudiantes, obteniendo las siguientes conclusiones:

● El nivel de estudio influye en el rendimiento de los estudiantes; en tal sentido, los estudiantes de bachillerato presentan puntuaciones más significativas en el rendimiento académico y ajuste escolar.

● En cuanto a la disposición hacia el estudio, son los estudiantes de nivel universitario quienes presentan mejores resultados.

● Los estudiantes de nivel universitario son quienes presentan una mejor disposición hacia el estudio y utilizarían mejores estrategias de aprendizaje, tanto en la escala I como en la escala II de la segunda variable.

● En relación al rendimiento académico y ajuste escolar, son los estudiantes de primer curso de bachillerato quienes presentan una puntuación estadísticamente significativa, mientras que los estudiantes del primer curso de universidad son quienes tienen mejor disposición hacia el estudio y estrategias de aprendizaje.

Referencias

Albán Obando, J., & Calero Mieles, J. L. (2017). El rendimiento académico: aproximación necesaria a un problema pedagógico actual. *Revista Conrado*, *13(58)*, 213-220. Recuperado de: http://conrado.ucf.edu.cu/index.php/conrado

Añez, M. (2016). Relación entre las estrategias de aprendizaje y el rendimiento académico en estudiantes de educación básica primaria. *Revista Encuentros*, *Universidad Autónoma del Caribe*, *13 (2)*, 87-101. DOI: http://dx.doi.org/10.15665/re.v14i1.671 http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S1692-58582016000100006

Azpiazu, L., Esnaola, I., y Ros, I. (2014). Factores contextuales y variables individuales en el ajuste escolar. *International Journal of Developmental and Educational Psychology. Revista INFAD de Psicología*, *6 (1)*, 327-336. doi:10.17060/ijodaep.2014.n1.v6.751 https://www.redalyc.org/comocitar.oa?id=349851790038

Bazán, J., & Aparicio, A. (2006). Las actitudes hacia la Matemática-Estadística dentro de un modelo de aprendizaje. *Educación*, *15*(28), 7-20. Recuperado a partir de https://revistas.pucp.edu.pe/index.php/educacion/article/view/2041

Bernal, F., y Gálvez, F. (2017). Ajuste escolar y rendimiento académico y su relación con la motivación y el autoconcepto. Análisis de diferencias en muestra Chilena y Española. *Revista de Orientación Educacional*, *31(60)*, 3-21, 2017. https://dialnet.unirioja.es/servlet/articulo?codigo=6741291

Betancourt, J. (2020). Estrategias de aprendizaje y rendimiento académico en estudiantes de Secretariado Ejecutivo, Machala – Ecuador. Vol. 14 (1), enero - marzo de 2020, Huánuco. Perú: https://doi.org/10.33554/riv.14.1.487 http://revistas.unheval.edu.pe/index.php/riv.

Cascón, I. (2000). Análisis de las calificaciones escolares como criterio de rendimiento académico. Extraído de: http://www3.usal.es./inico/investigacion/jornadas/jornada2/comunc/cl7. Html

Cava, M., Povedano, B., & Musitu, G. (2015). Análisis psicométrico de la Escala de Ajuste Escolar Percibido por el Profesor (PROF-A). *Psychosocial Intervention*, 24 (2), 63-69. https://dx.doi.org/10.1016/j.psi.2015.04.001 https://scielo.isciii.es/scielo.php?script=sci_abstract&pid=S1132-05592015000200001

Chávez, L. (2018). Estrategias de aprendizaje y rendimiento académico en la asignatura Análisis Matemático II. *Educación*, 27 (53), 24-40. https://dx.doi.org/10.18800/educacion.201802.002 http://www.scielo.org.pe/scielo.php?script=sci_arttext&pid=S101994032018000200002

Fernández, O., Goñi, E., Camino, I., & Zubeldia, M. (2018). Ajuste escolar y autoconcepto académico en la Educación Secundaria. *Revista de Investigación Educativa*, 37 (1), 163–179. https://doi.org/10.6018/rie.37.1.308651 https://revistas.um.es/rie/article/view/308651

Fuentes, M. C., Alarcón, A., Gracia, E., y García, F. (2015). El ajuste escolar en los adolescentes españoles: Influencia de la socialización parental. *Cultura y Educación*, 27(1), 1-32. doi:10.1080/11356405.2015.1006847 https://www.tandfonline.com/doi/abs/10.1080/11356405.2015.1006847?journalCode=rcye20

Freiberg, A., Ledesma, R., & Fernández, M. (2017). Estilos y estrategias de aprendizaje en estudiantes universitarios de Buenos Aires. *Revista de Psicología (PUCP)*, 35(2), 535-573. http://www.scielo.org.pe/scielo.php?script=sci_arttext&pid=S025492472017000200005&lng=es&tlng=es.

Gargallo, B., Pérez-Pérez, C., Serra, C., Sánchez, F., y Ros, I. (2007). Actitudes ante el aprendizaje y rendimiento académico en los estudiantes universitarios. *Revista Iberoamericana de Educación*, 42(1), 25. https://dialnet.unirioja.es/servlet/articulo?codigo=2237637

Gargallo, B., Pérez Pérez, C., Fernández March, A., y Jiménez Rodríguez, M. Á. (2007). La evaluación de las actitudes ante el aprendizaje de los estudiantes universitarios. El Cuestionario CEVAPU. Teoría de la Educación. *Educación y Cultura en la Sociedad de la Información*, 8 (2). https://www.redalyc.org/pdf/2010/201017334015.pdf

Gargallo, B., Suárez-Rodríguez, J., y Pérez-Pérez, C. (2009). El cuestionario CEVEAPEU. Un instrumento para la evaluación de las estrategias de aprendizaje de los estudiantes universitarios. *RELIEVE,15(2)*, 1- 31. https://www.redalyc.org/pdf/916/91612906006.pdf

Mera J., Martínez, K., y Elgorriaga, E. (2014). Rendimiento académico, ajuste escolar e inteligencia emocional en adolescentes inmigrantes y autóctonos. Portal Internacional de Educación y Formación Docente. Repositorio en línea de contenidos académicos sobre educación y formación del profesorado. *Boletín de Psicología*, Nº. 110, 2014, págs. 69-82. http://education.esp.macam.ac.il/article/971

Moral, J., Sánchez, J., y Villarreal M. (2010). Desarrollo de una Escala Multidimensional Breve de Ajuste Escolar. Revista Electrónica de Metodología Aplicada. Facultad de Psicología. Universidad Autónoma de Nuevo León. México. 2010, Vol. 15 nº1, pp. 1-11
https://www.uv.es/~lisis/sosa/ajust-escolar.pdf

Norzagaray Benítez, C. C., Sevillano García, M. L., & Valenzuela, B. A. (2021). Estrategias de aprendizaje y rendimiento académico: La perspectiva del estudiante de psicología. *Riaices, 3 (1)*, 59-68. Recuperado a partir de: https://reunido.uniovi.es/index.php/riaices/article/view/10805

Pérez Cabaní, M. L. (2001). El aprendizaje escolar desde el punto de vista del alumno. Los enfoques de aprendizaje. En C. Coll, J. Palacios y A. Marchesi, Desarrollo psicológico y educación. *Psicología de la educación escolar, vol. 2*, 285-308. Madrid: Alianza Editorial.

Quintero, M. T. y Vallejo, G. (2013). El desempeño académico: una opción para la cualificación de las instituciones educativas. *Plumilla Educativa, 12*, 93-115.

Rodríguez-Fernández, A., Ramos-Díaz, E., Madariaga, J. M., Arrivillaga, A., y Galende, N. (2016). Steps in the construction and verification of an explanatory model of psychosocial adjustment. *European Journal of Education and Psychology, 9 (1)*, 20-28. doi:10.1016/j.ejeps.2015.11.002
https://psycnet.apa.org/record/2016-15220-003

Santa Lucia, R. C., Gesten, E., Rendina-Gobioff, G., Epstein, M., Kaufmann, D., Salcedo, O., & Gadd, R. (2000). Children's school adjustment: A developmental transactional systems perspective. *Journal of Applied Developmental Psychology, 21*(4), 429–446. https://doi.org/10.1016/S0193-3973(00)00048-4

Torres Díaz, Silvia Eugenia, Hidalgo Apolo, Gladys Angélica, & Suarez Pesantez, Karla Verónica. (2020). Habilidades sociales y rendimiento académico en adolescentes de secundaria. *Horizontes Revista de Investigación en Ciencias de la Educación, 4* (15), 267-276. Retrieved September 19, 2021, from: http://www.scielo.org.bo/scielo.php?script=sci_arttext&pid=S261679642020000300009&lng=en&tlng=es.

Vásquez, A. S. (2021). Estrategias de aprendizaje de estudiantes universitarios como predictores de su rendimiento académico. *Revista Complutense De Educación*, *32* (2), 159-170. https://doi.org/10.5209/rced.68203

Role of foresight sessions in professional self-development of students

Nikolay P. Dedov*
Elena B. Fantalova**
Olga I. Vaganova***
Anna V. Lapshova****
Vladimir A. Kuznetsov*****

ABSTRACT

The rapid development of innovative technologies and the rapid change in the social environment necessitate the search for tools for the formation of professional competence that meet the modern requirements of training students in vocational educational institutions. Purpose of the article: analysis of the implementation of foresight sessions in the professional self-development of students. Methodology: the article presents the dynamics of student participation in foresight sessions, an increase in the number of students over several years, as well as the results of a survey of participants in foresight sessions to determine the advantages of the method. Results: Conducting foresight sessions expands the possibilities of forming the professional competence of future specialists.

KEY WORDS: foresight sessions; professional self-development; students; professional education; professional competence.

*Financial University under the Government of the Russian Federation, Moscow, Russia. ORCID: https://orcid.org/0000-0002-5243-8720. E-mail: vedun60@yandex.ru

**Moscow State University of Psychology and Education (MSUPE). ORCID: https://orcid.org/0000-0003-3131-526X. E-mail: elenafantal@yandex.ru

***Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia. ORCID: https://orcid.org/0000-0001-8347-484X. E-mail: vaganova_o@rambler.ru

**** Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia. ORCID:

https://orcid.org/0000-0001-7017-3589. E-mail: any19.10@mail.ru

***** Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia. ORCID: https://orcid.org/0000-0003-4595-6391. E-mail: vak1401@yandex.ru

Papel de las sesiones prospectivas en el auto desarrollo profesional de los estudiantes

RESUMEN

El rápido desarrollo de tecnologías innovadoras y el rápido cambio en el entorno social requieren la búsqueda de herramientas para la formación de competencias profesionales que satisfagan los requisitos modernos de la formación de estudiantes en instituciones de educación profesional. Propósito del artículo: análisis de la implementación de sesiones de prospectiva en el autodesarrollo profesional de los estudiantes. Metodología: el artículo presenta la dinámica de la participación de los estudiantes en las sesiones de prospectiva, un aumento en el número de estudiantes a lo largo de varios años, así como los resultados de una encuesta a los participantes en las sesiones de prospectiva para determinar las ventajas del método. Resultados: La realización de sesiones de prospectiva amplía las posibilidades de formación de la competencia profesional de futuros especialistas.

PALABRAS CLAVE: sesiones de prospectiva; autodesarrollo profesional; estudiantes; formación profesional; competencia profesional.

Introduction

The development of vocational education is one of the key tasks of state policy. In the current conditions, the role of the introduction of innovative technologies in the training of students, contributing to the professional self-development of students and the formation of professional competence, is increasing.

The new reality actualizes the formation of the ability to make operational decisions. The classical method (making decisions based on experience) has specific features. The social environment is changing so quickly that the previously applied effective models do not have the same effectiveness.

Innovative ways of making decisions based on a vision of the future that takes into account current trends and the prospect of their development are the most relevant, providing ample opportunities for training a highly qualified specialist (Shabalina et al., 2019).

The thinking of a modern student should be directed to the creative solution of problems in several ways. In addition, a competitive specialist should anticipate all possible solutions to situations, existing risks as much as possible and assess them (Dobudko et al.,

REVISTA DE LA UNIVERSIDAD DEL ZULIA. 3ª época. Año 12 N° 35, 2021

Nikolay P. Dedov et al. /// Role of foresight sessions in professional self-development of students... 504-515

DOI: http://dx.doi.org/10.46925//rdluz.35.29

2019). Proactive thinking, which involves the selection of options for getting out of any difficult situation, acquires a high value in contrast to reactive thinking (Ponachugin & Lapygin, 2019). In this case, the specialist is ready for changes, can take into account risks and see this not as a problem, but as a new opportunity (Aniskin et al., 2020).

Therefore, universities are looking for ways that are most relevant in the formation of a student's professional competence in modern conditions. Today, one of the most effective tools in the organization of professional self-development and the formation of competence are foresight sessions.

Purpose of the article: analysis of the implementation of foresight sessions in the professional self-development of students.

In this regard, it is necessary to reveal the essence of foresight sessions and the peculiarities of their application in the preparation of students.

Foresight sessions perform the functions necessary for the formation of competitive specialists:

- implementation of a set of measures aimed at personal and professional self-development of students;

- accumulation of resources aimed at forming ideas and developing prospects for the future activities of students (Vaganova et al., 2019a);

- creating conditions for the development of the internal potential of the individual, understanding of key goals and objectives, increasing motivation, trajectories of professional self-determination (Vaganova et al., 2019b).

Their task is to ensure that students can jointly agree on the future, taking into account existing factors that affect the situation. In this case, the development of projects by students becomes the most effective and promising (Bulaeva, et al., 2018).

Foresight sessions have a practice-oriented developing potential. In the process of their implementation, students ' competencies are formed, which are necessary to achieve sustainable changes in the personal and professional sphere.

As the training of students improves and foresight technologies develop, there is a need for timely monitoring of educational processes.

1. Theoretical framework

Foresight sessions are considered by researchers from different points of view:

- as an innovative way to conduct brainstorming sessions;

- as a way to predict the future (Demidov & Tretyakov, 2016b);

- as a group activity, the purpose of which is to create a certain future (Chulanova, 2018).

The use of foresight sessions performs several functions, including:

- forecasting;

- design;

- formation of project groups (Rojas-Bahamón, Aguilar-Cruz & Arbeláez-Campillo, 2020);

- projection (Vardanyan et al., 2018).

Foresight is created on certain principles. Firstly, it should be said that the future depends on certain actions and it is possible to influence it, secondly, the future has a great variability (Vaganova et al., 2019a), thirdly, it is possible to make forecasts to the future, but it is difficult to predict its reliability, but you can prepare for it (Tezer et al., 2019).

Various tools are used for conducting foresight sessions: staging, SWOT analysis, forecasts, panel discussions, and others (Nagovitsyn et al., 2020).

Foresight has a specific terminology that includes trends, that is, a significant direction of development; a package of solutions for the formation and development of a new trend (Yarygin et al., 2019); social interaction (Pichugina & Bondarchuk, 2019); processes that can affect the increase in time spent on project implementation; a roadmap (a visual image of the future, which includes key trends and events, technologies and strategic plans) (Shcerbakova & Shcerbakova, 2019).

Trends can be different (stable, uncertain or fading). The figure (1) shows three types of trends.

A change in the type of trend is preceded by an event that radically changes the situation. In this case, the participant of the foresight session begins to work with the emerging trend as a separate one.

Stable	**Undefined**	**Fading**
(Its meaning is gradually increasing)	**(The value may vary)**	**(The value is gradually decreasing)**
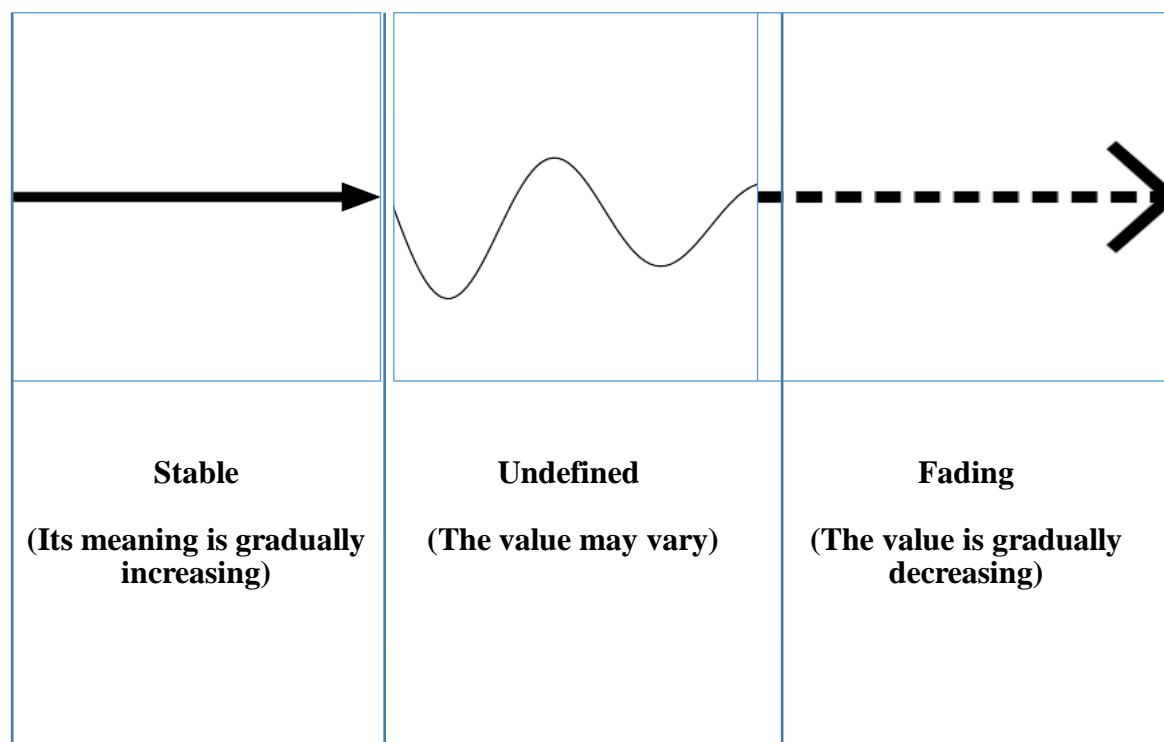
Fig. 1. Characteristics of trends taken into account during foresight sessions (compiled by the authors based on the analysis of scientific research)

The following features are distinguished in the specifics of conducting foresight sessions:

- collective work is carried out with images and diagrams;

- working with road map templates and event cards (Bosco, 2008);

- no extra papers;

- maximum visualization of information, increasing visibility, using infographics (Demidov & Tretyakov, 2016b).

The results obtained are highly reliable, characterized by capacity and adaptability.

The implementation of the foresight session takes into account the past, present and future. The figure shows a coordinate system that includes the development of the project in three dimensions.

Participants of foresight sessions consider the probability of the development of certain events not separately, but together, designing their current and future activities to achieve positive results and eliminate negative impacts.
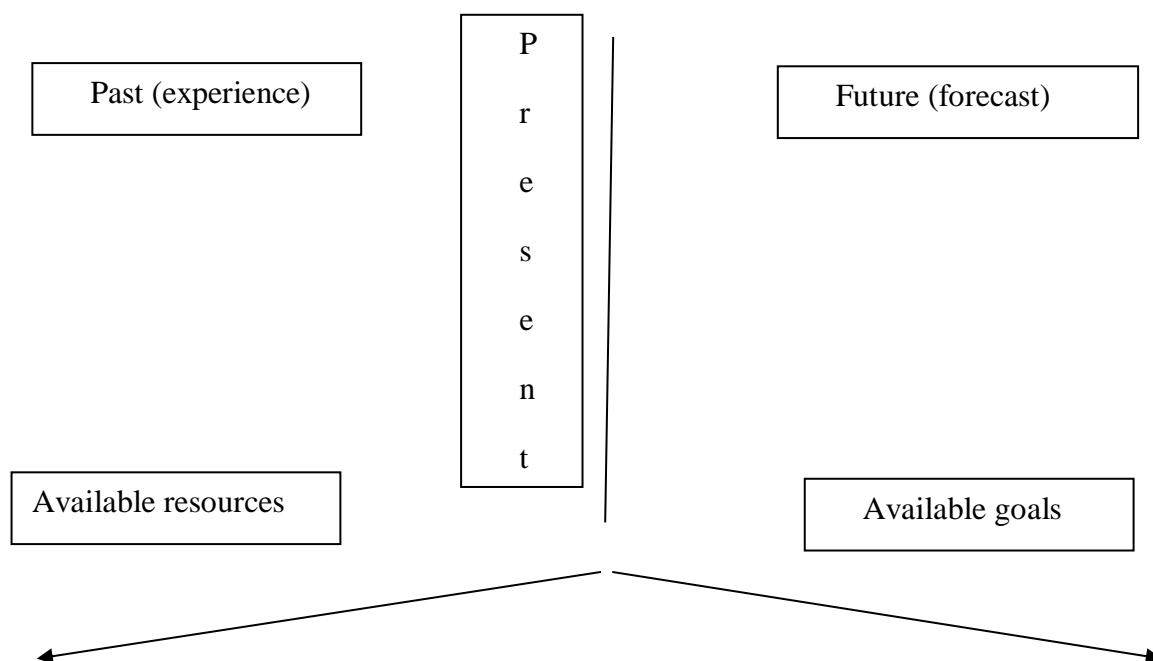
Fig. 2. Directions were taken into account when implementing a foresight session
(compiled by the authors based on the analysis of scientific research)

2. Methodology

The study presents the dynamics of students ' participation in foresight sessions over a three-year period from 2019 to 2021.

To survey to determine the advantages of foresight sessions among students of professional educational institutions, three groups of 150 people each (students of the 2nd, 3rd and 4th courses) were identified. Only senior students took part in the study, since the 1st year is undergoing a period of adaptation to studying at a higher educational institution and to a greater extent cannot assess the impact of foresight sessions.

Students had to choose the benefits of prospecting sessions from the list presented (or include their own), which included options such as:

- High level of systematization of own activities;
- Forms the ability to predict and plan
- Forms the experience of working in a group
- Moitviruet on the study of new topics
- Promotes involvement in the educational process

REVISTA DE LA UNIVERSIDAD DEL ZULIA. 3ª época. Año 12 N° 35, 2021

Nikolay P. Dedov et al. /// Role of foresight sessions in professional self-development of students... 504-515

DOI: http://dx.doi.org/10.46925//rdluz.35.29

- Forms self-discipline

- Creates a sense of responsibility for the overall results

- Promotes the formation of an understanding of the prospects for future self-development

- Forms creative independence

- Reveals the possibility of self-determination during the session

- Formation of independence;

- Formation of communication skills.

The survey was conducted in 2021. The most common responses were highlighted. The data is displayed in a separate chart.

3. Results and discussion

During foresight sessions, the energy of positive thinking of the working team is activated. The teacher aims students at positive thinking and creates an atmosphere of emotional trust (Nagovitsyn et al., 2020). At the same time, the stages of creative and analytical thinking are combined.

Foresight includes several levels of activity:

- working in the present (working with cards, discussing issues among participants, moderation of the process) (Vaganova et al., 2020);

- planning (selection of information, analysis, determination of prospects and viability of ideas) (Demidov & Tretyakov, 2016a);

- planning (conducting strategic analysis and determining priorities in the project) (Kidina, 2020);

- networking (selection of tools that contribute to the creation of an effective dialogue between the subjects of the educational process, between working teams participating in projects) (Kiseleva et al., 2019).

Foresight is organized in several stages. The table shows the stages of students' work.

Table 1. Stages of conducting a foresight session (compiled by the authors based on the analysis of scientific research)

Stage	Characteristic
Preparatory	Formation of groups of participants; and analysis of sources; mastering the previous experience of conducting foresight sessions; analysis of the opinions of various researchers in the field under study; analysis of the opinion of society (social networks, forums, etc.)
The stage of the direct foresight session	Conducting active group work among the teams of participants (brainstorming, expert panels, conducting surveys, SWOT, forecasting) , organizing game situations in which the student can experience emotional and behavioral experience
Reflection	Studying the behavioral mechanisms of each participant, correcting mistakes to achieve better results

The development and implementation of foresight tools are carried out through the project activities of students.

Foresight sessions are held both in classrooms and remotely. Today, a popular game among students is the game of the future, in which students need to determine what changes have occurred over a certain period in a small amount of time.

Each team receives a description of trends that have occurred over a ten-year period.

Among the tasks of students: a description of the impact of changes that affected the work in 2030, a description of the working day and the working functions of specific specialists in 2030.

The teams exchange data and ideas, which are reflected on the worksheets. The task of the teams is to identify and remove duplicate ideas. Students note what needs to be done to ensure that the expected trend begins to develop today (Pinkovetskaia et al., 2020).

Also, the work of subgroups is organized to solve more global issues, for example, the development of various sectors of society. In the process, maps of the future are developed based on existing trends.

The students have identified for themselves the main element on which it is worth focusing – it is the involvement of the younger generation, young highly qualified specialists in innovative activities.

In the process of active activity, the technical assembly of materials for the foresight session is carried out. Structured information is a source that you can turn to throughout the study, understand which ideas were the most relevant and continue working on the project based on them.

Students actively participate in foresight sessions. The figure shows the results of the analysis of the number of participants.
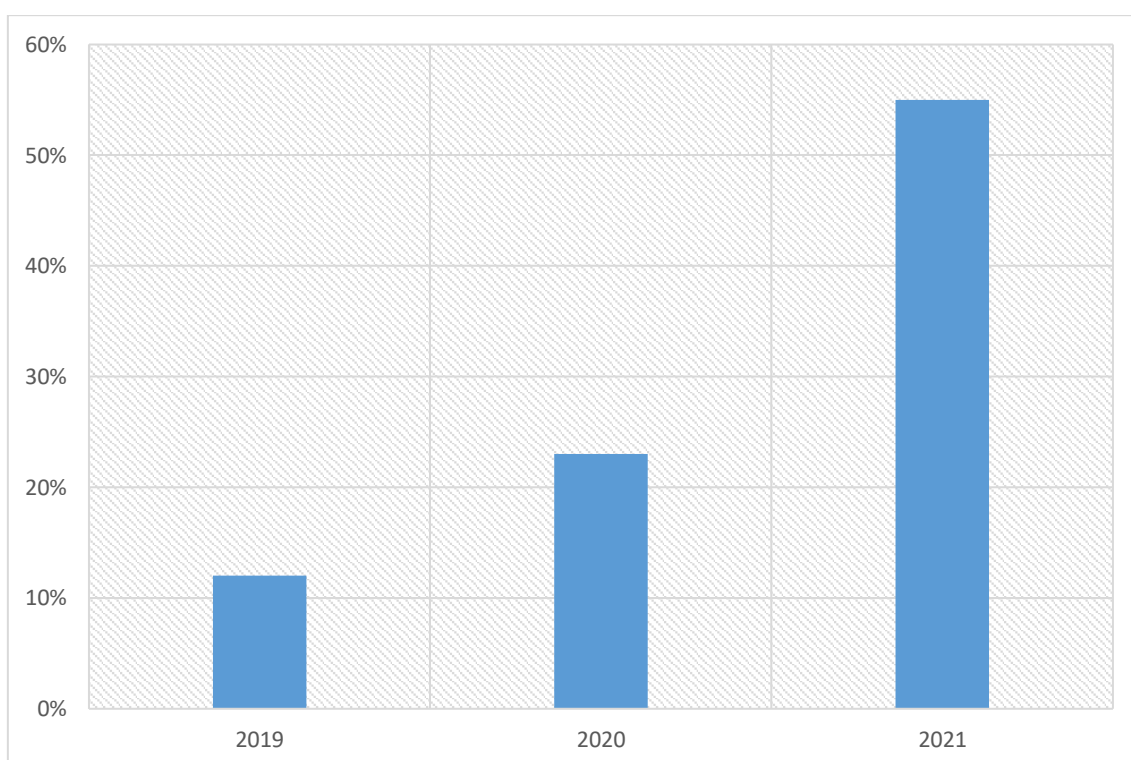
Fig. 3. Increase in the number of participants in foresight sessions for the period from 2019 to 2021 (Dedov, Fantalova, Vaganova, Lapshova, Kuznetsov)

The increase in the number of participants in foresight sessions by 2021 was 55 %. The use of this tool in the training of students shows the interest of students in such projects. Universities are expanding the implementation of foresight to form the need for constant self-development and professional competence.

The diagram shows the results of a survey of participants of foresight sessions to determine the advantages of the method.

The diagram shows the most popular answers among students.
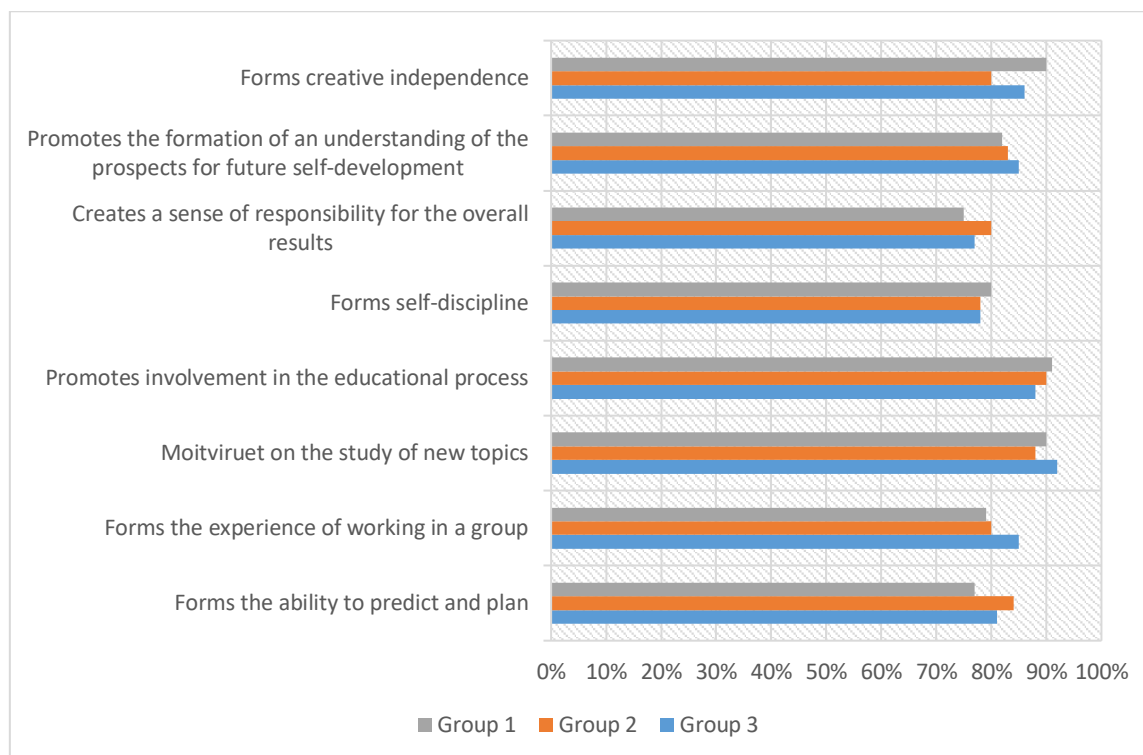
Fig. 4. Increase in the number of participants in foresight sessions for the period from 2019 to 2021 (Own authorship)

Based on the data obtained, it is worth saying that foresight sessions help students study materials in more depth and motivate them to independently solve professional issues, thereby developing the need for constant self-improvement.

Conclusions

Conducting foresight sessions plays a significant role in the professional self-organization and professional self-development of students. During their implementation, students are independently involved in creative activities, are engaged in planning and forecasting, select the necessary data to achieve results, relying on the consulting role of the teacher.

Conducting foresight sessions in a modern educational environment allows students to feel themselves in real professional conditions.

Due to the development and improvement of foresight sessions, creative independence and independent students' activity is formed. Students improve their ideological position in determining their capabilities within the framework of the needs of the labor market.

The study shows that the number of participants in foresight sessions is growing every year. Students note the importance of holding events within the framework of foresight sessions, since they increase the need for constant professional self-development, in-depth study of the material.

References

Aniskin, V. N., Korostelev, A. A., Lvovna, B. A., Kurochkin, A. V., & Sobakina, T. G. (2020). Teaching potential of integrated learning technologies Smart, Stem and Steam. Revista de la Universidad del Zulia, 11(29), 328-336.

Bulaeva, M. N., Vaganova, O. I., Koldina, M. I., Lapshova, A. V., & Khizhnyi, A.V. (2018). Preparation of Bachelors of Professional Training Using MOODLE. Advances in intelligent systems and computing, 622, Pp. 406-411.

Bosco A. (2008). Las tecnologías de la información y la comunicación en la formación del profesorado. Fundación Dialnet. Ejemplar dedicado a: Medios Informáticos en la Formación de Profesores, 63, pp. 1605-4806.

Chulanova O.L. (2018). Foresight sessions as an innovative tool for strategic management and the work of project teams. Materials of the Afanasyev Readings, (1 (22)), 28-36.

Demidov, A.A. & Tretyakov A.L. (2016a). A network model of centers for ethical and legal education and civil-patriotic education and media education centers based on school libraries: the need to create, opportunities and real prospects, Media Education (Mediaobrazovanie). 3. Pp. 16-22.

Demidov, A.A., & Tretyakov, A.L. (2016b) Centers for ethical and legal information and media education based on the school library - an innovation in the implementation of the Federal State Educational Standard and infrastructure for the development of information and legal culture of children and youth. Media Education (Mediaobrazovanie). 2. Pp. 21-33.

Dobudko, T.V., Korostelev A.A., Gorbatov S.V., Kurochkin A.V., Akhmetov L.G. (2019). The organization of the university educational process in terms of digitalization of education. Humanities and Social Sciences Reviews. 7(4), Pp. 1148–1154.

Kidina l. M. (2020). Management of the pedagogical collective in the conditions of implementing distance learning. Baltic Humanitarian Journal. (Baltic Humanitarian Journal). Vol. 9 No 4 (33), Pp. 93-96.

Kiseleva, O., Lebedev, A., Pinkovetskaia, I., Rojas-Bahamón, M., & Arbeláez Campillo, D. (2019). Specialization and concentration of small and medium enterprises employees: Russian data. Amazonia Investiga, 8(20), 6-15. https://amazoniainvestiga.info/index.php/amazonia/article/view/59

Nagovitsyn, R. S., Vaganova, O. I., Kutepov, M. M., M. L. N., Kosenovich, O. V, Moeseev, Yu. V., Vorotova, M. S., & Osipov, A. Y. (2020). Interactive Technologies in Developing Student's Motivation in Physical Education and Sport. International Journal Of Applied Exercise Physiology, 9(6), 78-85.

REVISTA DE LA UNIVERSIDAD DEL ZULIA. 3ª época. Año 12 N° 35, 2021

Nikolay P. Dedov et al. /// Role of foresight sessions in professional self-development of students... 504-515

DOI: http://dx.doi.org/10.46925//rdluz.35.29

Pichugina, G.A., & Bondarchuk, A.I. (2019). Structure of the training case in the organization of the educational process. Humanitarian balkan research.Vol. 2, no. 4, pp. 5-7.

Pinkovetskaia, I., Arbeláez-Campillo, D., Rojas-Bahamón, M., Novikov, S., & Veas Iniesta, D. (2020). Social values of entrepreneurship in modern countries. *Amazonia Investiga*, 9(28), 6-13. https://doi.org/10.34069/AI/2020.28.04.1

Ponachugin, A.V., & Lapygin, Yu.N. (2019). Digital Educational Resources Of The University: Design, Analysis And Expertise. Vestnik Mininskogo universiteta (Vestnik of Minin University). Vol. 7 (2), 5. (in Russ)

Rojas-Bahamón, M.J., Aguilar-Cruz, P.J., & Arbeláez-Campillo, D.F. (2020). Curricular integration as a strategy to strengthen the educational process in public institutions in COVID-19 times. Revista Inclusiones, 7(num Especial), pp. 233-241.

Shabalina O., Timofeev G., Davtian A., Zheltukhina M., Moffat D. (2019). Investigating regional heritage through the development and playing of AR games. Proceedings of the European Conference on Games-based Learning. 13. Сep. "Proceedings of the 13th International Conference on Game Based Learning, ECGBL 2019" Pp. 631-638.

Shcerbakova E.V., Shcerbakova T. N. (2019). Experience Of Use Of Remote Computer Technologies At The Organization Of Independent Work Of Students In The Conditions Of A Mark and rating system. Baltic Humanitarian Journal. (Baltic Humanitarian Journal), Vol. 8, No 4 (29), Pp. 192-195.

Tezer M., Yildiz E.P., Masalimova A.R., Fatkhutdinova A.M., Zheltukhina M.R., Khairullina E.R. (2019). Trends of augmented reality applications and research throughout the world: meta-analysis of theses, articles and papers between 2001-2019 years. International Journal of Emerging Technologies in Learning. Т. 14. № 22. Pp. 154-174.

Vaganova, O. I., Petrozitskaya, I. A., Snatovich, A. B., Odarich, I. N., & Kirillova, I. K. (2020). Heuristic technologies of training in professional education. Amazonia Investiga, 9(27), 509-517. https://doi.org/10.34069/AI/2020.27.03.55

Vaganova, O., Ilyashenko, L., Smirnova, Z., Bystrova, N., & Kaznacheeva, S. (2019). Students' creative abilities development in higher educational institution. Amazonia Investiga, 8(22), 701-710. Retrieved from https://amazoniainvestiga.info/index.php/amazonia/article/view/822

Vaganova, O.I., Korostelev, A.A., Smirnova, Z.V., Abramova, N.S., Dolmatov, S.N. (2019b). Improving teachers' professionalism through the development of creativity. International Journal of Innovative Technology and Exploring Engineering, 2019, 8(8), Pp. 630–634.

Vardanyan E. A. (2018). Foresight session methodology for the development of educational programs for the training of law enforcement officers. Philosophy of Law, (3 (86)), 162-166.

Yarygin O.N., Korostelev A.A., Akhmetov, L.G., Maseleno, A. (2019). Modeling of competence as a tool of goal setting for education in modern society. International Journal of Recent Technology and Engineering, 7(6), Pp. 72–77.

Estilo de vida en estudiantes universitarios durante el confinamiento por la COVID-19, Amazonas, Perú

Sonia Celedonia Huyhua Gutiérrez*
Milagros Stephanie Quistan Machuca**
Nery Paola del Rosario Willis Huaripata***
Jackeline Vargas López****
Sonia Tejada Muñoz*****

RESUMEN

La COVID-19 ha ocasionado que las personas a nivel mundial adopten diferentes medidas para evitar el contagio; en el Perú una de sus principales medidas para prevenir las infecciones por coronavirus fue el confinamiento. La investigación tuvo como objetivo describir los estilos de vida en estudiantes de Ingeniería civil durante el confinamiento por la COVID-19. Para tal fin, el estudio fue cuantitativo, no experimental, con diseño correlacional, teniendo una población de 329 estudiantes y una muestra de 166, se aplicó el cuestionario online SMILE-C elaborado por Balanzá, et al. (2020). Dentro de los resultados se tuvo que el 83,1% tienen un estilo más saludable y el 16.9% poco saludable; el 82,5% son del sexo masculino; el estilo de vida se relaciona con el sexo ($p=0,090$). Se concluye que los estilos de vida durante el confinamiento por la COVID–19 han llevado a muchos de los estudiantes universitarios a un cambio favorable para su salud y bienestar personal. Sin embargo, no debemos dejar de lado algunos aspectos que aún se encuentran en proceso y en riesgo para poder enfrentar beneficiosamente este gran reto.

PALABRAS CLAVE: Estilo de vida; estudiante universitario; pandemia; COVID-19; Perú.

*Docente. Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, Amazonas, Perú. ORCID: https://orcid.org/0000-0003-4823-2778. E-mail: sonia.huyhua@untrm.edu.pe

**Estudiante de Enfermería. Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, Amazonas, Perú. ORCID: https://orcid.org/0000-0003-0995-900X

*** Estudiante de Enfermería. Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, Amazonas, Perú. ORCID: https://orcid.org/0000-0002-3220-7116

**** Estudiante de Enfermería. Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, Amazonas, Perú. ORCID: https://orcid.org/0000-0002-2745-8260

***** Docente. Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, Amazonas, Perú. ORCID: https://orcid.org/0000-0002-1181-8540

REVISTA DE LA UNIVERSIDAD DEL ZULIA. 3ª época. Año 12 N° 35, 2021

S. C. Huyhua Gutiérrez et al. /// Estilo de vida en estudiantes universitarios durante el confinamiento ... 516-531

Lifestyle of university students during confinement by COVID-19, Amazonas, Peru

ABSTRACT

COVID-19 has caused people worldwide to adopt different measures to avoid infection; In Peru, one of its main measures to prevent coronavirus infections was lockdown. The research aimed to describe the lifestyles of civil engineering students during lockdown by COVID-19. For this purpose, the study was quantitative, not experimental, with a correlational design, having a population of 329 students and a sample of 166, the SMILE-C online questionnaire prepared by Balanzá, et al. (2020). Among the results, 83.1% had a healthier style and 16.9% unhealthy; 82.5% are male; lifestyle is related to sex (p = 0.090). It is concluded that the lifestyles during lockdown by COVID-19 have led many of the university students to a favorable change for their health and personal well-being. However, we must not set aside some aspects that are still in process and at risk in order to be able to face this great challenge profitably.

KEY WORDS: Lifestyle; university students; pandemic; COVID-19; Peru.

Introducción

En el año 2020, Perú se vio obligado a entrar en un estado de emergencia y confinamiento causado por la COVID-19; a raíz de esto muchas personas cambiaron su estilo de vida en diversos aspectos, como vienen a ser: alimentación, actividad física y las rutinas programadas que presentaban día a día. Al respecto, Pérez et al (2020: 10) manifiestan que: "Los cambios más frecuentes se han dado en el consumo de alimentos saludables y se logró disminuir el consumo de alimentos procesados; donde el 15% no realiza ejercicio físico, 37% refiere no dormir bien, 24,6% se encuentran sentados más de 9 horas diarias, y del 30,7% de personas fumadoras el 14,7% fuma más".

Rodríguez et al (2020: 1), manifiestan que "el confinamiento se considera la mejor opción para proteger la salud, pero ocasiona conductas sedentarias. Por eso, es importante mantener un estilo de vida adecuado y realizar actividad física, para mitigar el impacto psicológico de la cuarentena".

La alimentación y la nutrición se ven perjudicadas por factores como son la disminución de la economía familiar y la falta de un empleo estable ocasionado por el confinamiento por la COVID-19. Al respecto, sostienen Rodríguez et al (2020: 1) que: "La pandemia ha modificado nuestros ambientes y hábitos alimentarios, incluyendo la forma en que adquirimos los alimentos, su preparación y el consumo".

Los ejercicios son muy importantes para la vida cotidiana, ya que ayudan a mantener un buen funcionamiento del organismo. Sin embargo, con la llegada de la COVID- 19 al país esto se vio afectado, pasando así de una rutina activa a solo desplazarse dentro de casa, reduciendo la actividad física al tiempo mínimo.

Por ello la Organización Mundial de la Salud (OMS, 2020), refiere que la pandemia de la COVID-19 ha generado que las personas se encuentren más tiempo en casa y estemos mayor tiempo sentados. A la mayoría de la población les afectó esta situación, siendo más dura para quienes no suelen realizar ejercicio. Darnos un tiempo para hacer 3-4 minutos de actividad física como caminar o realizar estiramientos en la misma casa ayudará a relajar los músculos, mejorar la circulación sanguínea y la actividad muscular. Realizar ejercicios por más simples que sean es favorable para el cuerpo y la mente. La actividad física ayudará a reducir la hipertensión, controlar el peso, reducir el riesgo de padecer enfermedades cardiacas, accidentes cerebrovasculares, diabetes de tipo 2, ya que estas aumentan las complicaciones al padecer la COVID-19. Del mismo modo, la actividad física constante ayuda a establecer rutinas cotidianas y es una manera de mejorar la relación con los integrantes de la familia y compartir más momentos unidos. También es buena para la salud mental y mucho mejor en la situación actual que se está viviendo; esto ayudará a reducir el riesgo de padecer depresión, mejora nuestro estado de ánimo y nos mantiene activos para realizar actividades de la vida diaria.

De este modo, Márquez (2020), refiere que la conducta sedentaria y la inactividad física son problemas que se vienen sufriendo desde hace muchos años; lo cual, incrementa la morbimortalidad; por eso se recomienda que las personas sedentarias deben encontrarse activas por más tiempo y las personas que realizan ejercicios físicos deben continuar activos en casa durante este período de aislamiento.

En este sentido, el estilo de vida son comportamientos que se adoptan cada día, ya sea que sirven para obtener una buena salud o también vienen a ser causa de diversas enfermedades; es por esto que, al hablar de estilo de vida se abarcan diversos aspectos principales, como: la nutrición, actividad física, relaciones interpersonales, descanso, entre otros. Durante el confinamiento algunas personas tuvieron facilidad en adaptarse y llevar un estilo de vida adecuado, pero a muchos jóvenes les afectó esta situación y esto conllevó a tener sedentarismo.

A raíz del confinamiento por la COVID-19 la población tomó medidas de adaptación a la nueva realidad en donde se utiliza mascarilla, constante higiene de manos, distanciamiento social, entre otras medidas de bioseguridad. No existen alimentos ni suplementos dietéticos para prevenir ni curar el COVID-19, pero se debe llevar una alimentación saludable, ya que servirá para fortalecer el sistema inmunitario. La nutrición adecuada reduce la probabilidad de contraer otros problemas de salud como la obesidad, las enfermedades del corazón, la diabetes y algunos tipos de cáncer (OMS, 2020).

1.   Fundamento teórico

1.1.   Estilo de vida

Según, Rodríguez et al (2013: 3): *"La vida universitaria, es un factor contextual que influye para llevar malos estilos de vida"*.

Tal como lo señalan Herazo et al. (2020: 2): "Los estilos de vida forman parte de la promoción de salud en la comunidad educativa y se debe fomentar una cultura de salud en la universidad que conlleve a la transformación positiva en el estilo de vida de los estudiantes en instituciones de educación superior".

Existen factores que tienen influencia sobre los estilos de vida de las personas, dentro de ellos están los factores personales (conocimientos, las actitudes, los comportamientos, las habilidades, la autoestima o las emociones); también tenemos los factores biológicos, donde encontramos los genéticos y metabólicos, y los factores externos que hacen referencia al medio físico y social (Guerrero y León, 2020: .3).

Del mismo modo, Jaramillo (2020: 19), refiere que: "*el estilo de vida es un principal determinante de la salud, lo cual depende de factores como: socioeconómicos, culturales, psicosociales, ambientales,*

conductuales y más en tiempos de pandemia y de manera particular en los estudiantes de educación superior pública".

A continuación, se describen los principales dominios de estilo de vida, las cuales se encuentran relacionadas con el estado de salud del estudiante universitario y son las que se evaluaron en la investigación:

a. **Alimentación.** La OMS (2018: 1) define que: *"la alimentación es la necesidad más básica de todo ser humano lo cual nos sirve para proporcionar energía al cuerpo, para luego poder efectuar diversas actividades durante el día"*, en esto influye el factor socioeconómico, así como los ingresos mensuales, los precios de los alimentos, las preferencias y creencias individuales, las tradiciones culturales, y los factores geográficos y ambientales de cada persona (incluido el cambio climático).

b. **Actividad física.** Es el gasto de energía que cada ser humano tiene al realizar movimientos desplazándose de un lugar a otro. Al respecto, Ramírez (2002: 2) refiere que la actividad física es: *"el conjunto de movimientos realizados con el cuerpo los cuales son producidos por los músculos esqueléticos necesitando un consumo energético para que progresivamente produzcan efectos de beneficios en la salud"*.

c. **Sueño y descanso.** Erazo (2019: 6) define *"El sueño como un proceso biológico vital para la salud, convirtiéndose la calidad del sueño en un aspecto principal en la vida de cada persona"*. Al hablar de sueño y descanso no solo abarca dormir las 8 horas recomendadas, sino que no existan preocupaciones mayores que perturben este descanso; es así como esta dimensión se encuentra influenciada por diversos factores externos, y más aún en estos tiempos por causas de la COVID-19.

d. **Abuso de sustancias**. Al respecto, Hidalgo et al. (2006: 114), afirman que: *"el consumo de drogas representa un problema de salud pública debido a razones como: se empieza el consumo a edad temprana, consumo de tabaco, alcohol y su continuo aumento de otras como el cannabis y cocaína"*.

El abuso de sustancias es un problema que viene desde hace muchos años atrás y es algo que aún no se soluciona sino que va incrementándose cada vez más, lo que no se toma en cuenta

son las consecuencias que ocasiona el consumo de diversas sustancias al organismo, no solo problemas personales, también se ve que es causante de separaciones familiares.

e. Estrés. Morales, et al. (2016: 1-2) refiere que es: "*una enfermedad que está expuesta a factores estresantes. El factor estresante debe entenderse como cualquier acto que interfiera con el equilibrio fisiológico, cognitivo, emocional o de comportamiento normal de una persona*". Actualmente, Delgado (2020: 16) manifiesta que: "*las medidas de salud pública, como el distanciamiento social, hacen que las personas se sientan solas y generen altos niveles de estrés y ansiedad*".

f. Apoyo social. La persona por la misma naturaleza necesita establecer contacto con miembros de la sociedad, lo que les ayuda a sentirse acompañados y capaces de afrontar situaciones difíciles. Por lo tanto, Ramírez et al (2020: 5) refieren que: "*la pérdida de contacto con los demás puede presentar complicaciones psiquiátricas que van desde síntomas aislados hasta el desarrollo de un trastorno mental*".

g. Exposiciones ambientales. En un estudio realizado por Montaña, Ollé y Lavilla (2020: 2) manifiestan que: "El estar más tiempo en casa a generando cambios en el estilo de vida, nuevos hábitos de consumo y sobre todo en los medios de comunicación los cuales lo utilizaron como medio de entretenimiento y búsqueda de información por los cambios provocados por la pandemia de la COVID-19".

1.2. Confinamiento por la COVID-19

Valero et al. (2020: 1) mencionan que: "*La incertidumbre, el miedo y restricciones relacionadas con la pandemia de COVID-19 causada por el virus SARS-CoV2 han representado desafíos particulares, especialmente por diversas medidas de emergencia sanitaria en cuarentena, confinamiento y distanciamiento social*".

Sánchez y De la Fuente (2020: 74), definen confinamiento como: "*plan de intervención comunitario que implica permanecer refugiado el mayor tiempo posible, bajo nuevas normas socialmente restrictivas*".

La pandemia por la COVID-19 ha provocado una emergencia mundial. Es en este contexto que se presentan con mayor frecuencia reacciones de ansiedad, temor, preocupación; por el

mismo hecho de enfrentar un enemigo invisible. Sin embargo, García et al. (2020: 85) manifestaron que: "*Se desconoce el impacto psicológico que puede tener no solo el coronavirus, sino el confinamiento, ya que nos encontramos ante una situación excepcional sin precedentes*". Así mismo, Lozano et al. (2020: 3), refirieron que: "la situación de confinamiento por la pandemia del COVID-19 ha afectado a todos los ámbitos de nuestro funcionamiento como sociedad: el relacional, el sanitario, el económico, etc. y, por supuesto, el educativo".

2. Metodología

El estudio fue cuantitativo, no experimental, con diseño descriptivo (Hernández Sampieri & Mendoza, 2018); se centró en describir los estilos de vida en estudiantes de Ingeniería civil durante el confinamiento por la COVID-19. La población fue de 329 estudiantes de Ingeniería civil y una muestra de 166 estudiantes de la Escuela de Ingeniería civil de la Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, quienes fueron seleccionados de manera aleatoria; la recolección de la información fue en octubre del 2020, de manera virtual a través del formulario de Google, previo consentimiento informado; se utilizó el cuestionario SMILE-C elaborado por Balanzá et al. (2020), teniendo un alfa de Cronbach 0,747: consta de 27 ítems dividido en 7 dominios (dieta y nutrición, abuso de sustancias, actividad física, manejo del estrés, sueño reparador, apoyo social y exposiciones ambientales), a través de la escala Likert de 4 puntos (siempre, a menudo, raramente y nunca) y la puntuación final se obtuvo mediante la suma de todas las preguntas, siendo un total de 108 puntos (se tuvo en cuenta que algunas preguntas presentan puntuaciones inversas) a mayor puntuación que presentaron (más saludables), puntuaciones bajas (menos saludables). Después de haber aplicado el cuestionario, se procedió a realizar el procesamiento de la información a través del software IBM SPSS versión 23, Microsoft Word 2013 y la hoja de cálculo de Excel 2019; se utilizó la estadística descriptiva.

La investigación fue ejecutada en distintas fases: Fase 1. Búsqueda y análisis del instrumento SMILE-C, para describir los estilos de vida de estudiantes universitarios; Fase 2. Aplicar el cuestionario online SMILE-C de Balanzá, et al. (2020); Fase 3. Procesamiento de resultados y su análisis.

Durante el desarrollo de la investigación se tuvo en cuenta los principios éticos de la investigación, tales como dignidad y derechos humanos, autonomía y responsabilidad, respetando la voluntad de los estudiantes en participar en el estudio a través del consentimiento informado; también se tuvo en cuenta la privacidad y confidencialidad, igualdad justicia y equidad, no discriminación y no estigmatización, respeto a la diversidad cultural y del pluralismo (Álvarez, 2018).

3. Resultados y discusión

Al aplicar el instrumento en la población elegida para el presente estudio, de los 166 estudiantes de Ingeniería Civil de la Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, que aceptaron voluntariamente ser parte de la investigación sobre los estilos de vida, se obtuvo como resultado de manera general que el 83,1% se encuentran más saludables y el 16,9% poco saludable (Tabla 1).

Tabla 1. Estilos de vida de los estudiantes universitarios de Ingeniería Civil

Categorías	Cant.	%
Más Saludable	138	83,1
Poco Saludable	28	16,9
Menos saludable	0	0
Total	166	100,0

Esto indica que los estudiantes durante el confinamiento mejoraron su estilo de vida; vendría ser beneficioso gracias a que nos indica que no existirán grandes riesgos de padecer otras enfermedades a causa de llevar un inadecuado estilo de vida. A diferencia del estudio realizado en Guayaquil, donde la población estuvo constituida por 303 estudiantes universitarios y se

observó que el 38,6% llevaron un estilo de vida malo, el 33% un estilo de vida regular, 26,1% bueno y por último 2,3% de manera excelente (Jaramillo, 2020); según estos resultados las personas no se lograron adaptar a los últimos cambios ocasionado por la COVID - 19, a diferencia de nuestro estudio, donde los diversos factores, el nivel socioeconómico, la accesibilidad a los alimentos frescos (frutas, verduras, legumbres, cereales) que se tiene en las comunidades, las costumbres, han favorecido para que los estudiantes de ingeniería presenten mayoritariamente un estilo de vida saludable, observando que el confinamiento, estar al lado de su familia y en su comunidad favorece en su salud y en el futuro para que prevengan problemas metabólicos, cardiacos, entre otros; por ello, se debe seguir fortaleciendo e incentivando para que cada vez más aumenten el bienestar, tanto social como emocional (Pérez, et al. 2020) siguiendo involucrando a la familia y a las mismas autoridades de la Universidad (a través de la Dirección de Bienestar Universitario), mediante la implementación de talleres virtuales sobre higiene, ejercicios, alimentación saludable, entre otros, que sigan favoreciendo su estilo de vida y revierta los estilos de vida pocos saludables encontrados en algunos estudiantes.

Los datos generales de los estudiantes universitarios que participaron de manera voluntaria en el trabajo de investigación es parte importante, ya que gracias a ello se puede visualizar el entorno en el cual se encuentran y están afrontando el confinamiento por la COVID-19; donde el 98,1% de los estudiantes universitarios fueron solteros, el 82,5% del sexo masculino, el 57,8% están entre los 18 a 21 años de edad, el 45,2% vive con ambos padres y el 43,9% se dedican a trabajar y estudiar al mismo tiempo, de los cuales el 53,6% tienen clases de 5 a más horas seguidas sin descanso (Tabla 2).

De manera similar, en un estudio realizado por Ardini et al. (2020), con una muestra de 194 estudiantes de los cuales el 49.7% se dedican a sus clases virtuales entre 2 a 5 horas por día, un 20% estudian entre 5 a 7 horas por día, y el 29,7% supera las 7 horas de estudio. El 47,7% señalan que la modalidad virtual demanda más tiempo que la presencial; mientras que el 16% de estudiantes consideran que no demanda de mucho tiempo.

Por causa del confinamiento se están realizando clases virtuales y esto trae como consecuencia que los estudiantes universitarios están llevando una vida sedentaria; cabe recalcar que solo se está abordando las horas que llevan en clases teóricas y prácticas, mas no todo el

REVISTA DE LA UNIVERSIDAD DEL ZULIA. 3ª época. Año 12 N° 35, 2021

S. C. Huyhua Gutiérrez et al. /// Estilo de vida en estudiantes universitarios durante el confinamiento ... 516-531

DOI: http://dx.doi.org/10.46925//rdluz.35.30

tiempo extra que pasan realizando los trabajos académicos; como consecuencia de ello, en un futuro este porcentaje de estudiantes podrían presentar problemas de sobrepeso, cardiacos y visuales.

Tabla 2. Características generales de los estudiantes

Características (n= 166)	Total	%
Edad (años)		
18-21	97	58,4
22-25	57	34,3
26-29	9	5,4
30-34	3	1,8
Sexo		
Femenino	29	17,5
Masculino	137	82,5
Vive actualmente:		
Solo	45	27,1
Solo con mamá	30	18,1
Solo con papá	2	1,2
Con papá y mamá	75	45,2
Otros familiares	14	8,4
Estado civil		
Soltero	163	98,1
Casado/conviviente	3	1,9
Ocupación		
Trabaja y estudia	73	44,0
Solo estudia	93	56,0
Tiempo clase virtual sin descanso		
‹1 hora	5	3,0
1-2 horas	7	4,2
3-4 horas	65	39,2

5 a más horas	89	53,6

En un estudio realizado en Puerto Rico, por Rosario et al. (2020), respecto a los horarios de estudios, los estudiantes (73,1%, n= 122) indicaron que sus horas de estudio habían aumentado

desde que estudian en línea. Además, la mayoría (81,4%, n= 136) también indicó que no se ha mantenido su horario de estudio igual desde que estudian en línea. Asimismo, los estudiantes (87,4%, n= 146) expresaron que sus agendas diarias se vieron alteradas.

Todo este confinamiento por la COVID-19 dejará problemas de salud a futuro en la población y con mayor frecuencia en los jóvenes, es ahí donde las autoridades de las universidades tanto públicas como privadas y con el apoyo del personal de salud deben trabajar conjuntamente e implementar talleres que ayuden a todos los estudiantes a sobrellevar la situación actual que están viviendo. Asimismo, los docentes deben implementar medidas que ayuden para disminuir la permanencia de horas sin descanso durante las clases virtuales, por ejemplo el uso del aula invertida, receso cada dos horas, lo cual favorecerá en su bienestar emocional y la atención durante el desarrollo de las clases.

Tabla 3. Estilo de vida según sexo

Sexo	Estilos de vida			Total	p
	Más Saludable	Poco Saludable	Menos Saludable		
Femenino	21 (12,7%)	8 (4,8%)	0 (0%)	29 (17,5%)	0,090
Masculino	117 (70,5%)	20 (12,0%)	0 (0%)	137 (82,5%)	

En el estilo de vida también se debe tener en cuenta el sexo, aunque en este estudio no se obtuvo un equilibrio de población; se puede observar que el sexo masculino es el de la mayor cantidad, donde el 70,5% tienen un estilo de vida más saludable; pero el sexo femenino, aun siendo la población mínima, tiene un 12,7% de personas con estilos de vida más saludables (Tabla 3), en donde nos muestra que no existe una gran influencia del sexo a la hora de llevar un estilo de vida más saludable o poco saludable, sino que ya es parte de la cultura de cada persona adoptar

ciertas conductas que favorezcan su buena salud, y por consiguiente ayuden a disminuir alteraciones en su salud.

Estos resultados nos indican que las autoridades de la universidad deben crear alianzas estratégicas con los profesionales de salud, con énfasis en el personal de enfermería, para mejorar los indicadores obtenidos, pues existe un gran porcentaje de estudiantes universitarios que necesitan el apoyo profesional y social; es aquí donde el profesional de enfermería va a intervenir realizando charlas personalizadas con el involucrado y su entorno, en el caso que viva con su familia, a fin de trabajar la mejora de su tiempo de organización para realizar sus actividades diarias, tratando de disminuir los factores estresantes que existen durante el confinamiento por la COVID -19; y de esa manera reducir el consumo de sustancias nocivas y el consumo de alcohol.

En el estudio realizado en México por López et al. (2020), se determinó fueron las mujeres quienes consideraron tener una alimentación más saludable antes del confinamiento (71,6%). El 27,9% (n=201) de las mujeres relatan consumir más alimentos frescos comparado a los hombres (P<0,001). En contrapartida fue el grupo que más incrementó el consumo de dulces o postres comparado con los hombres (51,6% vs 39,1%, P<0,001). Pero no se observó diferencias entre el consumo de bebidas azucaradas y comida chatarra entre los géneros.

En todo caso, se podría decir que para tener un estilo de vida saludable depende no solo de la fuerza de voluntad que pueda llegar a tener cada uno, sino también las condiciones que tiene alrededor la persona, para tomarlos y adaptarlos a su situación.

Durante el confinamiento por la COVID-19, se pudo observar cambios moderados o totales en cinco de los siete dominios, siendo algunos los más resaltantes y que favorecieron en la mejora de los estilos de vida: la dieta y nutrición adecuada (96,4%); la disminución en el abuso de sustancias dañinas para su salud, donde el 98,2% refirió dichos cambios (Tabla 4).

Referente al sueño, similares resultados encontraron Romero et al (2020), quienes refieren que durante el confinamiento se observó la reducción en la calidad del sueño de estudiantes de enfermería, lo cual concuerda con lo encontrado en el estudio, ya que los cambios que presentaron los estudiantes fueron leve y sin cambios; esto podría deberse a que el realizar las clases virtuales y la sobre carga de los mismos, hizo que los estudiantes no cumplan con sus mínimas horas de sueño, que podría estar atentando contra su bienestar sobre todo emocional;

es por esto que se deben emplear mejores estrategias para mejorar la salud mental de los estudiantes.

Respecto a la exposición ambiental, similares resultados encontraron Balanzá et al (2020), donde el 93,6% de los encuestados presentaron cambios totales o moderados, siendo en nuestro estudio el 81,9% de los cambios.

Tabla 4. Cambios en los dominios del estilo de vida de los estudiantes de Ingeniería

Dominios (n= 166)	Cambios			
	Leve/sin cambios		Totales/ moderado	
	N	%	n	%
Dieta y nutrición	6	3,6	160	96,4
Abuso de sustancias	3	1,8	163	98,2
Actividad física	89	53,6	77	46,4
Manejo de estrés	19	11,4	147	88,6
Sueño reparador	151	91,0	15	9,0
Apoyo social	7	4,2	159	95,8
Exposiciones ambientales	30	18,1	136	81,9

Conclusiones

Mediante la aplicación del instrumento SMILE-C se logró describir los estilos de vida en los estudiantes universitarios de Ingeniería del departamento de Amazonas (Perú), siendo predominantemente más saludable.

De esta manera, se puede evidenciar que los estilos de vida durante el confinamiento por la COVID – 19 han llevado a muchos de los estudiantes universitarios a un cambio favorable para su salud y bienestar personal. Sin embargo, no debemos dejar de lado algunos aspectos como la

actividad física y el sueño reparador que aún se encuentran en proceso y deben consolidarse a fin de lograr una vida saludable.

Los estudiantes universitarios que predominaron fueron del sexo masculino, en quienes se observó que el confinamiento cambió sus estilos de vida, y aunque muchos de ellos se dedican a trabajar y estudiar, trataron de mantener el bienestar físico y mental. El sexo femenino a pesar de que fue una población pequeña, también demostró sus cambios en estos tiempos de confinamiento por la COVID-19.

Referencias

Álvarez, P. (2018). Ética e investigación. *Revista Boletín Red Iberoamericana de Pedagogía*,7(2),122-49. http://revista.redipe.org/index.php/1/article/view/434

Ardini C., Barroso M. B., Contreras L. & Corzo L. (2020) *Estudiar durante una pandemia: una mirada al rol del estudiante y la experiencia educativa en entornos virtuales en el marco del ASPO por la pandemia COVID-19.* Córdoba, Argentina. 2020. https://rdu.unc.edu.ar/handle/11086/15888?show=full

Balanzá, V; Kapczinski, Fl; Azevedo, T; Atienza, B; Adriane, R; Mota, J y De Boni, R. (2020). Evaluación de los cambios en el estilo de vida durante la pandemia de COVID-19 utilizando una escala multidimensional. *Revista de psiquiatría y salud mental.* https://doi.org/10.1016/j.rpsm.2020.07.003

Delgado, C. (2020). *Efectos del confinamiento en la salud mental por COVID-19 en la población de Pedro Carbo* [Tesis de pregrado, Universidad Estatal del Sur de Manabí, Ecuador]. Repositorio institucional. http://repositorio.unesum.edu.ec/bitstream/53000/2502/1/Carolina%20Stefania%20Delgado%20Bustamante.pdf

Erazo, B. (2019). *Trastornos de sueño en adultos jóvenes y factores asociados*. [Tesis de pregrado, Universidad Técnica de Machala, Ecuador]. Repositorio institucional. http://repositorio.utmachala.edu.ec/handle/48000/13614

García, L; De la Fuente, L; Sáiz, P; García, P; Bobes, J. 2020. ¿Se observarán cambios en el consumo de alcohol y tabaco durante el confinamiento por COVID-19?. *Revista Adicciones*, Vol.32. http://adicciones.es/index.php/adicciones/article/view/1546/1119

Guerrero, L; León, A (2010). Estilo de vida y salud: un problema socioeducativo. Antecedentes. *Revista Venezolana de Educación*, Vol. 14, núm. 49. https://www.redalyc.org/pdf/356/35617102005.pdf

Herazo, Y., et al. (2020). Estilos de vida relacionados con la salud en estudiantes universitarios. Federación Española de Asociaciones de Docentes de Educación Física. https://dialnet.unirioja.es/servlet/articulo?codigo=7446315

Hernández Sampieri, & Mendoza, C. (2018). *Metodología de la investigación: Las rutas cuantitativa, cualitativa y mixta.* McGraw-Hill Interamericana.

Hidalgo, M; Montón, J; Gonzáles, M. (2006). Evidencias y medidas preventivas en el abuso de sustancias durante la adolescencia. Vol. 8. http://archivos.pap.es/files/1116-588-pdf/613.pdf

Jaramillo, E. (2020). *Estilo de vida en estudiantes de una Institución de Educación Superior Pública durante la pandemia por COVID-19. Período mayo – septiembre del 2020* [Tesis de pregrado, Universidad Católica de Santiago de Guayaquil, Ecuador]. Repositorio institucional. http://192.188.52.94:8080/handle/3317/15243

López, K. V., Garduño, A. M. J., Regules, A. E. O., Romero, L. M. I., Martínez, O. A. G., & Pereira, T. S. S. (2020). Cambios en el estilo de vida y nutrición durante el confinamiento por SARS-CoV-2 (COVID-19) en México: un estudio observacional. *Revista Española de Nutrición Humana y Dietética*, *25*(2),1099. http://ww.renhyd.org/index.php/renhyd/article/view/1099/662

Lozano, A; Fernández, J; Figueredo, V. & Martínez, A. (2020) Impactos del confinamiento por el COVID-19 entre universitarios: Satisfacción Vital, Resiliencia y Capital Social Online. *International Journal of Sociology of Education*, 79-104. DOI: http://doi.org/10.17583/rise.2020.5925

Márquez, J. (2020). Inactividad física, ejercicio y pandemia COVID 19. *Revista de educación física.* Volumen 9 Número 2. https://revistas.udea.edu.co/index.php/viref/article/view/342196/20802578

Montaña, M; Ollé,C; Lavilla, M. (2020). Impacto de la pandemia de Covid-19 en el consumo de medios en España. *Revista Latina de Comunicación Social*, 78: 155-167. DOI: 10.4185. https://dialnet.unirioja.es/servlet/articulo?codigo=7625672

Morales, P; Medina, J; Gutiérrez, C; Abejaro, L; Hijazo, L. & Losantos, R. (2016). Los trastornos relacionados con traumas y factores de estrés en la Junta Médico Pericial Psiquiátrica de la Sanidad Militar Española. *Sanidad Militar*, Vol. 72 (2): 116-124. http://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1887-85712016000200007

Organización Mundial de la Salud. (2018). Alimentación sana. https://www.who.int/es/news-room/fact-sheets/detail/healthy-diet

Organización Mundial de la Salud. (2020). Campañas mundiales de salud pública de la OMS: https://www.who.int/es/campaigns/connecting-the-world-to-combat-coronavirus/healthyathome

Pérez, C; Gianzo, M; Gotzone, B; Ruiz, L; Casis, L & Aranceta, J. (2020). Cambios en los hábitos alimentarios durante el periodo de confinamiento por la pandemia COVID-19 en España. *Revista Española de Nutrición Comunitaria*, 26(2), 1-17. Recuperado de: https://doi.org/10.14642/RENC.2020.26.2.5213

Pérez, J., Dorado, A., Rodríguez-Brioso, M., y López, J. (2020). Resiliencia para la promoción de la salud en la crisis Covid-19 en España. *Revista de Ciencias Sociales (Ve)*, XXVI(4), 52-63. Recuperado de: https://www.produccioncientificaluz.org/index.php/rcs/article/view/34649

Ramírez, H. (2002). Acondicionamiento físico y estilos de vida saludable. *Revista Colombia Médica*, Vol.3(1),3-5. Recuperado de: https://www.redalyc.org/pdf/283/28333101.pdf

Ramírez, J; Castro, D; Lerma, C; Yela, F y Escobar, F. (2020). Consecuencias de la pandemia Covid-19 en la salud mental asociadas al aislamiento social. https://preprints.scielo.org/index.php/scielo/preprint/view/303/358

Rodríguez, F; Espinoza, L; Gálvez, J; Macmillan, N y Solis, P. (2013). Estado nutricional y estilos de vida en estudiantes universitarios de la Pontifica Universidad Católica de Valparaíso. *Revista Udenar*, 15(2), 123 – 135. https://revistas.udenar.edu.co/index.php/usalud/article/view/2355

Rodríguez, L; Egaña, D; Gálvez, P & Navarro, D y Araya, M. (2020). Evitemos la inseguridad alimentaria en tiempos de COVID-19 en Chile. *Revista chilena de nutrición*, Vol.47(3), 347-349. https://scielo.conicyt.cl/scielo.php?pid=S0717-75182020000300347&script=sci_arttext

Rodríguez, M; Crespo, I; Olmedillas, H. (2020). Ejercitarse en tiempos de la COVID-19: ¿qué recomiendan hacer los expertos entre cuatro paredes?. *Revista Española de Cardiología*, 73(7), 527-529. https://www.sciencedirect.com/sdfe/pdf/download/eid/1-s2.0-S0300893220301755/first-page-pdf

Romero-Blanco, C., Rodríguez-Almagro, J., Onieva-Zafra, M. D., Parra-Fernández, M. L., Prado-Laguna, M., & Hernández-Martínez, A. (2020). Physical Activity and Sedentary Lifestyle in University Students: Changes during Confinement Due to the COVID-19 Pandemic. *International journal of environmental research and public health*, 17(18), 6567. https://doi.org/10.3390/ijerph17186567

Sánchez, A; de la Fuente, V. (2020). COVID - 19: cuarentena, aislamiento, distanciamiento social y confinamiento, ¿son lo mismo?. Universidad Privada del Norte, Cajamarca, Perú. https://www.analesdepediatria.org/es-pdf-S1695403320301776

Valero, N., Vélez, M., Duran, Á & Torres, M. (2020). Afrontamiento del COVID-19: estrés, miedo, ansiedad y depresión?. *Revista Enfermería Investiga*, Vol.5(3),63-70. https://revistas.uta.edu.ec/erevista/index.php/enfi/article/view/913/858

Evaluation of quality and efficiency of information resources of educational libraries

Olena V. Veremchuk*
Tetiana S. Pavlenko**
Yaroslava M. Nikolaienko***
Oksana Ye. Matviichuk****
Olena V. Kozhedub*****

ABSTRACT

The objective of the work was to analyze the quality of the information resources of educational libraries. Methods: A user survey of ten educational libraries was conducted to achieve this objective. Results: It was found that representatives of different target groups visit libraries for different purposes. Students and pupils use the library mainly to carry necessary textbooks and books, communicate, attend events. Academics, lecturers / professors, use it not only to obtain the book, but also to check references and read new publications in the library, use electronic resources, as well as to work on research. Sometimes pupils and students often need the help of library staff, indicating a lack of information literacy. Scholars, lecturers / teachers, are often able to fend for themselves. Electronic resources are the most effective, according to respondents, but visitors to educational libraries also continue to use traditional resources. Conclusions: Research shows that to increase the efficiency and quality of information resources of educational libraries, employees should focus their efforts on improving the information literacy of library users, as well as demonstrating the values of the library, inform about library services and maintain using information and communication technologies.
KEYWORDS: education; libraries; information; library user.

*Candidate of Philological Sciences, Associate professor of Department of Philological Disciplines and Social Communications, Faculty of Humanities, Mukachevo State University, Mukachevo, Ukraine. ORCID: https://orcid.org/0000-0003-2514-8733. E-mail: overemchukpop87@gmail.com

**Research Officer of Department of scientific and educational information resources V.O. Sukhomlynsky State Scientific and Pedagogical Library of Ukraine, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0003-3244-7897. E-mail: tetanapavl1706@gmail.com

***Research Officer of Department of scientific and educational information resources V.O. Sukhomlynsky State Scientific and Pedagogical Library of Ukraine, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0002-5959-8161. E-mail: yaroslava.nik.dnpb@gmail.com

****Candidate of Pedagogical Sciences, Associate Professor of Department of scientific and educational information resources V.O. Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0002-8555-3645. E-mail: osvitateka23@ukr.net

*****Candidate of sociological Sciences, Associate Professor of Department of Military Psychology and Pedagogy, Military Institute of Taras Shevchenko National University of Kyiv, Kyiv, Ukraine. ORCID: https://orcid.org/0000-0001-7332-1727. E-mail: kozedubb2001@ukr.net

Evaluación de la calidad y eficiencia de los recursos de información de las bibliotecas educativas

RESUMEN

El objetivo del trabajo fue analizar la calidad de los recursos de información de las bibliotecas educativas. Métodos: Se realizó una encuesta a usuarios de diez bibliotecas educativas para lograr este objetivo. Resultados: Se encontró que representantes de diferentes grupos objetivo visitan las bibliotecas con diferentes propósitos. Los estudiantes y los alumnos utilizan la biblioteca principalmente para llevar los libros de texto y los libros necesarios, comunicarse, asistir a eventos. Académicos, conferencistas / profesores, lo usan no solo para obtener el libro, sino también para revisar referencias y leer nuevas publicaciones en la biblioteca, usar recursos electrónicos, así como para trabajar en investigación. A veces, los alumnos y los estudiantes a menudo necesitan la ayuda del personal de la biblioteca, lo que indica una falta de alfabetización en información. Los eruditos, los conferencistas/ profesores, suelen ser capaces de arreglárselas por sí mismos. Según los encuestados, los recursos electrónicos son los más eficaces, pero los visitantes de las bibliotecas educativas también siguen utilizando los recursos tradicionales. Conclusiones: La investigación muestra que para aumentar la eficiencia y la calidad de los recursos de información de las bibliotecas educativas, los empleados deben centrar sus esfuerzos en mejorar la alfabetización informacional de los usuarios de la biblioteca, así como demostrar los valores de la biblioteca, informar sobre los servicios bibliotecarios y mantener utilizando tecnologías de la información y la comunicación.

PALABRAS CLAVE: bibliotecas educativas; recursos de información; eficiencia; usuario de la biblioteca.

Introduction

Lifelong learning is one of the principles of sustainable development. This encourages an increase in demand for information resources and leads to an increase in their number exponentially. A precondition for effective orientation in the information field is users' information literacy.

Libraries are engaged in creation, organisation, storage, withdrawal of information resources, and also reference services. Ensuring sustainable development of document and information resources of libraries and creating a system of universal access to them is one of the priorities of qualitative changes in libraries to ensure sustainable development of the

country. Library staff can be equated with multidisciplinary scholars, because they are the first to get acquainted with new information resources, and effectiveness of information management and creating a quality information service depends on their orientation in modern science. An important task to improve the efficiency of educational libraries is not only to increase the information contained in their holding to meet the needs of users — scholars, lecturers/professors, teachers, students, pupils, but also to inform users about library resources, primary and secondary documents, providing access to library collections. Services provided by libraries include delivery of documents, photocopying, translation of documents, consultations, replenishment of databases, scientific reference resources and providing remote access to resources of other libraries, information centres and networks, etc.

The aim of this study was to assess the effectiveness and quality of information resources of educational libraries through surveying their users. Achieving this aim provided for the fulfilment of following objectives:

1) to develop a questionnaire to assess the effectiveness of information resources;

2) to conduct a survey of users of educational libraries.

1. Literature review

A number of studies deal with the complex problems associated with the transformation of library services and resources under the influence of the spread of electronic technologies. Researchers note that the tools for assessing the quality of library information services are gradually expanding, primarily due to the introduction of information technology into practice (Enakrire & Ocholla, 2017; Kaur, 2018). They affect the sources of information, library services, human resources involved in the library system, and the speed of meeting the users' information needs (Pareek & Gangrade, 2016). Information technologies also save time and human resources for library work: creating and maintaining catalogues, virtual help, electronic search, database creation, document delivery, etc. (Hussaini et al., 2017; Asemi et al., 2020; Yahaya, 2019). Besides, information technology provided the opportunity to remotely access the necessary information and the ability to communicate with libraries regardless of borders (Pareek & Gangrade, 2016; Omeluzor et al., 2017). Electronic information resources have appeared, and virtual reading has been

developing thanks to information technologies in general and electronic libraries in particular (Borisova et al., 2020). Electronic educational libraries are in demand among students, teachers, lecturers/professors, researchers (Anyim, 2018). At the same time, each user pursues his goal: preparation for classes, homework, writing a scientific paper, etc. (Sivakumaren, 2017). Although there are still problems with digitisation of information (Balutagi et al., 2018; Ukangwa et al., 2020), it is believed that electronic information resources have won over the printed ones (Das & Mahapatra, 2018).

Despite the fact that most information resources are electronic, there is still a problem of their preservation (viruses, natural disasters, etc.), which requires library staff to have appropriate qualifications, proper information, communication and technological support (Adetunla & Agbetuyi, 2018).

There is also a need for interlibrary exchange of information, as some libraries keep unique single copies of information sources, which should be available to anyone wishing to read them (Veeramallu et al., 2021).

Social networks make a significant contribution to the communication of libraries and their users. They provide for an effective exchange of information on library working hours, new arrivals to the library holding, ongoing events, etc. In turn, library page visits and user comments can provide feedback (Ahmed et al., 2020; Fasae, 2020).

In general, information resources include published and unpublished primary (created by the author) and secondary (the result of analytical and synthetic processing of one or more primary documents to adapt information to the consumer's information needs) documents on paper and electronic media (books, serial publications, dissertations etc.), factographic, full-text and bibliographic databases (DB). These are catalogues, card indexes, collections of databases, in particular on educational subjects. Textbooks, journals, monographs, newspapers, scientific and technical reports, encyclopaedias, manuscripts, patents, standards (Popoola, 2017; Ponomarenko, 2015), research data (Tenopir et al., 2017) are also considered information resources.

A number of studies have already been conducted to study the effectiveness and the quality of information resources of educational libraries. In particular, a survey was conducted (Veeramallu et al., 2021) to assess the effectiveness of information resources using the following data: web links, arrivals, availability of catalogues, library services, availability

of Internet access. Questionnaires and interviews surveyed user satisfaction with library services (Anyim, 2018; Tetteh & Nyantakyi-Baah, 2019). According to the users of educational libraries, the effectiveness and the quality of information resources include comprehensiveness, accessibility, prompt satisfaction of information needs, ease of use, availability of information in several formats and media (Pareek & Gangrade, 2016).

Surveys of educational library managers conducted in the United States, Canada, and 22 European countries showed that their staff can provide qualified informational advice on finding open-access scientific and educational resources (Cox et al., 2017). However, the issue of improving the methodology for assessing the effectiveness and the quality of information resources of educational libraries remains urgent.

It should be noted that the network of educational libraries of Ukraine is the largest and unites 18,066 libraries of the Ministry of Education and Science of Ukraine and the National Academy of Pedagogical Sciences of Ukraine, including about 15,000 libraries of secondary schools. The methodical centre is Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine. The total library holding is 333.2 million documents. The total number of users is 7.7 million, the number of visits is almost 202 million, 49 million documents are lent out to users annually. Number of employees is more than 20 thousand people.

2. Materials and methods

The effectiveness and the quality of information resources of educational libraries was assessed as follows: 1) 10 libraries of Ukraine belonging to the network of educational libraries were selected for research; 2) a questionnaire was developed to assess the effectiveness and the quality of information resources of educational libraries; 3) a survey of library users was conducted; 4) the results of the survey were processed, the factors having the greatest impact on the effectiveness of information resources were determined, and the effectiveness of information resources available in the studied libraries were identified according to users.

The sample involved 10 libraries, in particular, Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine, the Scientific Library of the University of Education Management, libraries of secondary educational institutions No. 132, 156, 277 of Kyiv, the Library of Cherkasy Regional Institute of Postgraduate Education of Teachers, the Library of Nizhyn Mykola Gogol State University, the Library of the State Educational Institution

"Bohuslav Centre for Vocational Education", the Library of the State Vocational School "Koziatyn Interregional Higher Vocational School of Railway Transport", the Library of Chernihiv Secondary School No. 35. The sample also involved 804 users of the above libraries, including 125 scholars, 133 lecturers/professors, 82 students, 144 teachers, 270 pupils and 50 parents.

For a more complete acquaintance with the information resources of educational libraries, we also used the data collected and published by specialists of Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine (National Academy of Educational Sciences of Ukraine, 2019).

Quantitative methodology was used in the work. A questionnaire containing 30 questions, answers to which were "Yes" or "No", was developed to assess the effectiveness and the quality of information resources of educational libraries. This questionnaire can be used to determine the target group of respondents, the purpose of visiting the library, to assess whether users have achieved the goal and whether they sought help. The opinions of users of educational libraries studied in this paper on the effectiveness of library and information resources, in particular, electronic (electronic journals, electronic books, electronic catalogues) and traditional, were also collected through the survey.

Besides, a survey of parents of students of vocational educational and general secondary educational institutions was conducted, which allowed studying the opinion of parents about the effectiveness and the quality of information resources contained in the libraries of educational institutions where their children study.

Participation in the survey was voluntary and safe. Anonymity and confidentiality were observed.

Upon analysing the results of the survey, the conclusions were drawn about the information literacy of library users and the degree of effectiveness of information resources of educational libraries, as well as possible areas for improving the process of interaction between users and library staff, its material, technological and intellectual resources focused on meeting the information needs of users by providing access to information products and resources, including remotely, were outlined.

3. Results

According to the Law of Ukraine "On the National Informatisation Programme", the information resource is "a set of documents in information systems (libraries, archives, data banks, etc.)" (Verchovna Rada of Ukraine, 2020). Information resources include scientific and technical literature, documentation, books, periodicals, patent documents, catalogues, design documents, reporting scientific and technical documentation, manuscripts, translations on paper or other media. These also include information systems, information technology, personnel who process information (Maslianko & Lissov, 2007). Different scholars defined the concept of effectiveness differently. In this paper we take the following definition: "Effectiveness is the ability to bring effect, the efficiency of the process, project, etc., which are defined as the ratio of effect, result to the costs that provided this result" (Yashchenko & Romaniuk, 2008, p. 238).

The quality of information resources will be understood a set of characteristics and properties that meet the information requirements and needs of users.

The library users survey was conducted in order to assess the effectiveness and the quality of information resources of Ukrainian educational libraries (see Table 1).

Table 1. Library resources

	Library	Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine	Library of Cherkasy Regional Institute of Postgraduate Education of Teachers	Scientific Library of the University of Education Management	Library of Nizhyn Mykola Gogol State University
Resource	Holding (approx.)	578,939,000	41,894	106,352	976,448
	Holding use (approx.)	210,174	31,162	117,153	103,009
	Users, according to the Unified User Register	5,110	2,031	5,113	2,946
	Number of visits, including virtual	149,098 (144,109)	28,753 (20,301)	18,003 (5,527)	136,716 (34,591)
	Own databases	2	---	_____	44,038
	Entries in the electronic catalogue	443,481	18,536	_____	278,677
	Internet representation	Web-portal	Section at the portal	Web-page	Web-site
	Availability of the electronic catalogue at the website	Yes	---	_____	Yes
	Availability of the electronic library at the website	Yes	---	_____	Yes

As Table 1 shows, all reviewed libraries have a large holding, they are represented on the Internet or have a separate web-site or a page on the web-site of the institution to which they are subordinated. All of them are in demand among visitors, which depends on the library holding and the availability of an electronic catalogue, electronic library and their own databases, they can meet the information needs of their users. A total of 804 users of the above libraries were surveyed. Table 2 shows the distribution of respondents by libraries and target groups.

Table 2. Sample description

	Target groups	Scholars	Lecturers/ professors	Students	Teachers	Pupils	Parents	Total
Libraries	Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine	21	46	17	23	0	0	107
	Library of Cherkasy Regional Institute of Postgraduate Education of Teachers	14	28	0	65	0	0	107
	Scientific Library of the University of Education Management	67	12	0	0	0	0	79
	Library of NizhynMykola Gogol State University	17	31	65	18	0	0	131
	Library of the State Educational Institution "Bohuslav Centre for Vocational Education"	3	8	0	0	39	10	60
	Library of the State Vocational School "Koziatyn Interregional Higher Vocational School of Railway Transport"	3	8	0	0	40	8	59
	Library of Kyiv Secondary School No. 132	0	0	0	10	50	8	68
	Library of Kyiv Secondary School No. 156	0	0	0	10	50	8	68
	Library of Kyiv Secondary School No. 277	0	0	0	9	50	8	67
	Library of Chernihiv Secondary School No. 35	0	0	0	9	41	8	58
	Total	125	133	82	144	270	50	804

The purpose for which the users visit educational libraries was determined through a survey. The results are presented in Table 3.

Table 3. The purpose of visiting the library and assessment of its achievement

	Target groups		Scholars	Lecturers /professor	Students	Teachers	Pupils
Purpose of visiting the library	Take the book	Yes	66	101	67	140	270
		No	59	32	15	4	0
	Read reference literature	Yes	91	37	8	113	16
		No	34	96	74	31	254
	Prepare for class	Yes	0	54	74	77	29
		No	125	79	8	67	241
	Prepare for the report	Yes	17	8	19	64	85
		No	108	125	63	80	185
	Use e-resources	Yes	106	81	75	78	0
		No	19	52	7	66	270
	Review printed publications	Yes	68	45	11	47	0
		No	57	88	71	97	270
	Use online tools	Yes	16	42	76	34	0
		No	109	91	6	110	270
	Read the news of periodicals	Yes	103	67	2	67	0
		No	22	66	80	77	270
	Read new arrivals	Yes	36	38	1	53	0
		No	89	87	81	91	270
Assessment of achievement of the purpose	The purpose was achieved	Yes	122	129	61	140	167
		No	3	4	21	4	103
	Too much time is spent on achieving the purpose	Yes	9	26	33	27	43
		No	116	107	49	117	227
	They orientated themselves in the information resources of the library	Yes	111	112	13	113	32
		No	14	21	69	31	238
	They had to ask colleagues for help	Yes	2	5	24	5	0
		No	123	128	58	139	270
	They had to seek help from librarians	Yes	7	16	38	18	238
		No	118	117	44	126	32
	There is too much information received	Yes	75	38	29	23	12
		No	50	95	53	121	258
	Enough skills to use information resources	Yes	119	126	22	101	35
		No	6	7	60	43	235

As Table 3 shows, different target groups of respondents pursue different purposes when visiting the educational library. For example, both scholars, lecturers/professors, teachers and students, pupils come for books. All but pupils also use e-resources available in the library. Scholars, pupils, are the most interested in reference books, the least — teachers

and students. Students and teachers most often prepare for classes in educational libraries. Scholars, lecturers/professors and teachers are most interested in news from periodicals. The study showed that scholars, lecturers/professors are better oriented in the information space as a field in which they are experts and related fields of science, and are more independent in finding the necessary information, work with different sources of information, most of all respondents use abstract journals and other information publications.

Teachers, students and pupils prefer to receive particular information, necessary facts and data that can be conveniently obtained from an employee of the educational library.

Scholars, lecturers/professors and teachers are able to achieve the goal of visiting the library. Students and pupils are less familiar with the tools needed for this. All of them do not spend much time to meet their information needs. Students often seek help from groupmates as well as librarians when problems arise. In most cases, pupils seek help from a library employee. Students and pupils still need to learn how to use library resources to get the information they need. This indicates a different degree of information literacy of the representatives of different target groups.

A separate survey was conducted among 50 parents of pupils of vocational schools and secondary schools, which showed that 87% of parents believe that the information resources available in the libraries of educational institutions where their children study are sufficient to prepare for classes. There were 13% of parents who consider the supply of information resources of libraries to be insufficient for their children's education and they are forced to buy books or search for the necessary information on the Internet.

The survey also found out the opinion of users of educational libraries regarding the effectiveness and the quality of information resources available to them. Its results are presented in Table 4.

The assessment was conducted on a 6-point scale, where 0 — there is no such resource in the library, 1 — very inefficient, 2 — inefficient, 3 — not efficient enough, 4 — efficient, 5 — highly efficient. The confidence interval was 0.95, $p \leq 0.05$. The survey results once again confirmed that currently not all libraries have the necessary resources to effectively meet the information needs of users, or their condition is unsatisfactory. For example, not all educational libraries have electronic libraries and electronic catalogues, in particular school libraries and vocational school libraries. This was confirmed by more than 50% of surveyed

users of educational libraries. The same number of respondents did not find electronic search in libraries, perhaps that is why many users consider the traditional search in catalogues is still considered effective. Many libraries are not represented on the Internet, which also negatively affects the information support of users.

As for the traditional ways to meet the information needs of users of educational libraries, they are popular and considered effective.

Table 4. Opinion of users about the effectiveness of library and information resources

	Score	0	1	2	3	4	5
Resource	Scientific periodicals online	54 %	0.1 %	0.3 %	12 %	19.1 %	24.5 %
	E-books	54 %	0.5 %	1.2 %	23.1 %	14.2 %	7 %
	Electronic catalogues	51 %	0.2 %	0.3 %	21.8 %	14.7 %	12 %
	Electronic search	51 %	1 %	1.7 %	18.5 %	17.1 %	10.7 %
	Monographs	48.3 %	0.8 %	2.5 %	10.3 %	26.7 %	11.4 %
	Author's abstracts of dissertations	61 %	2.1 %	3.4 %	8.9 %	19.3 %	5.3 %
	Collections of scientific works	39 %	1.7 %	2.9 %	12.5 %	26.3 %	17.6 %
	Patents / standards	27 %	0.4 %	1.1 %	37.6 %	26 %	7.9 %
	Proceedings of conferences / seminars	32 %	1 %	1.5 %	53.2 %	10.3 %	2 %
	Circulation	25 %	1 %	1.5 %	28.3 %	31 %	13.2 %
	Booking of materials	7 %	2 %	2 %	46.7 %	31.5 %	10.8 %
	Email	27 %	0.5 %	1.1 %	48 %	17.6 %	5.8 %
	Newsletter of new arrivals	2 %	3 %	5 %	68 %	20 %	2 %
	Library card catalogue	3 %	0.5 %	12.1 %	20.6 %	47.3 %	16.5 %
	Thematic card indexes	34 %	0.8 %	7.4 %	13 %	26 %	9.8 %
	Systemic card index of articles	38.1 %	0.4	5.3	9.6 %	31.9 %	14.7 %
	Interlibrary loan	60 %	0.3 %	0.7 %	7 %	21	11 %
	Bibliographic manuals	50 %	0.1 %	0.8 %	23 %	15.1 %	11 %
	Recommended editions	50 %	0.3 %	1.0 %	29 %	13.1 %	6.9 %
	Abstract resources	50 %	0.7 %	0.9%	18 %	17 %	23.4 %
	Information and analytical resources	50 %	0.1 %	0.3%	15 %	29 %	5.6 %
	Databases of scientific information	50 %	0.2 %	0.8%	8 %	26 %	15 %
	Printed media	0 %	3 %	18 %	57.3 %	16.7 %	5 %

4. Discussion

The growing demand for quality socially significant information and the expansion of consumer opportunities in the prompt receipt of information from the holdings of the modern library is an urgent challenge today. There are corresponding changes in the development of library resources under the influence of electronic technologies. Along with the traditional resources of libraries on paper (books, newspapers, magazines, etc.), electronic information resources (electronic catalogues, electronic full-text documents, analytical information, etc.) increase their capacity. Therefore, there is a need to orient in the information field of librarians themselves and meet the information needs of users. In order to reduce the time spent on finding the necessary sources of information, scientific and analytical processing and dissemination of information in the field of education is carried out through the preparation, creation and dissemination of analytical materials.

The information needs of library users are regularly studied in order to optimise their work. For this purpose, modern means of communication are introduced, electronic databases are created and regularly filled in (Seletskyi, 2018). Today, librarians' professional role has expanded from simply providing navigation in the information space of users to a mediator between the available information and the creation of new one (Abolikhina et al., 2018). Employees of educational libraries, in particular, Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine, who process and structure significant amounts of primary information on education, pedagogy and psychology, create analytical thematic, bibliographic and abstract reviews (Zozulia, 2015), monitor information resources (Matviichuk, 2020).

In order to increase the efficiency of information resources, it is important to study the experience of other countries. Foreign libraries mainly have electronic resources and electronic libraries available from mobile technologies. At the same time, they provide web-sites with relevant, meaningful content, easy navigation, links to Internet resources for professional communication, etc. (Mishchanin, 2018). It is also possible to increase the efficiency of information resources by the following measures: creation of navigation tools on all library and information resources and network services on the web-sites of educational libraries, expansion of information resources, for example, presentations, videos of lectures,

seminars, etc.; creation of online platforms for professional communication on the basis of libraries.

However, a number of states have problems with providing libraries with the necessary resources. For example, a survey of 175 users of educational libraries (Corpuz, 2020) shows that library services are useful and important. However, the provision of libraries is average. The reasons are the lack of new revenues, as well as proper technical support.

As this study showed, the fund of libraries included in the sample is replenished every year.

There is also a difference between the services provided by libraries and the services expected by their users (Khan & Ameen, 2020).

The availability of high-quality electronic catalogues in libraries, which make the search for the necessary information fast and convenient, also helps to increase the efficiency of information resources (Okoye, 2019).

As this study showed, only every second library has an electronic catalog. However, 14.7% of surveyed library users consider it an effective resource, and 12% - highly effective.

Besides, to improve the efficiency of information resources, work has recently been done to create a single information space, which provides for the unification, mutual use of information resources of collections, libraries and other information and cultural institutions with further integration into the European and world information space (Kovalenko & Zorina, 2017).

Information literacy is one of the criteria for the effective use of information resources. Information literacy is a set of abilities that allow a person to determine what information is needed, find, assess and use it. The work of librarians should be aimed at teaching users to use the information contained in libraries (Kanyengo & Kamau, 2020; Wang, 2019). Studies (Kannan, 2020; Kanyengo & Kamau, 2020) showed that the following obstacles may arise on the way to obtaining information: time constraints due to user-inconvenient library work schedule, insufficient number of library staff, lack of sufficient jobs for users and relevant modern equipment, insufficient qualification of library staff, lack of cooperation of libraries with other departments of the structure, lack of Internet access, etc.

The survey (Lewis & Mallaiah, 2014; Veeramallu et al., 2021) found that most pupils and students need the help of library staff in finding the necessary information resources, as well as special information literacy training that will help use libraries more effectively.

According to this study, only 28% of surveyed library users can cope with finding the necessary library resources on their own. The remaining 72% need the help of library staff. Under such conditions, librarians act as providers of information. They promote their resources through blog web-sites, teach users to work with electronic libraries, repositories. This requires employees of educational libraries to be competent to provide quality information services, to understand information resources themselves, to assess them.

In this paper, only 10 libraries limited themselves to assessing the effectiveness of the quality of information resources, and did not cover all categories included in the network of educational libraries.

In future research, it is important to include periodic evaluation of the effectiveness of the quality of information resources in order to study the information needs of users, improve the services of educational libraries and create appropriate conditions for them to obtain the necessary information. It is important to recurrently evaluate the effectiveness and quality of information resources in order to study the information needs of users, improve the services of educational libraries and create appropriate conditions for them to obtain the necessary information.

Conclusion

The issue of rapid orientation in the information space is urgent in the era of rapid growth in the information volumes. Libraries, in particular educational ones, facilitate this task. However, the necessary conditions for their effective use are the information literacy of users and high-quality information resources in libraries. The effectiveness and the quality of information resources were assessed through a survey in this work. The results of the survey showed that users of educational libraries consider highly effective such information resources that do not require much time to obtain, including electronic, although respondents assess printed information resources as effective. The availability of electronic catalogues, electronic search and well-established communication between the libraries of the network, in particular, the availability of interlibrary loan, as well as abstract and

information-analytical resources play an important role in meeting the information needs of users of educational libraries.

The results of this study can be useful to specialists in the field of information activities of educational libraries, as well as librarians and bibliographers who study information resources, in particular, to assess their effectiveness and quality.

References

Abolikhina, O. O., Kaftan, O. I., Panchenko, T. S., & Bielodied, O. V. (2018). *Information and analytical activity of free economic zones libraries in the conditions of innovative changes*. Mykolayiv: NUK.

Adetunla, B. O. G., & Agbetuyi, P. A. (2018). Preservation and conservation of electronic information resources in private university libraries of South-West, Nigeria. *A Quarterly Open Access Journal*, 8(2). Retrieved from https://irjlis.com/preservation-and-conservation-of-electronic-information-resources-in-private-university-libraries-of-south-west-nigeria/

Ahmed, M. B., Dala, H. S., Jegbefumea, C. M., & Dewa, A. A. (2020). Social media platforms used in provision and access of information resources in academic libraries for achieving equitable and quality education in Nigeria. *Gombe Technical Education Journal*, 12(2), 35-43. Retrieved from http://gotejfcetgombe.com.ng/index.php/gotej/article/view/71

Anyim, W. O. (2018). E-library resources and services: improvement and innovation of access and retrieval for effective research activities in University e-libraries in Kogi State Nigeria. *Library Philosophy and Practice*, 1647, 1-21. Retrieved from https://digitalcommons.unl.edu/libphilprac/1647/

Asemi, A., Ko, A., & Nowkarizi, M. (2020). Intelligent libraries: a review on expert systems, artificial intelligence, and robot. *Library Hi Tech*, 39(2). Retrieved from https://www.emerald.com/insight/content/doi/10.1108/LHT-02-2020-0038/full/html

Balutagi, S., Lamani, M. B., & Kumbar, B. D. (2018). Use of electronic information resources by faculty members of engineering and technology institute libraries in Gujarat State: A survey. *Journal of Advances in Library and Information Science*, 7(1), 81-88. Retrieved from https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1625&context=libphilprac

Borisova, A. A., Mikidenko, N. L., & Storozheva, S. P. (2020). Electronic Libraries in the Educational Environment of the University: The Usage of Practices. In *International Scientific Conference "Digitalization of Education: History, Trends and Prospects" (DETP 2020)* (pp. 885-891). Dordrecht: Atlantis Press. https://doi.org/10.2991/assehr.k.200509.156

Cox, A. M., Kennan, M. A., Lyon, L., & Pinfield, S. (2017). Developments in research data management in academic libraries: Towards an understanding of research data service maturity. *Journal of the Association for Information Science and Technology*, 68(9), 2182-2200.

Corpuz, D. A. (2020). Library resources and functional effectiveness of an academic library: Meeting the challenges of the digital age. *Humanities & Social Sciences Reviews*, *8*(4). https://doi.org/10.18510/hssr.2020.8425

Das, B. K., & Mahapatra, D. R. K. (2018). Role of electronic information resources in special libraries in ICT era. *INFOLIB*, *11*(2), 1-7. Retrieved from https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=5305&context=libphilprac

Enakrire, R. T., & Ocholla, D. N. (2017). Information and communication technologies for knowledge management in academic libraries in Nigeria and South Africa. *South African Journal of Information Management*, *19*(1), 1-9. Retrieved from https://www.researchgate.net/publication/317265771_Information_and_communication_tec hnologies_for_knowledge_management_in_academic_libraries_in_Nigeria_and_South_Africa

Fasae, J. K. (2020). Use of social media by librarians in promoting library and information resources and services in academic libraries in Ekiti and Ondo states, Nigeria. *Library Philosophy and Practice*, 4093. Retrieved from https://digitalcommons.unl.edu/libphilprac/4093/

Hussaini, S., Vashistha, R., Jimoh, A. O., & Jimah, H. (2017). Automation of library services for enhanced users' satisfaction of information resources in academic libraries in Nigeria. *International Journal of Advance Research in Science and Engineering*, *6*(09), 572-580. Retrieved from https://www.academia.edu/39127168/automation_of_library_services_for_enhanced_users_s atisfacton_of_information_resources_in_academic_libraries_in_nigeria

Kannan, S. (2020). A comparative study on user satisfaction with the information resources and library facilities by faculty members in three agriculture libraries: ABU, FUTM, and FUTO, in Nigeria. *Library Philosophy and Practice*, *4588*, 1-28. Retrieved from https://digitalcommons.unl.edu/libphilprac/4588/

Kanyengo, C. W., & Kamau, N. (2020). Information literacy policies and practices in health science and medical libraries in Kenya. *Zambia Journal of Library & Information Science*, *4*(1). Retrieved from https://zajlis.unza.zm/index.php/journal/article/view/42

Kaur, G. (2018). Attitude and satisfaction of users regarding electronic information resources in the libraries of research institutes of Jalandhar. *International Research: Journal of Library & Information Science*, *8*(1), 114-126. Retrieved from https://irjlis.com/attitude-and-satisfaction-of-users-regarding-electronic-information-resources-in-the-libraries-of-research-institutes-of-jalandhar/

Khan, M. T., & Ameen, K. (2020). An assessment of effectiveness of GCU library services in fulfilling users' needs and demands. *Pakistan Library & Information Science Journal*, *51*(3), 39-50. Retrieved from https://lib.zjxu.edu.cn:8000/asset/detail.aspx?id=2031040120782

Kovalenko, S. H., & Zorina, N. Ye. (2017). Authoritative files as a means of unification in the conditions of formation of a single information space. *Visnyk Knyzhkovoi palaty*, *9*, 10-16.

Verchovna Rada of Ukraine. (2020). On the National Informatization Program. Retrieved from https://zakon.rada.gov.ua/laws/show/74/98-%D0%B2%D1%80?lang=en#Text

Lewis, F., & Mallaiah, T. Y. (2014). Use of information resources in engineering college libraries of Dakshina Kannada and Udupi Districts: A comparative study. *Annals of Library and Information Studies*, *61*(2), 142-152.

Maslianko, P. P., & Lissov, P. M. (2007). Information resources and means of their creation. *Visnik of the Volodymyr Dahl East Ukrainian National University*, *1*(7), 132-140. Retrieved from http://lissov.kiev.ua/files/publications/KPI/Maslyanko_Lissov_InfoMeasurement.pdf

Mishchanin, N. M. (2018). Consolidated web resources of scientific libraries of the educational branch of Ukraine. *Visnik Harkivs'koi derzavnoi akademii kul'turi*, *53*, 59-73.

Matviichuk, O. Ye. (2020). Information resources of DNPB of Ukraine named after VO Sukhomlinsky on health-saving learning technologies. In *Materials of the international scientific-practical conference "Transformation of the system of public management of creation of health-preserving and safe space of Ukraine (modernization, innovations, development)"* (pp. 56-62). Kyiv: Vydavnytstvo Personal.

National Academy of Educational Sciences of Ukraine. (2019). Leading educational libraries in space and time: Activity monitoring. Retrieved from https://dnpb.gov.ua/ua/?ourpublications=20794

Okoye, I. B. (2019). Information literacy for effective utilization of information resources in academic libraries in Nigeria. *Library Philosophy and Practice*, *2688*. Retrieved from https://digitalcommons.unl.edu/libphilprac/2688/

Omeluzor, S. U., Akibu, A. A., Dika, S. I., & Ukangwa, C. C. (2017). Methods, effect and challenges of library instruction in academic libraries. *Library Philosophy and Practice*, *1465*. Retrieved from https://www.academia.edu/32868017/Methods_Effect_and_Challenges_of_Library_Instruction_in_Academic_Libraries

Ukangwa, C. C., Otuza, E. C., & Ehioghae, M. (2020). Influence of information sharing on job satisfaction of librarians in private universities in South-East and South-West, Nigeria. *Journal of Information and Knowledge Management*, *11*(4), 138-145.

Pareek, N., & Gangrade, A. (2016). Role of the libraries as information resources in globalization. *International Journal of Librarianship and Administration*, *7*(1), 13-23.

Ponomarenko, L. O. (2015). Creation and development of an integrated branch information and bibliographic resource in the leading libraries of the Ministry of Education and Science of Ukraine and the National Academy of Pedagogical Sciences of Ukraine in modern conditions. *Library science. Record studies. Informology*, *1*, 57-64. Retrieved from http://nbuv.gov.ua/UJRN/bdi_2015_1_9

Popoola, S. O. (2017). Faculty awareness and use of library information products and services in Nigerian Universities. *Malaysian Journal of Library & Information Science*, *13*(1), 91-102.

Seletskyi, A. V. (2018). V. O. Sukhomlynskyi state scientific and Pedagogical Library of Ukraine in the system of informational and analytical support of the educational branch. *Scientific and Pedagogical Studies*, *1*, 99-110. https://doi.org/10.32405/2663-5739-2018-1-99-110

Sivakumaren, K. S. (2017). Information resources usage in university and college libraries: A study. *Journal of Current Trends in Library and Information Science*, *4*(1), 14-18. Retrieved from http://www.jctl.org/index.php/jctl/article/view/44

Tenopir, C., Talja, S., Horstmann, W., Late, E., Hughes, D., Pollock, D., Schmidt, B., Baird, L., Sandusky, R., Allard, S. (2017). Research data services in European academic research libraries. *LIBER Quarterly*, *27*(1), 23-44. Retrieved from https://liberquarterly.eu/article/view/10706

Tetteh, E. O. A., & Nyantakyi-Baah, L. (2019). Library value through user satisfaction: The case of academic libraries in Ghana. *International Journal of Library and Information science*, *11*(5), 44-57. Retrieved from https://academicjournals.org/journal/IJLIS/how-to-cite-article/098C63F61639

Veeramallu, D., Kona, R., & Rudraksha, G. (2021). User opinion and satisfaction about library information resources in engineering college libraries. *Library Philosophy and Practice*, *4800*. Retrieved from https://digitalcommons.unl.edu/libphilprac/4800/

Wang, L. (2019, April). Basic literacy composition of interviewers of document information resources in university libraries in the digital information age. *3rd International Conference on Culture, Education and Economic Development of Modern Society (ICCESE 2019)* (pp. 1690-1692). Dordrecht: Atlantis Press. https://doi.org/10.2991/iccese-19.2019.372

Yahaya, R. M. (2019). Users' satisfaction with information resources in libraries of agricultural research institutes in Nigeria. *Information Impact: Journal of Information and Knowledge Management*, *10*(1), 59-73.

Yashchenko, O. I., & Romaniuk, O. P. (2008). Economic and social aspects of performance evaluation. *Scientific Bulletin of UNFU*, *18*(6), 237-242. https://nv.nltu.edu.ua/Archive/2008/18_6/237_Jaszczenko_18_6.pdf

Zozulia, S. M. (2015). Information and analytical products of scientific libraries in the system of meeting the information needs of users. *Taurian Bulletin of Education*, *2*(1), 273-278.

A Comparative Study of Hobbes and Nizam Al Mulk Tusi on the Idea of Authoritarian State

Mehdi Masoudi Ashtiyani *
Maghsood Ranjbar **
Darab Foolady ***

ABSTRACT

Man is a social being that always needs the contribution and help of other humans for survival. On the other hand, due to the difference of opinions, tastes, interests and objectives, they have conflicts with each other. Then, they assault each other in order to protect their personal interests and sometimes this hostility endangers the existence and health of the person and in some cases the survival of the society. This is why we need some laws to guard the society and ensure the survival of mankind and protect the rights of all individuals. These laws will put an end to the conflicts and differences and this is of course possible within a framework. Accordingly, given the importance and place of the problem of governance and its related issues including the ruler, people and law, as the most important concern of the political thinkers, the current essay seeks to study the political thought of Khajeh Nizam Al Mulk Tusi and Hobbes and the foundations of their poltical ideas and compare the place of the ruler, people and law in the political thought of these philosophers.

KEY WORDS: Authoritarian State; ruler; Thomas Hobbes; Khajeh Niza Al Mulk.

* Ph.D, Department of Political Science - Political Thought, Ashtiyan Branch , Islamic Azad University, Ashtiyan, Iran.

** Faculty of Islamic Azad University of Qom Branch, Qom, Iran.

*** Faculty of Islamic Azad University of Ashtiyan Branch, Ashtiyan, Iran.

Un estudio comparativo de Hobbes y Nizam Al Mulk Tusi sobre la idea del Estado autoritario

ABSTRACT

El hombre es un ser social que siempre necesita la contribución y ayuda de otros humanos para sobrevivir. Por otro lado, debido a la diferencia de opiniones, gustos, intereses y objetivos, tienen conflictos entre sí. Luego, se atacan entre sí con el fin de proteger sus intereses personales y en ocasiones esta hostilidad pone en peligro la existencia y la salud de la persona y en algunos casos la supervivencia de la sociedad. Es por eso que necesitamos algunas leyes para proteger la sociedad y asegurar la supervivencia de la humanidad y proteger los derechos de todas las personas. Estas leyes pondrán fin a los conflictos y las diferencias y, por supuesto, esto es posible dentro de un marco. En consecuencia, dada la importancia y el lugar del problema de la gobernanza y sus temas relacionados, incluidos el gobernante, el pueblo y la ley, como la preocupación más importante de los pensadores políticos, el ensayo actual busca estudiar el pensamiento político de Khajeh Nizam Al Mulk Tusi y Hobbes y los fundamentos de sus ideas políticas y comparar el lugar del gobernante, el pueblo y la ley en el pensamiento político de estos filósofos.

PALABRAS CLAVES: Estado autoritario; gobernante; Thomas Hobbes; Khajeh Niza Al Mulk.

Introduction

Humans are in conflict with each other due to their difference in opinions, tastes, interests and objectives. Then, they assault each other in order to protect their own interests. To this end, for survival of the society and the mankind, we need some laws that would protect the rights of all individuals in the society and in some conditions these laws could serve as a means for put an end to the conflicts and differences. Thus, thinkers since the time immemorial have offered their political ideas within the framework of a branch of practical philosophy better known as the politics or the art of management of society. They have also developed theories of the foundations and principles of power and government, tasks and characteristics of the rulers, place of people as well as the issue of laws governing their relations. In every political system and constructive ideas emerged from it, there is an independent and specific perspective of man, world, society and the relations that have formed them. It is based on this perspective that intellectual principles of an era can be analyzed and systematized. On the one hand, various theories of political system based on the notions that are considered in this study (ruler, people

and law), define different structure and function for Islamic state. The first reason of this difference is the type of view of the thinkers of the key issues of politics and governance. This in turn has its origin in their culture and the social norms according to which they have lived. Generally speaking, they are influenced by the social, moral and political conditions of the society. The other problem lies in the different views of key notions of politics and political thought and philosophy like ruler, people and law. These notions are ensnared by tendencies and needs, wishes, conceptions and human mental backgrounds which are rooted in culture and civilization and have been raised in their particular temporal and spatial forms and particularly in the era of the two thinkers considered in the current stuy (Hobbes and Khajeh Nizam Al Mulk Tusi).

Most Muslim thinkers believe that one of the basic features of ruling is absolute governance is exclusively for God (Tabatabaei, 1993: 71, 90). On the other hand, problem of governance and its related notions (as the subject-matter of the present study), have made a considerable part of the political thought particularly the realist philosophers focused on themselves including Hobbes who has discussed this problem based on his own particular methodology, philosophy and linguistic, temporal, spatial and cultural conditions. The status of Hobbes in current texts of philosophy and politics and society is influential and high because he has explained the most key discussion of political philosophy and politics, i.e. power and state, in a systematic and comprehensive way (Yunisi and Akbari, 2015: 93). Based on the geometrical method and totality of his political ideas, Hobbes has founded a systematic science the very foundation of which is grounded in human will and reason. This Hobbesian initiative turned him to the founder and pioneer of modern political philosophy. Hobbes contends that political society and government is the result of neither the realization of the Divine providence and will nor the cultivation of virtue in individuals, rather he considers them to be grounded just in the personal interests and expediency of humans. On the other hand, Abu Ali Hassan Ibn Ali Ibn Eshaq Tusi better known as Khajeh Nizam Ali Mulk Tusi, as one of the renowned Iranian Muslim ministers due to his colorful role in Seljuqi government, special religious attachments, special view of caliphate and his interested denomination, his specific relations in Abbasid caliphate and returning to Iranian traditions in Islamic state, can be considered as one of the

most significant political theorists and perhaps the most promininent one in the field of power and governance in Seljuqi era. Political thinkers like Khajeh Nizam Al Mulk who were the protectors of the heritage of Iranian tradition and the institution of ministry sought to design a system via their practical and realist techniques which they had learned from Iranian-Islamic heritage and tested by experience in which consultation, justice and construction of Iran is of paramount importance (Eslami and Khajeh Sarvi, 2013: 2). Accordingly, given the importance and place of the problem of governance and its related issues including the ruler, people and law as the most important concern of the political thinkers the current essay seeks to study the political ideas of Khajeh Nizam Al Mulk Tusi and Hobbes, and the foundations of these ideas, and then compare the place of ruler, people and law in the political thought of Hobbes and Khajeh Nizam Al Mulk Tusi.

1. Theoretical Foundations

1.1. Politico-social Conditions of Hobbes' Era

At the beginning of the sixteenth century, Spain established an Empirial system in Europe and through military propaganda and under the pretext of "Ottoman Threat". In practice, Spain in this way had dominated a considerable part of the continent. Political and intellectual activity for understanding of the logic and nature of such a policy led to the emergence of a new series of political writings in this era. Translation of ancient works was flourishing and this had also been influenced the poltical literature. Political scientists of this era sought for their patterns in ancient political thinkers like Cicero and Seneca and their source of inspiration was the ideal of poltical virtue in past masters. The changed conditions of life in modern age not only had discredited the maxims of traditional ethics rather casted serious doubts of the validity of the moral tasks (de landtsheer, 1999: 217-238).

The precious experience that was the result of the futile religious wars led to the acquisition of this vision in the European countries that despite unresolvable differences and disputes in their worldviews they should live together in peace. In late sixteenth century, many works of the ancient skepticists and stoicists were used and skepticist ideas were completely popular. They thought that if man faces a dilemma for making decision that is critical for his existence, he should immediately give priority to his own existence (Tuck, 1998: 19-22). This

idea of "self-preservation" [Conatus] turned to a central notion in the political philosophy of Thomas Hobbes. In early years of the seventeenth century, the major catastrophe in England was the internal disputes of the constitution and the role of parliament before the king. Civil war was the main incentive of Hobbes for systematic reflections on the nature of power and the place of government and political conditions that are embodied in his writings (Hobbes, 2006: 14). According to Hobbes, difference of religious sects not only has had grave consequences as regards the theological problems rather in their interferecnes in political affairs (Hobbes,2006:28).

1.2. Foundations of Political Thought of Thomas Hobbes

Human picture by Hobbes: Some Hobbes scholars have underlined the importance of the first part of Leviathan that is devoted to the anthropologic discussions and described it as the basis of his political philosophy (laubach,1998: 83). Man for Hobbes is no more than an animal. Like Aristotle, Hobbes seeks for the special difference of man with other living creatures in human reason. However, contrary to Aristotle, Hobbes believes that man makes use of this reason as a means for satisfaction of his own instincts (Hobbes,2006: 75). Hobbes identifies three main causes for conflict in human nature: first, competition, second, lack of confidence and third, acquisition of fame (hobbes,2006 ,96). For Thomas Hobbes, human effort for power has turned to a central point in political theory and question of formation of political system first and foremost represents the question of the correct way of the use of power.

State of Nature: Hobbes defines "natural right" based on human freedom for preservation of his own life relying his power. In his political theory, Hobbes seeks to offer an argument of the necessity of the existence of government. "State of Nature" for him is the opposite pole of "State of Society" in which a regulating power governs ."Natural Law" is a general necessity that has it origin in human vision and his autonomous reason. In "State of Nature", man is entangled in a deadend: on the one hand, an unconditional freedom and instinctual power persuades him to preserve himself in his struggle for acquisition of power and on the other hand, he is continuously grappling with the anxiety and fear of a violent death resulted from the state of war of all against all. This critical state renders the establishment of a government necessary for mankind .

The objectives of Hobbes from raising the concept of social contract: The objectives that Hobbes seeks to achieve through raising the concept of social contract can be summarized in three categories: 1- Security: In Leviathan, Hobbes argues that the main function of the government is protection of salus populi public security" (Bashiryah,2003: 71). This is more understandable in view of the era in which Hobbes lived (Qaragozlu, 2008: 443). Hobbes believed that the only solution for putting an end to these conflicts is establishing an authoritarian regime that ensures the security of the citizens of the society (Tuc, 2000: 95); 2- Ownership: thus, according to Hobbes, in State of Nature due to the lack of a government, we cannot have a notion of the existence of ownership. "The ownership laws must be wholly decided by the ruling body because in the State of Nature there is no ownership and then, ownership is a creature of the government and the latter can supervise its creation as its wants" (Russell, 1990: 109); 3- presentation of a rational definition for establishing government instead of the emphasis on the natural law with divine will: relying on the theory of social contract Hobbes considers the will of individuals as the basis of the formation of governments. Each one of the individuals by resigning their natural right in order to reach their intended objecties proceed to found a government (Uzar, 2010: 57). Hobbes sought to analyze the government as a system that has a rational justification. Individuals should follow this system not in a passive form rather in active way. They have to consider such information intelligible (Puladi, 2007: 39). By raising the theory of social contract, Hobbes struggled to fulfil the following objectives: A) Laying the groundworks of political and moral philosophy for the first time based on a scientific basis; B) Participation in establishing social peace and good will for setting the scene for the accomplishment of their social task" (Strauss, 1986: 396).

Liberalist roots of Thomas Hobbes' Thought: "Hobbes' idea of the doctrine of social contract and the mechanism of the evolution of the government is one of the most important liberalist grounds of his thought. One should take even a further step and state that his vision of the category of government and contract is one of the significant sources of liberalism. He should be considered as one of the founding fathers of liberalism" (Kadiwar, 2007: 93). One of the principles of liberalism is the emphasis on rationality and the principle of wisdom. The roots of this principle of the school of liberalism can be sought for in Hobbes' insistence on decision

making of individuals living in the State of Nature for saving themselves from it (Bashiryah , 2003: 46). Hobbes believes that "individuals are equal and freedom is the natural right of every individual. Free individuals with their vote create a government that is supposed to protect their interests" (bashiryah, 2003: 83). On the other hand, Hobbes should be considered an individualist. He regards the society to be an individualist. He describes the society as a whole composed of individuals the basis of which is the conclusion of an agreement or treaty with the human individuals and it is supposed to serve them as a means in order to fulfil their intended goals. Thus, "Hobbes believes that a liberal society is a scoeity that has been designed to allow every individual to pursue his plans as long as they are not in conflict with the law" (Feldman, 2001: 19).

Thomas Hobbes on Justice: We can speak of being just or unjust only when a contract has been already concluded among the individuals in the human society. This Hobbesian notion of justice can be inferred from his third natural law. According to Hobbes, justice is meaningful when there is a contract among the individuals and action or refusal of action according to the content of this contract is taken to be the measure of the justice.

1.3. Life and Politico-Social Era

Qaderi compares him with Baramakeh and considers him to be among the distinguished figures who was equally involved in practical politics and political action (Qaderi, 2013: 122). The solution and theory offered by Khajeh for construction of this new form was reflected in his valuable work "Book of Politics". Book of Politics was a political statement of this unity and its theoretical and practical program the goal of which was the renovation of the ancient structures of ruling in Persian City State in Islamic era and domination of the Turkish slaves (Tabatabaei, 1996: 75).

Book of Politics or Syar Al Muluk is considered to be the most fundamental writing of Nizam Al Mulk in transition of the political thought of Persian City State to Islamic era (Tabatabaei, 2006: 1). He was the powerful minister of Alp Arsalan and Malek Shah Seljuqi for thirty years (Ghazali, 1972: 183). In the life of Khajeh during his ministry of Alp Arsalan one sees a black point that, in the words of Tabatabaei, is in conflict with Khajeh's views of the illegality of killing the companions of King and taking advantage of their services (Tabatabaei, 1996: 21).

This issue is related to the removal and then assassination of Amid Al Mulk Kundri the minister of Alp Arsalan (Zahir Al Din Neishaburi, 1953: 23). Khajeh at the beginning of the ministry of Alp Arsalan was honored by the title of Nizam Al Mulk (Ravandi, 1985: 127; Basorth, 2013: 62-5). Nizam Al Mulk during the ministry of Alp Arsalan by his satisfaction succeeded to establish the Nizamyah schools that later became a global phenomenon (Minovi, 1988; Bandari Isfahani, 1978). After the murder of Alp Arsalan in 996 AD his crown prince Malekshah Seljuqi took the throne and he reappointed Khajeh Nizam Al Mulk as the head of ministry. Nizam Al Mulk was stabbed and assassinated by one of the Esmaeili fanatics on Saturday, October 20, 1092 during the third expedition of Malekshah to Baghdad in Nahavand (Beihaqi, 1982: 76).

1.4. Foundations of Political Thought of Khajeh Nizam Al Mulk Tusi

Source of Power: First important point as regards the presentation of the institution of monarchy by Nizam Al Mulk is that he shrewdly does not refer to Caliph as the head of Islamic community and does not speak of the religious relations between the Seljuqi ruler and Abbasid caliph. Apparently, since its very inception Khajeh has taken it for granted that the main source from which Shah acquires his power in theory and practice is not the institution of caliphate. Rather the monarch acquires the right to rule his servants upon the divine confirmation (Sharif, 1991: 228-229). Many of the most fundamental stories of the Book of Politics through which Khajeh has raised his ideas are related to the Persian kings including Behran, Gour, Just Anooshirvan, Afridoon, Ardashir and others. Of course, Khajeh intends not to allow the idea of caliphate to be traced back to the dawn of Islam and he introduces the monarchical system of Ancient Persia as the unique pattern of political power to the caliphate (Tabatabaei, 2007: 24 and 25). The main task of the Shah in the society is the establishment of order instead of chaos and creation of peace and justice. Nizam Al Mulk adopts a monarchical stance as to the description of the nature of political power and by referring to the divine origin and inheritance based selection of the monarch does not pay any attention to the people's choice and in one sense he prescribes the authoritarianism in society.

The relationship between the king and people: Among other political theories of Nizam Al Mulk one can refer to his idea of the relationship between the king and the people. As previously mentioned, the basis of the political analysis of Book of Politics is the ideal monarchy

of the Persian city state. The king is chosen by God and the first feature of such a king is justice which is a royal quality. He considers the just king to be the owner of the divine stature, on the one hand, and writes: "But since the king has a divine status, if he has sufficient epistemic capability he will be prosperous in both worlds" (pulad,2007, 89). On the other hand, he compares the king with the headman of the world: "And the Sultan is the headman of the whole world and all the kings are his servants" (puladi:2007, 195). With such a comparison, the difference between the divinely vested king and the Sultan is lifted and with an even intensified legitimacy which is given to the caliphate and monarchy, it becomes even more established (puladi:2007, 15).

Justice: As to the ideal king, Khajeh insists on two major points: one of them is the observation of justice while the other is paying attention to religion and religiosity. The idea of simultaneity of religion and kingdom is traced back to Ancient Persia (Mansoori and Ghulami, 2011: 65). Khajeh believes that the kingdom does not continue to exist unless via the administration of justice: "Since the time immemorial, from the time of Adam up until the present time, in every relation and every land the priority has been given to the justice and fairness and people have sought to keep their own family in power for several years" (Mansoori and Ghulami, 2011,65).

Security: In Khajeh's monarchical system, security is more grounded in the king as a person not in law and people. Since then many places in Iran have been invaded for several times and in these conditions Khajeh considered the security to be a necessity for the country. This security necessarily leads the king to the observation of law and creation of order and justice although frequent insistence of Khajeh on the observation of equality and lawfulness here is a strategy not a theme and the apex of the pyramid for preservation and establishment of the power has no way but forcing these hardships (Tabatabaei,1996,46).

Grounding Virtues and Sharia in Expediency: Khajeh did not approach politics from the point of departure of religion rather politics was indeed the science of power (statesmanship). In Book of Politics, Khajeh Nizam Al Mulk does not underline the role of Sharia rather he focuses on Sultan and Persianism (Mansoori and Ghulami, 2011). It seems that Khajeh instead of being in search of religionization of Seljuqi system was more devoted to Persianization of them.

According to Khajeh, the only consistent political thought is the politics of Persian city state (Tabtabaei, 2006: 95).

Divine Theory of Iranshahri (Persian City State): The theoretical foundation of Book of Politics contrary to the idea of Perian City State is an ideal monarchy. In this theory, the king, contrary to caliph and Imam – who are chosen either by previous Imam or by way of the vows of the elites – is the one chosen by God and has a Royal Glory" (Tabatabaei, 2006: 85). Given the content of parts of Book of Politics, one can claim that Khajeh Nizam Al Mulk has generalized the divine theory of royal kingdom to some of the caliphs and kings of Islamic era and this generalization instead of being originated in the ideological tendency of Khajeh or Seljuqi interest in Islamic doctrines is more an interpretation based on the political realism and an effort for attraction of the view of the ruling Sultan insofar as Khajeh writes: "They are willing to make permissible ten forbidden acts and trespass ten rights for the sake of one Haram Dinar without thinking of the afterlife" (Tabtabaei, 2006: 86).

1.5. Research Background

"State and Government in Medieval Islam" is a work by Lambton (2000). In this book the author provides a review of the political theories of Muslim jurists – from the dawn of Islam to late twelfth century – on state and government in Islam. He has also studied the influence of environmental, social and political factors on the formation and evolution of the thought of Muslims. In "Political Thought in Islam and Iran" by Hatam Qaderi (2013) the author discusses the history of political thoughts in Islam and Iran from the inception of the caliphate in Islam to contemporary era. In the current essay we have taken advantage of the second part of the latter book that is concerning the political thought of Sunni scholars including Khajeh Nizam Al Mulk to whom one independent chapter has been devoted in order to show the most important aspects of the political ideas of Khajeh including his theory of Persian city state.

Barry Hindes (2001) in a book entitled "Power Discourses: From Hobbes to Foucault" translated by Mostafa Yunisi into Persian has discussed the concept of power from the point of view of Hobbes in the second chapter. He believes that Hobbes has traced the roots of power back to people because in fact power to rule is originated from the resignment of the natural right of people to the ruling body. Hossein Bashiryah (1990) in an article titled "Basic Problems

in Political Philosophy" discusses the idea of political philosophy and offers a comparative study of the ideas of John Locke, Karl Marx, Aristotle and also Hobbes on human nature and contends that depending on the idea that is developed by these philosophers of human nature, their views regarding the government and its founding pillars and also the relationship between the ruler and people vary.

2. Place of Ruler, People and Law in Political Thought of Thomas Hobbes

2.1. Role and Place of Ruler in the Thought of Hobbes

According to Hobbes, everything and everyone are subordinated to the will of the ruler and the most important source of the legitimacy in the society is the ruler who has undertaken the power based on the social contract (Golafshan and Watheq, 2016: 181). In fact, Hobbes believes that the most important goal of the constitution of government is creation of order and security in society. Though this goal is acquired only via divesting citizens of their individual freedoms, it is still desirable (Hobbes, 2006: 189, 193). Hobbes believes that the most important source of legitimacy for the ruler is the public consensus. Thus, as long as the ruler provides the people's need for peace, this legitimacy lasts (Golafshan and Watheq, 2016: 183).

The social contract as the basis of formation of governance: If people insist on living always in "State of Nature" where the state of war and insecurity prevails, such a state cannot last. Then, to put an end to the war and insecurity and ensure human existence, the society based on a type of peace and coexistence takes form. This peace is established based on an agreement among the people and is called "Social Contract" (Hobbes, 2006: 38-41). In fact, the most important basis and element in the formation of social contract and society is State of Nature in which absolute insecurity prevails (Hobbes, 2006: 160-162). Based on Hobbesian theory of social contract, the ruler is not a party to the contract, rather he is the result of the social contract.

The Ideal Government: Hobbes concludes that the best type of government is a government in which the sovereign power is at the hand of the absolute sovereign. According to Hobbes, power surrender to the government should be absolute and irreversible and unconditional (Sabzewari, 2007: 74-75). In other words, the best type of government is monarchy (rule of one person) because the glory and honor of the King is the same by all servants. He offers five reasons for choosing monarchy as the noblest form of governance that

could be summarized as follwos: 1) interests of the absolute sovereign are in line with the people; 2) the sovereign shares his secrets just with himself and can take more powerful decisions than others; 3) monarchy is more consistent than democrary because one mind is guiding the society; 4) the possibility of civil war declines to the minimum because the sovereign cannot defy himself; 5) in monarchy the divinsion of power is not possible (Hobbes, 2014: 201-205). Since in political philosophy of Hobbes the society must accept two alternative states of anarchism and monarchy, the latter is the best possible choice as compared to the state of nature and chaos .

Good Intention and Sovereign: According to Hobbes, necessity of the ruler and government is neither the administration of the divine providence nor the cultivation of virtue in individuals rather it is providing the individual interests not the "public expediency". The most important expediency in the thought of Hobbes that serves human interest is saving the man from the State of Nature and giving the sense of security to him (Hobbes, 2006: 237). In fact, Hobbes believes that "personal interest" is the basis of the organized society and "personal interest" in the selfish sense rules the organized society as much as the State of War (Copleston, 1991, vol. 5: 60).

2.2. Ideal Government

Thomas Hobbes insists on the absolute sovereignity and is one of the most influential theoreticians of this idea. In his intellectual system, he has sought to prove the necessity of monarchy via political reasons and arguments. Then, to prove this idea he has offered different reasons among which five reasons underline the superiority of the absolute sovereignity while six more reasons highlight the tasks of the sovereign.

Hobbes defends the necessity of security in society and believes that the best form of government is monarchy because the honor and value of the king is in line with the servants. Monarchical system is magnificent when the subjects are not poor, humiliated and in war with each other. Moreover, the king due to having access to the professional consults takes better decisions than the democratic governments because the king is free to consult with whoever he wants in whichever time or place he prefers. However, in aristocracy or democracy, advise is always expected to be provided by a number of power-thirsty and wealthy people. Furthermore, in monarchy the sovereign can hold his decision as a secret until its implementation in

confidential way and in most cases he has more knowledge in the field of statesmanship. He justifies monarchy by referring to five reasons as follows: 1) interests of the absolute sovereign are in line with the people; 2) the sovereign shares his secrets just with himself and can take more powerful decisions than others; 3) monarchy is more consistent than democracy because one mind is guiding the society; 4) the possibility of civil war declines to the minimum because the sovereign cannot defy himself; 5) in monarchy the divinsion of power is not possible (Hobbes, 2014: 201-205).

According to Hobbes in his Leviathan, monarchy is emphasized because "in authoritarian governments the sovereign is taken to be the perfect and absolute power in one land and all affairs of the country are in the hands of the king. In this type of government, governance is infinite, irremovable and inseparable. In this form of government, all authorities related to legislation, interpretation of law, administration of laws, judgment of the punishment of the violators of the laws, tax collection, military guidance and leadership, and even control of the norms governing the society are in the hand of the sovereign. All these authorities are inseparable part of the rights of the sovereign and if one of these authorities of the King is taken away the function and efficiency of the sovereign will decline in other areas. The law is the same judgment of the sovereign and the people do not have the right to revolte and criticize against the sovereign; the opposition minotiry have to either surrender or vanish" (Karimi, Fathi, 2017: 148). According to Hobbes, authoritarianism is necessary for realization of an ideal society. Hobbes considers the church to be a function of the government and he has devoted a considerable part of Leviathan to religious issues and church in order to defend Erastianism.

Therefore, since in Hobbesian political philosophy the society has to decided to surrender to either to anarchism (chaos) or totalitarianism for escaping from the return to State of Nature the best solution is monarchy in which the peace and security before all internal and foregin threats are ensured by the sovereign. What protects the sovereign is the radical and ruthless denial of all wrong doctrines that result in mutiny; the sovereign's existence does not allow such an atmosphere to be created. Thus, he is a totalitarian ruler (Karimi, Fathi, 2017: 292). The sovereign has the right to censure every type of belief because several voices in the society are the source of corruption. Hobbes based on his own political philosophy prefers such factors as

peace and security over against educational ideals and freedom. He never believes in the possibility of establishing a democratic condition. The relationship between the sovereign and people can be considered as a type of the mutual relationship of servitude and mastery. In this system, people follow the orders of the king and the latter devotes himself to the protection and security of these people. In fact, the goal of social contract, in which the power is surrendered to the king consists of ensuring peace, security and putting an end to the unending political disputes and civil wars (Karimi and Fathi, 2017: 149).

Hobbes has answered some criticisms of the absolute power of the sovereign. The most real objection that could be raised is that we should not expect people (who are essentially avaricious and motivated) to tolerate the state of lack of power. The answer of Hobbes is that the greatest problem in every form of government that can haunt people is the catastrophic events that occur with civil war. Moreover, the rulers have different missions. The task of the sovereign is providing people's security and the latter does not merely refer to the protection of life rather it is concerned with all joys and pleasures of the life which should be acquired by everyone via lawful personal efforts without creating any danger or harm for the country. Here Hobbes does not refer to the welfare state rather he is speaking of a completely individualist condition. The task of the ruler is providing certain conditions in which everyone can take full advantage of his own right of ownership (Hobbes, 2006: 43).

3. Place of Ruler, People and Law in the Political Thought of Khajeh Nizam Al Mulk

3.1. Role and Place of Ruler in the Political Thought of Khajeh Nizam Al Mulk

According to Khajeh, structure of political power is constituted of four angles: God, King, Religion and Subject. God is the absolute Owner and Sultan of the world and the world people who in some cases He vests one of His servants with the power to rule the subjects based on justice, fairness and religion revealed by Him. He is indeed the administrator of divine ordinances and injunctions and serves as a bridge between people and and Divine Will.

Khajeh describes the sovereign as the chosen representative of God in order to explain the source of his power. In the first chapter of his Book of Politics entitled "On People and Time and Praise of World Ruler Malekshah Seljuqi", Khajeh writes: "God in every era and age chooses

someone from among his people and equips him with the royal arts and assigns the affairs of the servants to him and orders him to put an end to the corruption and rule people based on justice and protect public security" (Tabatabaei,1996: 35). One should asset that this idea that Sultan is the protector of religion and realm has its origin in Ancient Persia and Khajeh by referring to this idea seeks to justify the reality that the security of religion and realm depends on the security of Sultan (Tabatabaei ,1996,124). By insisting on the idea of divine providence and belief in determinism in the world affairs including the divine source of the political manager of the time, i.e. Malekshah Seljuqi, and describes them as a measure for evaluation of the political behavior of the previous kings of Iran (Tabatabaei ,1996: 13). In the thought of Khajeh, the sovereign has an authority that he has received from God: "Divine God has chosen the King as the ruler of the people across the world who praise him ... These subjects just observe the orders of their ruler" (Tabatabaei ,1996: 139). In fact, Khajeh Nizam Al Mulk intends to isolate the role and place of people against the ruler and by referring to the Islamic foundations to secure the foundation of authoritarian rule of the Sultan more than before.

> "This relationship is considered to be identical with justice and social order, security and stability. In line with this notion, the oppression of the subject means the refusal of following the oders of the king and this leads to the collapse of stability and security. Although the oppression of the sovereign is needed in the time of necessity and increses the power and paves the path for security and stability, with such a logic, security would never take form in its positive sense" (Ranjbar, 2006: 93).

Justice as conceived by Nizam Al Mulk is a radiation of mercy and compassion that the King has for the subjects. It seems that justice is a favor that is done by the ruler for the subject not a political and divine obligation the origin of which is people's rights (Hedayati, 1999: 225). Khajeh Nizam Al Mulk understands the security of the society under the banner of Shah the one whom God has undoubtedly chosen. In monarchical system of Khajeh, security is more relying on the King not on the law and people.

In the Book of Politics, he has raised principles that can play a key role in explanation of the role and place of the sovereign. The most important ones of these principles consist of: Principle One, Khajeh believes that the ruler does not necessarily need to be intelligent; rather even a mediocre man can be effective. Principle Two. Giving different jobs to individuals based on their capability and merits and not based on relations and friendship; because good service is

contingent upon sufficient information on behalf of the ruler of the efficient and working forces. Principle Three. Never anyone should be vested with one more job; because his capability is limited and by accepting more than one job his weaknesses will be justified by irrelevant matter like busy agenda. Principle Four. Individuals must be given positions in different areas and people's long term stay in one job causes them to act passively and show no creativity and would treat the subjects cruely. Principle Five. To establish a relationship with the people the sovereign must choose responsible people so that if it is necessary the responsible man is impeached (Azad Armaki, 1998: 49-50).

In fact, Khajeh Nizam Al Mul considers the existence of the ruler as the most important basis of social security because he is certainly the man chosen by God. He enumerates the tasks of the sovereign as follows: "... God makes him the source of peace and security of the subjects and puts an end to the corruption and deviation by him ..." (Tabatabayi,1996: 23). In a system which is relying on the individual will, security is based on the individual not the law. The ruler is the manifestation of security (Hedayati, 1999: 225).

In his Book of Politics, Khajeh has outlined a set of principles that can help us to explain the role and place of the ruler including:

1) Principle One: Sovereign is not required to be intelligent rather even a mediocre person can be effective.

2) Principle Two. Giving positions to people based on their merits not based on the family relations and friendship because only with professional staff the ruler would succeed.

3) Principle Three. Never someone should be given more than on position because his capability is limited and by accepting more than one job he would justify his failure of accomplishing his own tasks with overloading.

4) Principle Four. People must be used in different positions in a periodical basis in order to avoid stagnation and oppression.

5) Principle Five. Ruler must choose committed people in order to serve the people in a more responsible way (Azad Armaki, 1998: 49-50).

Given the content of parts of Book of Politics, one can claim that Khajeh Nizam Al Mulk has generalized the divine theory of royal kingdom to some of the caliphs and kings of Islamic

era and this generalization instead of being originated in the ideological tendency of Khajeh or Seljuqi interest in Islamic doctrines is more an interpretation based on the political realism and an effort for attraction of the view of the ruling Sultan.

Last but not the least, it should not be forgotten that in his words Khajeh advises the King to listen to the consults because consultation strengthens his opinion and taste. Moreover, consultation helps the King not to become ensnared by egotism and hasty action both of which will be regretful. Khajeh introduces people like the religious scholar as the advisors for the Shah and notes that the latter should accept every week one or two scholars and listen to their advices as regards the permissible and impermissible, interpretation of Quran, Prophetic traditions and have dialogues with them. Khajeh believes that when the Prophet who was informed of the revelation was after advisors why a King should consider himself to be needless of advice and its benefits (Tabatabaei, 1993: 81, 124).

3.2. Relations between King, People and Law

Among the other political ideas of Nizam Al Mulk, one can refer to his views of the relations between the King and the people. He considers the just king to own divine glory on the one hand and writes: "But since the King has a divine glory if he takes advantage of knowledge he can be prosperous both in this world and the other world" (Tabatabaei, 1993:96, 124). On the other hand, he compares the king with the headman of the world: "And the Sultan is the headman of the whole world and all the kings are his servants" (ibid: 195). With such a comparison, the difference between the divinely vested king and the Sultan is lifted and with an even intensified legitimacy which is given to the caliphate and monarchy, it becomes even more established (Tabatabaei, 1993: 81, 124). It seems that Khajeh instead of being in search of religionization of Seljuqi system was more devoted to Persianization of them. According to Khajeh, the only consistent political thought is the politics of Persian city state (Tabtabaei, 2006: 95). Khajeh believes that the King should not issue continuous orders in different areas, because in this case the value and stature of monarchical orders break and the detterance effect that is expected from the royal judgment for the wrong doers and oppressors would lose its function. One of the tasks of the court staff is their role in execution of an order or addressing an improper situation (Tabatabaei, 1993: 97, 124,).

Khajeh Nizam by underlining the divine right of throne strengthens the basis of authoritarianism. It is God who chooses the king not the people. Likewise, it is God who vests him with the royal arts, then he does not need the acquisition of the statesmanship. Thus, a person like Sultan Sanjar Seljuqi without having the literacy of writing and reading by relying on the idea that God has chosen him as the king rules the country for more than forty years and issues every order that he considers necessary and no one dares to object (Halabi, 1989: 217-218).

Conclusion

One can conclude that Hobbes has developed his thought based on the Social Contract while one of the key features of the political thought of Khajeh Nizam Al Mulk is that he has sought to pay attention to the Persian theory of monarchy before the daw of Islam and combine it with the idea of caliphate. The words and behavior of Khajeh together suggest that they do not have their origin in religiosity rather are based on political analysis and approach. By distinguishing between the religious and moral roots of power, Hobbes established the foundations of the formation of modern power based on analytic and empirical bases. Thus, he considered the political power to be something that should be established and is of a totally human nature not a divinely grounded phenomenon. He believes that ruling government has not been designed to stop the competition between humans in their businesses rather they are supposed to ensure this way of life. The only cost that people should have paid is the necessity of observation of the laws set by the ruler. Hobbes justifies the notion of social contract by stating that if a wise man encounters the state of nature he would immediately reach the conclusion that he must leave his rights along with other individuals in the society. Of course, this requires to be handled based on an agreement or contract according to which all human individuals accept to surrender their rights but this agreement will not work because since the humans are avaricious some of them might seek to retain their right due to some consdierations. Here there should be a person whose existence gives meaning to surrender of the individual rights and makes it binding. The contracts without swords are mere words and do not ensure the security of anyone. The person or a body of persons to whom the rights are resigned represent the ruler. Making the decision about the scope of power of the sovereign is upon the

latter himself because without it the sovereign cannot have sufficient power for implementation of contract and protection of peace. The message of Hobbes for his contemporaries was that if they do not assert their full obedience to the sovereign they will be exposed to the danger of falling into the state of nature. Therefore, they must accept their full loyalty and commitment to the sovereign based on their own interests. Hobbes wanted to show his contemporaries that what they should do for establishing a relatively more complete political society that will be immune to internal chaos forever?: acceptance of authoritarianism.

According to Hobbesian political philosophy, as soon as the King reaches the throne he has absolute power. The minority opposition should either surrender or leave the battle ground. Then, whatever sovereign does is just because just behavior consists of the behavior based on the law and since the king adopts the laws whatever he does is identical with the law. The king has an absolute right for observation of all beliefs. The King is not only the legislator rather he is also the source of dispute resolution as regards the inconsistent laws.

Although Khajeh considers the King to be a creature who only follows the prescripts of the God and in his Kingdom does not require the guidance of others particularly the caliph, he does not show any interest in authoritarian monarchy rather the king in his eyes is a simple human creature with human features like bravery, good belief and righteous ethics whose statesmanship is supposed to be based on the Sharia. In fact, the king must rule the people based on their religious belief but the people do not play any role in his reaching to this position; because according to Khajeh, in the same way that Anooshirvan the Sassanid King owed his crown and throne to the God as well as the heritage of the father and sword, reaching the position of King is contingent upon the divine compassion, inheritance and powerful arms. Of course, the king is not chosen by the people but the people need to follow him due the effort that the Shah makes for establishing peace. However, if the peace leaves the society and the land becomes ensnared by chaos the people are still required to follow the orders of their sovereign. In the monarchical system drawn by Khajeh, security is more based on the the sovereign in person not on the law and people. However, Hobbes believed that the only way for putting an end to the conflicts is creation of an absolute authoritarian system in order to provide the security of citizens in the society.

References

Ann Lambton (1993). Continuance and change in Iran`s middle age history. Translated by Yagoub Azhand, Tehran: Nei pub.

Azad Armaki, Social thought of Muslims from Nizam al-Mulk Tusi to Motahhari, Academic Center for Education, Culture and Research

Bandari Isfahani (1978). History of Seljuqi dynasty, trans. Mohammad Hossein Jalili, Tehran: Foundation of Iranian Culture.

Bashiryah, Hossein (2003). Reason in Politics: Thirty Five Essays on philosophy, sociology and political development, Tehran, Negah Moaser.

Basorth, Edmund (2013). Political history of Iran, Cambridge history of Iran, vol. 5, edited by A. Boil, trans. Hossein Anoosheh, Tehran, Amirkabir, Eleventh Edition.

Beihaqi, Abulfazl (2004). Beihaqi history, edited by Ali Akbar Fayyaz, Mashhad: Ferdowsi University of Mashhad Press.

Beyhaqi, Abolfazl (2004), Tārīkh-i Bayhaqī, Edited by Ali Akbar Fayyaz, Mashhad: Ferdowsi University pub.

Copleston, Fredrick (1991). History of Philosophy, trans. Amir Jalal Al Din Alam, Tehran, Soroush, second edition, 1991.

De Landtsheer, J. (1999). Justus Lipsius (1547-1606) and Lucius Annaeus Seneca, Annales Societatis Litterarum Humaniorum Regiae Upsaliensis, 217-238

Eslami, Rouhollah; Khajeh Sarvari Gholamreza. (2013). Power technologies in Siyāsatnāmeh by Nizam al-Mulk, Strategic research of politics, period 1, No 4, spring.

Feldman, I (2001). Freedman as motion, University Press of America.

Feldman, I. (2001). Freedmon as motion, University Press of America.

Ghazali, Abu Hame (1972). Nasiha Al Muluk, Tehran, Parliament Press.

Golafshan, Atefeh, Mahmoud Watheq (2016). A study of the role of philosophical ideas in geopolitics (case study of geopolitics in the thought of Thomas Hobbes), Journal of Geopolitics, year one, no. 1, Spring 2016.

Halabi, Ali Asghar (1989). History of Iranian Philosophy, Tehran: Zawar.

Hedayati, Abolfazl (1999), Political conducts of Nizam al-Mulk, Islamic government journal, No 13.

Hindes, Bari. (2001). Power speeches from Hobbes to Foucault, translated by Mostafa Younesi, Tehran: Shiraze pub.

Hobbes, Thomas (2006). Leviathan, trans. Hossein Bashiryah, Tehran, Ney.

Kadivar, Mohammad Ali (2007). Roots of liberalism and conservatism in the thought of Thomas Hobbes, Journal of Politics and Economics, no. 221, 222.

Kanpouri, Abdurrazaq (1975). Life of Abu Ali Hassan Ibn Ali Ibn Eshaq Tusi or Khajeh Nizam Al Mulk, trans. Seyed Mostafa Tabatabaei, n., Heydari publishing house, second edition.

Karimi, Bayan; Fathi, Hassan. Power genuineness: Plato and Hobbes, Occidental studies, Human science and cultural studies` research center, scientific and research journal, 8th year, No 2, autumn and winter 2017.

Laubach-Hintermeier,Sonja 1998:Kritik des Realismus,in:Chwazzeza/Kersting(Hrsg)73-96

Mansouri, Ali and Ghulami, Maryam (2011). Comparative study of the political ideas of Abu Hamed, Journal of Sokhan, no. 15.

Mansouri, Ali and Ghulami, Maryam (2011). Comparative study of the political ideas of Abu Hamed, Journal of Sokhan, no. 15.

Minovi, Mojtaba (1988). Criticism of Mood, Tehran, Kharazmi.

Neishaburi, Zahireddin (1953), Saljuq-nama, Tehran: Khavar.

Puladi, Kamal (2007). History of Political thought in west, Tehran, Markaz.

Puladi, Kamal (2007). History of Political thought in west, Tehran, Markaz.

Qaderi, Hatam (2013). Political Thought in Islam and Iran, 13th edition, Tehran, SAMT.

Qaragozlu, Mohammad (2008). Idea of Political Democracy, Tehran, Negah Press.

Ranjbar, Maqsoud, The concept of security in Middle Ages` thoughts, strategic studies, No 31, spring 2006.

Ravandi, Mohammad Ibn Ali Ibn Soleiman (1985). History of Ale Seljuq, edited by Mohammad Iqbal, Tehran, Amirkabir, second edition.

Russell, Bertrand (1990). History of Western Philosophy, trans. Najaf Daryabandari, Tehran, Sokhan.

Sabzei, Mohammad Taqi (2007). Civil society as a social contract: comparative analysis of Hobbes, Locke and Rousseau`s thoughts. Public law Research, article 3, period 9, No 22, autumn.

Sharif, Mohammad (1991). History of Philosophy in Islam, vol. 2, Tehran: Nashre Daneshqahi.

Strauss, Leo (1986). History of political philosophy, The University of Chicagopress.

Tabatabaei, Javad (2007). Theoretical Decline of Iran, Tehran, Kavir.

Tabatabaei, Javd (1996). Khajeh Nizam Al Mulk, Tehran, Tarhe No. 4

Tabatabaei, Seyed Javad (2006). Decline of Political Thought, Tehran, Kavir Press, 4th edition.

Tuc, Richard (2000). Hobbes, trans. Hossein Bashiryah, Tarhe No, Tehran.

Tuck, Richard (1998). Hobbes, Cambridge Texts in the History of Political Thoought.

Uzar, Atila (2010). Government in the history of western thought: Arendt, Aristotle, Bukanan, Engels, Hayek, trans. Abbas Baqeri, Tehran: Furuzan.

Younesi, Mostafa; Akbari Karim Abadi Noureddin. (2015). Investigating Hobbes`s method in establishing the government with an emphasis on Leviathan book. Journal of Philosophical Theological Research, 16th year, summer, No 4.

REVISTA DE LA UNIVERSIDAD DEL ZULIA. 3ª época. Año 12 N° 35, 2021

S. C. Huyhua Gutiérrez et al. /// Síndrome Visual Informático y estrés académico en estudiantes ... 572-583

Síndrome Visual Informático y estrés académico en estudiantes de enfermería durante el confinamiento por la COVID-19

Sonia Celedonia Huyhua Gutiérrez*

Jessica Meléndez Tuesta**

Cintya Elisabeth Odar Rojas***

Dalila Ruiz Cruz****

Sonia Tejada Muñoz*****

RESUMEN

Objetivo: Determinar la relación del Síndrome Visual Informático con el estrés académico en estudiantes de enfermería durante el confinamiento por la COVID-19. **Métodos:** Estudio descriptivo, relacional, transversal; cuya muestra no probabilística fueron 119 estudiantes de enfermería de Amazonas, Perú; se utilizó la técnica de la encuesta y se aplicaron dos instrumentos a través del formulario de Google, Computer Vision Syndrome Questionnaire (CVS-Q) de 16 ítems, (sensibilidad y especificidad es mayor del 70%) y el cuestionario de estrés académico SISCO SV de 47 ítems (coeficiente de concordancia V de Aiken mayores a 0,75), durante los meses de noviembre a diciembre del 2020. Los datos fueron procesados en el programa Statistical Package for the Social Sciences versión 25, del cual se obtuvo la estadística descriptiva y la prueba estadística no paramétrica Chi Cuadrado. **Conclusiones:** El Síndrome Visual Informático no se relaciona significativamente con el estrés académico en estudiantes de enfermería durante el confinamiento por la COVID-19. Sin embargo, se necesita implementar medidas de mejora en el proceso de enseñanza aprendizaje, incrementando las horas asincrónicas.

PALABRAS CLAVE: Síndrome Visual Informático; estrés mental; estudiantes de enfermería; pandemia.

*Docente. Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, Perú. ORCID: https://orcid.org/0000-0003-4823-2778. E-mail: sonia.tejada@untrm.edu.pe

** Estudiante de Enfermería. Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, Perú. ORCID: https://orcid.org/0000-0003-4127-2806

*** Estudiante de Enfermería . Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, Perú. ORCID: https://orcid.org/0000-0002-1329-9000

**** Estudiante de Enfermería. Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, Perú. ORCID: https://orcid.org/0000-0003-3301-0814

***** Docente. Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, Perú. ORCID: https://orcid.org/0000-0002-1181-8540

Ocular Fatigue Syndrome and academic stress in nursing students during confinement due to COVID-19

ABSTRACT

Objective: To determine the relationship of Computer Visual Syndrome with academic stress in nursing students during confinement by COVID-19. **Methods:** descriptive, relational, cross-sectional study; whose non-probabilistic sample was 119 nursing students from Amazonas, Peru; The survey technique was used and two instruments were applied through the Google form, the 16-item Computer Vision Syndrome Questionnaire (CVS-Q), (sensitivity and specificity is greater than 70%) and the SISCO SV academic stress questionnaire of 47 items (Aiken V concordance coefficient greater than 0.75), during the months of November to December 2020. The data were processed in the Statistical Package for the Social Sciences program version 25, from which the descriptive statistics were obtained and the nonparametric Chi Square statistical test. **Conclusions:** Visual Computer Syndrome is not significantly related to academic stress in nursing students during confinement by COVID-19. However, it is necessary to implement improvement measures in the teaching-learning process by increasing asynchronous hours.

KEY WORDS: Visual Computer Syndrome; mental stress; nursing students; pandemic.

Introducción

La pandemia por la COVID – 19 ha perjudicado a todos los sectores, siendo la educación universitaria uno de ellos, donde las clases pasaron de la modalidad presencial a lo virtual (Roig-Vila et al., 2021), lo que condujo a la implementación de diversas herramientas en línea como una alternativa en el proceso enseñanza aprendizaje (Quijano-Escate et al., 2020), con el propósito preservar la calidad educativa (Guevara et al., 2020) a pesar de las adversidades. Actualmente existe la necesidad de investigar las consecuencias que pudo haber ocasionado este cambio, tales como: la fatiga ocular, el estrés académico(Cueva & Terrones, 2020), problemas de lumbalgias, entre otros (Barreto-Osama & Salazar-Blanco, 2021).

Desde lo teórico, en el estrés académico se reconocen tres componentes sistémicos: estresores, síntomas y estrategias de afrontamiento; también se llega a identificar 3 causas principales que ocasiona el estrés: la sobrecarga de tareas (Calvo et al., 2020), poco tiempo para cumplir con los trabajos académicos y los exámenes (Castillo et al., 2016).

Otra de las consecuencias que se estudian frente al cambio drástico de las clases, de lo presencial a lo virtual, es el Síndrome Visual Informático (CVS), que se presenta por el uso prolongado de computadoras o dispositivos digitales (Ayerza & Emery, 2020), siendo en la actualidad la forma más usual para la enseñanza universitaria, no distinguiendo en algunos casos durante el proceso enseñanza – aprendizaje las clases sincrónicas de la enseñanza asincrónica.

Dentro de los síntomas externos del CVS se encuentran: el ardor, quemazón, picor, enrojecimiento o lagrimeo; sin embargo se podrían generar síntomas internos que pueden llegar a ser: visión borrosa, dificultad para enfocar o cefalea (Moldovan et al., 2020) (Ayerza & Emery, 2020), ocasionando mayor daño a nivel ocular en la persona.

El CVS es una enfermedad desconocida y no tratada por los estudiantes universitarios, presentando una alta prevalencia (Fernandez-Villacorta et al., 2021). Las medidas preventivas de la astenopia suelen ser disminuir el tiempo de uso de aparatos digitales, tomar posturas adecuadas y realizar actividades aeróbicas más de una hora al día (Xu et al., 2019).

Además, el tiempo recomendado para la utilización de un dispositivo debe ser menor a 4 horas al día, ya que al utilizar un tiempo mayor ocasiona daños que alteran la función visual, entre ellos cataratas, diplopía, etc. Por tal motivo, se debe lograr un aprendizaje activo en los estudiantes, generando la autonomía en su aprendizaje por descubrimiento y una "educación al revés" (Aguilera Mosquera, 2019) (Al Tawil et al., 2020).

En los últimos meses con el cese de las clases presenciales y la incorporación de la educación virtual, se ha observado el incremento de horas de exposición de la vista a dispositivos como laptops o celulares; razón por la cual el objetivo fue determinar la relación del Síndrome Visual Informático (CVS) con el estrés académico en estudiantes de enfermería durante el confinamiento por la COVID-19.

1. Métodos

Se realizó un estudio no observacional, analítico y transversal (Hernández S & Mendoza C, 2018); donde la población estuvo conformada por 173 estudiantes de enfermería de la Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, Perú; y la muestra fue seleccionada por muestreo no probabilístico por conveniencia (Hernández S & Mendoza C, 2018) obteniendo 119 estudiantes, seleccionados según criterios de inclusión: que sean de

ambos sexos, cuyas edades fluctúan entre 18 a 35 años, que se encontraban matriculados en cualquiera de los ciclos académicos correspondientes al segundo semestre 2020 y se excluyeron a los estudiantes del IX y X ciclo debido a que se encontraban realizando sus prácticas hospitalarias presenciales y no realizaban clases virtuales. Se utilizó el método hipotético – deductivo y analítico (Hernández S & Mendoza C, 2018).

Para medir la primera variable: Síndrome Visual Informático, se utilizó el instrumento titulado: "Computer Vision Syndrome Questionnaire (CVS-Q)", utilizado en algunas investigaciones en estudiantes; el cual consta de 16 ítems tipo escala de Likert, que mide frecuencia, severidad e intensidad de los síntomas. La fiabilidad del instrumento fue determinada según el método Alfa de Cronbach con un valor de 0.87, lo que indica que existe una buena consistencia interna entre ítems [ICC = 0,802; Intervalo de confianza (IC) del 95%: 0,673, 0,884] y clasificación CVS (κ = 0,612; IC del 95%: 0,384, 0,839) (Seguí et al., 2015). Para medir la segunda variable se utilizó el instrumento titulado: "Adaptación del cuestionario de estrés académico SISCO SV al contexto de la crisis por COVID-19", elaborado por Alania et al. 2020; consta de 47 ítems distribuidos en tres dimensiones: estresores, síntomas y estrategias de afrontamiento, con seis opciones de respuestas cada una en escala tipo Likert: nunca, casi nunca, raras veces, algunas veces, casi siempre y siempre, teniendo una validez de 0.75 (V de Aiken) y una confiabilidad a través de alfa de Cronbach diferenciándose por dimensiones: estresores 0.9518, síntomas 0.9518 y estrategias de afrontamiento 0.8837. (Alania et al., 2020). El tiempo de aplicación del instrumento, osciló entre 15 a 20 minutos, para lo cual se solicitó la participación voluntaria de los estudiantes de manera aleatoria y anónima, previa aceptación a través del consentimiento informado virtual, asegurando la confidencialidad de sus respuestas, también se informó a los participantes que si creían conveniente podrían retirarse en cualquier momento.

Los datos fueron procesados software IBM SPSS versión 24, con código d34d5614bcc077a794d8, Microsoft Word 2013 y la hoja de cálculo de Excel 2019; además, se realizó el análisis univariado y bivariado empleando la prueba estadística no paramétrica de Chi-cuadrado que permite medir la asociación o independencia entre las variables, con un nivel de significancia p=0,05 (95% de confiabilidad y 5% del margen de error).

Asimismo, se consideró los principios éticos de la investigación en Ciencias de la Salud, estipulados en la Declaración de Helsinki, respetando en todo momento la voluntad

de los estudiantes en participar en el estudio a través de la aceptación del consentimiento informado (Viera, 2018).

2. Resultados

En la tabla 1 se describen las características generales de los 119 estudiantes de enfermería, donde el 88,24% oscila entre las edades de 18 a 24 años. Asimismo, en promedio las edades varían en 24,55 años con respecto a su promedio, teniendo una diferencia de 10,060 (DS) años con respecto a su promedio; el 80,7% son de sexo femenino; el 89,1% no tienen hijos; asimismo el 57,1% no usa lentes, el 55,5% realiza sus clases sincrónica más de 5 horas al día.

Tabla 1- Variables sociodemográficas de los estudiantes de enfermería

Variables	fi	%
Edad (años) (*)		
18-24	105	88,24
25-29	12	10,08
30-34	1	0,84
35-40	1	0,84
Sexo		
Femenino	96	80,67
Masculino	23	19,33
Uso de lentes		
Sí	51	42,86
No	68	57,14
Horas de clase al día sin descanso		
Menos de 1 hora	5	4,21
1-2 horas	6	5,04
3-4 horas	42	35,29
5 a más	66	55,46

(*) Media: 24,55 DS:10,060

En la tabla 2, se observa que tanto las mujeres como varones presentaron Síndrome Visual Informático (89% y 74%, respectivamente), no encontrando relación entre el Síndrome Visual Informático y el sexo (p=0,072).

Tabla 2. Síndrome Visual Informático según sexo, en estudiantes de enfermería

Sexo	Síndrome de Fatiga Ocular				Total		X^2p
	Con		Sin				
	fi	%	fi	%	fi	%	
Femenino	85	88,54	11	11,46	96	100	0,072
Masculino	17	73,91	6	26,09	23	100	

En la tabla 3, respecto al nivel de estrés académico, predomina el nivel de estrés medio con 34,46%; asimismo el 31,10% de los estudiantes de enfermería presentan un nivel de estrés académico medio y oscilan entre las edades de 18 a 24 años; encontrando relación entre ambas variables: p= 0,042.

Tabla 3- Estrés académico según edad, en estudiantes de enfermería

Estrés académico	Edad (años)										X^2p
	18-24		25-29		30-34		35 a más		TOTAL		
	fi	%	fi	%	fi	%	fi	%	fi	%	
Sin estrés	5	4,20	2	1,68	0	0	0	0	7	5,88	
Estrés bajo	5	4,20	1	0,84	1	0,84	0	0	7	5,88	
Estrés medio bajo	24	20,17	3	2,52	0	0	0	0	27	22,69	0,042
Estrés medio	37	31,10	3	2,52	0	0	1	0,84	41	34,46	
Estrés medio alto	28	23,53	3	2,52	0	0	0	0	31	26,05	
Estrés alto	6	5,04	0	0	0	0	0	0	6	5,04	

En la tabla 4, referente a la relación entre Síndrome Visual Informático y estrés académico, se encontró que el 31,9% presentan Síndrome Visual Informático y estrés académico medio, el 23,5% tienen Síndrome Visual Informático y estrés académico alto; sin embargo, no se encontró relación entre ambas variables (p= 0,274).

REVISTA DE LA UNIVERSIDAD DEL ZULIA. 3ª época. Año 12 N° 35, 2021

S. C. Huyhua Gutiérrez et al. /// Síndrome Visual Informático y estrés académico en estudiantes ... 572-583

DOI: http://dx.doi.org/10.46925//rdluz.35.33

Tabla 4. Síndrome Visual Informático y nivel de estrés académico en estudiantes de enfermería

Variables		Estrés Académico												X^2p
		Sin estrés		Estrés bajo		Estrés medio bajo		Estrés medio		Estrés medio alto		Estrés alto		
		fi	%	fi	%	fi	%	fi	%	fi	%	fi	%	
Síndrome Visual Informático	Con	5	4,20	6	5,04	20	16,81	38	31,94	28	23,53	5	4,20	0,274
	Sin	2	1,68	1	0,84	7	5,88	3	2,52	3	2,52	1	0,84	

3. Discusión

Estos resultados son similares a otras investigaciones realizadas en Ecuador, donde el mayor porcentaje fueron mujeres, con edad promedio de 21 años (Velasco Acurio & Moreta Criollo, 2020).

Sin embargo, indistintamente del sexo, los estudiantes han presentado CVS pero sin relación significativa entre variables. Coincidencias encontradas en un estudio donde, no se encontró relación entre el CVS con el sexo (Senthil Kumar, 2020). No obstante, la conexión a los equipos computacionales como laptops, computadoras, smartphones entre otros, y el tiempo por más de 6 horas por sesiones de aprendizaje virtual de tipo sincrónico, ocasionan CVS . Se han reportado investigaciones con resultados similares encontrándose porcentajes entre el 53.3 al 92% que presentan este síndrome cuando se encuentran conectados por más de 5 horas en un computador (Moldovan et al., 2020) (Xu et al., 2019) (Medelin & Merylin, 2020) (Fernandez-Villacorta et al., 2021) (Suwarsi et al., 2020) (Vikanaswari & Handayani, 2018) (Senthil Kumar, 2020). El tiempo máximo que un estudiante debe pasar frente a una computadora es de 30 horas semanales o mejor dicho 4 horas al día; luego de este tiempo, una persona puede llegar a sufrir daños, ocasionando miopías, cataratas, entre otras (Aguilera Mosquera, 2019).

Es alarmante la prevalencia de CVS en estudiantes universitarios de enfermería, y por ende, el uso de lentes con medida va en incremento, pasando muchas veces desapercibido por desconocimiento de los síntomas, tales como: ojo seco, ardor de ojos y dolor de cabeza, por lo

que se deben implementar campañas de sensibilización respecto al cuidado de los ojos (Trancoso Vaz et al., 2019) (Al Tawil et al., 2020) (Xu et al., 2019). Es pertinente afirmar la necesidad de permitir el descanso de la vista, minimizar el brillo de la computadora, higiene de ojos con agua refrescante, reducir el tiempo de exposición frente a un dispositivo electrónico, y con ello se evitarán consecuencias graves en la fisiología ocular, visión y sobre todo la salud física y mental de los estudiantes, futuros cuidadores de la salud y la vida.

Alejar a los estudiantes de la tecnología en estos momentos es imposible, más aún frente a la situación actual ocasionada por la COVID-19. Sin embargo, una de las estrategias para evitar mayor daño a nivel ocular en los estudiantes de enfermería es mejorar las estrategias de enseñanza- aprendizaje, tales como: el aula invertida (Duarez et al., 2020), donde los docentes empleen mecanismos para evitar el CVS; así como también las clases sincrónicas, máximo de 30 minutos con una pausa de 10 minutos para que los estudiantes dejen por un momento la computadora o laptop y posteriormente se puedan reiniciar la sesión de 10 minutos, donde se realice la retroalimentación sobre lo aprendido y/o trabajos grupales.

Es indispensable el uso de las plataformas donde los docentes consideren el material necesario, el horario asincrónico para el desarrollo del aprendizaje y el empleo de estrategias que permitan su aprendizaje, sin comprometer la salud ocular. Al respecto el Colegio Oficial de Ópticos Optometristas de Catalunya recomienda implementar la regla del 20-20-20 (retirar la mirada de la pantalla cada 20 minutos, por un lapso de 20 segundos, a una distancia de 20 pies), que ayuda a evitar la aparición del CVS (Zevallos-Cobeña, 2021).

Se han reportado investigaciones donde se demuestra un nivel de estrés de medio a alto en programas de Enfermería (Castillo et al., 2016) (Velasco Acurio & Moreta Criollo, 2020). En una investigación evidenció que los estudiantes que llevaron Enfermería Básica, primer curso de formación disciplinaria, presentaron estrés alto a medio (Lugo et al., 2020); a su vez, la nueva modalidad de impartir las clases en instituciones como la Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas, donde se pasó del sistema presencial al virtual -con problemas de conectividad durante las clases sincrónicas-, también constituyó un factor desencadenantes de estrés en los jóvenes estudiantes.

En contraste al presente estudio, se encontró un referente donde existie relación entre el CVS con el estrés académico (p=0.000), siendo perjudicial para el futuro profesional de

enfermería y generándose así uno de los posibles problemas de salud pública (Custodio Sánchez, 2021), si no se hace nada al respecto.

A pesar que en este estudio no hubo relación significativa entre variables, se ha encontrado un porcentaje considerable de estudiantes con CVS, por lo que es necesario implementar medidas preventivas en lo académico, que incluyan técnicas para disminuir el nivel de estrés en los estudiantes y dándoles otras para preservar su salud (Palacios Nava & Montes de Oca Zavala, 2017). También se debe mejorar la relación docente – estudiante, ya que una interacción positiva genera mayor satisfacción entre ellos (Yu, 2020), así como interactuar con el personal del servicio de psicologia de la universidad a través de programas de relajación (Luna Feijóo, 2018) que permitan un bienestar individual y colectivo.

Al respecto, emerge la tele - enfermería en terapias alternativas y con servicio domiciliario e institucional de forma escalonada y progresiva para minimizar el estrés académico y laboral, convirtiéndose en un aliado estratégico para relajar el cuerpo del estudiante en el período transitorio de su formación académica, que le favorezca tener una gama de posibilidades de control y autodominio para el logro de una vida plena y feliz, mejorando sus competencias como futuros profesionales del cuidado por excelencia.

Conclusiones

El Síndrome Visual Informático no se relaciona significativamente con el estrés de los estudiantes de enfermería. Sin embargo, se ha reportado con mayor frecuencia este síndrome, el cual no debe pasar desapercibido. Por tanto, se precisa implementar medidas de mejora en el proceso de enseñanza aprendizaje, tales como: el aula invertida, más horas de las clases asincrónicas y hacer efectivas clases sincrónicas con tiempos de pausa que permitan al estudiante no permanecer mucho tiempo en el dispositivo electrónico, y de esta manera brindar un cuidado a su salud.

Referencias

Aguilera Mosquera, H. F. (2019). *La pantalla digital y sus alteraciones visuales* [Bachiller, Universidad Técnica de Machala: Facultad de Ciencias Químicas y de la salud]. http://repositorio.utmachala.edu.ec/handle/48000/13713

Al Tawil, L., Aldokhayel, S., Zeitouni, L., Qadoumi, T., Hussein, S., & Ahamed, S. S. (2020). Prevalence of self-reported computer vision syndrome symptoms and its associated factors among university students. *European Journal of Ophthalmology*, *30*(1), 189-195. https://doi.org/10.1177/1120672118815110

Alania, R., Llancari, R., Rafaele de La Cruz, M., & Ortega, D. (2020). Adaptación del cuestionario de estrés académico SISCO SV al contexto de la crisis por COVID-19. *Socialium*, *4*(2), 111-130. https://doi.org/10.31876/sl.v4i2.79

Ayerza, D. R., & Emery, N. C. (2020). Síndrome de fatiga visual o síndrome visual por computadora. *Fronteras en Medicina*, 140-141. https://DOI.org/10.31954/RFEM/202002/0140-0141

Barreto-Osama, D., & Salazar-Blanco, H. A. (2021). Agotamiento Emocional en estudiantes universitarios del área de la salud. *Universidad y Salud*, *23*(1), 30-39. https://doi.org/10.22267/rus.212301.211

Calvo, S. T., Cervi, L., Tusa, F., & Parola, A. (2020). Educación en tiempos de pandemia: Reflexiones de alumnos y profesores sobre la enseñanza virtual universitaria en España, Italia y Ecuador. *Revista Latina de Comunicación Social*, *78*, 1-21. https://www.doi.org/10.4185/RLCS2020-1466

Castillo, C., Chacón, T., & Díaz, G. (2016). Ansiedad y fuentes de estrés académico en estudiantes de carreras de la salud. *Investigación en Educación Médica*, *5*(20), 230-237. https://doi.org/10.1016/j.riem.2016.03.001

Cueva, M. A. L., & Terrones, S. A. C. (2020). Repercusiones de las clases virtuales en los estudiantes universitarios en el contexto de la cuarentena por COVID-19: El caso de la PUCP. *Propósitos y Representaciones*, *8*(SPE3), 588. https://doi.org/10.20511/pyr2020.v8nSPE3.588

Custodio Sánchez, K. (2021). Trascendencia del síndrome visual informático debido a la exposición prolongada a aparatos electrónicos. *Revista de la Facultad de Medicina Humana*, *21*(2), 463-464. https://doi.org/10.25176/rfmh.v21i2.3611

Duarez, M. F. G., Tascca, S. C., Villanueva, P. P., Aguila, J. S. del, & Diaz, J. V. (2020). El aula invertida como metodología aplicada a estudiantes universitarios en el contexto covid-19. *Revista Científica Pakamuros*, *8*(4), 3-14. https://doi.org/10.37787/pakamuros-unj.v8i4.145

Fernandez-Villacorta, D., Soriano-Moreno, A. N., Galvez-Olortegui, T., Agui-Santivañez, N., Soriano-Moreno, D. R., & Benites-Zapata, V. A. (2021). Síndrome visual informático en estudiantes universitarios de posgrado de una universidad privada de Lima, Perú. *Archivos de la Sociedad Española de Oftalmología*, S0365669121000058. https://doi.org/10.1016/j.oftal.2020.12.003

Guevara, M., Vértiz, R., Huayama, M., Rivera, R., Vértiz, J., & Damián, J. (2020). La educación universitaria en la era del hombre tecnológico: ¿Quo Vadis? *Revista Científica Pakamuros*, *8*(2), 14-24. https://doi.org/10.37787/pakamuros-unj.v8i2.124

Hernández S, & Mendoza C. (2018). *Metodología de la investigación: Las rutas cuantitativa, cualitativa y mixta*. McGraw-Hill Interamericana.

Lugo, A. S., Lugo, M. S., Cabañin, L. E. C., Sarduy, A. de la C. C., & Gálvez, Y. Q. (2020). Percepción de estudiantes de enfermería sobre influencia familiar en la presencia de estrés académico en la asignatura enfermería básica. *Revista Cubana de Enfermería*, *36*(2), 11. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-03192020000200007&lng=es. Epub 01-Jun-2020.

Luna Feijóo, M. D. C. (2018). *Relación del bienestar psicológico, estrés académico y el estilo de vida de los estudiantes de la Universidad Inca Garcilaso de la Vega* [Doctor, Universidad Inca Garcilaso de la Vega: Escuela de Post Grado]. http://repositorio.uigv.edu.pe/handle/20.500.11818/2379

Medelin, F., & Merylin, P. (2020). The Relationship of Screen Time and Asthenopia Among Computer Science Students Universitas Klabat. *Revista Nutrix*, 01-06.

Moldovan, H.-R., Voidazan, S.-T., Moldovan, G., Vlasiu, M.-A., Moldovan, G., & Panaitescu, R. (2020). Accommodative asthenopia among Romanian computer-using medical students—A neglected occupational disease. *Archives of Environmental & Occupational Health*, *75*(4), 235-241. https://doi.org/10.1080/19338244.2019.1616666

Palacios Nava, M. E., & Montes de Oca Zavala, V. (2017). Condiciones de Trabajo y Estrés en Académicos Universitarios. *Ciencia & trabajo*, *19*(58), 49-53. https://doi.org/10.4067/S0718-24492017000100049

Quijano-Escate, R., Rebatta-Acuña, A., Garayar-Peceros, H., Gutierrez-Flores, K. E., & Bendezu-Quispe, G. (2020). Aprendizaje en tiempos de aislamiento social: Cursos masivos abiertos en línea sobre la COVID-19. *Revista Peruana de Medicina Experimental y Salud Publica*, *37*(2), 375-377. https://doi.org/10.17843/rpmesp.2020.372.5478

Roig-Vila, R., Urrea Solano, M. E., & Merma-Molina, G. (2021). *La comunicación en el aula universitaria en el contexto del COVID-19 a partir de la videoconferencia con Google Meet*. https://doi.org/10.5944/ried.24.1.27519

Seguí, M. D. M., Cabrero, J., Crespo, A., Verdú, J., & Ronda, E. (2015). Cuestionario confiable y válido para medir la visión por computadora. *Journal of Clinical Epidemiology*, *68*(6), 662-673. https://doi.org/10.1016/j.jclinepi.2015.01.015

Senthil Kumar, B. (2020). A Study to Evaluate the Knowledge Regarding Computer Vision Syndrome among Medical Students. *Biomedical and Pharmacology Journal*, *13*(1), 469-473. http://dx.doi.org/10.13005/bpj/1907

Suwarsi, S., Rizqi, J., & Wahyuningsih, M. (2020). The Frequency of Gadget Usage or Monitor Exposure and Eyestrain. *Jurnal Keperawatan Respati Yogyakarta*, *7*(2), 121-125. https://doi.org/10.35842/jkry.v7i2.477

Trancoso Vaz, F., Pinto Henriques, S., Diana Silveira Silva, D., Roque, J., Lopes, A. S., & Mafalda, M. (2019). Digital Asthenopia: Portuguese Group of Ergophthalmology Survey. *Acta Medica Portuguesa*, *32*(4), 260-265. https://doi.org/10.20344/amp.10942

Velasco Acurio, E. F., & Moreta Criollo, J. V. (2020). *Estrés académico en estudiantes de la carrera de Enfermería de la Universidad Técnica de Ambato* [Bachiller, Universidad Técnica de Ambato: Facultad de Ciencias de la Salud]. https://repositorio.uta.edu.ec:8443/jspui/handle/123456789/31093

Viera, P. A. (2018). Ética e investigación. *Revista Boletín Redipe*, *7*(2), 122-149.

Vikanaswari, G. I., & Handayani, A. T. (2018). The screening of computer vision syndrome in medical students of Udayana University. *Bali Jounal of Ophthalmology*, *6*(226), 37-7. https://doi.org/10.15562/bjo.v2i2.20

Xu, Y., Deng, G., Wang, W., Xiong, S., & Xu, X. (2019). Correlation between handheld digital device use and asthenopia in Chinese college students: A Shanghai study. *Acta Ophthalmologica*, *97*(3), e442-e447. https://doi.org/10.1111/aos.13885

Yu, S. H. (2020). Influence of Stress Coping Type, Professor-student Interaction, Major Satisfaction on Life Stress of Nursing Students. *Journal of Digital Convergence*, *18*(10), 297-305. https://doi.org/10.14400/JDC.2020.18.10.297

Zevallos-Cobeña, V. S. (2021). Apuntes sobre los factores de riesgo asociados al síndrome visual informático en estudiantes de la Facultad de Ciencias de la Salud de la Universidad Técnica de Manabí. *Dominio de las Ciencias*, *7*(3), 239-259. https://doi.org/10.23857/dc.v7i3.1914

Normas para la presentación de trabajos

1. Principios de la Revista

La REVISTA DE LA UNIVERSIDAD DEL ZULIA es un órgano científico de difusión de trabajos parciales o definitivos de investigadores y/o equipos de investigación nacionales y extranjeros. Su naturaleza es multidisciplinaria e interdisciplinaria, por ello su temática se divide en tres grandes ejes: a. *ciencias sociales y arte*; b. *ciencias del agro, ingeniería y tecnología*; c. *ciencias exactas, naturales y de la salud*. Su publicación es cuatrimestral. Cada número, de los tres del año, se corresponde con uno de los tres ejes temáticos. La *Revista de la Universidad del Zulia*, por su carácter histórico y patrimonial, está adscrita a la CÁTEDRA LIBRE HISTORIA DE LA UNIVERSIDAD DEL ZULIA.

2. Métodos de Envío y de Evaluación de los Trabajos

Los autores interesados en publicar su trabajo en la *Revista de la Universidad del Zulia* deberán remitir tres copias del mismo sin identificación en sobre cerrado a la siguiente dirección: Avenida Guajira, Fundadesarrollo, planta baja de la Sede Rectoral de La Universidad del Zulia. Este sobre debe estar acompañado de otro, el cual contendrá el original del trabajo con la identificación del autor o autores, indicando: nombre, apellido, institución que representa (universidad, instituto, centro de investigación, fundación), correo electrónico. Así mismo en este sobre se presentará una comunicación escrita firmada por todos los autores y dirigida al Director de la Revista. En esta comunicación se manifestará el interés de los autores de proponer su trabajo para la publicación en la *Revista de la Universidad del Zulia*, previa evaluación del Comité de Arbitraje. Se agregará también a este sobre una síntesis curricular de cada autor con una extensión no mayor de diez (10) líneas. Los artículos pueden agregarse a la plataforma OJS de la revista. También se podrá presentar el trabajo dirigiéndolo al siguiente correo electrónico: revistadeluz@gmail.com. El currículo de los autores se enviará en archivo adjunto, distinto al que contendrá el trabajo. Los artículos propuestos para esta revista deben ser inéditos y no deben haber sido propuestos simultáneamente a otras publicaciones. Todos los trabajos serán evaluados por parte de un Comité de Árbitros-Especialistas de reconocido prestigio, seleccionado por el Comité Editorial de la Revista. La evaluación de los Árbitros se realizará mediante el procedimiento conocido como par de ciegos: los árbitros y los autores no conocerán sus identidades respectivas. Los criterios de Evaluación son los siguientes: a. Criterios formales o de presentación: 1) originalidad, pertinencia y adecuada extensión del título; 2) claridad y coherencia del discurso; 3) adecuada elaboración del resumen; 4) organización interna del texto; 5) todos los demás criterios establecidos en la presente normativa. b. Criterios de contenido: 1) dominio de conocimiento evidenciado; 2) rigurosidad científica; 3) fundamentación teórica y metodológica; 4) actualidad y relevancia de las fuentes consultadas; 5) aportes al conocimiento

existente. Al recibirse la respuesta del Comité de Árbitros designado se informará a los autores por correo electrónico la decisión correspondiente; en caso de ser aceptado el trabajo deberá remitirse por correo electrónico la versión digital del mismo.

3. Presentación de los trabajos

Los trabajos deben presentar un resumen de 150 palabras como máximo y hasta cinco palabras claves; tanto el resumen como las palabras claves estarán en español e inglés. Igualmente el título y el subtítulo del trabajo serán presentados también en español e inglés. La extensión máxima del trabajo será de veinte (20) páginas, y diez (10) como extensión mínima (salvo excepciones plenamente justificadas). Todos los trabajos serán presentados en hoja tipo carta, impresos por una sola cara, con numeración continua y con márgenes de tres (3) centímetros a cada lado. El texto se presentará a espacio y medio, en fuente Times New Roman, tamaño 12.

4. Cuerpo del artículo

Se dividirá en Introducción, Desarrollo y Conclusiones (o Consideraciones Finales, según sea el caso). La introducción incluirá el propósito u objetivo general perseguido. El Desarrollo se organizará en secciones y subsecciones debidamente identificadas con subtítulos numerados completamente en arábigos de acuerdo al sistema decimal, respondiendo a una sucesión continua y utilizando un punto para separar los niveles de división. La Introducción y Conclusión están exceptuadas de esta numeración. Las fechas y horas se expresarán numéricamente. En caso de existir ilustraciones (gráficos, mapas, fotos) debe hacerse referencia a los mismos en el texto. Estas ilustraciones serán contadas dentro de la extensión máxima del artículo. Las notas explicativas o aclaratorias deben reducirse al mínimo necesario y colocarse al pie de páginas debidamente señalizadas. Los materiales complementarios se recogerán en anexos, los cuales se identificarán con una letra y un título y se colocarán después de la bibliografía. Los anexos serán contados también dentro de la extensión máxima del artículo.

5. Citado

El citado se realizará en el texto utilizando la modalidad autor-fecha, establecido en el *Reglamento para la presentación de trabajos en la Universidad del Zulia*, indicando, en caso de ser cita textual, apellido(s) del autor, seguido de coma, año de publicación de la obra, seguido de dos puntos y el (los) número(s) de la(s) página(s), por ejemplo: de acuerdo a Rincón (1998: 45) o (Rincón, 1998: 45); si no es cita textual sino una paráfrasis no se indicará el número de página, ejemplo: de acuerdo a Rincón (1998) o (Rincón, 1998). Si hay varias obras del mismo autor publicadas en el mismo año, se ordenarán literalmente en orden alfabético; por ejemplo, (Rincón, 2008a: 12), (Rincón, 2008b: 24). Si son dos autores, se colocarán solamente el primer apellido de cada uno, por ejemplo: Según Morales y Fleires (2008: 90) o (Morales y Fleires, 2008: 90), siguiendo el mismo criterio explicado anteriormente para las citas textuales y las paráfrasis. En caso de ser tres autores o más se colocará el apellido del autor principal

seguido de "et al", ejemplo: (Rincón *et al.*, 2008: 45). Deben evitarse, en lo posible, citas de trabajos no publicados o en imprenta, también referencias a comunicaciones y documentos privados de difusión limitada, a no ser que sea estrictamente necesario. En caso de fuentes documentales, electrónicas u otras que por su naturaleza resulten inviables o complejas para la adopción del citado autor-fecha, sugerido en estas normas, puede recurrirse u optarse por el citado al pie de página.

6. Referencias bibliográficas

Las referencias (bibliográficas, hemerográficas, orales y/o documentales) se presentarán al final del texto, según lo establecido en el *Reglamento para la presentación de trabajos en la Universidad del Zulia*. El orden de las referencias es alfabético por apellido. Las diferentes obras de un mismo autor se organizarán cronológicamente, en orden ascendente, y si son dos obras o más de un mismo autor y año, se mantendrá el estricto orden alfabético por título.

Fecha de evaluación_____

Instrumento de Evaluación del Árbitro

I.- Criterios formales o de presentación

CRITERIOS DE EVALUACIÓN	EXCELENTE	MUY BUENO	BUENO	REGULAR	DEFICIENTE OBSERVACIONES
Originalidad, pertinencia y adecuada extensión del título					
Claridad y coherencia del discurso					
Adecuada elaboración del resumen					
Contiene abstract y palabras claves					
Objetivo, metodología y resultados.					
Organización interna del texto					

II. - Criterios de contenido

CRITERIOS DE EVALUACIÓN	EXCELENTE	MUY BUENO	BUENO	REGULAR	DEFICIENTE OBSERVACIONES
Dominio de conocimiento evidenciado					
Rigurosidad científica					
Fundamentación teórica y metodológica					
Actualidad y relevancia de las fuentes consultadas					
Aportes al conocimiento existente					

III. – Sugerencia de publicación

De acuerdo a la información obtenida usted recomendaría (favor marcar con una X):

Publicar sin modificaciones: _____   Publicar con ligeras modificaciones_____

Publicar con modificaciones sustanciales_____   No publicar_____

Fundamentación de la decisión: