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The Effect of (c.a.s.e) Model in Mathematics Education at First Intermediate class Students in Mathematic Subject

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Abstract

The objective of the current research is to identify the effect of the c.a.s.e model on the mathematical proficiency of the first grade students in mathematics. The sample consisted of (86) students from the first grade intermediate school in the middle (Qara Quinlo for boys) belonging to the Directorate of Education Kirkuk, 40 students in the experimental group and 46 students in the control group, (K-20) to 0.84. Using the appropriate statistical means, the results showed the superiority of the students of the experimental group studied. Using the appropriate statistical means, the results showed that the students of the group Experimental model (case) on Tal B the control group, who studied in the usual way in the athletic prowess, and in the light of these results, reached a number of conclusions and recommendations and proposals.

El efecto del modelo (c.a.s.e) en la educación matemática en los estudiantes de la primera clase intermedia en materia matemática

El objetivo de la investigación actual es identificar el efecto del modelo c.a.s.e sobre la competencia matemática de los estudiantes de primer grado en matemáticas.

La muestra consistió en (86) estudiantes de la escuela intermedia de primer grado en el medio (Qara Quinlo para niños) pertenecientes a la Dirección de Educación Kirkuk, 40 estudiantes en el grupo experimental y 46 estudiantes en el grupo de control, (K-20) a 0.84. Utilizando los medios estadísticos apropiados, los resultados mostraron la superioridad de los estudiantes del grupo experimental estudiado. Utilizando los medios estadísticos apropiados, los resultados mostraron que los estudiantes del grupo Modelo experimental (caso) en Tal B, el grupo de control, que estudiaron de la manera habitual en la destreza atlética, y a la luz de estos resultados, alcanzaron una serie de conclusiones y recomendaciones y propuestas.

The problem of research: The teaching of mathematics for the intermediate stage suffers from difficulties and great problems in teaching students, especially students in the first grade intermediate if this stage is the transition from the concrete to the abstract, which led to their weaknesses in the principles and concepts and laws, And the inability to choose the appropriate methods in the solution and recall the basic information that rely on mathematical thinking and logic and sequencing in the solution, which makes it difficult for them to analyze mathematical attitudes to the basic elements of This was confirmed by many teachers and teachers of mathematics during the meeting of the researcher through a survey questionnaire directed to (15) teachers and schools distributed among (10) schools are located in the Directorate After 80% of the teachers were dissatisfied with the efficiency of their students in mathematics, this was confirmed by the success rates for the years (2013-2016), which is between (43% -57%), hence the problem of weakness in the skill level Aadih calls for the students to stand then, and to address this weakness through the revision of the traditional methods and the use of modern teaching strategy, keep pace with scientific and technological and technical development of the modern world.

What did the Case model (c.a.s.e) affect in the mathematical prowess of

first grade students in mathematics?
research importance :
The importance of research is as follows:
A - theoretical importance:
1. The teaching of c.a.s.e model may achieve meaningful learning, snatch mathematical subjects through the hierarchy of concepts, and link previous information with new information.
2. It may help the student to move from the negative role of saving information to a positive role as an explorer of information, discussion and dialogue for others, and developing his confidence in his abilities and abilities, to make him an individual able to face problems.
3. The current research may help those who develop curriculum, take the educational applications of structural theory in the preparation of curricula, and provide the teacher's guide with study plans based on models and teaching strategies based on structural theory.
B - Practical importance:
1. The current research may help trainers in training centers and training teachers and teachers on modern teaching methods and models that help learners develop skills of mathematical skill, and make mathematics learning for understanding rather than conservation, such as c.a.s.e.
2. The test of mathematical skill may benefit researchers in their studies.
Research Objective: The present research aims to identify the effect of the c.a.s.e model on the mathematical proficiency of the first grade students in mathematics.
Search Hypothesis:
To verify the objective of the research, the following zero hypothesis was set:
There was no statistically significant difference at the level of significance (0.05) between the average score of the students of the experimental group studied according to (c.a.s.e) and the average score of the control group students studied according to the usual method of testing the skills of sports ingenuity.
search limits :
1 - students of the first grade intermediate in middle and secondary schools belonging to the Directorate of Education Kirkuk in the province of Kirkuk.
2- The second semester of the academic year 2017-2018.
3- - Classes (V - Engineering, VI - Measurement / spaces and sizes, VII - Statistics and Probability) of the book of mathematics for the first grade intermediate / Part II, the first edition, 2017.

4- Skills of mathematical skill: conceptual understanding, procedural fluency, strategic efficiency, adaptive reasoning.
Terminology:
Model (c.as.e): Defined by:
Adery & Shayer (2005) is a general term that includes a group of activities that engage at certain levels of learners' ages within a specific context, in which a range of subjects vary in intensity and duration to develop their ideas, using the phrase "to think together" (2005: 3, Adey Shayer),(Afana and Tayseer Nashwan, 2018) as: "An educational model for students between the ages of 14 and 11 years. This model develops an intellectual methodology for this group of students to help them develop their knowledge and personalities. On the theory of cognitive constructivism of Piaget and socialism of Vygotsky "(Afana and Tayseer Nashwan, 2018: 405).

The theoretical definition of this strategy is defined by the researcher (Afaneh and Tayseer Nashwan, 2018) and adopts a theoretical definition that fits the requirements of this research.
The researcher defines the model (c.as.e) procedurally as: a set of organized steps that are staggered (sensory preparation, cognitive conflict, thinking thinking, bridging) followed by the researcher while teaching the first grade students the average model (c.as.e) of In order to activate their memory and the ease of acceptance of information given to them and awareness of the organization, and measured the impact of this model to test the mathematical prowess built by the researcher for the purpose of this research.
Sports ingenuity: defined by:
1. (Masarwa, 2012) as "one of the learning outcomes of mathematics that the learner seeks to achieve, and include five main components" (Masarwa, 2012: 11).
2. Abo Rayaat (2014) as "the skill in implementing the procedures with flexibility, accuracy and comprehension of concepts, processes and relationships through logical and logical thinking, interpretation, justification, formulation, representation and solving of mathematical problems so that the learner can see mathematics as a useful material of value and gain confidence in its adoption." Abu Rayaat, 2014: 56)

The researcher defines it as: measuring the level of mathematical proficiency of students in the first grade with its five components (conceptual comprehension, procedural fluency, strategic efficiency, adaptive reasoning, and inclination) through two tools prepared by the researcher: one is a measure of the inclination produced, Theoretical Background: The first

axis: the cognitive theories that dealt with the model (Adi & Shire)
Cognitive theories have long roots in many ancient thinkers and philosophers, but they have taken clear grants since Piaget developed its basic elements in the first decade of the last century. On the basis of these elements, piaget developed the framework of cognitive development stages (based on age stages) Scientific and social fields. Piaget defined learning as linking new information to the learner's prior knowledge of his cognitive structure. On the other hand, Vygotsky also taught the world the development of concepts of cognitive growth from a social point of view in accelerating cognitive growth (Obaid, 2009: 83). The c.as.e model relies on the ideas of Piaget and Vygotsky in the development of mental growth by preparing and training learners so that they can advance to higher levels of knowledge and cognition (Adey, 2005: 122-145).

First: the cognitive structure theory of (Jean Piaget (piaget))
Piaget is the best that has provided an integrated theory of cognitive development, which goes according to certain stages. These are the stages that Jean Piaget has identified for the child's cognitive development:
1) Sensory motor stage: This stage begins from birth until the end of the second year, a stage characterized by motor activity and sensory only.
2) pre-operative or pre-procedural phase: This stage starts at 7-2 years of age, where Piaget prepares a transition that is not clearly understood because it is not stable in terms of cognitive growth and is divided into two stages Pre-conceptual and intuitive phase.
3) Stage of sensory processes: Starting from (11) years of age of the child The child begins at this stage with sensory thinking and not abstract thinking and is clarified through the process of classification and classification by color or height and OakleyHe learns that things regardless of their appearance change remains constant.
4) The stage of formal processes (abstract): This stage begins from (12) years and above the age of the child and is characterized by the thinking of the child at this stage as a virtual thinking, and this thinking is characterized by two main capacities: the ability to virtual inference that enables the learner to solve problems, And having a complete compatibility system that enables the learner to isolate and control variables in a phenomenon. (Abu Zeina, 2010: 146-142).
In his study, the researcher will rely on a sample of students who are at this stage of the Piaget stages of cognitive development, which is one of the most difficult stages in which students move from tangible to abstract.
Second: Vygotsky's theory:

This theory is one of the important theories that attempted to interpret thinking as one of the cognitive mental foundations. This theory is attributed to the Soviet world (Vygotsky), which defined the views and trends on the concept of thinking. It also emphasized the importance of social interaction in shaping the thinking process. Helps to see the sensory and recognize the characteristics of things, their recognition and excellence and develop the learner and increase knowledge of its characteristics (Qatami, 1989: 89). Vijotsky is likely to have the nature of the dialogue and classroom discussions between the teacher and his learners to the importance of building their meaning through this interaction between them. The teacher plays the role of the mediator and reaches the learner from the general public knowledge to the scientific knowledge in-depth scientific and gradually guides him to understand the material or task and mastery it (Vygotsky, 1978: 67)).

Axis II: CASE Model

The CASE model is a summary of the term Cognitive Acceleration Science in the sense of science education through cognitive acceleration. This model was designed by Shyer in Britain and began to think about it since 1970 for the purpose of cognitive development due to the significant weakness in the level of achievement Students' Cognitive Studies This model is based on my theory of knowledge development and Vijotsky's theory of sociocultural development, and the success of this model has been proven to be effective (Gough, 2007: 213).

The importance of teaching using the model (Adi & Shire)

1) works to help learners to link the variables and the imposition of hypotheses and validation of hypotheses and to solve problems in a scientific way and thus an improved course of learning science.

2) It deals well with the lessons of science and is one of the manifestations of the guide to work and the perception of ideas through discussions and dialogues and to express opinion that removes the gap between the learners and the teacher, making them freed from the constraints that they feel within the lesson as listeners no more.

As indicated by each of the steps of the model (Afana and Tayseer, 405-406: 2018), which are as follows:

1) Sensory setup stage (configuration). 2) the stage of conflict (conflict) knowledge. 3) Thinking stage thinking. 4) Bridging phase.

Stages of CASE (Educational-Educational Activities)

1 - The stage of sensory numbers: To start lessons, the teacher divide the students into groups and give each group a number to differentiate, and

presents all the axes of the lesson in a sequential way and linking them with their previous knowledge and activities, and this stage is concerned with self - development and social construction through the exchange of information and concepts And to enable them to correctly absorb inputs, concepts and terminology by asking a set of questions.

2 - the stage of cognitive conflict: the central idea at this stage is to develop a problem or question that students can not find the appropriate solution using their existing thinking methods, a state of imbalance in the mental construction of learners when a new idea does not match with their previous knowledge occurs cognitive conflict.

3 - Think about thinking: thinking about the reasons that led to think about the questions or problem in a particular way is a stage aimed at the learner access to awareness that makes him understand what he says and why think this way and this is through a set of questions that the teacher to his students so that the learner is aware What he does, for example, is why I thought about this solution, how I thought, and why I did it, as these are steps to develop thought thinking.

4 - Bridging: The teacher in this step to link the experiences and knowledge gained by students in the working life in a particular lesson and transfer the impact of learning to different aspects of life to reach an integrated knowledge and linking intellectual bridges is necessary to remove the educational options from the theoretical framework to the field of application And facilitation, 2018: 405-406).

The role of the teacher in this model

1) raises class problems that cause contradictions and brain conflicts (not in harmony with the brain).

2) Urges learners to reconsider their thinking and awareness and organizational strategies to accelerate mental development.

The third axis: sports ingenuity

Mathematical ingenuity is a set of processes, thinking skills, attitudes and tendencies that promote students' learning of mathematics, which includes understanding of mathematical concepts and implementing procedures with flexibility, accuracy and appropriate form, and the ability to formulate, represent and solve problems by adopting logical and reasoning thinking strategies, justification and interpretation of solutions. This is linked to the expediency and rationality of mathematics in practical life, (2016: 58).

Mathematical proficiency is a contemporary approach to the development of mathematics education. It is linked to three main axes: the skill and coherence of scientific content for the learner, the skill of the teacher in

his ability to handle scientific content, and the components of dexterity that can be developed and measured by the learner. (11 philipp, & other, 2010). There are reports from the National Mathematics Advisory Panel in the United States recommending that the components of mathematical ingenuity be adopted for student preparation for the 21st century, as well as a number of recommendations in several key areas Which are: curriculum content, learning processes, teacher performance, tools, educational materials, evaluation, and research mechanisms (National Mathematics Advisory Panel, 2008: xvi), and cognitive theories have emphasized that if the learner understands his cognitive structure, The goal to be achieved depends on itself, as it gives to The learner has an active role to formulate his problems and to find alternative solutions that allow him to interact positively with his environment and prepare him for mental development. Each individual develops his or her own concept and world, so there is no specific stage for learning any experience at any stage of life. 21). In the light of the above, the researcher believes that balanced mathematical skill is consistent with cognitive theory. This means that any subject can be taught effectively and rationally to any learner and at any stage of his development if he has the right environment to help him deal with the knowledge he receives from Learning environment.

The development of mathematical ingenuity: The teaching and learning of mathematics has undergone several fundamental changes over the past century and in response to cognitive, societal and technological transformations. Since the mid-20th century, the movement of behavioral goals has been manifested in procedural actions, reflecting the educational trends that emerged in the process of developing and improving education. Learning outcomes that have emerged as important, through a proactive view of the outcomes and returns of educational processes, and then began to spread the culture of standards that have become educational institutions among them racing in the light of criteria that the learner must know My math since childhood and during the course of his education and learning (Obaid 2004: 13), where the National Research Council in the United States of America (NRC, 2001), certainly on the athletic prowess of ingredients Which represent all kinds of mathematical knowledge of the content and processes of thinking and tendencies and promised them the necessary tasks to learn mathematics successfully. (Amari, 2017: 10)

The term “Mathematical Proficiency” was different in terms of mathematical competence (Salameh, 2014), Abu Al-Rayat (2014) and others, while the other applied the term “mathematical proficiency” (Al-Omari, 2017),

Al-Masarwa (2012) and others. In mathematics (Baba and Brown, 2012: 12).

3.1.2 Components of sports ingenuity

Sports ingenuity requires five interrelated and interrelated elements:

• Conceptual Understanding
• Procedural Fluency
• Strategic Competence
Adaptive Reasoning
• Productive Disposition

Components of sports ingenuity as follows:

First: Conceptual Understanding: It is a precise treatment of mathematical concepts and the related knowledge and processes of building knowledge. It is possible to deduce a number of indicators: (1) understanding the meaning of the mathematical concept, its symbols, characteristics and related processes, It is possible to apply it in life situations (Obaidah, 2017: 29). Al Masarwa (2012) defined it as an understanding of the mathematical concept of concepts and generalizations and the linking of these ideas, as the learner has the ability to know and apply the content of the mathematical idea (Masarwa, 2012: 5).

Procedural Fluency: Procedural Fluency is the ability to perform mathematical processes, skills and algorithms in a smooth, precise and flexible manner in a manner appropriate to the position faced by the learner through the use of algorithms in the calculations that are the basis for a good understanding of the relationships and characteristics of sports (Masarwa, 2012: 6)

Third: Strategic Competence: It is the ability of the learner to formulate mathematical issues and their representation and resolution, the representation of the problem mathematically whether it is symbolic or numerically or verbally or graphic and is the first step of the learner in solving the problem and often provides learners with specific mathematical problems within the school, Outside, they face situations where they are part of the difficulty and need to know exactly what the problem is so they need to be reformulated mathematically so they can solve it, so they are expected to need experience and practice in shaping the problem and finding the right solution for it. Learners should know a variety of solution strategies that may be useful for solving a particular problem (Kilpatrick & other, 2001: 124).

Adaptive Reasoning (Masarwa, 2012) is the ability of the learner to think logically and rationally by using logical relations between positions and

concepts to analyze, explain, justify and perform mathematical tasks after training on cognitive skills (Masarwa, 2012: 6).

5. Productive Disposition: It is the tendency of the learner to see mathematics as a useful and worthwhile material characterized by rationality. It has value and meaning and is associated with the efficiency and diligence of the individual. This is the goal that we seek to achieve in mathematics. We can observe this in the active learner in mathematics If learners develop their conceptual understanding, procedural classwork, and strategic competence with their adaptive reasoning abilities, they must realize that mathematics with the required effort can be understood, learned, and used. The benefits of perseverance to work to make sense in mathematics, and although the tendency of the product is different from the four dimensions of the skill of sports, which emphasized the cognitive processes, but these dimensions need to be built to the inclination produced and also the development of the four components contribute to building the tendency produced by the learner. It can be said that the learner builds strategic competence To solve non-routine problems becomes more positive in his understanding of mathematical concepts. (Kilpatrick & other, 2001: 131)

Previous Studies:

Studies on the model (c.e.a.s)

1. Adey & Shayer (1994) study in Britain, "The impact of time on the cognitive development of students participating in the project of acceleration of knowledge and achievement through science education.

The study sample consisted of (105) students for the experimental group.

2. Shayer (1997): The impact of the knowledge acceleration project through science and mathematics education on the achievement of students in the long term was conducted in Britain. The study sample consisted of (4500) students of the eighth stage and 17 schools participated in the project of acceleration of knowledge through the teaching of mathematics and science in Britain in 1995 and 1996. The study aimed to know the effect of this project on the long-term achievement in the general secondary school exam in Britain GCSE. The study found the following results: The use of the knowledge acceleration project through the teaching of mathematics and science led to an increase in the average grade of students in science and mathematics from 43% to 57% in 1995.

Studies on sports ingenuity:

1. The study of Masaruah, Maha Abdel Naim 2012): was conducted in Jordan and entitled "The impact of teaching in accordance with a strategy based on linkage and sports representation in the ingenuity of sports

among students in the sixth grade basic." The sample size is 41 students
2. Salama Study, Rania Al-Saeed Mohamed 2014), conducted in Egypt under the title "The Effectiveness of an Improved Unit in Patterns and Linear Algebraic Functions in Developing the Mathematical Efficiency of Second Grade Students in the Preparatory Stage". The size of the sample (100) students.

Aspects of the use of previous studies:

1. Help the researcher in building the test of mathematical ingenuity after reviewing the test included in some previous studies to measure the dependent variable.
2. Preparation of teaching plans for the research subject.
3. Selection of appropriate statistical methods.

Chapter III: Methodology of Research Procedures

Experimental Design: The researcher relied on a semi-experimental design with a partial control of two equal groups (experimental and control) with the post-test and suitable for the purposes of the research. The CASE model represents the independent variable in the experiment and the mathematical skill is the variable in the experiment (Table 1).

Table (1) Semi-experimental design of the research

Measure of dependent variable	dependent variable	Independent variable	Equivalence of the two groups	sets
math ingenuity test	math - ingenuity	(CASE)	Mathematical - knowledge test The chronological age of - months Previous collection - In mathematics IQ test - Sports ingenuity -	test
		Normal method		control

Research Community: The research community identified the first grade students in intermediate and secondary schools affiliated with Kirkuk Education Directorate in Kirkuk governorate for the academic year (2017-

2018).

The sample of the research was randomly selected (Qara Quinloo for boys). The selection of the A group was chosen to represent the experimental group that will study the CASE students. The number of students reached (40) students and (b) to represent the control group The average number of students (46) students and students were excluded from the two groups.

Third: Control procedures: The two groups were matched by a number of variables (previous knowledge, age, previous achievement in mathematics, intelligence test, mathematical skill test) after the researcher obtained the old age and the previous collection of school records. On the grades of students after their testing and examination of their answers and determine the degrees of each, and when the comparison between the average scores of experimental and control groups using the test (t-test) for two independent samples show that the value of t Calculated below the tabular value in the three variables, which means that the two groups are equivalent to the above variables and Table (2) shows this.

Table (2) Statistical description of the experimental and control groups in the equivalence variables Statistical description.

On the leveled (0,05)	t-test value		Standard error Of the arithmetic mean	deviation Standard	Average calculate	Number The students	sets	Variables
	table	calculate						
Not a function	1,990	0,096	0,43874	2,9756	151,8913	40	test	Previous knowledge
			0,54759	3,46327	151,8250	46	control	
Not a function	1,990	1,375	1,9410	13,1650	79,4348	40	test	The chronological age
			2,3274	14,7199	75,3000	46	control	
Not a function	1,990	0,926	0,34993	2,37336	12.4783	40	test	Previous collection
			0,46126	2,91723	11,9500	46	control	
Not a function	2,00	1,44	10,13	3,62	10,00	40		Intelligence
			9,92	3,15	11,21	46		

Fourth: Building the test of sports skill skills:

The test of the skills of the mathematical skill of the students of the first grade intermediate was built according to the following steps:

1) Determine the objective of the test: The idea of determining the objective of the test is to measure the level of skills of sportsmanship of students in the first grade intermediate.

2) Access to previous literature and studies: previous studies have been examined on the mathematical ingenuity, including the study (Obaidah, 2017 and others, and these studies reported the researcher in the division of areas and the formulation of paragraphs

3) Identifying the skills of mathematical ingenuity: by reference to the literature of this variable, and after consulting the researcher a number of specialists in the field of teaching methods of mathematics and psychology, and in the light of the opinions of experts were identified four skills of sportsmanship measured by the test for students in the first grade average to suit the capabilities And the mental abilities of students at this stage.

4) The formulation of the test paragraphs in light of the specific areas: A number of test paragraphs were formulated for each field to be compatible with the theoretical definition of each, and these paragraphs were formulated to suit the levels of students in the first grade intermediate, and the test consisted of 30 paragraphs of the type of multiple choice.

5) Presentation of skills with paragraphs on the arbitrators: After defining the skills of mathematical skill and the formulation of test paragraphs in the light of the areas identified in the initial form, the four skills were presented with paragraphs of 30 paragraphs to a number of arbitrators, for the purpose of know their views and observations on the compatibility of paragraphs with skills And the validity of the wording of the paragraphs and their validity to measure the level of mathematical proficiency among students in the first grade average, and in light of the guidance of the arbitrators and their observations, has been modified some paragraphs in the formulation, and the total number of test (30) paragraph where all of them by agreement of more than (80%).

6) Preparation of test instructions:

(6-a) Instruction Answer: A page has been prepared in the introduction to the test, which includes instructions for testing and directed to students, and aimed at these instructions the nature of the test and the purpose of it and how to answer them, as well as the total score of the test, and taking into account reading each paragraph accurately and then choose the correct alternative from The four alternatives for each paragraph and not to leave

any paragraph without answer and not to choose more than one alternative.
(6-b) Correction Instructions The test correction key has been set. A score of (1) is assigned to the correct answer for paragraph (0) for the wrong answer of the paragraph or the one left unanswered. Substantive paragraph of type (multiple choice).
7 - Validation of the test: The validity of the test of sports ingenuity has been verified using two types of honesty:
7) a) Authentic honesty: Achieve the apparent honesty by presenting the test to a number of arbitrators and specialists in mathematics and methods of teaching and psychology, has been the acceptance of the paragraphs that were attended by the agreement of more than (80%) of the views of the arbitrators.
(7-b) The construction is valid: it is also called the truth of the concept. It refers to the extent to which the test is measured by the abstract verification of its degree of conformity with the concept adopted in the construction of the test. (Allam, 2006) indicates that the method of the internal consistency coefficient that is meant to correlate between the scores of the test vertebrae, ie, the degree of measurement of the vertebrae of the attribute itself, is one of the indicators of the validity of the construction of the test (Alam, 2006: 111) Ensuring the correctness of the internal consistency to test the mathematical skill by finding the relationship Linkages between:
1- Coefficient of correlation of the grades of each paragraph with the degrees of its field: The correlation coefficient was extracted based on Pearson Correlation Coefficient, in order to find a coefficient The correlation between the degree and degree of each field, and the results showed that all the test clauses were statistically significant. The correlation coefficients ranged between (0.274-0.793), which is a good indicator of the validity of the construction to test the mathematical skill.
2. Correlation coefficient between the scores of each field and the total test scores: The correlation coefficient was extracted based on the correlation coefficient between the scores of each field and the total test score using the Pearson Correlation Coefficient coefficient. The results showed that all test clauses were statistically significant, Correlation coefficients are between (0.568-0.754) which is a good indicator of the sincerity of the construction to test mathematical ingenuity.
8. Sample of information and sample of statistical analysis to test pivotal thinking:
8) a) Sample of the information: The mathematical proficiency test was applied to the sample of the information to ensure the clarity of the test par-

agraphs and instructions, and to determine the time necessary for students to answer all the paragraphs of the test, where the number (27) students of the first grade average on Sunday Corresponding to 18/2/2018 Mafi Medium (Abi Tammam Boys) under the Directorate General for the Education of Kirkuk under the book facilitation of the task, the researcher recorded the most prominent points noted during the implementation of this initial application, including clarification of some of the paragraphs asked by a number of students and record the time taken by students To answer all the test paragraphs that you see Between (45-77) minutes, and then this was the average time is calculated to be 60 minutes to answer the specific students all paragraphs of the test of time.

8 - b) Sample of statistical analysis: After the researcher applied the mathematical skill test on the sample of the information and make appropriate adjustments to the test, the test is ready to be applied again for the purpose of statistical analysis of the test paragraphs. The test was applied to the statistical analysis sample of 100 students The first intermediate grade in the school (Quba for boys) of the Directorate General for the Education of Kirkuk on Wednesday, 21/2/2018 under the book facilitation task, after it was agreed with the school administration at the school mentioned the application of the test three days before the test.

9 - Statistical analysis of the test paragraphs :: Valid student answer sheets and find the final grade for each student and arrange the answer sheets descending order from the highest college score to the lowest college degree, identify and sort the scores of the group with the highest scores (the highest) and the grades of the group with the lowest grades (27%) and the lowest (27%) of the two groups in order to analyze them statistically.

(9-a) The difficulty factor for the mathematical proficiency test paragraphs: The difficulty coefficient for each paragraph was calculated (30) according to its coefficient of difficulty coefficient. It was found that it ranged between (0.41 - 0.68)

(9b) The discrimination coefficient for the pivotal thinking test paragraphs: The discriminant force of each test paragraph was calculated according to the coefficient of their discriminating factor, and it was found to range between 0.67-0.38.

(9c) Effectiveness of the wrong alternatives: The effectiveness of the wrong substitutes for each of the test paragraphs was calculated according to the equivalence of the effectiveness of their wrong alternatives, and it was found that they ranged from [0.46-] - [0.03-]. The erroneous has been dissected by the lower levels, indicating their effectiveness.

10 - Stability of the mathematical skill test: The stability coefficient value was calculated to test the mathematical proficiency applied to the statistical analysis sample according to the formula K-R20, All test paragraphs that measure one characteristic or attribute are two-degree (0,1), where the stability value (0.84) indicates this (Alama, 2000: 543). (0 and above) is a high value of stability, thus making the test ready for finalization on the research sample.
11 - Test of mathematical proficiency in its final form and application: The test of mathematical skill was applied in its final form, at the same time on the two groups on Thursday, April 26, 2018, after the teacher told the students a week before the test date.
Ninth: Statistical Methods: The researcher used the appropriate statistical methods, namely, the coefficient of difficulty, the coefficient of differentiation, the equivalence of the effectiveness of the wrong alternatives, the equation of the K-20, the Pearson equation, the Cooper equation, the Levin test (s Test'Levene) for two independent samples, the t- Independent, and equivalent size of the effect, and the use of statistical package spss. (Magiduasin, 2012: 93) (return, 2002: 291).
the fourth chapter
Search Results: Hypothesis (0) There is no statistically significant difference at the level of significance (0.05) between the average score of the students of the experimental group who studied on the model (c.as.e) and the average score .
Students of the control group who studied according to the usual method of testing sports ingenuity).

Table (3) Results of the tertiary test of the difference between the mean scores of the two groups in the sports skill test.

Statistical ignificance	Level of ignificance	Degree free	T value		standard leviation	SMA	No	sets
			calculate	table				
function	0.05	84	4.495	1.990	7.3938	41.326	40	test
					7.0927	34.275	46	control

For the purpose of verifying this hypothesis, the scores of the two research groups (experimental and control) were calculated in the collection test

(Appendix 10). The average number of students in the experimental group was 41.3261 while the average of the students in the control group was 34.2750. In order to determine the difference between the two averages, the researcher used the T-test for two independent samples with a calculated T value of (4,495), which is higher than the T-table value of (1.990) at the level of significance (0.05) and freedom degree (84) The performance of the experimental group, which studied the c.as.e model, is superior to the performance of the control group students who studied according to the usual method of proficiency testing, thus rejecting this hypothesis. To find out the effect of the variable (d) on the dependent variable (c.as.e) on the dependent variable, the researcher found the value (η2) where η2 expresses the total variation ratio in the dependent variable Due to the independent variable (c.as.e), and (Hassan, 2011) determined the scale of the effect size values and the ETA coefficient as follows:

Table (4)

Table of effect size determination for values (d, η2)

Effect size				Tool used
Very big	big	middle	small	
1.10	0.8	0.5	0.2	D
0.20	0.14	0.06	0.01	η2

(Hassan, 2011: 283)

Table (5) The scale of the effect of the independent variable (c.a.s.e) on the dependent variable (mathematical skill)

Effect size	Value d	η2	The dependent variable	The independent variable
Very big	1.092	0.194	math ingenuity	case

From Table 3, the value of η2 is 0.194 and d is 1.092. This means that the magnitude of the effect is very large, indicating that the independent variable (c.a.s.e) has an effect on the dependent variable Sports prowess) with great effectiveness on the experimental group.

Interpretation of results: The results presented in Table (5) revealed that the students of the experimental group who studied according to the c.a.s.e model were superior to the students of the control group who studied according to the usual method of mathematical proficiency. This result is in line with the results of previous studies such as Shayer (1994), and Shayer (1997), which showed that the learners who studied c.as.e were superior to the usual method of mathematical skill. The superiority of the students of the experimental group to the students of the control group can be attributed to the fact that the use of the c.as.e model provided the opportunity for the students to follow logical and sequential steps, which facilitated their learning process, as well as the topics studied by the researcher in the experiment, (C.as.e) is better than the conventional method. This has helped to increase the performance of the students of the experimental group in the test of mathematical skill.

Conclusion: In the light of the conclusions reached, the following can be inferred:

1) Teaching using the model (c.as.e) made students' ingenuity better than using the usual method

2) The use of the c.as.e model has an effect in organizing the module's information so that it is meaningful, supported by examples related to students' reality, where it helps to learn more effectively, thus increasing the search for knowledge and learning.

Recommendations

1) Emphasize the use of educational models as a model (c.as.e) in teaching concepts that represent the mainstay of the components of mathematical knowledge.

2) The attention to teaching models that contain a number of methods based on theories, and to observe the extent to which they can be taught in mathematics.

3) Attention to application processes and examples .

3) Attention to the application processes and increase the functional examples of the social environment of students and close to reality, to be rooted in their minds and make them interact with.

Proposals: To supplement the current research, the researcher proposes the following:

1) Conduct a similar study for the students and for the same stage to know the results for the gender variable.

2) Conduct studies and research similar to the current research at other stages of study.

Conducting studies similar to the current research of other variables such as (acquisition and retention of mathematical concepts, modification of the misconception of mathematical concepts, pivotal thinking)

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