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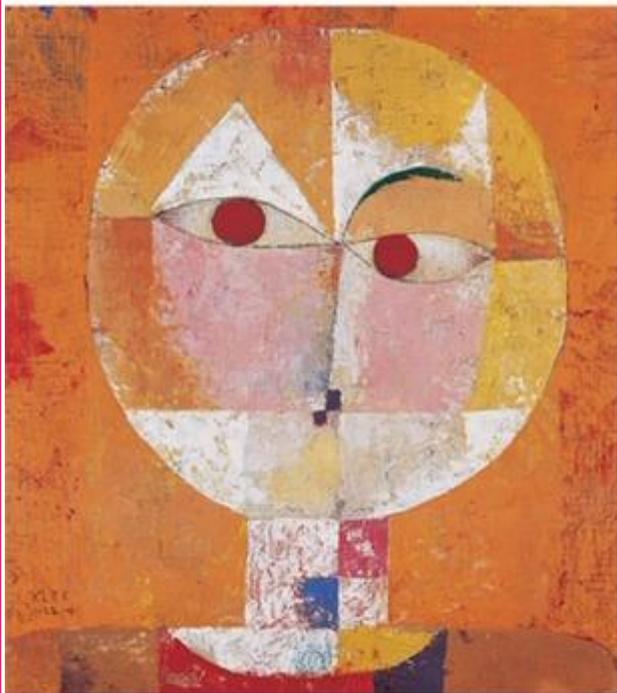
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The research of the university as a factor increasing its competitiveness

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Abstract

The aim of the study is to investigate the research of the University as a factor increasing its competitiveness via an empirical study, which consisted of a survey of bachelor students of state universities. As a result, most of the respondents agreed that the research activity had a positive impact on the life of the university but did not express a desire to take part in it. In conclusion, to solve this problem, three options were proposed: the popularization of the research activity, expansion of the research activity and cooperation with foreign universities.

Keywords: Research, Activity, Universities, Competitiveness, Students.

La investigación de la universidad como factor de aumento de su competitividad

Resumen

El objetivo del estudio es avocarse a la investigación de la Universidad como un factor que aumenta su competitividad a través de un estudio empírico, que consistió en una encuesta a estudiantes de licenciatura de universidades estatales. Como resultado, la mayoría de los encuestados estuvo de acuerdo en que la actividad de investigación tuvo un impacto positivo en la vida de la universidad, pero no expresó el deseo de participar en ella. En conclusión, para resolver este problema, se propusieron tres opciones: la popularización de la actividad de investigación, la expansión de la actividad de investigación y la cooperación con universidades extranjeras.

Palabras clave: Investigación, Actividad, Universidades, Competitividad, Estudiantes.

1. INTRODUCTION

Universities and research institutes play an important role in the development of science (ANNIA, VILLALOBOS, RAMÍREZ, ROMERO and RAMOS, 2018). To strengthen the research position of the country large sums of money are annually invested in research and development work. Most research projects at universities are supported by public funds, so it is important to identify good indicators to assess the link between funding and academic performance of universities as one of the main factors determining the research position of the country. Nowadays, research activity has no bounds. Researchers around the world work together in a global community to improve knowledge. Today, thanks to the development of individual

communication technologies and the abundance of opportunities in civic science, many research areas, which welcome the participation of students and the public, including, as an example, the full range of disciplines related to human health and environmental protection, have flourished (BELL ET AL., 2016; HERNÁNDEZ, VILLALOBOS, MORALES y MORENO, 2016; VILLALOBOS and GANGA, 2018; HERNÁNDEZ, CHUMACEIRO and RAVINA-RIPOLL, 2019).

For a few years, the role of universities in stimulating regional growth, based on knowledge, has attracted the attention of academic and political circles on the background of recognition of the importance of the space-fixed development and limitations of market mechanisms, especially in the less developed regions. In practice, the pressure, exerted by national and regional governments, industry and stakeholders on universities, is seen as a key factor of institutional changes towards a greater emphasis on university participation in regional research activity. Considering those institutional changes, HERNANDEZ, VILLALOBOS, MOLERO, and MORALES (2016) explain that universities promote the cultivation of most of their training in knowledge, science and technologies based on reason, obviating the acceptance of the need for discernment, that is to say, that reason does not univocally produce good, but that its advances can multiply and sophisticate misconceptions.

Continuing professional education is a strategic resource of cardinal transformations, which are currently taking place in education. HERNÁNDEZ, CHUMACEIRO and ATENCIO (2009) and

RAMIREZ, VILLALOBOS and HERRERA (2018) show that the development of human talent must be an investment, exploits the talent of workers, contributing to the fulfillment of organizational goals. The essence of such transformations generally consists of necessary rejection of a subject-information learning model and transition to designing the model of vocational self-development and self-determination. The need of modern economy for innovators inevitably leads to the shift of priorities in education from memorizing and reproducing of a specified amount of knowledge to the development of students' independent thinking, which, accordingly, requires teachers' certain qualities and critical mentality.

In today's world, the numbers of people in the senior generation are steadily increasing due to longer life expectancy. In this regard, questions of maintaining seniors' working capacity, physical and psychological wellbeing and support of high vitality are updated. In this particular situation, an institute of formation of the third age is in high demand. The institution is considered as an integral part of a general continuous educational process during all life-giving an opportunity for elderly citizens to stay actively full members of society. There is abundant evidence that university research has contributed to economic growth in many countries. There is a significant contribution of research to industrial innovation. The discovery that inventive activity reinforces the traditional learning outcomes suggests that current trends towards widespread recognition of activity for commercialization among scientists are likely to lead to increased growth rates in the economy in the future.

Nowadays, substantial intensification of inclusive processes in the educational system (especially in higher education) identifies the need for thorough research of psycho-pedagogical foundations for the development of inclusive education culture (HERNÁNDEZ, CHUMACEIRO, ZIRITT and ACURERO, 2018). Nowadays, the broad and complex nature of science requires solutions for individuals, organizations, and countries to overcome this breadth and complexity and take steps towards the scientific progress and development of their country with a deep understanding of existing knowledge. One such solution is cooperation in research areas among universities. Many scientific experts believe that scientific cooperation can be seen as a suitable solution to increase scientific production in developing countries. In addition to teaching, the published literature conceptualizes the main contribution of university researchers to the universal increment of knowledge in terms of publications, patents, and technology commercialization. Peer-reviewed publications are the most widely recognized result of basic research and thus the productivity of research scientists. Published documents help transmit codified knowledge by transmitting useful information derived from the work of scientists.

It also indicates the existence of implicit elements that are important for scientific and technological progress, including methods, techniques, data sets, tools and other elements used by scientists. The counting of publications and other bibliometric indicators, such as citations and co-author analysis, are relatively easy to obtain and are often used to measure the results and quality of research at the

individual, group, institutional, regional and national levels. Later analyses use the commercialization of technology at the individual and firm level as an indicator of success for spin-offs of universities, research projects for educators, and firms that have won awards for innovation in small business. Thus, the research activity of universities brings positive results both for the universities themselves and for the companies, which they cooperate with. The research activity of universities is an important component of their development. In some countries, they carry out a large share of national research and development, which is an important element in maintaining the innovative capacity of states. You can highlight a few points relevant to the research activities of universities:

- The role and importance of innovation in the economy;
- Government support for research:
 - In the university,
 - In state-funded research organizations
 - In private organizations;
- The effects of the commercialization of university research;
- Improving the competitiveness of universities;

- Attracting sponsors and researchers to universities.

However, research is not an established tradition in universities in all countries. In some of them, research has historically been conducted through centrally funded and controlled research institutes located outside universities. In connection with the widespread increase in the number of students and number of universities, sometimes employees of the university are forced to pay more attention to the expansion and quality assurance of teaching and learning than to build research capacity, despite the fact that thanks to the policy of the government universities improve research results. Over the past decade, governments have encouraged universities to adopt research as a core mission and improve the results of their research.

International mandate to make the universities and colleges leading partners in global efforts to achieve sustainability have led to a number of events and initiatives in both the public policy and practical level, especially after the Agenda for the twenty-first century has recommended promoting sustainable development in research, education, and outreach. This requires that the universities and colleges individually and collectively position themselves and contribute to the discourse, agenda, and practice of sustainable development.

To place science and research entirely under the imperative of sustainable development would deprive the research of its creative freedom and hence the basis of its responsibility. For a few years, the

role of universities in stimulating regional growth, based on knowledge, has attracted the attention of academic and political circles on the background of recognition of the importance of regional development and limitations of market mechanisms, especially in less developed regions (JARAMILLO, 2018; VILLALOBOS and RAMÍREZ, 2018; VILLALOBOS, RAMÍREZ and DÍAZ-CID, 2019).

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- To conduct a survey among university students to identify possible problems in the field of university research;

- To analyze the survey and identify the main problems;
- To form possible solutions to these problems on the basis of the obtained data.

2. METHOD

Based on the goals, to collect information, it was decided to conduct an empirical study, which aimed at a survey of students. The study used the methodology of quantitative research to collect and analyze the interpretations and values of the questionnaire. On the basis of the set goals, it was organized and conducted an empirical study, which consisted of a survey of students-bachelors of state universities. The survey was conducted among five universities. 780 students took part in the survey. The number of interviewed men and women was approximately equal (48 percent of men and 52 percent of women). All students are full-time students. The age of respondents ranged from 18 to 21. Target sampling (objective sampling) was considered to be the most appropriate sampling method.

Table 1: Students who participated in the survey

The number of students	Age	University
177	18-21	The Peoples' Friendship University of Russia
198	18-21	Higher School of Economics
125	18-21	Moscow State Institute of International Relations

150	18-21	Moscow State University
70	18-21	Moscow Power Engineering Institute
61	18-21	Udmurt State University

To expand the scope of the study, the first-year and fourth-year students were selected. This sample is due to the fact that views on the research activity at the university may vary depending on the level of training of students. In addition, the surveyed students were trained in various areas. Such a sample is the most effective, allowing to obtain data regardless of a particular specialty. The respondents were representatives of humanitarian and technical specialties. To conduct the research, a survey was organized to clarify the attitude of students to research activity at the university. In addition, the results of this survey will help to assess whether universities with active research activity are more attractive for applicants.

In the first question (What is your attitude to the research activity in the universities?) students are asked to choose from three answers Positive, negative, difficult to answer. This question is quite general and aims to determine the attitude of students to the research activity in the universities. The next question (Is there any research activity at your university?) is aimed at finding out how students are aware of the availability of research activity in their educational institution. A higher level of awareness may mean that students are more likely to be involved in the activity. The research activity helps the university to develop, attract companies for cooperation, and

sponsors, so it can be considered that it is one of the factors of their development. In the next question (Do you think that the research activity will improve the development of the university?) students are asked to express their views on this matter.

For students, the research activity can be a kind of challenge, allowing them to show their abilities and learn to make decisions in a different from the usual educational environment. In the next question (Do you think that the research activity is necessary for a higher level of education of students?) the respondents have to express their opinion on whether the research activity develops the education of students. As it is noted in the introduction, the research activity of universities can have a positive impact on the research level of the city or even the whole country. The purpose of the fifth question (Do you think that the research activity in universities will have a positive impact on the research activity of the country (city)?) is to find out whether students understand it.

One positive aspect of the research activity in universities is cooperation with enterprises that can support a particular project. In one of the questions (Are you interested in the research activity related to cooperation with enterprises?) students are asked to assess how much they are interested in such activity. As it has been already mentioned, the research activity allows students to develop a variety of qualities and increases their level as future professionals. In the next question (Do you think that the research activity will increase the opportunity to get a job immediately after graduation?) the respondents

have to assess whether participation in the research activity has an impact on employment (BI & SHI, 2019).

As in the previous one, in this question (Do you think that the research activity in universities increases the competitiveness of students in the labor market?) students are also asked to assess how participating in the research activity increases their chances of getting a job. In the next question (Do you think that the research activity in universities increases the competitiveness of the university among applicants?) students are asked to express their views on the importance of the research activity in universities in general. Then (Is it important for you to have the research activity at the university?), they have to assess how important it is for them.

In the last question (With the rest of the same parameters, would you prefer a university where the research activity is developed?), it was also necessary to find out the importance of the research activity for applicants. In general, these three questions will help to judge whether the availability of the research activity increases the attractiveness of the institution, and, consequently, its competitiveness. The second part of the study was a mini-survey in which students were asked to choose from several options. The table presented the possible criteria that applicants had considered choosing an educational institution. There was research activity among the other ones. This survey will help to assess how important this criterion is for applicants. In this part of the survey, you could select more than one answer.

Table 2: Possible selection criteria of the university

Criterion	Answer
The availability of budget places	
Tuition fee	
The research activity	
Internship opportunities in large companies	
The location of the university	
The opportunity to participate in exchange programs	
Curriculums	

3. DATA ANALYSIS

After collecting the necessary information, the analysis of the study data was carried out in the STATISTICA system. This software, developed on the basis of Microsoft Windows, allows you to visualize data in statistical analysis. The size of the error is 2 percent. About 17 questionnaires were incorrectly filled (some respondents did not answer all questions of the questionnaire or chose more than one answer option).

4. RESEARCH LIMITATIONS

The study involved only students of Russian universities. It is not possible to judge the attitude to the subject among the students of foreign educational institutions. The survey was also conducted only among students of the largest Russian universities, which are likely to have the well-developed research activity. This makes it impossible to

judge the situation in the more provincial schools. In addition, the data obtained in the quantitative analysis can be quite general.

5. RESULTS

The results of the first question were not very good. Only 65 percent of respondents noted that they had a positive attitude to the research activity in universities. This may indicate that management and teachers are not sufficiently interested in this type of activity. Despite the rather low data on the first question, answering the second question, 81 percent of respondents have reported that there is the research activity in their universities. Thus, it can be concluded that lack of awareness cannot be the reason for low interest in the research activity. Quite a large number of respondents (77 percent) have also agreed that the research activity contributes to the development of the institution. This suggests that, despite not too much interest, students understand the importance of this type of activity.

However, the data on the following issue yielded rather poor results. Only 51 percent of respondents have agreed that the research activity in universities has a positive impact on the research activity of cities and countries. This may indicate that students do not see the link between universities and the development of federal facilities. Only 67 percent of respondents have expressed interest in the research activity with the cooperation of enterprises. It also suggests that there may be an insufficient level of involvement of students to this topic in

universities. Despite this, a large percentage (84 percent) of respondents has agreed that participation in the research activity with the support of enterprises will increase the chances of getting a job after training. The results on the next question were also quite high, 78 percent of respondents have agreed that participation in the research activity will increase their competitiveness in the labor market. This indicates that, in spite of everything, students are aware of the advantages of the research activity.

Oddly enough, the data on the following question turned out to be quite low. Only 61 percent of respondents have agreed that the research activity in universities increases the competitiveness of educational institutions among students. The reason for this may be that future students pay more attention to other criteria when considering the universities. 58 percent of respondents have noted that it is important for them to have the research activity at the university. However, this figure can be considered low enough, which also confirms the lack of interest in the research activity. Despite this, the results of the last question were good. 86 percent of respondents had said that they would rather choose the university with the same parameters, where the research activity would be more developed. This suggests that its presence is still important for students, as in the future it opens up additional opportunities in learning. The data for the next part of the survey were analyzed and presented for convenience and clarity in the chart below.

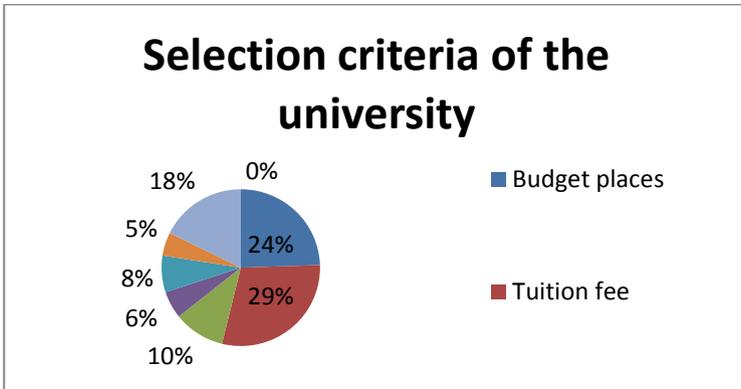


Figure 1: Possible selection criteria of the university

As can be seen from the diagram, students consider that the availability of budget places, tuition fee, and curriculums are the most important criteria. In their opinion, the opportunity to participate in exchange programs and internship opportunities in large companies are the most insignificant criteria. However, we cannot say that research activity has become an outstanding criterion. This item is in fourth place. Data from both parts of the survey indicate that, despite an understanding of the importance of the research activity, students have little interest in it. This can have a negative impact on the competitiveness of universities, as, despite the active research activity, applicants may not make a choice in favor of a particular university.

6. DISCUSSION

The research activity in universities is carried out from different points of view. One of these studies took place in Malaysia in 2014 and

was aimed at finding out what contribution the research activity in universities gives to the development of the country. A recent analysis of the R & D infrastructure in Malaysia, including selected universities supporting policies and programs, has shown that these efforts have resulted in significant improvements in the results of scientific publications and an increase in the number of patents. However, the analysis has also shown that policymakers are concerned that significant investments in basic research and university infrastructure have not led to the desired improvement in technology or economic development outcomes, the innovation gap mentioned above. The paper investigates these problems by studying a theoretically significant sample of researchers from Malaysian universities to better understand the success factors responsible for their contribution (CHANDRAN ET AL., 2014).

The presented results are taken from data, collected in a larger study, conducted in 2011-2012 by the Malaysian National Council for science and research on public research assets of Malaysia. In 2011, a complete list of all faculty researchers was obtained from senior administrators from 13 universities in Malaysia. From this list, 622 researchers - almost a third of the contact database - were selected for the survey. The questionnaire was presented to university teachers in January 2012. The answers were collected at the end of the month. The questionnaire included questions on research cooperation, grants, contracts, and working conditions. Prior to this, there were few empirical attempts in academic literature to measure teacher productivity in the context of developing countries. Here, we use a

conceptual framework of human capital that quantifies productivity in terms of peer-reviewed publications, granted patents, and commercialized technologies (BOZEMAN ET AL., 2001). Perhaps there are other indicators of the teachers' activity, but these variables correspond to our common interest in the development of scientific and technical potential in Malaysia.

Age is probably an important variable for research productivity. Publication productivity declines as the age of researchers in the US increases. Full-time and therefore presumably senior teachers are more likely to participate in informal technology transfer. Other studies on teacher time allocation focus on personal, institutional and intergroup differences. More time, devoted to research, is likely to lead to increased research results. Gender can also affect research. Although women play an increasingly important research role in Malaysia, they are generally considered to register fewer patents for inventions and/or utility models than men.

Taken together, the results of this study suggest that the contribution of the research activity in universities and dense professional networks is important for research capacity and research productivity but insufficient to generate economic results. Thus, our results may also support a recent study that shows that strong, homophilic networks among university researchers can act as a barrier to further technology development (ALDRIDGE ET AL., 2014). Previous studies by Malaysian university researchers have found evidence of limited collaborative activities. Therefore, based on the

results of this paper, future policies and programs should focus on creating a research environment that fosters (and possibly rewards) personal strategic alliances between university researchers and networking outside the academic community, especially in the business and industrial communities (CHANDRAN ET AL., 2014).

Another study was conducted in Vietnam in 2017. It was related to how the planning of the research activity in universities affects its quality. This study is based on a set of data collected from four universities. Strategic planning is defined as defining the main long-term goals of an enterprise, taking action directions and allocating the resources necessary to achieve these goals. It aims to influence the strategic direction of the organization for a given period and to coordinate and integrate both informed and new strategic decisions. This study was primarily qualitative. This approach is in good agreement with the objectives of this study, which aims to provide a detailed description of the practice and effectiveness of planning institutional studies at leading Vietnamese universities (social world) through the perception of university scientists and managers (participants).

The study is based on 55 semi-structured interviews. Depending on the participants' answers, more specific questions based on the thematic literature were also asked. Participants consisted of individuals directly involved in or directing research at universities, including six senior university leaders; nine administrative managers; eighteen deans's/deputy deans; six Directors of research institutes; and

sixteen lecturers. Each interview lasted between 45 and 60 minutes (BRYMAN, 2004). Participants were identified on the basis of proposals of gatekeepers or the main points of contact at each university. As local experts, these gatekeepers knew best which of the scientists-active lecturers, deans or deputy deans were at their university.

Selecting places for the study, four criteria were taken into account: (1) type of university (national, regional, ordinary); (2) specialization (i.e. Engineering, Natural Sciences, Medical Sciences, Economics, etc.); (3) research capacity and productivity (doctoral staff, teachers - student ratio, research publications, and history of research grants) and (4) location (Southern, Central, and Northern regions). Due to the limited research capacity of regional, southern and central universities, the final sample of four universities does not cover the location criterion. More specifically, each of these four universities specializes in a set of related disciplines, namely: Engineering, Natural Sciences, Healthcare, and Economics. One is a member of two Vietnamese national universities under the authority of the Prime Minister; two universities are managed by the Ministry of education and science and one by the Ministry of industry. They belong to the sixteen key universities of the country.

There was a clear contrast between the practice of planning studies at four universities, which studied specific cases, and those described in the literature. Despite support for the principles, the available data indicate that four universities engaged in the planning of

research based on compliance and not on a strategic basis. One of the key factors is the continued centralization of government research funding on the basis of common research plan submitted by each Vietnamese university. Such a university research plan mainly consists of some common research management tasks, a list of institutionally funded research proposals, a list of potential scientific conferences, planned student research activity, international collaborative research activity, timelines for these tasks, and cost of these activities.

At the international level, research funding is based on a number of strategic and competitive criteria. For example, in the Netherlands and the United Kingdom (UK), the use of activity financing is common. Competitive tenders for research funding are widely used in Japan and Germany. Canada, the Netherlands, and the United Kingdom use appropriate grants. The United States, Australia, and the United Kingdom widely use full-cost mechanisms to allocate research funding.

To increase the research capacity of universities and their effectiveness, it is necessary to understand and adopt some principles. First, participants noted that compliance-based planning methods were not effective in determining future actions. Second, although the former Soviet bloc, prior to its break-up in 1987, distributed research funding based on plans and formulas, most of these countries abandoned this inefficient research management practice and produced good results. While some governments attempt to give universities greater autonomy and innovative mechanisms to fund research, these

small pilot programs have not radically changed the predominant central planning study based on a culture of governance.

7. CONCLUSION

The research activity plays an important role in the development of universities. In addition, the research, conducted in universities, can have a positive impact on the development of regions. However, even without this, the research activity inevitably increases the recognition of the university, making it more attractive and, consequently, competitive for students. On the basis of the set goals, an empirical study was organized and conducted, which consisted of a survey of students-bachelors of state universities. The survey was conducted among five universities. 780 students took part in the survey. The number of interviewed men and women was approximately equal (48 percent of men and 52 percent of women). All students were full-time students. The age of respondents ranged from 18 to 21. Such an age sample allowed us to expand the scope of the study. To increase the number of respondents, the survey included students of different specialties.

According to the results of the study, the surveyed students are aware of the importance of the research activity but may not be interested in direct participation in it. This may have a negative impact on the competitiveness of universities offering such opportunities. To solve this problem, several options are proposed. First of all, it is

necessary to increase students' interest in the research activity. For this purpose, special seminars can be organized, and a system of incentives can be done. In addition, the importance of research activity in universities can be explained at school. Another solution may be to expand the research activity. This will help students to have more choices, which is likely to entail more interest. It is also possible to organize or expand cooperation with foreign universities, which are also engaged in the research activity. This will not only increase the interest of students but also provide international connections and increase the prestige of the university.

Further research can also be conducted among students-masters or college students at the federal level. Such studies can also be conducted among citizens of other countries. The findings and results of the study can be used as a basis for other surveys or for comparing statistical data from different years. In addition, the recommendations of this article can be used to develop students' interest in the research activity.

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Questionnaire Sample

Table 3: General research survey

Question	Answer choices
1. What is your attitude to the research activity in the universities?	Positive, negative, difficult to answer.
2. Is there any research activity at your university?	Yes. No.
3. Do you think that the research activity will improve the development of the university?	Yes. No.
4. Do you think that the research activity is necessary for a higher level of education of students?	Yes. No.
5. Do you think that the research activity in universities will have a positive impact on the research activity of the country (city)?	Yes. No.
6. Are you interested in the research activity related to cooperation with enterprises?	Yes. No.
7. Do you think that the research activity will increase the opportunity to get a job immediately after graduation?	Yes. No.
8. Do you think that the research activity in universities increases the competitiveness of students in the labor market?	Yes. No.
9. Do you think that the research activity in universities increases the competitiveness of the university among applicants?	Yes. No.
10. Is it important for you to have the research activity at the university?	Yes. No.
11. With the rest of the same parameters, would you prefer a university where the research activity is developed?	Yes. No.

Table 4: Possible selection criteria of the university

Criterion	Answer
The availability of budget places	
Tuition fee	
The research activity	
Internship opportunities in large companies	
The location of the university	
The opportunity to participate in exchange programs	
Curriculums	



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