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Improvement of student's motivation to research activities in the process of studying

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Abstract

In the article, the authors explore ways to increase students' motivation for research activities in the process of studying based on a sociological survey. As a result, it is necessary to take into account the need to create a unified system of organizing research work in a university developed on the basis of a serious laboratory complex that would ensure the integration of education, science, and industry. In conclusion, universities today are faced with the intellectual passivity of students, unwillingness to learn, inability to independently acquire knowledge and find various ways to solve problems.

Keywords: Motivation, Research Activity, Real Experience.

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Mejora de la motivación del alumno para investigar actividades en el proceso de estudio

Resumen

En el artículo, los autores exploran formas de aumentar la motivación de los estudiantes para actividades de investigación en el proceso de estudio basado en una encuesta sociológica. Como resultado, es necesario tener en cuenta la necesidad de crear un sistema unificado de organización del trabajo de investigación en una universidad desarrollado sobre la base de un complejo laboratorio complejo que asegure la integración de la educación, la ciencia y la industria. En conclusión, las universidades de hoy se enfrentan con la pasividad intelectual de los estudiantes, la falta de voluntad para aprender, la incapacidad de adquirir conocimiento de forma independiente y encontrar varias formas de resolver problemas.

Palabras clave: Motivación, Actividad de investigación, Experiencia real.

1. INTRODUCTION

The integral indicator of the quality of modern education is the research activity of students, their ability to mobilize knowledge and experience to solve specific problems in conditions as close as possible to real ones. It concerns the laboratory studies of students in the learning process at universities. Students' research activities in laboratories can become one of the steps for success for them, the extremely important positive experience in achieving practical skills

and, of course, a tool for self-realization of scientific potential. However, some students do not regard laboratory research at the university as an important step at the stage of self-assertion and professional enrichment, but as a routine stage of training that must be completed to obtain a specialist diploma. As practice shows, they are not motivated to expend efforts to conduct research laboratory work with the open result of the study. There is an opinion, the passivity of students is due to the routine nature of laboratory work, which neutralizes creative ideas and new approaches in scientific activity and the educational process as a whole (CHERKASOV, KOROLEVA, BRATANOVSKII & TER-OGANOV, 2019; TOUCHTON, 2015).

In this regard, to support and develop students' laboratory research, the problems of finding effective motivation models are updated. After all, the task of not routine research in laboratories is to promote the assimilation of not only academic knowledge but also mastery of the methods of scientific knowledge, understanding the value and importance of scientific thought and research practice as the experience of previous generations.

The fundamental consequence of this process is the formation of positive motivation of students to research activities, especially laboratory research with an open result. It should be noted that students who can be strong in terms of knowledge, but not motivated positively by research, can have very mediocre academic results, not realize their full potential, which also negatively affects their level of professional training. At the same time, students' awareness of the need to be involved in dynamic research activities, to be involved in

laboratory work, encourages the formation of professional motives, the motive for achieving success.

The relevance of increasing the motivation of students to research in laboratories is also because the modern education system is not very sensitive to the creative and personal growth of the student. The research activities of students at the university based on laboratory work with an open result should gradually switch to personality-oriented motivation and specialized education. Their purpose is to create the most favorable conditions for the development and self-development of the personality, the identification and active use of its characteristics in educational activities.

There are many problems associated with the inadequacy of traditional approaches to laboratory research, which are the subject of active scientific debate (ALYUSHIN & KOLOBASHKINA, 2019). The analysis of the changes taking place in the education system of different countries of the world allows considering the laboratory research system of students as one in which evolutionary processes occur.

In this context, much attention is paid to the problem of student research activity in the laboratory. This issue lies in the specific heterogeneity and complexity of the concepts and methods of involving students in their motivation to work in the laboratory. Among contemporary scholars dealing with this issue, the studies of BILGIN & KARAKUYU (2015), CORWIN, GRAHAM, DOLAN (2015), LIN-SIEGLER, DWECK & COHEN (2016), SHARP, PETERS & HOWARD (2017), MEMARPOUR, FARD & GHASEMI

(2015), LINN, PALMER, BARANGER, GERARD & STONE (2015), POTKONJAK, GARDNER, CALLAGHAN, MATTILA, GUETL, PETROVIĆ & JOVANOVIĆ (2016).

Despite the high results achieved by the aforementioned colleagues, it should be noted that modern researchers base their methods and approaches on either routine laboratory work with a known result or level the laboratory work method in favor of the design approach. In this regard, there is a need to search and, accordingly, justify alternative methods of student research in laboratories. The above statement determines the purpose of the article - to substantiate the idea of laboratory research, with an open result as an instrument of motivation and involvement of students in the scientific environment and, accordingly, the process of an open experiment for the full realization of the creative potential of a personality (Lobão & Pereira, 2016).

2. METHODOLOGY

To achieve the goal of writing the article, a questionnaire method was used in this study. A questionnaire survey was conducted in a target group of students, and the sample was 20 respondents aged 17-18, respectively –13 women (65%); 7 men (35%) Social status of respondents – the 1st-year students of the faculty of technical profile. The survey was aimed at elucidating the importance of students'

research activities; study of students' motivation for laboratory research, which they receive in the process of studying at a university.

The objective of the study is to trace the attitude of young people (students) to research activities; to explore the importance of motivation for this type of activity for the first-year students; determine the readiness of students for different systems of motivation. The object of the study is the first-year students of the faculty of technical profile. The subject of research is a system of motivation for students to research activities.

The study hypothesizes that the general idea of students about the research activity that they conduct should be positive, although it is unlikely that students are convinced that the quality of education is growing from research activity. Therefore, it is likely that students currently studying in the 1st year will not perceive the strengthening of motivation for laboratory research in a positive sense, due to the lack of relevant experience and the corresponding background of knowledge about research activities. This study uses a questionnaire method with open and closed questions. The questionnaire consists of 24 basic questions and questions regarding the age, gender, and place of study of the respondents.

Table 1: Student survey questionnaire on the topic of increasing motivation for research in the learning process at the university

Source: Compiled by the author

№	Question	Answer options
1	Your gender?	a) male; b) female.

2	What age category do you belong to?	a) from 12 to 18 years old; b) from 18 to 30 years old.
3	What do you think in our time, well-developed research activities in the university?	a) yes; b) no; c) your option.
4	Is research necessary at all?	a) yes, of course; b) no.
5	How do you understand the word motivation for laboratory research?	Your answer.
6	Was it easy for you to research in the laboratory (or is it)?	a) yes; b) 50/50; c) no.
7	What is the role of research in the laboratory in student life?	a) the desire to be the best; b) just for show; c) desire to have fun (because you like); d) that in future knowledge (qualification level).
8	Would you like some innovations in the system of motivation for research?	Your answer. If so, which ones.
9	In the future, do you need laboratory tests with an open result (what do you think)?	a) yes, of course (this is our future); b) to some extent; c) no (because we are not moving towards progress).
10	Does university, in your opinion, cope with its responsibilities in	a) yes; b) no; c) I do not know; d) your option.

	motivation for student research activities in the laboratory?	
11	Do we need to change the current situation in motivation for research?	a) yes, it is necessary; b) no, it is not necessary (nothing will change from this).
12	What place does laboratory research take in your scientific life?	a) the first (main); b) the second; c) none; d) your option.
13	Do you think laboratory research is needed for a modern student?	a) need; b) you can do without them; c) your option.
14	What research activities are you currently conducting in laboratories?	a) active; b) passive; c) your option.
15	Where is the best place to do research?	a) in the laboratory; b) in the audience.
16	Should the study be paid?	a) yes; b) no; c) your option.
17	Do you like the system of laboratory research at the university?	a) yes; b) no; c) your option.
18	Do we need to introduce compulsory research labs?	a) yes; b) I do not know; c) no.
19	What should be a modern laboratory for research?	Your answer.
20	What should be the criteria for evaluating laboratory tests?	Your answer.

21	What should be more at university?	a) lectures; b) seminars; c) laboratory studies
22	In your opinion, how long should training in laboratories last?	a) 3 years; b) 5 years; c) your option
23	How to make research better now?	Your answer option.
24	Do you like the motivation system for laboratory research?	a) yes; b) I do not know c) no, I do not like it.

3. RESULTS AND DISCUSSION

Increasing students' motivation for research in laboratory conditions provides, first of all, for working out the concept, awareness of innovative approaches, methodological principles of post-neoclassical science, methods for intensifying research in the laboratory, and the creation of some organizational measures. The goal of this condition is not training, but the introduction of laboratory research with an open result. Such laboratory studies are one of the most important areas in the motivation of student research activities, and their accession as some standards in the learning process. As a result, it is planned to reduce classrooms and transfer students to active research in laboratories.

It is doubtless, research activity in the laboratory is connected with a motive for future professional activity, a craving for creativity

and the opportunities that work in the laboratory represents for this. In the course of educational and professional activities, students should master the real experience of applied research, technical development, which creates a visualization of future work, increases motivation for professionalism. Besides, students' research activity is facilitated by the science club which they may attend. Such a club, among other contributions to research activity, is an initiative of the Department of Pathological Anatomy at the Sechenov University.

Given this, a sociological survey among students about their motivation for the research was conducted. The main part of the sample of this sociological study was 20 respondents. Most are women (65%), and men - 35%. After analyzing the answers of students to questions 2-3, it was concluded that the majority of students (70%) believe that current research activities in laboratories of universities are not at a sufficient level of development, 25% of respondents believe that it is well developed, and only 5% of respondents have a special opinion of their own about this.

Question (4). All students answered yes, which indicates a conscious choice of teaching methods as one of the steps in obtaining an education. Open-ended question (5). 75% of respondents gave the answer to this question: - 30% of the studied students understand the word motivation as a source of incentives; - 15% of respondents answered that motivation is the future good; –15% of students answered - these are rewards; - 2 respondents (10%) noted that motivation for them is an increase in the level of their self. Question (6). The majority of students surveyed - 70%, believe that research

activity in laboratory conditions comes 50/50 to them that is, it cannot be called easy, and it cannot be called difficult, 10% of respondents believe that it comes easily to them, and 15% of students have difficulty in research activities.

Question (7). Students' answers to the question were distributed as follows: the desire to be the best - 20%; just for show 5%; that in future knowledge (qualification level) - 75%; the desire to have fun (because you like it) - 0%. In general, students believe research is the future. Open-ended question (8). Unfortunately, 20% of respondents did not answer this question. 20% of the students surveyed answered the no, 1 respondent (5%) agreed with this level of motivation, another 1 (5%) offered to cancel laboratory tests.

Other answers were distributed as follows: - 3 respondents (15%) - introduction of more laboratory tests with an open result during training; - 4 respondents (20%) - reducing the load on classroom activities; - 3 respondents (15%) would like innovations and computerization (i.e. the desire to work independently in the laboratory and choose). Thus, on the whole, students' desire for innovation is traced. When answering the question (9), the majority of respondents (85%) answered that laboratory research is the future, 15% of the respondents said to some extent. And not a single student believes that he is not moving towards progress, which indicates a positive attitude towards laboratory research as an important aspect of the future.

Unfortunately, most of the students surveyed do not know or believe that the university does not cope with its duties. Only 5% of the students studied believe that research activities in laboratories have

improved. Among the 15% of students who had their own opinion on this question, the answers were distributed as follows: - that it changed insignificantly. The university copes with its responsibilities by 30% out of 100%. Most students do not like research activities without laboratory work in the education system.

Thus, the students surveyed generally believe that the university on average copes with its responsibilities by 50%. When analyzing the answers of the respondents to question 11, it was concluded that the vast majority (70%) of the students surveyed believe that changes in the motivation of research activities are necessary. And only 30% of students surveyed believe that nothing needs to be changed. For 40% of respondents, motivation plays a major role, 55% of respondents believe that motivation for research takes second place in their scientific life. This suggests that for most students who participated in the survey, motivation for the research is of great importance in life.

From the students' answers to the question (15), it can be seen that the majority of respondents (60%) believe that research in the laboratory is better, but no less than students (40%) are sure that it is better to get an education in the audience. From the responses of students, it is clear that the majority (80%) prefer that studies be free, 10% of respondents do not have a night against if they were paid, and 10% of students have their own point of view on this issue.

Open-ended question (19). Interviewed 20 respondents, of which 15%, unfortunately, did not answer this question. - 2 respondents (10%) do not know the answer to this question; - 2

respondents (10%) believe that more laboratory exercises should be added as motivators for research.

Question (21). By the distribution of respondents' answers to the question (20), it can be stated that most of the students surveyed (60%) prefer lectures and seminars in the educational process in universities to be equally divided. 25% of respondents want lectures to prevail, because of the information, the teacher presents are processed longer. 15% of students prefer laboratory studies because a person who has worked independently has a greater knowledge base.

Opinions are different because people have different views - some strive for excellence, others, on the contrary, and some are simply not focused (EVPLOVA, 2019). 45% of the students surveyed believe that training in the laboratory should last 5 years, 40% would be reduced to 3 years, and 15% of respondents have their point of view on this issue.

Open-ended question (23). How can research be made better now? 35% of respondents (7 students) found it difficult to answer this question. 2 respondents (10%) believe that it is necessary to eliminate making laboratory classes more accessible. 1 student (5%) - to increase laboratory requirements. 3 students (15%) - would like universities to be provided with the latest technology. 2 respondents (10%) - offered to study and try to improve research activities.

Judging from the responses of respondents to question (24), 85% of respondents believe that the right way to motivate research is the approval of laboratory research practice. 15% of the students

surveyed are pessimistic about the future of research activity in this vein and believe that nothing will change dramatically.

From this, it follows that it is necessary to take into account the need to create a unified system of organizing research work in a university developed on the basis of a serious laboratory complex that would ensure the integration of education, science, and industry (RAUD, 2013). Upon that, different universities, including Sechenov University and the South Ural State University, must put more effort into engaging students to act as full-fledged members of the student research society TOUCHTON (2015).

At the same time, it is advisable to use effective methodological developments, take into account the experience of foreign colleagues to maximize the scientific potential of students in carrying out activities that make sense for them and are in demand in society. Renewed education should play a key role in the preservation of fundamental science, the development of applied sciences necessary for the sustainable development of society.

4. CONCLUSIONS

Thus, summing up the survey, the following conclusions can be made. The analysis of educational practice shows that universities today are faced with the intellectual passivity of students, unwillingness to learn, inability to independently acquire knowledge and find various ways to solve problems. It is necessary to change the

learning strategy due to the use in the educational process of modern research technologies based on dialogue, collaboration — laboratory technologies with an open result.

In addition, the survey showed (more than 15% of respondents) that now the temple of science in universities is empty, this is a museum, the dead shell of this laboratory and the notorious laboratory work from the university curriculum do not contain a single gram of scientific activity itself - the search for new knowledge. The very fact of participation in the laboratory work with an open final, i.e. without the well-known correct answer in advance, will give the student a sense of involvement, which cannot but have a positive effect on motivation - as the survey confirmed.

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