

FUTURE ENGINEERS MOTIVATING TO FORM BASIC PROFESSIONAL COMPETENCE

*REZNIK Svitlana, Associate Professor, PhD in Pedagogy, National Technical University "Kharkiv Polytechnic Institute",
KUZNETSOVA Hanna, Senior Lecturer, Postgraduate student, National Technical University "Kharkiv Polytechnic Institute"*

Summary: The current century is characterized by the continuous development of information systems and technologies, that cannot avoid affecting the world economy in general and the economic and production sphere of Ukraine in particular. It is almost impossible to focus only on formally received education under the conditions of the market economy. A high level of professional qualification of a specialist, his fundamental competence in all spheres of life is required. Such a component of the 21st century specialist model as the level of basic knowledge in fundamental disciplines becomes very important. It is the fundamentalization of education that is designed to provide the basic professional competence of a modern specialist, which is becoming increasingly important in the face of growing competition in the labor market and contributes to the economic growth of Ukraine's manufacturing sector. One of the key factors influencing the formation of basic professional competence of future engineers is motivation. The article diagnoses the motivation for the formation of basic professional competence of first-year students of the Faculty of Civil Engineering of the O. M. Beketov National University of Urban Economy in Kharkiv by questionnaire. Key words: education, motivation, fundamentalization, professional competence, engineer.

Formulation of the problem. The main task of higher education in the XXI century is the development of theoretical and professional competence. In turn, their development directly depends on motivation. With this in mind, one of the current problems of modern higher education is the construction of such an educational process, which can be the basis for the formation and development of the motivational sphere of students. Let's define the concept of «motivation». The concept of «motivation» includes a range of aspects, which means a system of motivations: motives, needs, interests, aspirations, goals, inclinations, motivational attitudes, ideals. Motivation is a subjective determination of human behavior by the world mediated by the process of its reflection. The main characteristic of the motivational sphere is the hierarchy of motives, which allows to identify the personal content of activities for any person [7]. Thus, the motivation for the student is the desire to learn not only to achieve academic goals, but also for professional growth. The degree of student learning activity is a consequence of strong or weak learning motivation. We can say that the motives for learning – is an activating force, one of the main conditions of educational activities. In general, the problem of learning motivation is a problem of reasons that determine the various forms of identifying the activity of learners [3].

Analysis of recent research. Considerable attention is paid to the problem of motivation by domestic and foreign scientists, among them V. Aseev, J. Atkinson, V. Voitko, R. Gardner, J. Davis, M. Drygus, A. Dusavitsky, V. Kovalev, A. Markova, A. Maslow, V. Merlin, O. Skripchenko, N. Yudina and others. Psychological aspects of motivation were studied by L. Bozhovich, J. Bruner, V. Vilunas, F. Herzberg, E. Ilyin, V. Klimchuk, D. McClelland, A. Rean, S. Rubinstein, H. Heckhausen, P. Jacobson and others. Issues of learning motivation attracted the attention of V. Davydov, D. Elkonin, G. Kostyuk, O. Leontiev, S. Maksymenko and others. Various aspects of motivation of future engineers-teachers in scientific works are considered by O. Barda, E. Bokhonko, T. Lazareva, T. Chausova and others.

The purpose of this article: to investigate the level of motivation of future engineers to form a basic professional competence.

Presenting main material. The formation of basic professional competence in bachelors is becoming extremely important. It is no coincidence that the well-known American philosopher, educator and theorist of management R. Acoff emphasizes that "fundamental knowledge exists both in specific areas and in life in general. «Of course, we can not disagree with his firm belief that "when a student wants to do something that requires fundamental knowledge, he masters them independently» [1, p. 202-203]. However, the very logic of education necessitates a systematic construction of the educational process, in which the study of each cycle of disciplines is based on knowledge of the disciplines of the previous cycle and creates the necessary prerequisites for the study of disciplines of the next cycle [2].

Indeed, as O. S. Ponomarev and A. A. Kharchenko rightly write, «the logic of education today becomes extremely necessary, because without it is impossible to form a promising educational paradigm, or rationally reform this important social institution, or ensure its proper functioning and development. in conditions of significant information uncertainty, which appears before us due to the significant acceleration of scientific, technological and social progress» [13, p. 11]. Moreover, it is necessary to carefully adhere to its principles and provisions in the actual formation of the system of training bachelors of engineering, including in the field of construction.

Another interesting aspect of the problem is the assessment of the readiness of these bachelors to perform their professional tasks and functions, to innovate and professional self-development. The analysis of this aspect is devoted to the work of V. A. Fritsyuk [15], O. I. Muratova and I. V. Fedorov [8]. Systematically, the problem of developing pedagogical conditions for the formation of professional competence of future bachelors of machine-building specialties is considered in the work of O. S. Ponomarev, S. M. Reznik and I. V. Aseeva [12]. In general, the issue of professional competence of a specialist in the scientific and pedagogical literature is given a significant place. However, the problem of forming the basic professional competence of students of construction specialties in the process of fundamental training and the problem of motivating students to form the basic professional competence are insufficiently studied.

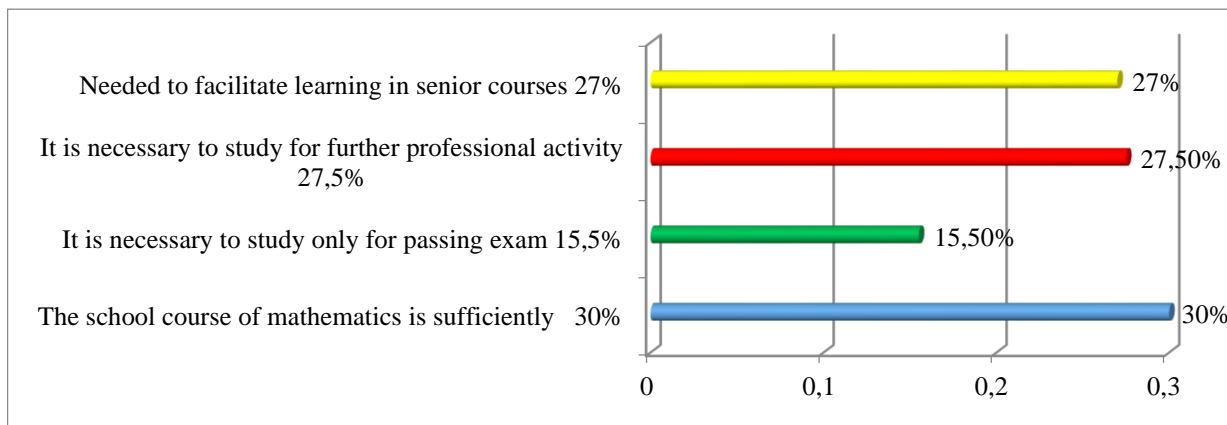
The concept of «motivation» comes from the Latin moveo, which means movement and defines a system of motives or incentives for human behavior and activity [11]. In the Ukrainian pedagogical dictionary, motivation is understood as a system of motives or incentives that motivates a person to specific forms of activity or behavior [4]. Terminological dictionary, says that motivation is the most important factor in improving efficiency, the process of personal interest in solving problems, tasks and achieving desired goals [14]. The Oxford Dictionary interprets the concept of motivation as the reason or reasons for action or behavior in a certain way [10, p. 242].

Learning activities, like any other multi-vector activity, is formed not by one but by many motives that form a certain hierarchical structure and interaction.

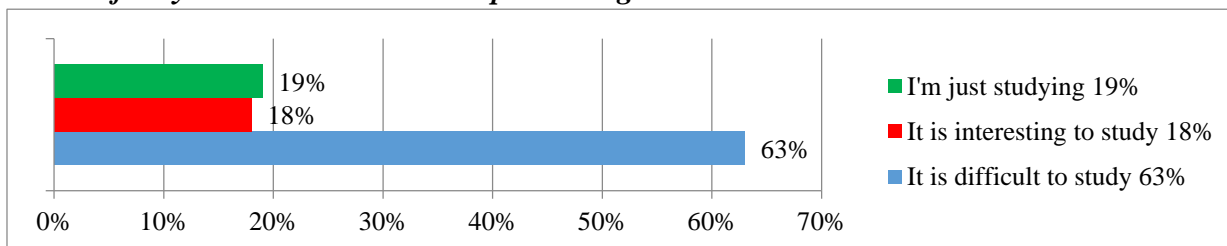
We will study the motivation of future engineers to form basic professional competence by diagnosing motivation to study while studying the discipline «Higher Mathematics» as one of the main factors influencing the formation of basic professional competence. The analysis revealed students' lack of interest in studying mathematical disciplines, which have a great influence on the formation of basic professional competence. A possible reason for this lack of interest is low motivation. Therefore, it was decided to conduct an empirical study of student motivation. Therefore, it was decided to conduct an empirical study of student motivation. In order to obtain empirical data, we conducted a survey [5] first-year students of the O. M. Beketov National

University of Urban Economy in Kharkiv, specialty 192 «Construction and Civil Engineering». The total number of respondents was 74. The questionnaire consisted of five questions, which were used to study the formation of motives for the study of Higher mathematics. The results of the survey are shown in Figure 1.

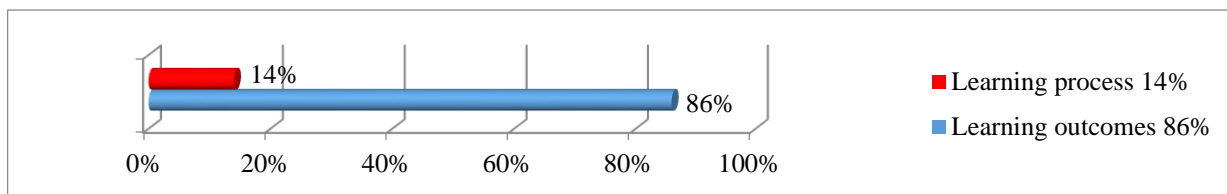
1. Why do you need to study Higher mathematics?



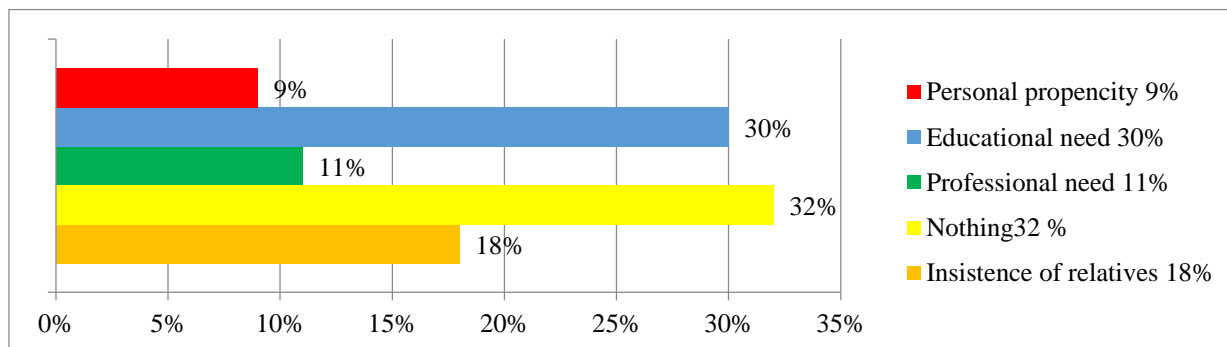
2. Define your attitude to the discipline "Higher Mathematics"



3. You study for:



4. What motivates you to study Higher mathematics?



5. *It is more important for you:*

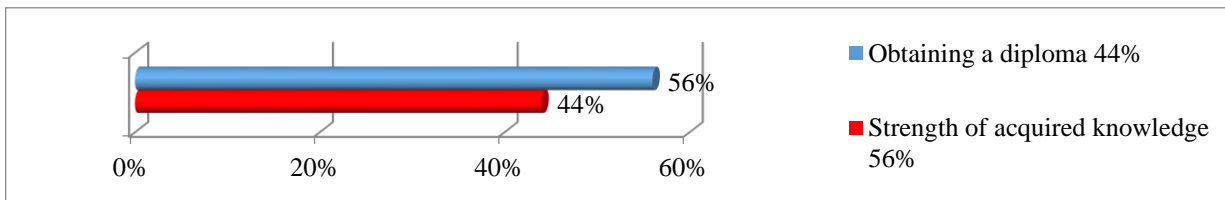


Figure 1. The results of the survey of first-year students

The analysis of the respondents' answers gives grounds to claim that the motivation of students of construction specialties to study higher mathematics is insufficient. Only 15.5% of respondents see the need to study the discipline for further professional activity. 30% of freshmen do not see the need to study higher mathematics. In their opinion, a school mathematics course is enough for construction professions. This fact indicates a lack of external motivation for the need to study higher mathematics and the lack of knowledge of first-year students about their direct job responsibilities in future professional activities. Most (63%) future engineers find it difficult to study higher mathematics due to personal fear of this discipline, because mathematics is an abstract science, ie it does not deal directly with the objects around us, but with their numerical equivalent. Despite this, future engineers still do not mind gaining solid mathematical knowledge (44%).

At the next stage, the aim of the study was to determine the motives of students who predominated among students when entering a higher education institution and currently predominate in the learning process. For this purpose, a questionnaire was conducted according to the method «Motivation of learning students of pedagogical institutions of higher education» M. Ovchinnikova, S. Pakulina, S. Ketko [10], which allows you to assess the motives for joining the Free Economic Zone, the actual motives of educational activities. The methodology consisted of 37 questions, the significance of each of which respondents rated on a 5-point scale.

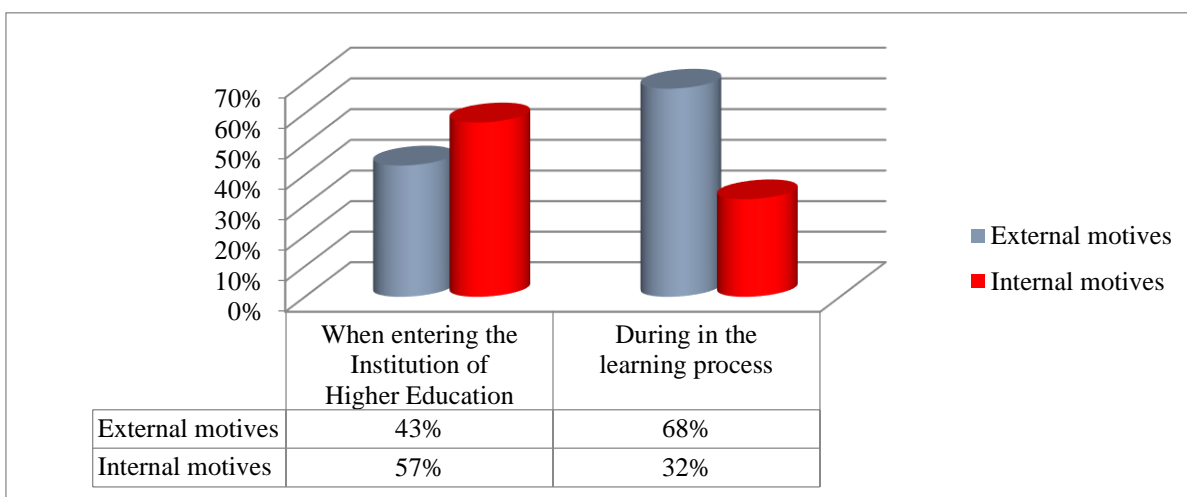


Figure 2. The results of the questionnaire on the method of «Motivation of learning students of pedagogical the Institution of Higher Education»

The results of the survey (Fig. 2) showed that when entering a higher education institution, 57% of students were dominated by internal motives, 43% by external ones. This suggests that most students have made a conscious choice of future profession 192 Construction and Civil Engineering. In the process of learning, the indicator changed in the opposite direction: 68% of respondents were dominated by external motives and only 32% by internal ones. The second stage of the study was that the motives for students to study mathematical disciplines were determined. For this purpose, a survey was conducted among these students according to the method of T. Ilyina (Fig. 3).

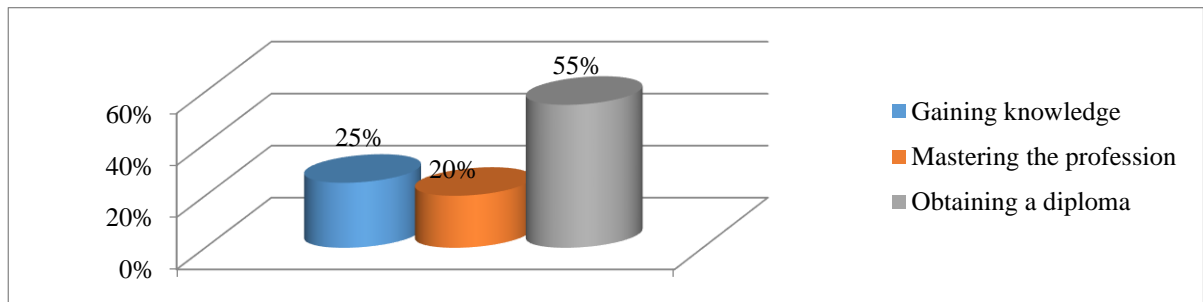


Figure 3. Methods of studying the motivation of learning according to T. Ilyina

The results of the survey showed that 25% of students are motivated to study mathematical disciplines by gaining knowledge, 20% – mastering the profession, 55% – getting a diploma. Analysis of the data shows that students are dominated by pragmatic motives in the study of mathematical disciplines, which indicates a low interest in the learning process.

Therefore, to increase the level of motivation of students, it is advisable to:

- to develop a new model of learning that meets the challenges of the information society, which are put forward to the nature of educational and cognitive activities of those who are taught, ways of finding, perceiving, processing, assimilating educational information;
- through a project approach to the organization of educational activities, to change the position of the student in educational activities;
- to introduce active teaching methods into the educational process;
- to introduce the use of information and communication technologies in the educational process in the study of mathematical disciplines;
- to adjust the training activities of future engineers at each stage by prompt feedback [6].

Conclusions. The results of the study showed different motives of students for the formation of basic professional competence, which requires organizational and educational efforts of the teaching staff to competently influence its improvement.

In the process of analyzing the educational activities of future engineers, a low level of motivation and the predominance of pragmatic motives in the study of mathematical disciplines was established, which is the result of incomplete students' understanding of the breadth of the chosen future profession. Therefore, a set of recommendations for the formation of positive motivation in future engineers in the study of mathematical disciplines was developed. Prospects for the study are the implementation of these recommendations in the educational process of students in the study of mathematical disciplines and observations, empirical research on changes in the motivational sphere of students.

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