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## **THE COMPETENCE MODEL OF THE GRADUATE STUDENT ENGINEERING PROFILE**

*Аннотация:* В условиях усовершенствование высшего образования, когда основным способом активизации учебной деятельности студентов признаются исследование и творчество, особенно актуальным в сфере педагогической теории и практики становится поиск решения проблемы формирования и развития у магистрантов исследовательской компетенции. В статье

*рассматривается формирование исследовательской компетенции выявлены её компоненты, ведущие функции, педагогические условия формирования.*

**Ключевые слова:** *магистрант, компетенция, исследовательская компетенция, формирование, исследовательская деятельность.*

**Annotation:** *In terms of improving higher education, when the main way to enhance the educational activities of students recognized research and creativity, especially relevant in the field of pedagogical theory and practice is the search for solutions to the problem of formation and development of undergraduates research competence. The article deals with the formation of research competence identified its components, leading functions, pedagogical conditions of formation.*

**Key words:** *master's degree student, competence, research competence, formation, research activity.*

In today's world, people are valuable as individuals and as professionals. At the same time, the requirements for its professional self-development, social mobility, and the level of intellectual development are increasing. Therefore, the system of higher education should correspond to the level of development of society and further improve it. An important area of education development is the introduction of a multi-level system of education directly related to the development of education in the magistracy.

Master's programs, which are a very important link in a multi-level education system, should provide a person with the opportunity to replenish, improve professional knowledge and skills, as well as develop individual abilities in General cultural and intellectual terms.

The model of competencies for masters in technical field includes the following groups of competencies:

- social and personal;
- economic;
- organizational and management;
- general scientific;
- general professional;

- special.

In the dictionary of foreign words competence (from lat. «belonging by right») is defined as [1, p. 300]:

- terms of reference of any body or official;
- the range of issues in which the person has knowledge and experience.

S. E. Shishov defines competence as an ability based on knowledge, experience, values, inclinations acquired in the learning process [2, 27-30 pp.].

I. A. Zimnyaya understands competence as some internal, potential, confidential psychological changes (knowledge, algorithms of actions, system of values and relations) determined by human competence [3, p. 40, 4].

V. T. Aschepkov notes that competence on the one hand, «compliance with a certain mental, physiological level of development and a certain amount of knowledge», and on the other hand, «the development of a complex of skills of the individual, interrelated with the development of its «I»» [5, p. 340].

B. C. Lazarev believes that it is necessary to give an activity definition of the concept of «competence», including it «in the logical structure of the conceptual apparatus of the activity approach, according to which to have competence – means to have everything that is necessary for the successful solution of some tasks» [6, p. 63].

D. A Ivanov defines competence as a successful response to individual or state requirements and perform the task (perform professional duties) [7, 51-62 pp.].

A.V. Khutorskoy believes that competence is the requirements that determine the preparation of a person. It includes a set of interrelated personalities (knowledge, skills, abilities) and set in relation to a certain range of subjects and processes and necessary for high-quality productive activities in relation to them [8, 55-61 pp., 9].

Thus, if competence can be considered as a property (quality), then competence can be considered as the possession of this property, manifested in the activity. Students must leave the University walls and have some competence. You can be a competent person, having mastered a certain competence and applying it in a certain practice. [10, p. 240]

Taking into account the proposed approaches, we define competence as a dynamic integral hierarchy, which demonstrates the ability and desire of undergraduates to demonstrate relevant knowledge, skills and values in the course of their professional activities.

Professional competence of masters is a gradual process of professional and personal development. Professional competence develops as magistrates acquire certain competencies. This should be created in a highly professional education system that promotes the development of core competencies.

Currently, the pedagogical Sciences still face the most important tasks, which, in turn, creates an effective didactic system based on the use of subjects and teaching methods, which will provide intensive mastery of basic competencies and will contribute to the effective development of the individual.

Formation and development of basic professional skills of future masters is one of the main directions of development of modern higher education. On the other hand, the development of basic professional competence of undergraduates of technical universities is one of the least developed, but the most important areas in addressing the issues of improving the efficiency of the educational process and improving the quality of training of masters.

Opportunities for innovation in education and practice are very important because we define the competence of technical knowledge as a fundamental phenomenon in the preparation of undergraduates. Research competence is not only the goal, but also a means of personal development, in our opinion, is one of the main integration competencies in the process of training undergraduates.

Research activity of a master's degree student is an integral part of the development of master's educational programs and is aimed at the formation of the value relationship of a master's degree student to research activities, to acquire knowledge and skills in the field of methodology and research methods.

The peculiarity of research competence is the consequence of self-development of self-improvement (self-knowledge, self-regulation, self-discipline, etc.). Research competence of cognitive, objective-practical and personal experience as a complex

synthesis is not formed automatically, characterizes the purpose, continuous process of formation, goals and objectives, achieves the goals of the study, describes the integrity of self-organization and describes the synthesis of activities and personal experience. It is determined by the education system of modern society, research activities, its norms and values and is a key component of cognitive activity.

To determine the content of the structure of research competence, it is specified as a set of interrelated personal characteristics, including:

- sustainable motivation and high moral and ethical values;
- personal qualities (patience, perseverance, responsibility);
- scientific, methodological and legal knowledge;
- research skills (cognitive, subject, technological, communicative, organizational, creative);
- experience of creative ways, creative research methods.

The above properties and their characteristics allowed to determine the structural components of the research competence of undergraduates:

- motivational and personal;
- intellectual and creative;
- cognitive;
- an effective and operational.

Their structuring should take into account their personal characteristics, actions and motives of deep penetration into the essence of the object of study, which combines the scientific competence of undergraduates.

**Motivational-personal component** is a motivational-value and emotional-volitional system of communication around students, the world, reality, people, themselves and their abilities. This component describes the needs of students in research, cognitive activity, the ability to overcome cognitive difficulties, independence in learning, decision-making and evaluation.

**Intellectual and creative component** component is responsible for the development of cognitive processes and learning skills (General level and dynamics of development), the intellectual level of undergraduates, their experimental thinking.

Intelligence here is not the level of knowledge, vocabulary or conceptual abilities of a graduate student, but mainly his ability to create. Creative qualities: inspiration, imagination, mental flexibility, sensitivity to contradictions, looseness of thought, criticism, self-esteem - determine the readiness of the student to solve problems.

**Cognitive components** include a system of knowledge in various fields of science, its assimilation ensures the formation of students' consciousness in the scientific picture of the world and is provided with a dialectical approach to cognitive activity. To study, first of all, you need to know the technology of the main research methods, feel the world around you, ask questions, find out what is happening, understand the problem or misunderstand, analyze the data and formulate competent judgments.

**The operational component** describes the qualities required for the study itself. In General, it is the ability to understand the goals of educational activities and the ability to explain them, the ability to normal creativity. In a more narrow understanding, it is a problem, a problem, a question, a hypothesis, the ability to classify existing or derived data, track processes, etc. To gain skills in experiments.

The effective-operational component characterizes the qualities necessary for the study itself. In General, it is the ability to understand the goals of educational activities and the ability to explain them, the ability to normal creativity. In a narrower sense - is to acquire skills in experiments, formulate materials, formulate, interpret, prove and defend the conclusions and conclusions.

These components consider their integrity, scientific competence of undergraduates as an integral part of the person who is prepared for a set of motives, value orientations, scientific knowledge, skills and abilities, research work. In this case, the master's student is able to solve research problems, take individual research skills for professional activities, study the methodology of research, the ability to represent the scientific level of professional activity and individual style of solving professional problems. We conducted an experiment on the basis of motivational and personal component. as a result of the survey, it was found that most of the respondents have an average (51.3 %) and low (39.9 %) level of indicators. Most undergraduates are not

interested in scientific work based on their own needs, they believe that science is not an integral part of the master's program. Undergraduates do not believe in the need to develop their research competence, some of them see the meaning in research, but not all enjoy their own research work, strive to achieve scientific results only within the framework of academic disciplines. As you can see, the issue of motivation of undergraduates to research work is very important and requires permission.

For our research, it was important to identify mechanisms to encourage undergraduates who are engaged in research work. Received the following answers:

- give preference to the best undergraduates for admission to doctoral studies (41.8 %);
- pay for the publication of scientific articles of undergraduates engaged in science (43,4 %);
- take into account the results of scientific activity in the educational process (31.5 %).

In modern pedagogical researches offer to increase motivation of future masters to scientific work to use the following methods:

- creating a positive emotional atmosphere in the research work;
- implementation of interaction between subjects of University training;
- interest in learning in research and education;
- explanation of the social significance of research work for personal and professional growth;
- providing information awareness about the innovations of pedagogical science, the events of scientific life.

Thus, the mechanisms of involvement of undergraduates in the collective form of research work is not fully developed. The success of the master's research competence depends primarily on their professional qualities, in particular, on the incentives, values of education and professional services, as well as on their creativity and ability to think. The formation and development of these qualities can be provided by the purposeful activity of all teaching staff for the development of scientific competence of undergraduates.

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