FORMATION OF RESEARCH COMPETENCE OF FUTURE TEACHERS IN INSTITUTIONS OF HIGHER EDUCATION

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Abstract. *In the article peculiarities of forming research competence of future pedagogues in institutions of higher education are highlighted, the importance and necessity of ensuring the research aspect of professional training is emphasized. The aim of the article – to characterize structure and peculiarities of forming research competence future pedagogues in modern conditions. In research theoretical analysis of scientific works, synthesis, comparison and generalization of approaches to determining the essence and content of research competence, models of its formation are used; the main forms of scientific research activity of future teachers in higher education institutions are determined. The approaches of scientists to the interpretation of the essence of research competence and directions of the organization of scientific research work, its components and tasks are analyzed. The model of forming research competence based on the integration of scientific research into the educational process of the university. The structure of research competence of lecture of higher education institutions is generalized (motivational-value, cognitive, procedural-activity, information-communication, communicative, personal-creative, professional-reflective components). The leading forms of scientific and research activity, which enable the formation of research competence of future teachers, have been determined. It was concluded that the improvement of the process of formation of research competence will contribute to the training of specialists in the conditions of modernization of the education system. Research materials can be used by managers, teachers of higher education institutions, in the system of postgraduate education of pedagogical personnel in the aspect of improving the training of future teachers. The problem of monitoring the state of formation of research competence of future teachers in institutions of higher education requires further research.*

Keywords*: scientific and research activity, research competence, components of research competence, forms of research activity, model of formation of research competence.*

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Introduction. The versatility and dynamism of a teacher's work necessitates the formation of competent, creative, competitive pedagogical workers.

The relevance and significance of the research aspect of the professional training of the future teacher is due to the complication of the content essence of the educational process, which is stimulated by modern achievements of science, as well as changes occurring in the socio-economic sphere of public life.

Adoption of the new Law of Ukraine "On Higher Education" fundamentally changed the role, tasks and organization of research work in higher education institutions. As stated in the Law of Ukraine "On Higher Education", the level of education obtained under the educational-professional and educational-scientific program provides for the acquisition of higher education graduates the ability to solve complex problems in the field of research and innovation; the educational and

scientific program includes a research (scientific) component of at least 30 percent [1].

Accordingly, the problem of formation of research competence of future teachers is actualized.

Literature review. In the works of scientists (O. Bida, M. Golovan, Y. Lavrysh, S. Sysoeva, Gaff J. G., Healey M., Pruitt-Logan A. S., Sims L. M., Denecke D. D., etc.) highlighted the essence of the competence approach, the concept of "research competence", the specifics of the research competence of future teachers [3; 5; 6; 7; 8; 9].

In the research studies of N. Varga, the formation of research competence of future teachers in the US master's program was analyzed. The scientist emphasizes that the formation of the research competence of a teacher of a higher school in the USA is a continuous process and occurs during his professional training through the use of certain forms and teaching methods. In particular, the following are used: lectures and seminars built on the model of "learning as research", practice, individual, group and independent work, consultation, scientific supervision, preparation of a scientific paper, research implementation, analysis of a specific case, portfolio, research project, problem-based learning, workshop, performance of research tasks, etc. [2].

Scientists Gaff J. G., Pruitt-Logan A. S., Sims L. M., Denecke D. D., researching modern approaches to training doctors of philosophy, emphasize that the calling card of a doctoral degree has always been and remains the requirement to demonstrate mastery in the field of knowledge application and the ability to conduct original research [3].

However, it is necessary to investigate the peculiarities of the formation of research competence of future teachers in higher education institutions.

Aims. Aim of the article is to characterize the structure and features of the formation of research competence of future teachers in modern conditions.

Methodology. To achieve the goal, theoretical analysis of scientific works, synthesis, comparison and generalization of approaches to determining the essence and content of research competence, models of its formation were used; elucidation of the main forms of scientific research activity of future teachers.

Results. The ability to carry out one's own scientific research, the results of which have scientific novelty, theoretical and practical significance belongs to the key competencies of teachers and is necessary for the effective performance of professional activities.

The Law of Ukraine “On Higher Education” (2014) considers “competence” as a dynamic combination of knowledge, abilities and practical skills, ways of thinking, professional, worldview and civic qualities, moral and ethical values, which determines the ability of a person to successfully carry out professional and further educational activity and is the result of studying at a certain level of higher education [1].

As V. Sukhomlynskyi rightly emphasized, true pedagogical creativity is characterized by research, creative generalization of one's work. The person who

feels like a researcher in himself becomes a master of pedagogical work the fastest. If you want pedagogical work to bring joy, introduce every teacher to a happy path of research [4, p. 34].

In the studies of M. Golovan, research competence is defined as "a holistic, integrative quality of the individual, which combines knowledge, abilities, skills, experience of the researcher, value attitudes and personal qualities and is manifested in the readiness and ability to carry out research activities with the aim of obtaining new knowledge through application of methods of scientific knowledge, application of a creative approach in goal setting, planning, analysis, decision-making and evaluation of the results of research activities. Moreover, although research competence is a product of training, it does not directly result from it, but is a consequence of the self-development of the learner's personality, his personal growth, integral self-organization and synthesis of his cognitive, activity and personal experience" (5, pp. 197-198).

Scientist S. Sysoeva considers research competence as an integrated personal and professional quality of a specialist, which reflects his motivation for scientific research, the level of mastering the methodology of pedagogical research (innovative thinking, the ability to be creative and innovative, etc.) [6, p. 10]. The specified definition fully reveals the essence of the concept, however, the concepts of "structure of research competence" and "innovative thinking" in the context of the professional activity of teachers need additional clarification.

The analysis of studies on the structure of the research competence of a teacher of higher education institutions shows that it contains the following components:

– *motivational and valuable*, which reflects the system of values, needs and motives of research activity and emotional-volitional and valuable attitudes of students to the world, activities, people, themselves, to their abilities and their development; conscious perception of the value of modern education; the ability to formulate the goals of research activity in accordance with the hypothesis and tasks of the research;

– *cognitive*– reflects the system of methodological, professional, interdisciplinary scientific knowledge of research activities;

– *procedural and operational* –involves the ability to select adequate goals and tasks, methods of research and data processing, analyze scientific facts, discuss and interpret research results, implement them in practice;

– *informational-communicative* – involves mastering methods of data collection in accordance with hypotheses, creation of arrays of empirical data, processing of various information sources, etc.;

– *communicative* – involves the ability to work with respondents; cooperate with domestic and foreign colleagues in research activities;

– personal-creative - reflects the level of development of the creative qualities of the individual;

– *professional-reflective* – reflects the ability to understand and evaluate the process and result of one's own research activity; ability to self-regulate: availability of knowledge about methods of professional self-improvement; the ability to realize

the level of one's own activity, one's abilities; the ability to see the causes of shortcomings in one's work; the desire to improve oneself, the ability to use the mechanism of self-assessment of one's own achievements in research activities.

This means that a scientist must be able to identify positive and negative points in his work, compare the achieved results with the intended goals and objectives, be realistically aware of his capabilities and, in this regard, adequately plan and implement a scientific research program.

Research competence implies: the presence of ideas about the most relevant directions of research in modern theoretical and experimental science; fluency in a foreign (mainly English) language in the field of professional activity and interpersonal communication; understanding of philosophical concepts in the chosen field of scientific activity; mastery of the methodology of a scientific discipline (branch), knowledge of its regularities and willingness to use knowledge of this field in one's practical activities; the ability to clearly formulate the essence of the researched problem, goal, object, subject, working hypothesis, research task, plan an experiment; understanding of the main methodological principles of scientific research and their application in practice; mastering the methods of scientific research (questionnaires, testing, modeling, observation, etc.); the ability to theoretically substantiate and experimentally verify the proposed idea within the framework of the researched problem; the ability to analyze the results of one's research activities, draw the necessary conclusions (carry out methodological reflection); activity, responsibility and personal participation in the organization of any experiment; the ability to conduct a scientific discussion, defend one's point of view with arguments; the ability to analyze the data of a scientific experiment using the methods of mathematical statistics and computer technologies; the ability to prepare a publication or presentation based on the results of one's scientific work.

Researcher Mick Healey proposed a model of formation of research competence based on the integration of scientific research into the educational process of the university. The scientist singled out four components, each of which corresponds to a certain variant of the combination of education and scientific research:

–research-led learning: students learn about ready-made research results, remaining passive participants in this process, and the transfer of information from the teacher to the student is the main method of learning;

– research-tutored learning: students receive knowledge about ready-made research results, but are involved in an active, joint discussion of scientific problems with the teacher, in scientific discussions;

– research-oriented learning: students learn about scientific processes and problems, the curriculum is built on information about the processes by which educational knowledge was achieved;

– research-based learning: the curriculum is built around research, students are involved in direct scientific activity together with the teacher, where the division of roles between them is minimized [7, p. 3].

Scientist Y. Lavrysh emphasizes that research work has:

–to be as close as possible to the educational process;

–to predict the specificity of the subject; modern scientific level of its implementation in practical activity;

–to be carried out with the gradual complication of research tasks from course to course;

–to be characterized by the professional and creative character of research work, etc. [8, p. 73].

Scientific and research activity corresponds to the general structure of activity, therefore, its components are subject, object, subject, goal, means, result (product) of activity. Subjects of scientific and research activities at the university are scientific and pedagogical workers, graduate students, doctoral students, degree holders, students motivated to conduct their own scientific research.

The participation of young scientists in current research contributes to the formation of creators of a new intellectual product. University teachers must ensure scientific growth through students' implementation of relevant research and scientific and technical developments, and the new knowledge obtained by scientists and university students is the basis for innovative development.

The objects of scientific research activity can be the educational process at the university, professional training of students, scientific research of varying degrees of innovation in the field of knowledge in which he is a specialist (in accordance with the qualifications in his higher education diploma). *The subject* is a part of the object, the study and transformation of which is directed to the scientific search. *The goal* is the planned, predicted result of scientific research (for example, acquiring the necessary skills of creative research activity, in the process of which students solve tasks, as a rule, already developed in science, acquire the ability to independently search for the necessary information.

The main directions of the organization of scientific and research work are to improve the quality of the educational process due to the joint participation of students of higher education and teachers in the performance of various scientific works, namely: the participation of students of higher education in conducting applied, research and fundamental scientific research; support and development of scientific schools of higher education institutions in line with the succession of generations; development of higher education students' ability to make independent, substantiated scientific judgments and conclusions.

The tasks of scientific and research activity are: teaching higher education students methods and means of independent solution of scientific tasks, skills of working in scientific teams; familiarization with the methods of organizing creative work; promoting the successful solution of current problems of science and social development of society.

Scientific and research activity gives the student of higher education the opportunity to show creative initiative, to check the studied material during the performance of practical and laboratory work (in practice), to learn to collect, systematize, analyze and summarize it, to independently conduct research work. All types and forms of research activities of higher education students are aimed at activating creative abilities, applying scientific methods in solving practical

problems. Its content and forms must correspond to the main directions of scientific research activity of the institution of higher education, faculty, department.

Discussion. The main forms of research activities that enable the formation of research competence of future teachers include:

- –participation in the organization and conduct of All-Ukrainian scientific Olympiads, competitions of scientific works; scientific seminars and conferences; exhibitions of creative and scientific works;
- writing essays, abstracts based on selected and studied sources of scientific literature such as: sections of monographs, scientific articles in domestic and foreign publications;
- performance of practical and homework tasks, control papers containing elements of scientific research and requiring students to familiarize themselves with a sufficiently wide range of literature, use of computer and other technology;
- participation in the work of student scientific circles, laboratories, university centers; competition for scientific grants at the university, regional, all-Ukrainian, and international levels;
- preparation and defense of graduation qualification papers related to the issues of scientific research of graduation departments of the university, research divisions of the university, faculties, institutes; publication of theses and articles;
- the ability to perform specific atypical tasks of a scientific and research nature during various types of practices, to perform individual tasks aimed at developing and solving specific problems; comparative psychological and pedagogical analysis of given provisions;
- analytical processing of theoretical material on a specific topic of scientific research through its coding (schemes, tables, diagrams, graphs, etc.);
- development of didactic materials (games, exercises, visualizations, scenarios, lesson notes, poetic texts, project models of pedagogical processes;
- development of a model of pedagogical processes, systems;
- tasks are aimed at carrying out empirical research: questionnaires, interviews, experimental conversation;
- tasks are aimed at carrying out pedagogical research according to the scheme: choosing a problem, its theoretical study, finding a basis for setting up an experiment, developing its program, execution, generalization of results, design and presentation of work;
- the task is aimed at analytical research of the given problem: determination of relevance, analysis of publications, examination of the object of research, comparison with the norms determined in science, detection of deviations, finding a solution to the problem in theoretical recommendations;
- reviewing publications (theses, articles, reports);
- writing scientific articles;
- development of author questionnaires and their implementation in the form of questionnaires, interviews, conversations.

Conclusions. A teacher's research competence is formed in the process of carrying out research activities of future teachers in a science-centered educational environment, where the research activities of teachers and students are closely intertwined, and the obtained results are used in the educational process. The main purpose of such activity is to establish or verify the truth, using available methods of scientific research.

In our opinion, improving the process of formation of research competence is a significant factor in improving the process of training specialists in the conditions of modernization of the education system. The article does not cover all aspects of the raised problem. Research requires the problem of monitoring the state of formation of research competence of future teachers in higher education institutions.

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