Scientific and pedagogical preconditions for the development of the problem of formation of research competence of masters in educational sciences

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Abstract. University education as a historical and cultural phenomenon has its own history, traditions, transformative and renewing potential. It realizes its mission and performs functions that turn it into a special value, in particular, it exerts a cultural and ideological influence on public consciousness; acts as a mechanism for the selection and socialization of the ruling elites; provides new knowledge and carries out scientific research; prepares qualified specialists; transfers cultural capital. The article reveals the content and significance of research activities based on higher education institutions in a retrospective aspect, the content of the concept and the main requirements for the educational and qualification level of a master’s degree as a scientific degree. The preconditions for the emergence and the development of the idea of the formation of scientific and research competence of students at domestic universities have been considered. The problem of applying the research approach as a basis for training specialists in higher education has been studied. It has been established that the research approach in education is a set of pedagogical goals aimed at developing students’ readiness for research work through its implementation in the educational process. Research work is defined as a special type of intellectual and creative activity of students, which arises as a result of the functioning of individual mechanisms of search activity and involves independent research aimed at theoretical and experimental study of phenomena and processes, substantiation of facts, identification of regularities using methods of scientific knowledge.

Keywords: research competence, scientific research work, science, scientific research, master’s degree, student, historical development
Науково-педагогічні передумови розвитку проблеми формування дослідницької компетентності магістрів з освітніх наук

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Анотація
Університетська освіта як історико-культурний феномен має свою історію, традиції, трансформативно-оновлюючий потенціал, реалізує місію та виконує функції, які перетворюють її на особливу цінність, зокрема, здійснює культурно-ідеологічний вплив на суспільну свідомість; виступає механізмом відбору та соціалізації панівних елі; надає нові знання та здійснює наукові дослідження; готує кваліфікованих фахівців; передає культурний капітал.
У статті розкривається зміст та значення науково-дослідної діяльності на базі закладів вищої освіти у ретроспективному аспекті, зміст поняття та основні вимоги до освітньо-кваліфікаційного рівня магістра як наукового ступеня. Розглянуто передумови виникнення й розвитку ідеї формування науково-дослідницької компетентності здобувачів вищої освіти вітчизняних університетів. Досліджено проблему застосування дослідницького підходу як основи підготовки фахівців у вищій школі. Встановлено, що дослідницький підхід у навчанні – це комплекс педагогічних цілей, які спрямовані на розвиток готовності студентів до науково-дослідницької роботи через її реалізацію у навчальному процесі. Науково-дослідницьку роботу визначено як особливий вид інтелектуально-творчої діяльності студентів, який виникає в результаті функціонування індивідуальних механізмів пошуку відповідної активності і передбачає самостійне дослідження, спрямоване на теоретичне й експериментальне вивчення явищ і процесів, обґрунтування фактів, виявлення закономірностей за допомогою методів наукового пізнання.

Ключові слова: дослідницька компетентність, науково-дослідна робота, наука, наукове дослідження, магістр, здобувач вищої освіти, історичний розвиток

Statement of the problem. The active involvement of students in research has always been the prerogative of university education. This problem becomes particularly relevant today, when university pedagogical education is undergoing reform, and state standards are being established. A significant role in solving these tasks is played by the accumulated century-old experience in the development of research work based on higher education institutions. After all, the formation of the system of education in the process of reforming higher education in Ukraine is the result of centuries-old achievements of the national education and science system, since the practice of education in Ukraine has been known since the Middle Ages. The institution of master’s studies has been an instrument for preparing scientific personnel since its establishment.

Analysis of recent research and publications. An analysis of the source base indicates a deep interest of domestic and foreign scientists in the problem of forming research competence of students throughout the entire period of the development of Ukrainian science and the improvement of its forms. In particular, A. Balyuk, I. Soloshych, O. Akimova, O. Povidachik, T. Derevyanko, N. Bugayets in their research paid attention to the peculiarities of preparing masters for research activities, and the historical aspect of the development of the problem of forming research competence has been highlighted in the research by N. Teretyeva, H. Klovak, T. Patuk.

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The purpose of the article is to characterize and substantiate the scientific and pedagogical preconditions for the development of the problem of forming research competence of masters.

Science is a complex social system and one of the important forms of human activity, the function of which is to obtain, develop, and theoretically systematize objective knowledge about the surrounding reality. Today, the concept of "science" is considered from several basic positions: theoretical, as a generalization of acquired knowledge; professional, as a special type of human social activity; practical, as the application of the conclusions of scientific activity for the benefit of society (Bosenko, et al., 2014).

One of the forms of the implementation and the development of science is scientific research — purposeful study of phenomena, processes, analysis of the influence of various factors on them, as well as study of the interaction between phenomena in order to obtain convincingly proven and useful for science and practice decisions (Akimova, et al., 2023).

The scientific research work of master’s students contributes to the preparation of highly qualified specialists through the development of research competencies aimed at acquiring skills of search and research activities, abilities for creatively solving educational tasks in the conditions of higher education, as well as forming skills of applying research techniques and methods to solve practical issues of education and upbringing (Frytsyuk, et al., 2024).

Studying the phenomenology of the concept of "scientific research work of masters," Y. I. Raikhman notes that a person who has obtained a master’s level of education should not only possess in-depth knowledge in the chosen specialty but also have skills of scientific research activities that are formed in the process of organizing and conducting research and educational seminars, experimental testing of innovative technologies of psychological and pedagogical work, etc. The author notes that it is precisely the research-oriented approach that is a strong point of master’s training, as it shapes a specialist, especially in pedagogical education, who clearly sees the directions of the development of pedagogical science and is capable of combining subject teaching with research activity.

The author interprets the scientific research work of masters as activity expressed primarily in independent creative research, which presupposes explaining phenomena and processes, establishing their connections and relationships, theoretical and experimental justification of facts, identification of patterns using scientific methods of cognition. Thus, the results of subjective searches acquire objective significance and novelty (Raykhman, 2015).

Ukrainian scientists (V. Andriiev, O. Antonova, O. Akimova, N. Hlovyn, M. Knyazyyn, Ye. Kulyt, V. Lytvchenko, E. Meiman, S. Omelchuk, V. Opanasenko, L. Repeta, O. Rohozina, etc.) believe that the research approach in education is a way to familiarize higher education students with the methods of scientific cognition, an important means of shaping their scientific worldview, developing thinking and cognitive independence, and forming readiness for research and development activities in professional activities.

As T. Derevyanko points out, the professional activity of a teacher involves constant improvement and development of personal and professional qualities, pedagogical skills and creativity, which are based on the development of the ability to implement a number of research functions (creative, imperative, adaptive, formative) (Derevyanko, 2017).

The emergence of the first forms of scientific research activities began to develop in the Ancient World, according to N. Bugaets (2016).

J. Comenius underlined the importance of research activity in the process of education. He suggested a system of education where the main figure is a teacher who can organize the educational process taking into account the results of research of the abilities and capabilities of listeners, where the scientist himself was considered as a teacher-researcher in the modern interpretation of this concept; J. Pestalozzi argued that the source of knowledge, both for the teacher and students, lies in the independent research of phenomena of nature and the surrounding environment, in the process of which, in his opinion, the development of abilities, the ability to think logically, compare, generalize facts and, based on them, form their own concepts occurs; J.J. Rousseau, supporting the ideas of his predecessors, suggested to build education taking into account the research stimulus. He believed that special requirements should be presented to a teacher who organizes independent research of students, A. Disterweg noted that "without a desire for scientific work, a teacher falls into the power of three demons: mechanization, routine, mediocrity. He becomes stiff, limited, degraded" (Povidaychyk, 2017).

The dissertation work of O. Mykytyuk (2004) is interesting or us from the point of view of the subject of our study. It reveals the peculiarities of the development of science as a precondition for the for-
mation of research competence of students in higher education institutions of Ukraine in the XVI-XVII centuries, characterizes the activities of universities as centers of research work in the nineteenth century. I stage (1804-1834) The emergence of the system of development of research activities, definition of its role, functions, forms; establishment of scientific relations with foreign universities; emergence of Kharkiv (1805), Kyiv (1834) universities. The emergence of the first associations, scientific societies; II stage (1835-1862) Revitalization of research activities of teachers and students, increasing the role of auxiliary institutions (laboratories, observatories, libraries). The development of scientific societies; III stage (1863-1883) Creation of a system of research activity, stimulation of research activity, control of results, increase of material and technical base; opening of Novorossiysk University (1865) Emergence of educational societies; IV stage (1884-1900) Raising the level of science in higher education institutions, strengthening the content, fundamentality of research, improving the forms and methods of student research activity (Myktyuk, 2004).

The question of the possibility and necessity of including the research component in the professional activity of a teacher was finally formed in the second half of the XIX century. In order to promote scientific work among students, universities annually proposed topics for scientific works, the best of which were awarded with medals and prizes, and later published in university publications at the expense of the educational institution. Such involvement of the young generation in scientific research activity facilitated their entry into the scientific community. Under the guidance of the leading scientists and educators, scientific schools were formed from various fields of science as structured associations of scientists of several generations around and based on new ideas, methods, and research methodologies. These associations were cemented by moral traits and relationships laid down by their founders (Patuk, 2014).

During this period, a significant contribution to the development of the idea of teacher research activity and its implementation in daily pedagogical work has been made by R. Armstrong, A. Gerd, T. Huxley, N. Corf, P. Lesgaft, M. Pyrohov, M. Stasielewicz, K. Ushynsky, and others.

At the turn of the 19th and 20th centuries, an important tool for the training of scientific personnel on a legally established basis was the institute of magistracy, which operated based on a number of formed traditions that included careful selection of candidates and organization of their research activities, the result of which was the publication and public defence of dissertations. This paved the way for magistrands to enter the scientific community and largely determined the prospects of their scientific life and career development.

It is important to note that during this period, there were no higher educational institutions with Ukrainian as the language of instruction in the entire territory of Ukraine, which unfortunately was a serious limitation for the development of education in Ukrainian society.

The events of 1917 significantly changed the social order and put on the agenda the issue of creating a new national higher education system with new teaching staff.

The development of scientific research was facilitated by the introduction of a new system of academic degrees and titles and the procedure for their conferral. Thus, in October 1918, all academic degrees and titles that existed in the Russian Empire were abolished. Only in January 1934, the Council of People’s Commissars of the USSR adopted the Resolution “On Academic Degrees and Titles,” which approved the academic degrees: “Candidate of Sciences” and “Doctor of Sciences.” In Soviet times, educational and qualification levels were firmly established: “junior specialist” (on the basis of a technical school or college) and “specialist” (on the basis of higher education institutions), as well as the academic titles of professor and associate professor and the academic degrees of doctor and candidate.

In the 1920s-1930s, the issues of the research activity of the teacher were actively developed by P. Blonsky, K. Geiler, A. Zinkevich, S. Shatsky.

From the point of view of modern researchers of the history of pedagogical thought (A. Dzhurynsky, B. Kornetov, A. Piskunov, Z. Ravkin, etc.), the twenties of the last century were characterized as the peak of teachers’ creative activity. The teacher increasingly and confidently acted as a researcher, organizer and participant in the educational process (Kostenko, 2009).

In the 30s and 50s, due to well-known socio-political reasons, the research and creative activity of teachers declined. However, in the second half of the twentieth century, a new wave of growth in research activities at higher education institutions began.

In fact, the formation of the Ukrainian higher education system lasted until the beginning of 1939.
On the eve of World War II, there were already 129 higher education institutions in the Ukrainian SSR, and a national university system was formed that included six classical universities: Kyiv, Kharkiv, Lviv, Odesa, Dnipropetrovsk, and Chernivtsi.

In the early 60s of the last century, the idea of a research-based approach to education was re-emerging, made possible by the growth of teachers' research competence and their active participation in theoretical and empirical subject research. Various aspects of the research activities of teachers and educators have been the subject of special research by many psychologists and educators (S. Arkhangel'sky, Y. Babansky, V. Bespalko, A. Bodnar, I. Dziubko, V. Zahviazynsky, P. Kondrakh, and others) (Povidyachyk, 2017).

The 50s and 70s of the twentieth century were a stage of promising development of universities as centers of scientific thought, where education and science, basic and applied research are combined with their further implementation in the educational process through the relevant academic disciplines.

Thus, in 1959, the process of adopting research programs, increasing the degree of concentration of scientific forces and means on the most important research of theoretical and practical importance (defined by the state as priority areas) began, which involved training of relevant specialists at universities and research institutions (Kylymyuk, 1961).

The late 1960s and early 1970s saw a combination of education and science, fundamental and applied research. Regular scientific symposiums on the management, planning, and organization of scientific and technical research became common. University education became more scientifically oriented. Centers of scientific thought were research institutions and universities, which significantly contributed to the pace of scientific and technological progress. N. Terentieva (2016) identified the following as the main directions of scientific and pedagogical research of that time: methodology of teaching basic sciences, educational work in primary schools, education and upbringing of children in boarding schools and schools with extended day groups, general education of adults; content, forms, and methods of educational work in educational institutions, the theory of education, and so on.

In the 1980s, the development of university education as a leading component of higher education was guided by the assertion that the educational process should provide a combination of high theoretical and applied training, a differentiated approach to the training of graduates for pedagogical, research, and production activities; develop the training of specialists in new areas at the intersection of sciences. By the mid-1980s, there were already 146 higher educational institutions in the Ukrainian SSR, including 30 pedagogical institutes (Patuk, 2014).

The wide development of the education system ensured a high level of education among the population of Ukraine. As of 1987, the number of people with higher and secondary (complete and incomplete) education exceeded 28 million out of a total population of over 52 million. 84% of the employed population had this education. Overall, higher and secondary specialized schools fulfilled their important task of training personnel for the economy, science, and culture.

The level of training of highly qualified personnel largely depended on the quality and quantity of the scientific and pedagogical staff of higher educational institutions. Prominent scientists who taught at higher educational institutions contributed to the activation of students' scientific work. Their fundamental scientific research became a cultural asset of the entire world population ("On the State of Implementation of the Gradual Higher Education in Accordance with the Law of Ukraine 'On Higher Education'").

Against the background of these events, the development of research became a priority for universities as centers of scientific thought, where education and science, fundamental and applied research, were combined with their further implementation in the educational process through relevant academic disciplines.

Since the early 1990s, there has been a trend towards overcoming the narrowly utilitarian approach to higher education through the implementation of such concepts as student-centered, diversification of education, and multi-level education. From the first steps of their studies at higher education institutions, every student was involved in scientific research, planned research by teachers, and the implementation of their scientific achievements into practice. Student participation in research conducted at higher education institutions in collaboration with scientific institutions was encouraged.

After gaining independence in 1991, Ukraine began to shape its own educational policy and higher education system. According to Terentieva (2016), the higher education of this period aimed to solve the following problems: improving the quality of teaching, organizing the educational process on a scientific basis, updating the content of higher edu-

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cation, introducing effective pedagogical technologies, organizing education as continuous scientific and production activity, creating educational and scientific complexes, integrating Ukraine into the transcontinental system of computer information by producing new technologies.

Since 1992, the stepwise system of training specialists has been revived in independent Ukraine. The Law of Ukraine "On Higher Education" provided for educational and qualification levels of higher education: junior specialist, bachelor, specialist, and master.

In accordance with the Bologna agreements, Ukraine actively engaged in work to adapt the domestic higher education system to the conditions of the Bologna Process. Therefore, the intensification of the use of objective scientific knowledge and the application of scientific achievements in higher education gradually increased in Ukraine, which, in turn, adjusted the content of university education, giving it an applied character (Sydorenko, 2002).

Reform processes in the context of European integration became the driving force of new social demands and public requests, prompting higher education to synchronize with the general trends of human society development through fundamental reorganization in the university education sector in the context of the Bologna agreements and treaties.

Therefore, the quality of training of graduates of higher educational institutions for scientific research activity becomes particularly relevant in this period. One of the leading tasks of master's students, which is formed at this stage, is the comprehensive development of their creative abilities and research skills. The development of research competencies is aimed at acquiring future teachers and researchers the skills of search, research activities, abilities of creative solution of educational tasks in the conditions of higher education, as well as forming the skills of applying research techniques and methods of solving practical issues of education and upbringing (Balyuk, 2015).

Conclusions and prospects for further research. Thus, based on the analysis of scientific literature, we have investigated the gradual development of the formation of research competence based on the stages of the formation and development of higher education in educational institutions in Ukraine. Historical analysis has shown that the process of forming research competence of masters has taken place under the influence of massive integration and socio-cultural processes.

Currently, Ukraine has officially declared the formation of the country's intellectual potential in institutions of higher education as a social order of the state and has undertaken to create conditions for the realization of citizens' intellectual potential, to provide an innovative fund for scientific research, and declared the development of science as a priority direction.

Prospects for further research include studying the ways of implementing foreign experience in forming the research competence of masters.

References


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