FORMATION OF SCIENTIFIC POTENTIAL IN INSTITUTIONS OF HIGHER MEDICAL EDUCATION

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ABSTRACT

Background. The progressive development of humanity is impossible without the development of science and the introduction of innovative technologies that fundamentally change the forms of human life in all areas and in medicine in particular. Scientific discoveries are the driving force of progress, which determines the prospects of the socio-economic development of the country and its status at the world level. The formation of scientific potential is an internal task of every country, and in accordance with the development strategies of the medical sphere of our country, higher educational institutions should pay considerable attention to the training of highly qualified specialists who can potentially replenish the number of scientific personnel of Ukraine.

The aim of the study was to analyze the possibility and necessity of creating a selective component: research work for students of the II (Master's) level studying in the specialty 222 "Medicine".

Materials & Methods. Scientific literature, educational programs and normative documents of higher medical education of Ukraine were studied. Bibliosemantic method and system analysis method were used.

Results. Ukraine is part of the European educational space and the scientific field in particular. In order to improve the training of students of the II (Master's) level, it is necessary to create conditions for the individual development trajectory of the student, which will improve their adaptability to changes in the conditions of the labor market. Introduction of new optional components to improve the special and general competencies of a specialist in the medical field increases the competitiveness of the student and improves the quality of higher medical education.

Conclusions. The author of the article, after analyzing the literary data and relying on his own experience, concludes that the introduction of a new selective component: research work will improve the level of knowledge of those seeking education regarding the use of modern research results in the work of a practical doctor, will introduce the career of a scientist and allow more effective preparation and selection of persons for the third educational and scientific level of training of Doctors of Philosophy.

Keywords: *research work, selective component, intellectual potential, medicine.*

INTRODUCTION

An important condition for national strength is the development of culture and science. In view of the current events in Ukraine, it may seem that the development of these areas is out of time, but it is culture and science that are the fundamental forces in the formation of national identity. Science in Ukraine is a field that has never received enough attention from the state. As a result, this led to a decrease in the prestige of the scientific field, an outflow of young and promising personnel [1]. It is indisputable that the development of humanity is not possible without the development of science and advanced technologies, which for many centuries in a row have fundamentally changed the forms of human life in all fields and in medicine in particular. At all times, the results of scientific research have become the driving force of progress, and this process is relentless, constantly changing, just like scientific research itself [2].

Today, the whole world has entered the Fourth Industrial Revolution (Industry 4.0). Thanks to technology, the boundaries between the material,

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digital and biological worlds are blurring. The spectrum of achievements of technological progress is extremely wide, and now the task is to master and implement them in various spheres of human activity [1]. Modern technologies bring more and more new opportunities to our lives.

Research work of students of medical institutions of higher education is the most important aspect of the formation of the personality of a future scientist and highly qualified specialist, serves as a powerful means of high-quality personnel selection for the training of young scientists, the preservation and restoration of scientific schools and the formation of a scientific outlook among future doctors of practical medicine. Among the main directions of the implementation of the Concept of the Development of Higher Medical Education in Ukraine is the creation of conditions in higher educational institutions for attracting talented young people to scientific activities [3].

Unfortunately, domestic realities of conducting fundamental scientific research in medicine allow us to state that during the years of independence, there was a gradual loss of scientific potential, especially young scientists who prefer career growth in foreign companies or investment projects with foreign capital. Budget financing of priority areas of fundamental scientific research in medicine today is not able to ensure the implementation of their tasks, the revival and the rise of national academic medical science [2]. In order to receive funding for the implementation of scientific projects from non-budgetary (grants, foundations) institutions, it is necessary to have a sufficient level that would meet the requirements of competitions.

Starting from the first year, students can work in student research groups, first at fundamental departments, and then at clinical departments. Thus, they actually get their first experience in conducting scientific research. As they participate in a scientific experiment or clinical research, students may discover a lack in their knowledge regarding the methodology of scientific research, international standards and algorithms for recording intellectual property and other aspects of the realization of scientific potential. Usually, a scientific supervisor and self-education help to find answers to questions. Therefore, it is important to consider the possibility of creating a selective component: research work as part of educational professional program (EPP) "Medicine" with the aim of improving the training of highly qualified specialists in the medical field, who can potentially continue their studies at the third level of higher education.

The aim of the study is to analyze the possibility and necessity of creating a selective component: research work for students of the II (Master's) level studying in the specialty 222 "Medicine".

Materials and Methods

We studied scientific literature, educational programs and normative documents of higher medical education. Bibliosemantic method and system analysis method were used.

Results and Discussion

According to the Strategy for the Development of Medical Education in Ukraine for 2018–2028 [4] and the Development Strategy of the National Academy of Medical Sciences of Ukraine for the period until 2030 [5], the main pathway for implementation of the tasks and goals of these documents is the training of highly qualified scientific medical personnel on the basis of higher educational institutions. To ensure the sustainable development of personnel potential for medical science it is necessary to give the opportunity to students to master the principles of scientific research and methodological tools for their implementation at a high professional level.

An important argument for the need for a selective component: research work for education seekers is a requirement in the industry standard for obtaining the "Master of Medicine" degree, namely writing of qualifying work as a form of attestation. Qualifying work, as stated in the industry standard, must demonstrate the ability of the student to solve problems of a research and/or innovative nature in the field of medicine and health care. It should not contain academic plagiarism, falsification and fabrication. The qualification work must be published on the official website of the institution of higher education or its structural subdivision or in the repository of the higher education institution [6].

The main goal of the educational and professional program "Medicine" is the formation of specialized conceptual knowledge based on modern scientific achievements in the field of health care, which will ensure the academic training of highly professional specialists with the formation and acquisition by them of general and special competences of a doctor for further professional activity; make them able to solve complex problems in atypical situations or new environments, capable of research and innovative activities; capable of conducting studies with a high degree of autonomy at the next level of higher education; will form their capacity for effective activity in the

globalized information society, based on their worldview and social position [7].

In the educational and professional program "Medicine" of the second level of higher education of the Poltava State Medical University, which corresponds to the educational qualification "Master of Medicine", it is also stated that its feature is "an unique combination of classical university education, which ensures the formation of a worldview, the development of thinking, the unique abilities of an individual with the acquisition of full-fledged professional competences; with practice in educational and scientific treatment centers of the university; experience of surgical, cardiology and gastroenterology schools of Poltava State Medical University; with ensuring a close connection of the training of medical specialists with science, the latest technologies, and clinical practice. Progress in the field of fundamental and applied medical research and the implementation of their results in practice dictates the need to train medical specialists at the university with the use of innovative technologies as a component of the educational program of training of medical education applicants."

Thus, in order for students to acquire integrated competence, namely, the ability to solve complex problems, including research and innovation in the field of medicine, as well as special competencies, such as: the ability to develop and implement scientific and applied projects in the field of health care in compliance with ethical principles when working with patients, their relatives, laboratory animals and compliance with professional and academic integrity, bearing responsibility for the reliability of the obtained scientific results, it is necessary to create a selective component: research work. In general, such a component is needed to study the basic elements of scientific research, namely: the structure of the scientific project, intellectual property copyrights and the methodology of implementation and analysis of the obtained results, as well as the use of scientific metric databases for self-education and scientific research.

Based on the issues of the need for such a discipline, the main goal of the selective component "research work" can be: acquiring knowledge about the design of scientific research, its planning and application forms for participation in grant and fund competitions, copyright protection forms and its use, types of scientific articles and reports and features of their writing, rules and principles of scientific ethics and their legislative regulation in Ukraine and abroad, rules for writing qualification papers. Training should be conducted in the 3rd or 4th course at the request of the student and should be extended only to the circle of persons interested in conducting scientific research, based on an approximate estimate of no more than 20% of the total number of persons studying in the corresponding course. Successful completion of the assessment of the selective component “research work” must be taken into account in the recommendation for the student's research work by the academic council of the university.

The projected program of such a selective component must necessarily include the following topics: scientific search using modern software tools and electronic libraries; development, planning and design of basic and clinical research (main differences, mandatory elements); mathematical processing of results, choice of statistical methods, proof of research; copyright and protection of intellectual property rights; writing articles, their types, and working with magazine editors; the structure of the qualification work, legal requirements, the process of defense of the qualification work; forms of publication of scientific results, presentation and public defense of scientific research; ethical and moral code of the scientist, integrity in scientific research and their legal regulation; work with scientometric databases Scopus and Web of Science, use of social networks for scientists; familiarization with scientific schools of Poltava State Medical University and the results of their activities; perspectives of the Ukrainian scientist.

The standard of higher education of the second (Master’s) level, field of knowledge 22 "Health care", specialty 222 "Medicine" determines a minimum of 36 ECTS credits of the educational and scientific program must be provided to ensure the scientific and research component [6].

The prospects and advantages of the implementation of the selective component: research work for the student and the university are as follows: formation of education seekers' understanding of what a Ukrainian scientist does, his everyday life and prospects, will allow more effective preparation and selection of persons for the third educational and scientific level of training of Doctors of Philosophy; will increase the efficiency of student scientific groups as a whole and, in particular, improve the quality of writing scientific papers and articles; will increase the competitiveness of education seekers at the domestic and international level.

Conclusions

Taking into account the presence of a social demand among education seekers to improve knowledge about the use of modern research results in the work of a practical doctor and familiarization with the career of a scientist. It is also necessary to consider the opportunity prescribed in the industry standards of higher education and the perspective value of the new educational component for the university in general. It is advisable to ensure the opportunity for those seeking education to choose the path of a successful Ukrainian scientist. Prospects for further research. Analyze the results of the implementation of the selective component "research work" for students of 3rd–4th years of education within 5 years.

DECLARATIONS:

Disclosure Statement

The author have no potential conflicts of interest to disclosure, including specific financial interests, relationships, and/or affiliations relevant to the subject matter or materials included.

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