

Organizational Support for Scientific–Research Activity of Future Managers of Educational Institutions with the Help of Information and Communication Technologies at Master’s Degree Program

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Abstract. The article analyses the organizational background of information and communication technologies implementation for management of scientific research activity provided by prospective managers of educational institutions, specifically at master’s degree level. Suggested is decomposition and content analyses of organizational support as a system containing organizational, program-aimed, project and technical, information and communication components as well as content modules.

Keywords: *system, information and communication technologies, future managers of educational institutions, Master’s Degree program, management.*

Problem Statement: The development of information and communication technologies (hereinafter referred to as ICT) and computerization of scientific and educational activities are the priorities of thorough investigation in the field of efficient professional training of future managers of educational institutions (hereinafter referred to as EI). Scientific and research work of prospective managers of educational institutions is an important part of their professional activities. It presupposes certain knowledge of the essence of scientific facts and events, as well as the ability to define main ideas, to build up the logical sequence of the stages of scientific and research activity (SRA), to form research conceptions through observation of evidence-based facts, to positively influence the formation of research skills, to master the diagnostic instrumentarium and to develop the ability of personal self-improvement.

The implementation of research functions provided by the future managers of educational institutions is impossible without the application of modern information and communication technologies. Such technologies demand practical skills in usage of the search systems, complex information processing, digital test systems and questionnaires, e-libraries, depositories, methods of analytical and statistical analyses and processing of scientific research, studying of similar researches provided by foreign scientists.

Adoption of modern software and computing technologies at all levels of social life is regarded as a precondition for renewal of Ukrainian society, as is stated in the Information Act of Ukraine [5].

The strengthening of the integration links in the field of education, science, production, scientific and innovative components in the activities of higher education institutions (hereinafter referred to as HEI) became the main content guidelines of the Presidential Decree "On measures to ensure the priority development of education in Ukraine" [4].

Legislative provision of the main tasks and requirements for the modern organization of professional training of future EI managers, in particular, the carrying out of research activities in higher education institutions, is grounded on a legislative basis, namely the Laws of Ukraine "On Higher Education" (2014), "On Scientific

and Scientific-Technical Activity" (2015), "On Education" (2017).

First of all, it should be noted that the current trends in the development of higher education, in particular, the creation of universities of a research type, their integration into the European educational and scientific space, predetermine the development of variational models of activities carried out by the of scientific and research managers, creation of favorable organizational conditions for implementation of forms and methods of management of students’ scientific and research activities. The innovative trend of Ukraine’s HEI activities has been the application of international masters programs of double diplomas in partner universities with the aim to adapt national training programs to European quality standards and international curricula and to promote the synchronization of educational systems on the basis of Bologna documents.

Therefore, the master’s training of future managers of educational institutions becomes of special significance. The objective need for intensive changes in pedagogical systems and processes, for variability of educational programs and educational technologies, for development of information and communication provision of education require a high level of readiness for SRA provided by future managers of education, which is considered to be the most important part of their training system aimed at formation of highly skilled professionals capable of finding the best solutions for educational and scientific issues, and that will enable a new strategic vision of the economic and social priorities in the development of the Ukrainian society.

Research and Publications Analyses. The multidimensional and meaningfully varied phenomenon of "the introduction of ICT in the educational and scientific space" is summarized in the studies of V. Bykov, M. Zhaldak, N. Morse, O. Spivakovskiy, O. Spirin, M. Shyshkina, and others. First of all, their studies highlight the following issues: the development of educational modules for distance learning, the differentiation of types of e-learning, the management of information databases of educational institutions at different levels of education, monitoring the levels of management efficiency of educational institutions and open educational systems; development of the cloud-based scientific environment of higher education institutions.

It should be noted, that the theoretical aspects of the management of students' research activities are represented by a significant scientific research works of both universal and sectoral nature, among them are the scientific researches of L. Danylenko, G. Yelnikova, V. Ibrianova and others. Technological aspects of conducting research work are highlighted in the publications of A. Chmil, G. Tsekhmistrova. The issue of managing the students' research activities at higher education institutions of the economic specialization became the subject of the dissertation research by V. Stepashko. The terminological component of the term "research activity of students" is defined as the priority direction of the investigation by O. Zelenko, N. Margita, V. Morozova, O. Samsonova, S. Shara. Conducting research work by students at higher education institutions in the humanitarian field became the focus of such scholars as G. Omelianenko, L. Nikolaeva, O. Prokhorova and others. The problem of combining the educational and research components in the content of the students' research work is mentioned in the scientific and methodological works by L. Suschenko.

Article Objectives. The objective of our research is the organizational support for the research activities management carried out by future managers of educational institutions who complete the Master's Degree program. Such management can be facilitated by means of information technologies that include the solution of structurally and functionally related tasks. For instance, to isolate and structure the content blocks of the system of organizational support for SRA carried out by future EI managers in the process of master's training using; to trace the impact of the system of SRA organizational support on the content of the scientific environment of the higher education institution.

The statement of basic material of investigation. Before proceeding to the analyses of the main topic of the study, special attention should be drawn to the concept of "information and communication technology". Like most terms, the etymology of which is determined by the development of electronic communication means, this concept has a significant spectrum of interpretations, with a variable semantic and terminological meaning. Here are some definitions of this term that are most often used and found in scientific discourse: technologies for processing information and solving tasks using a computer and telecommunication facilities based on the achievement of artificial intelligence [7]; a set of methods and technical means for collection, organization, preservation, processing, transmission and presentation of information that broadens the knowledge of people and develops their ability to manage technical and social processes [1].

We prefer the definition suggested by M. Zhaldak, since he focuses attention not only on the way information is obtained, but also takes into account the personal factor. Thus, we can interpret ICT as a set of technological tools and resources used to provide communication processes and the creation, dissemination, preservation and management of information resources.

The basic vector of our research has arisen due to the existence of different approaches to the interpretation of the problem of research and development, the main difference of which is the understanding of the meaning and content of research and development in the structure of

the educational at HEI. As is well-known, there are *two* interconnected trends in the generally accepted form of involving students in participating in research activities. *The first* conceptual trend comprises two scientifically grounded areas of SRA. They are: teaching students the elements of organization and methods of conducting scientific work as an organic component of the educational process, which is provided by the curriculum, and conducting research work as an extra-curricular activity [8]. Within the framework of *the second* trend, which has considerable support of the specialists in pedagogics, a third *direction* is distinguished, the basis of which is the students' participation in certain organizational events that take place outside the educational process. These are conferences, contests, seminars, round tables, scientific studies conducted by students under the guidance of professors and teachers according to the general-department, general-faculty or university scientific problem [9].

In the process of preparation for conducting scientific research, we seem share in the conceptual and the research area the position of scientists who support the idea of differentiating students' research activities in two directions (SRA as a component of the educational process and SRA in extra-curricular work).

We take into account the fact that, when studying at a higher education institution, the student, after receiving the first educational qualification of Bachelor, has the opportunity to improve and deepen the professional and personal qualities at the Master's Degree program.

According to the Law of Ukraine "On Higher Education", the Master's Degree is an educational degree obtained at the second level of higher education and awarded by a higher education institution (research institution) as a result of successful completion of a relevant education program by a student. A Master's Degree is acquired through an educational-professional or an educational-scientific program [3]. One of the main components of the educational and professional training program is the scientific and practical preparation for conducting research activities. The Master's Degree in specialty 073 "Management" with the educational program "Management of an educational institution" provides theoretical, practical and scientific training.

Thus, scientific training involves the organization of an independent research activity of the future Masters, the result of which is the implementation of the Master's thesis, the research module of which includes: collection and processing of materials on the topic of Master's study; preparation of an abstract for a scientific conference; preparation of a scientific article for a professional collection; advising on writing scientific reports, reports, course papers; analysis and preparation of the scientific supervisor's review of the course paper; generalization of the results of own scientific research in the form of master's work; submission of the completed text of the Master's thesis to the scientific supervisor.

The National Strategy of Education Development in Ukraine until 2021 defines the following tasks for the preparation of specialists at the Master's Degree Program: optimization of the *organizational* structure of the SRA management, the formation of a creative person, taking into account their needs, interests, abilities, desires; deepening of international cooperation between HEI and insti-

tutions in the development of joint scientific projects, the expansion of students' academic mobility [2].

Let's try to distinguish the organizational conditions that influence the quality indicators of the research activity management carried out by future managers of educational institutions at Master's Degree program. It is a question of increasing the number of special subjects and elective subjects studied by future managers of educational institutions in the framework of general specialization; changing the relationship between classroom and non classroom activities; introduction of innovative forms and methods in teaching the subjects, expanding the scope of a foreign language use for professional purposes in order to get acquainted with the scientific research of foreign young scholars and the establishment of scientific network.

The organizational condition for ensuring the effective management of SRA is the future managers' mastery of variational models of scientific activity, management system of SRA, since it organically combines the functions implemented at subsystem levels. That is, the process of SRA management will be more effective when the relevant organizational and pedagogical conditions for the successful functioning of the system will be created in the higher educational establishments.

The system of SRA management, according to V. Stepashko, will operate if the vice-rector on scientific work and the deans of the faculties work out the law on the organization and planning of SRA, on the scientific school, on the student scientific society, on the scientific school of HEI, on the material and moral stimulation of the students, and as well as scientific and pedagogical workers, on material, technical, technological, scientific and methodological support for the organization of SRA. Of great use could be the implementation of the diagnostic selection system of students motivated to SRA; mastering of expert methods and organizational models; the availability of information support for the management system of students' research activities [6].

On systematizing the above-mentioned facts, we can determine the organizational conditions that contribute to the effective functioning of the research management at the Master's Degree Program by means of ICT. After all, the content load of the research activities of graduate students makes it possible to isolate and formulate the conditions for SRA on the basis of information and communication technologies at Master's Degree Program.

Consider the *organizational conditions* for ensuring the effectiveness of the of research activities management carried out by the managers of educational institutions on the basis of information and communication technologies at Master's Degree Program.

Fig. 1 shows the technological scheme of organizational support of research activities provided by future EI managers by means of information technologies at Master's Degree Program. It presupposes the availability of relevant content blocks, in particular: organizational; program-target; design and technological; means of ICT.

The technological scheme outlines an organizational component that combines four theoretical modules: the strategy and program of research development, the concept of research, the system of planning and stimulation, as well as the development of creative style and potential. As it can be seen, this is theoretical level (higher level of generalization), which defines the program, goals, objectives, principles of SRA management on the theoretical and logical level. Program-target and design-technological components are oriented towards the functional and technological aspects of activity, the adoption of managerial decisions on the university level, the faculty level and the department level and directly on the level of scientific and pedagogical workers. Various means of information and communication technologies provide the content and design-technological aspects of future managers' training, providing students and teachers with educational information that contributing to the achievement of the didactic goals, that is, to achievement of the expected pedagogical result.

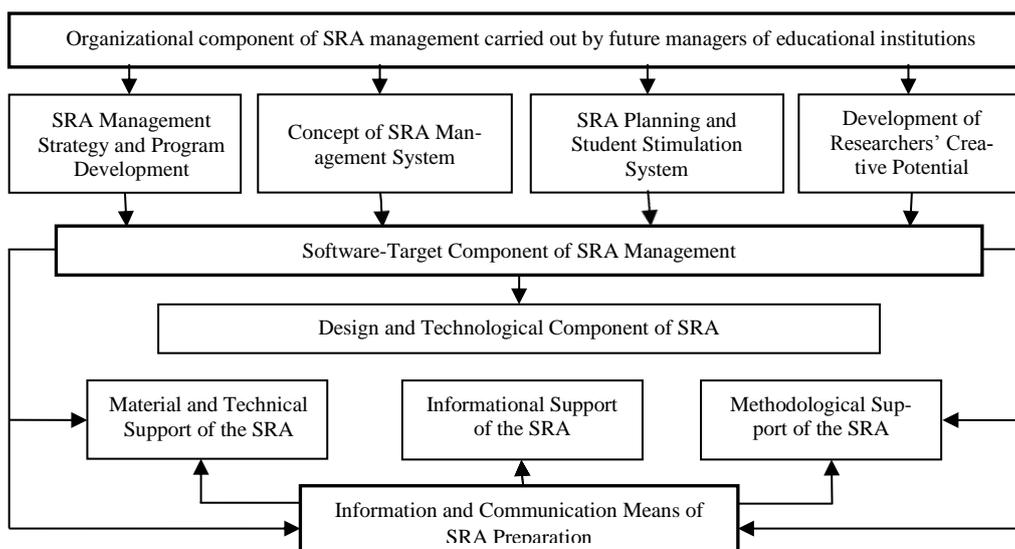


Fig. 1. The technological scheme of organizational support of research activities provided by future EI managers by means of information technologies at Master's Degree Program

Conclusions. Summing up and systematizing the results of our work, we can distinguish the main levels of SRA organizational support for future EI managers by

means of information and communication technologies at the Master's Degree Program: theoretical, which is reflected in the system of concepts and terms in the field of

computer and information technologies, basic knowledge about the general principles of application of these technologies; technological level, which corresponds to a certain system of practical skills and skills of using computer-information tools, such as text operations, spread-

sheets, graphic images, communicators; personal level, which involves the development of specific qualities of a master student as a creative person as well as the formation of a of creative activity culture.

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Организационное обеспечение научно-исследовательской деятельности будущих руководителей учебных заведений средствами информационно-коммуникационных технологий в условиях магистратуры

С. А. Гавриловский

Аннотация. Рассмотрены и проанализированы организационные условия применения информационно-коммуникационных технологий в управлении научно-исследовательской деятельностью будущих руководителей учебных заведений в условиях магистратуры. Сделана попытка декомпозиционного и содержательного анализа организационного обеспечения как системного объекта, в структуре которого выделено организационный, программно-целевой, проектно-технологический, информационно-коммуникационный компоненты и определенные содержательные модули.

Ключевые слова: система, информационно-коммуникационные технологии, будущие руководители учебных заведений, магистратура, управление.