Features Of Pedagogical Support Of Digital Competence Formation In Educational Activity

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Summary

The article presents the concept of ICT - competence, which is considered as the most important characteristic of professional competence, which includes a combination of the following components: motivational-value (orientation of the individual to the development of his ITC-competence in future professional activities); technological (complex of skills and abilities of ICT activities); cognitive (a system of knowledge of modern technologies of future professional activity); it is determined that the pedagogical support of the formation of ICT competence of future specialists is the individualization of the process training, due to their personal and professional needs and the specifcs of a regional university, providing the necessary conditions for the implementation of this process.

Key words:
information technology, communication technologies, education system, educational process, ICT competence.

1. Introduction

Development of an information society that qualitatively changes the conditions of life and professional human activity, actualized the problem of preparing future specialists for new conditions on the basis of the formation of their information and communication competence (ICT competence).

The current stage of the digital revolution in the education system is characterized by a rapidly developing virtualization of the educational process, due to the interactive capabilities of electronic information and educational environment.

A future specialist should not only master the necessary information and programming techniques, but, first of all, he needs to learn how to effectively use information and communication technologies to maintain and develop his intellectual and creative potential, to make professional decisions, taking into account economic, environmental, moral aspects of the innovative development of society.

Therefore, the informatization of higher education is considered in the context of the use of information technologies as a means of teaching, ICT competence - as a priority component of the professional competence of specialists.

At the same time, due to the heterogeneity of the socio-economic and cultural development of the regions and the insufficient development of the information policy of the state, the problem of information inequality in the country is actualized. In solving this problem, an important place is given to universities that build the educational process in accordance with regional characteristics.

The success of professional development is largely determined by the effectiveness of its adaptation to the university educational process, reflecting the modern scale of man-made human activity with its inherent information technologies, with characteristic the growing role of the personality-oriented component in education.

Therefore, it is necessary to emphasize the important role of pedagogical support of the above process, carried out by creating conditions conducive to the achievement of students' readiness for professional and personal self-development.

Assessing the degree of development of the problem of formation information and communication competence of specialists in the educational process of the university, we note the versatility of research on this phenomenon.

The purpose of the article is to theoretically substantiate the formation of ICT competence on the basis of pedagogical support in conditions.

2. Theoretical Consideration

The development of the information society actualizes the problem formation of information and communication competence in future specialists (hereinafter - ICT competence).

Education, information and communication form the basis for the development, initiative and well-being of the human person. Along with this, information and communication technologies (hereinafter - ICT) have a huge impact on almost all aspects of our life. The progress of these technology opens up completely new prospects for achieving higher levels of development of the digital society.

A future specialist who will live in an information society should not only master the necessary information and programming techniques, but, first of all, he needs to learn how to rationally use information and technologies to maintain and develop his intellectual and creative potential, effectively apply the knowledge gained for making management decisions, taking into account the economic, environmental, moral and aesthetic aspects of the innovative development of society.

Of decisive importance is not only the volume and quality of knowledge formed at the university, but also the level of students' competence, which determines their effective future professional activity.

The competency approach is a reflection of the need societies in the training of specialists who have not only certain knowledge, but also the formed skills to apply the knowledge gained to solve certain problems in various conditions.

In addition, it is necessary not only to know and be able to do a lot, but, most importantly, to have the ability (to develop the ability) to continuously update knowledge, possible retraining in another subject area, skill to achieve positive, effective results in their activities.

To analyze the essence and content of ICT competence, let us define the most important, in our opinion, characteristics inherent in the studied category, first of all, the initial concepts of "competence" and "competence".

Let us take as a basis the definitions of these concepts by S.I. Ozhegova, who considers the concept of "competence" as "a range of issues in which someone is well aware", and the concept of "competence" - as "awareness, authority in some area" [5].

A related interpretation of competence, but already as a scientific concept, was given by N. Chomsky: a characteristic of a person's ability to perform any activity. Chomsky distinguished between these concepts, noting

that competence is viewed as a system of knowledge (competens), and its performance (perfomans) is the ability to use this system knowledge [8].

Thus, according to Chomsky, it is precisely the "use" available knowledge is the manifestation of competencies in various activities related to the thinking and experience of a person. This use later came to be called "competence".

The concept of modernization of education defines "competence" as a system of universal knowledge, skills, and abilities that promotes personal self-realization and lays the foundations for a competence-based approach in the system education.

All competences, by their nature and content, are social, since they appear, function, form and develop in society. Along with this, she identifies five proper social competencies that characterize human interaction with society, society, other people: "the competence of health preservation, citizenship, social interaction, communication, information technology."

Thus, it is possible to define "competence" as formation as a result of purposeful activity of certain abilities, skills and personality traits, which determine its readiness for effective activity in a certain area.

Therefore, the concept of competence expresses the unity theoretical and practical readiness of the personality of the future engineer to carry out professional activities.

The concept under study is interconnected with the concept of "communication", which is understood as a socially conditioned process of transmission and perception of information in conditions of interpersonal and mass communication through various channels using different communication means [9].

The concepts of "communication" and "information" are interrelated and complementary concepts: information is a collection of any data (what is transmitted), communication is the transmission of these messages through certain communication channels (how it is transmitted). It is also necessary to separate the concepts of "literacy" and "Competence": the first stage in the formation of information and communication competence of a university student is the formation of information and communication literacy, which is understood as the ability to navigate the information space and use ICT tools to exchange information while maintaining social and professional contacts [6].

Recently, more attention has been paid to the formation of students' ICT competence, but there is no unity in the pedagogical literature regarding the concept of ICT competence. Primarily,

this concept is considered in conjunction with the type of activity of the subject (for example, information [1,4,9], information and communication, communicative and professional competence of a programmer, manager, teacher, etc.).

Thus, information and communication competence is determined by:

"As a set of knowledge, skills and abilities formed in the process of teaching and self-study of computer science and information technology, as well as the ability to perform professional activities with using information technologies "[1,10]; "This is the ability to work with information (collection, search, transmission, analysis); modeling and designing your own professional activity; modeling and design of team work, skill to navigate the organizational environment on the basis of modern ICT, the use of modern ICT tools in their professional activities, ensuring an increase in labor productivity "[8].

These definitions emphasize a very important, in our opinion, aspect of actualizing students' ICT competence specifically for future professional activities.

In general, ICT competence is understood as the ability to collect, evaluate, transfer, search, analyze information, model processes, objects by using the capabilities of communication and information technologies.

With a general difference in the opinions of scientists regarding the number of components and their qualitative composition, it seems important that scientists naturally identify the cognitive and activity components.

A number of scientists reasonably include a motivational-value or value-semantic component in the structure of competence.

Based on the above, the ICT competence of the future engineer is considered by us as the most important characteristic of professional competence, which includes a combination of the following components:

motivational and value;
technological;
cognitive.

When disclosing the content of the components of ICT competence we will use the requirements of the educational standard of higher education.

So the motivational-value component can include such competencies as the ability to self-organization and self-education.

Scientists looking at the content of ICT competence include:

unity of information-theoretical methodological and technological knowledge that integrates general and specialized knowledge of the use of ICT in solving professional problems; complex skills and abilities to use computer technology in professional activity (communicative, design-constructive, control and evaluation); interest of the future engineer in computer technology in information activities in general, his motivation and the degree of motivational incentives to master data technologies and their use in solving professional problems, as well as an attitude towards the development of their ICT - competence;

knowledge of methods of receiving and transmitting information; active the use of ICT in professional activities as a means of cognition and development, self-improvement and creativity; the system of motives, emotional-volitional and value attitudes of the student to the world, to activities, to people, to himself, to his abilities, their development and determining the selective focus on information activities and interaction; the ability to consciously control the results of one's activities and the level of one's own achievements, the formation of such qualities and personality traits of a future engineer, as creativity, initiative, focus on cooperation, co-creation, a tendency to introspection.

The presence of a motivational-value component in competence is determined by its activity nature and the fact that any activity at its beginning has goals, needs, motives, intentions, interests, desires. Taking into account the opinions of scientists, we note the need inclusion in this component of reflexive-evaluative competences, orienting the subject of information activity to assess the achieved level of formation of IC in relation to the required [11].

Consequently, to the first component, we attribute the orientation of the individual to the development of his ICT competence, the desire for self-organization and self-education in the future professional activities.

Also in this component, which reflects, first of all, personal characteristics, scientists include competencies that allow them to interact:

knowledge of netiquette;
the basics of safe behavior on the Internet;
performance with audio-video support;
participation in the discussion (video, audio, text materials);
sending letters, messages;
mailing to the target audience using e-mail, instant messengers, social networks;
participation in the forum, discussion;
interaction in social groups and networks, group work.

Thus, the technological component includes, first of all, a set of skills and abilities of using information and communication technologies in professional activities.

Thus, the ICT competence of the future specialist, according to in our opinion, it is a set of components: motivational-value (orientation of the student's personality to the development of his ICT competence); technological (a set of skills and abilities of using information and communication technologies in professional activities); cognitive (the system of knowledge of modern technologies of professional activity).

All of the above determines the content of the professional training of a future specialist, who must have not only a high level of professional competence, but also outside the box to approach the solution of complex technical and

engineering situations, to organize their professional activities on a creative and independent basis.

The process of transition to the electronic information space in the field of education presupposes not only mastering new technologies, but also acquiring the skills and abilities of their effective use in future professional activities. To achieve these goals it is necessary to consider the methodological foundations of the process of forming the ICT competence of future specialists, to develop an effective form of organizing the educational process, which we are considering in within the framework of project activities.

The research methodology is based on the following approaches: system-activity, personality-oriented, competence.

It is characteristic of any system to define its structure. The structure, as it were, permeates all the elements of the system with a single thread, representing an integral characteristic of the system. Therefore, the identification of the structure is associated, on the one hand, with the establishment of a holistic, on the other hand, a differentiated nature of the object.

International practice in the field of vocational education, defines special requirements for the depth of practice-oriented knowledge of a university graduate, which contributes to the development of not only professional competencies and skills of students, but also ensures their personal growth. It should be noted that the problem of the quality of education, in a constantly changing world, is well disclosed in the works of famous scientists who consider the modernization of education through the development of project-oriented learning in educational institutions by implementing CDIO standards.

This approach allows the integration of various educational areas and the idea of interdisciplinary relations based on the electronic information educational environment of the university.

The formation of an electronic information and educational environment at a university is an integrated environment of information and educational resources, software, hardware and telecommunication tools, rules for its support, administration and use, providing unified technological means information support, organization and management of the educational process, scientific research and professional consulting. All this together contributes to the improvement of the quality of education and scientific research and their intensification [5,11, 12].

Thus, combining information educational resources, teaching aids and educational process controls. Its tasks include the formation of a qualitatively new level of ensuring the educational process based on interactivity and distance.

Conclusions

Thus, we highlight the following features pedagogical support of the process of formation of ICT competence:

updating the potential of educational process through the introduction of interactive teaching methods, due to the requirements of professional activities;

activation of practice-oriented project training, in particular design and engineering activities related to the functioning of objects of professional activity;

an individual approach due to the specifics university low level of computer literacy.

So, the features of the learning process identified by us in the conditions of a regional university allowed us to develop a model for the formation of ICT competence based on pedagogical support.

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