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IMPROVING THE METHODOLOGY FOR DEVELOPING INFORMATION AND COMMUNICATION COMPETENCIES OF FUTURE ENGINEERS IN A DIGITAL LEARNING ENVIRONMENT

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Abstract

The article examines the issues of improving the methodology for developing information and communicative competencies of future engineers in a digital educational environment. The main goal of the study is to identify the pedagogical capabilities of a modern digital educational environment in the process of engineering education and to develop methodological approaches aimed at the effective formation of information and communicative competencies. The article provides a scientific and theoretical analysis of the components of the digital educational environment, their role and significance in the educational process.

Introduction

Today, the rapid development of digital technologies is deeply penetrating all spheres of social life, in particular, the education system. The digital educational environment creates the need to modernize the educational process in higher educational institutions, update the content and methods of teaching based on modern requirements. In particular, the effective use of digital technologies in engineering education is of great importance in improving the quality of professional training of future specialists. From this point of view, the issue of developing information and communicative competencies of future engineers is emerging as an urgent scientific and pedagogical problem.The human-computer system has its own characteristics, and the structure of communicative competence of specialists in the field of Information and Communication Technologies takes into account the specific features of their professional

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activities. The traditionally considered structure of communicative competence, which is characteristic of all professions of the "human-human" system, does not necessarily correspond to the "human-computer" system.

Although many scientific studies have been conducted on the formation and use of digital learning environments, the issue of improving the methodology aimed at developing the information and communicative competencies of future engineers has not been sufficiently systematically addressed. The use of digital learning tools in the current educational process is often fragmentary, and their pedagogical potential is not fully utilized. This creates the need to develop new methodological approaches aimed at increasing the effectiveness of the development of information and communicative competencies in engineering education.

The main goal of this study is to scientifically and pedagogically substantiate and improve the methodology aimed at developing information and communicative competencies of future engineers in a digital educational environment.

To achieve this goal, the following tasks were set:

- to analyze the essence of the concept of information and communicative competence and its place in engineering education;
- to identify the components and pedagogical capabilities of the digital educational environment;
- to study digital educational methods that serve to develop information and communicative competencies of future engineers;
- to substantiate the didactic conditions for improving the methodology for developing these competencies;
- to evaluate the effectiveness of the improved methodology based on practical analysis.

The concept of "information and communicative competence" has been defined in many ways. For example, it has been noted that information and communicative competence is a professionally significant integrative quality of a person, which characterizes the ability to independently search for information, select, analyze and present the necessary information, the ability to model and design objects and processes, and develop educational projects both in the process of individual and group work.

The different interpretations of the term "information and communicative competence" by researchers necessitated the definition of the concept of

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"information and communicative competence of students" based on the following author's approach: "Information and communicative competence of future engineers in the field of information and communication technologies is the ability to effectively use modern information and communication technologies appropriate to the field of professional activity, to use programming languages in creating pedagogical and technical software products, and to present the results of creative activity using digital technologies."

By "information and communicative competence" we mean the competence that allows future engineers to use the linguistic and stylistic constructs of various programming languages in their professional activities to independently and error-freely construct them.

To develop the communicative competence of students of vocational education in the field of information and communication technologies, it is necessary to cover all aspects of communication. In this case, it is necessary to know the means and methods of organizing communication, the principles of organizing communicative dialogue, taking into account the conditions of human-computer interaction.

The functional aspect of the communicative competence of future engineers is defined in this work as the process of knowing the means of communication. Since the most important means of communication in the human-technical system is a personal computer, the specialist needs to know the functional features of the architecture of technical devices and computer systems and networks, the mechanisms of information collection and transmission, the organization of communication channels, etc. In general, the cognitive aspect of communicative competence implies the ability to use all the necessary technical and software tools to ensure a successful communication process.

The study analyzed the pedagogical potential of the digital learning environment and justified the need to improve methodological approaches aimed at developing information and communicative competencies. It was found that the systematic and purposeful use of digital learning platforms, electronic learning resources, interactive and distance learning methods has a positive impact on the development of future engineers' skills in searching, analyzing, processing and effectively transmitting information.

The results of the study also showed that the effectiveness of developing information and communicative competencies is directly dependent on the

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teacher's digital pedagogical competence, the compatibility of educational content with modern professional requirements, and the level of application of active and interactive methods in the learning process. The proposed methodology serves to activate the independent learning activities of future engineers, develop critical thinking, and form the skills of effective communication in a team.

In conclusion, improving the methodology for developing information and communication competencies of future engineers in a digital educational environment is of great importance for improving the quality of engineering education in higher education institutions and training competitive specialists who meet the requirements of the digital society. The results of the study serve as a scientific and practical basis for improving the educational process in engineering disciplines and identify important areas for future scientific research.

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