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METHODOLOGICAL BASIS OF IMPROVING THE PREPARATION OF FUTURE ENGINEERS FOR PROFESSIONAL ACTIVITY BASED ON MEDIA EDUCATIONAL MEANS

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Abstract

The article discusses the methodological foundations of improving the process of preparing future engineers for professional activity through the use of media education tools. The study analyzes the role of digital technologies, interactive media resources, virtual laboratories, simulators and multimedia educational complexes in engineering education. The didactic possibilities of media education - visualization, modeling, remote formation of practical skills, as well as methods that focus on solving engineering problems based on a creative approach - are substantiated.

Keywords: Media education, media tools, engineering education, professional competence, digital technologies, methodological foundations, virtual laboratory, multimedia education.

Introduction

Modern engineering education is based on digital technologies, media tools and innovative teaching methods. In the conditions of global competition, the role of media education tools in developing the professional competencies of engineers and preparing them for practical work is increasingly increasing. Interactive simulators, virtual laboratories, multimedia platforms, digital educational content are emerging as important tools for developing students' systematic thinking, modeling technical processes and a constructive approach.

The use of media education tools opens up new opportunities in engineering education. In this case, students' theoretical knowledge is combined with practice, and their professional skills are developed using interactive methods. Therefore,

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media education is one of the main conditions for high-quality education in the engineering education process.

Media education is the effective organization of the educational process using information and communication technologies, digital platforms, interactive resources, and various multimedia tools.

Modern media education provides two-way communication between teachers and students, technologizes the educational process and plays an important role in the formation of practical skills. In particular, the use of media education tools in engineering education plays an important role in improving the quality of professional training.

The use of digital technologies in engineering education provides a number of advantages:

• Efficiency – the ability to visually explain complex engineering processes to students.

• Interactivity – enhances communication between student and teacher.

• Flexibility – distance learning, using methods that suit the pace of learning.

• Innovation competencies – develop skills in creating engineering startups, prototyping, and developing automated systems through digital tools.

The use of digital technologies in engineering education is of great importance in the process of preparing future engineers for professional activity. With the help of digital technologies, students' theoretical knowledge is strengthened, practical skills are formed, and innovative thinking is developed. Also, by expanding the digital educational environment, it is possible to train competitive, highly qualified engineers who meet international standards.

In the age of globalization and digital technologies, the demand for engineering education is increasing significantly. Modern production processes in the field of engineering require high precision, speed and flexibility. Therefore, the professional training of future engineers should not be limited to theoretical knowledge, but should be based on practical skills, independent thinking, and the ability to analyze and apply technologies.

Media education tools play an important role in this process. Media education technologies create opportunities for the formation of students' practical skills, modeling of real production processes, conducting virtual experiments, and organizing effective education in a distance environment.

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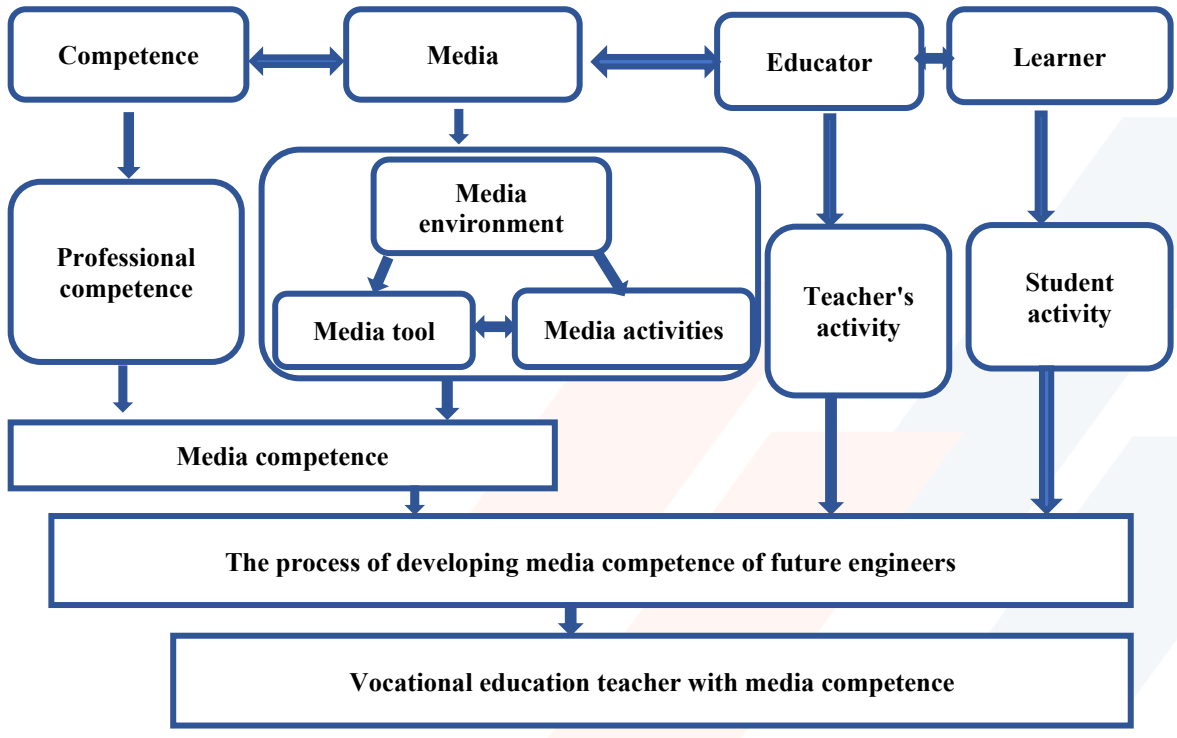
In the era of technological progress, production processes are becoming increasingly complex. Today's engineer must be able to work with modern software, automated systems, robotics, and artificial intelligence technologies. Therefore, students studying in higher education institutions in the field of engineering must have practical skills along with theoretical knowledge. Media education tools play an important role in this process. With the help of media education, theory and practice are combined, students are trained in an environment close to real production conditions, conduct experiments in virtual laboratories, and analyze technological processes through simulations.

We have determined that the problem of developing media competence in future vocational teachers is characterized by the fundamental changes taking place in the higher education system in our country, the full recognition of the competent approach as the basis of integrated education, as well as the increasing number and quality of research on the development of media competence in specialists in various fields, including future vocational teachers, from year to year.

The concept of "media environment" is a cultural environment that operates with the help of media tools, creates a suitable version of the information space for each specific individual and society as a whole, and is considered the main culture of the modern information society.



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A structural framework for developing media competence in future engineers.

The use of media educational technologies in engineering education is one of the most important factors in the training of modern engineers. With their help, students acquire not only theoretical knowledge, but also practical skills. The widespread introduction of media educational technologies creates great opportunities for the training of highly qualified, competitive and innovatively thinking specialists in the field of engineering.

As a result of the development of modern technologies, the role of media educational tools and technologies in the educational process has increased significantly. In particular, in the field of engineering education, media educational technologies serve as an effective tool for the formation of not only theoretical knowledge, but also practical skills. The use of modern media educational technologies in the training of future specialists in the field of engineering develops their professional competencies, strengthens their creative thinking, and improves their skills in analyzing problems and finding solutions.

The development of digital technologies, industrial automation, the widespread use of artificial intelligence and "smart" production processes create the need to adapt engineering education to the requirements of the time. In this regard, the effective use of media education is one of the main directions for further improving the process of preparing future engineers for professional activity.

Improving professional training based on media education will help to improve the quality of engineering education, prepare competitive specialists who have mastered modern technologies, have practical skills, and are competitive. Through the widespread introduction of media education technologies, students' professional competencies will develop. In the modern era, digital technologies are deeply penetrating all areas, including the engineering education system. Students studying in the engineering field are required not only to have theoretical knowledge, but also practical skills, the ability to use modern software, and digital competencies. Therefore, the widespread introduction of digital technologies, the effective use of media education tools, and the use of interactive teaching methods are important in engineering education.

In engineering education, students must master many complex calculations, design work, and technological processes. Traditional teaching methods are not sufficient for this process.

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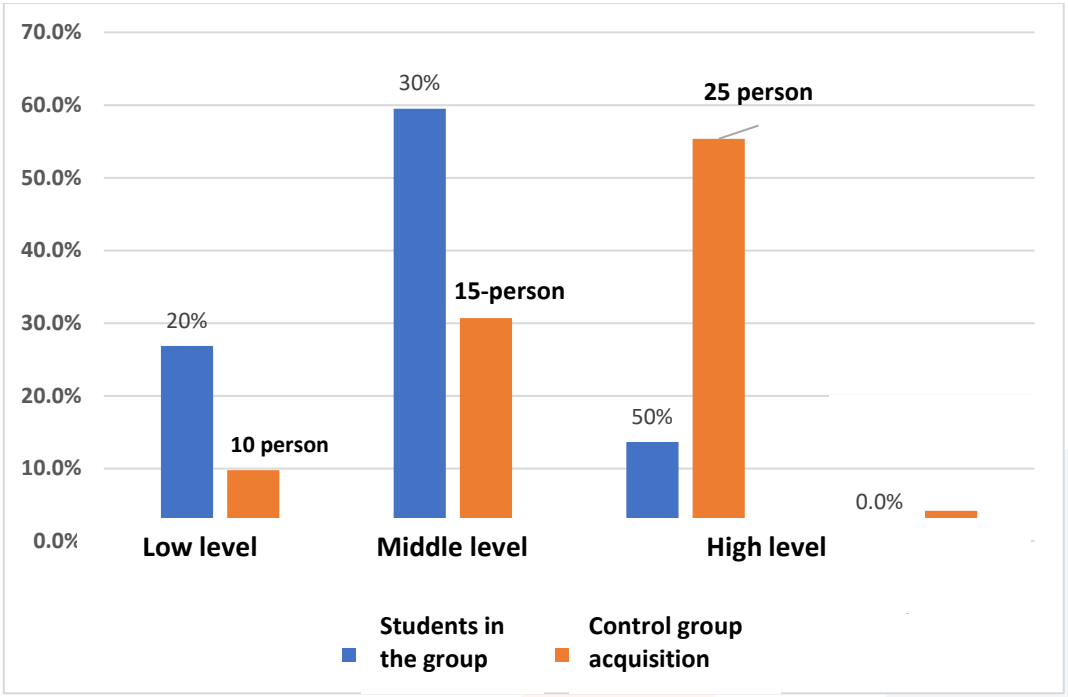
Experiment to determine the level of professional preparation of future engineers
This experiment studied the level of professional preparation of future engineers. During the analysis, the participants' theoretical knowledge, practical skills, and skills in using innovative technologies were assessed. Based on the results of the experiment, students were divided into the following levels:

• High level - theoretical knowledge and practical skills are excellent, professional competencies are fully formed.

• Intermediate level - basic knowledge and skills are sufficient, but experience in some areas is lacking.

• Low level - theoretical knowledge and practical skills are insufficient, additional training is required.

The diagram shows the overall percentage distribution of students who participated in the experiment.



In conclusion, the integrated implementation of the model for developing media competence in future engineers, together with the identified pedagogical conditions, will contribute to the sustainable improvement of future engineers' media literacy, media skills, and professionally significant personal qualities that are important for effective management of the production process involving media.

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The use of media education technologies in engineering education allows students to combine theoretical knowledge with practical skills. Through virtual laboratories, 3D modeling, simulation systems, and online learning platforms, students are better prepared for their future professional activities. As a result, modern media education approaches improve the quality of engineering education, develop innovative thinking, and serve to train competitive specialists..

The conducted analyses show that the widespread introduction of media education technologies into the educational process serves to deepen the theoretical knowledge of future engineers, strengthen their practical skills, and form them as competitive specialists. In conclusion, by improving the professional training process based on media education tools: theoretical knowledge in engineering disciplines will be further deepened, the effectiveness of using modern technologies in practical training will increase, creativity, analytical thinking, and independent decision-making skills will be developed, and the opportunity to train highly qualified personnel in accordance with the requirements of the modern labor market will be created.

Therefore, the widespread introduction of media education tools into the educational process is recognized as one of the main factors in preparing future engineers for modern professional activities.

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