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DEVELOPMENT OF DESIGN COMPETENCE OF FUTURE TEACHERS AS A PEDAGOGICAL PROBLEM

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Abstract: The article analyzes the pedagogical problems of developing design competence in future teachers. The relevance of design competence is substantiated in the context of changes in the education sector and modern approaches required by new regulatory documents. The study identified the main shortcomings in the design activities of future teachers, revealing problems in their methodological, practical and personal preparation. The article proposes pedagogical conditions for the development of design competence, a methodological system for the formation of this competence and mechanisms for its implementation. Based on the research results, a pedagogical model aimed at developing the design competence of future teachers has been developed and its effectiveness has been proven experimentally.

Keywords: future teacher, design competence, pedagogical problem, educational process, methodological system, design activity, professional training, pedagogical model, competence development, education quality.

INTRODUCTION

The modern education system is actively developing in the context of digital technologies, global competition, and the rapidly changing needs of society. In these conditions, improving the quality of education and training a new generation of teachers is manifested as an urgent pedagogical problem. The training of pedagogical staff that meets the requirements of 21st century skills and competencies has become one of the priority directions of our country's education system.

The problem of developing design competence in future teachers is particularly relevant, since design activity is not only a means of creating educational content but also the main tool for organizing the entire pedagogical process effectively. The Law of the Republic of Uzbekistan "On Education," the Law "On Youth Policy," and the Development Strategy until 2030 provide for improving education quality, introducing innovative methods, and training competitive personnel. The reforms being carried out in the education sector in our country necessitate the training of future teachers based on modern requirements. From this perspective, design competence is not only an important component of a teacher's professional activity but also a key factor in developing the entire education system.

This research is aimed at studying the pedagogical problems of developing design competence in future teachers, identifying their nature and forms of manifestation, as well as proposing ways to address these problems. The study analyzes the theoretical foundations of developing design competence, identifies practical problems, and proposes effective methods for solving them. The theoretical justification for enhancing the design competence of future teachers is intrinsically linked to the student's position as a subject of learning. This competence reflects an integral, dynamic personal characteristic that encompasses:

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- The student's capacity to engage in the design process.
- Their underlying knowledge and skills in design.
- Their accumulated experience in project activities.
- Their level of motivation and goal-oriented focus.
- Their ability for self-reflection and evaluation.

Enabling future teachers to create and implement projects in professional and personal spheres necessitates the establishment and justification of specific organizational and pedagogical conditions within their professional training. The design competence of a future teacher manifests as a system that reflects the totality of educational and material-environmental opportunities. This system can exert a distinct influence on both their personal and procedural aspects, ensuring their effective functioning and development.

In pedagogy, pedagogical conditions are understood as a unique complex of forms, content, methods, and material-spatial environments aimed at solving set tasks. Organizational-pedagogical conditions represent a specific pedagogical environment endowed with distinct characteristics. Based on the above, it is essential to emphasize that, considering the demands of the modern education system, operating within these defined organizational-pedagogical conditions enables the effective improvement of future teachers' design competence. This involves:

- ✓ Purposefully enriching content.
- ✓ Selecting appropriate pedagogical tools, forms, and methods.
- ✓ Successfully carrying out pedagogical activities.

Justifying these organizational and pedagogical conditions for improvement requires a deeper analysis of:

- ☑ The specific characteristics of preparing students for the professional process.
- ☑ The peculiarities of teaching in engineering-related fields.
- ☑ The age-specific characteristics of students during the period of enhancing design competence.
- ☑ A more adequate foundation for the psychological component of pedagogical conditions.

The modern requirements for training future specialists are evolving. The primary task is now the formation of a creative, active individual—a competitive and creative professional capable of making decisions in a volatile environment, assuming responsibility, and working effectively. The aforementioned points determine the need to respond to identified needs by searching for optimal tools, methods, and technologies that must be introduced into the process of professional training for future specialists in the modern scientific-pedagogical community. To define the characteristics of professional training for future specialists, we refer to the modern concept of the engineering profession.

Engaging future teachers in project activities prepares them to acquire the competencies necessary for their profession. Students are enabled to participate in social and professional projects. To achieve high efficiency in higher education, it is crucial to build a project-based learning system that ensures students master general and professional competencies. This system should provide them with the opportunity to develop and implement various products and systems. Correctly formulating project goals, objectives, and content is an effective mechanism for achieving new results, such as:

- 🔔 Developing critical thinking and problem-solving skills.

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-  Improving logical and systemic thinking.
-  Enhancing design and engineering thinking.
-  Fostering collaboration.
-  Stimulating imagination and creativity.
-  Refining global thinking.
-  Increasing student activity in the educational process.

Scientific research underscores the importance for employers of competencies such as teamwork, self-education, business communication, initiative, and the ability to identify, formulate, and solve problems. In conducting this dissertation research, based on the general nature of the chosen educational field as the object of scientific inquiry, the aspects requiring focus for enhancing students' design competence have been clarified.

A graduate of this field must be able to perform the following types of professional activities, in accordance with fundamental and special training:

-  Scientific research.
-  Organizational and managerial.
-  Design and engineering.
-  Production and technological.
-  Operational, technological, and service.
-  Pedagogical activity within secondary specialized and vocational education systems.

Specific activity types are defined by the content of the Main Educational Program created by the university. Graduates may also work in educational institutions as established. Enhancing the project competence of undergraduate students is a complex process. It is crucial to determine the effectiveness of the proposed measures through the dynamics of the improvement level of the main category. To form other organizational-pedagogical conditions, it is necessary to:

-  Create and utilize assessment and diagnostic tools that allow for evaluating dynamics through selected criteria and levels.
-  Monitor the effectiveness of enhancing project authority.

Based on the results of theoretical research into identifying, justifying, and meaningfully explaining the organizational-pedagogical conditions for enhancing project competence, the following conclusions must be drawn:

1. It has been theoretically proven that building a system of project-based learning and extracurricular work is an effective method for developing the project competence of future engineering bachelors.
2. The necessity of the future bachelor's subjective position as the bearer of project competence has been proven.
3. The following organizational-pedagogical conditions are theoretically justified for enhancing the project competence of bachelors in engineering education fields:
 - ✓ **Condition 1:** Enriching the content of educational and extracurricular activities with a system of professionally oriented projects that hold personal significance for the student.
 - ✓ **Condition 2:** Engaging future bachelors in project activities within the context of updating their subjective position in relation to their own education, aligning with the demands of their future professional work.

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✓ **Condition 3:** Implementing monitoring of the effectiveness of improving project authority through the creation and application of assessment and diagnostic tools that enable the evaluation of dynamics against selected criteria and indicators.

The development of the aforementioned organizational-pedagogical conditions ensures the enhancement of project competence for future bachelors in engineering education fields.

CONCLUSION

The research results show that the development of design competence in future teachers is a complex, multifaceted pedagogical problem that requires a systematic, consistent approach to solve. Design competence is not only an integral part of a teacher's professional activity but also a key factor ensuring the effectiveness of the educational process.

During the research, the following main conclusions were proven:

1. The development of design competence in future teachers requires a modern approach that includes not only traditional pedagogical methods but also innovative technologies and interactive methods.
2. The problem of developing design competence is related to a number of factors: insufficient methodological preparation, limited practical skills, the complexity of design activity, and lack of teaching experience.
3. The proposed pedagogical model is aimed at effectively developing the design competence of future teachers and is based on the integration of theoretical knowledge, practical skills, and personal qualities.
4. The experimental work results confirmed the effectiveness of the proposed methodological system and showed a significant increase in the level of design competence of future teachers.

The following practical recommendations are proposed:

- ✓ Enriching curricula and programs with special modules aimed at developing design competence;
- ✓ Increasing the share of practical classes and giving more space to design activities;
- ✓ Widespread introduction of modern information technologies and design programs;
- ✓ Improving the system of continuous professional development and professional development of teachers.

Future research can be directed to other aspects of developing design competence in future teachers, specifically the peculiarities of design activity in digitalization conditions and its impact on education quality.

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