



## Didactic Possibilities of Technological Sciences in the Formation of Construction and Technological Competences of Students

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### ABSTRACT

This article talks about the role of electronic learning tools in the development of constructive and technological competence of secondary school students, directing them to creative thinking and the search for non-standard solutions in this process, and about the didactic possibilities of technological science.

### Keywords:

Design, student, development of constructive and technological competence, lesson, pedagogy, knowledge, program, technological process, electronic learning tools.

The subject "Technology" occupies an important place in the system of general secondary education. The subject "Technology" is a necessary component of the development and education of students' design and technological competence and gives them the opportunity to apply their technological knowledge in practice. The development of constructive and technological competence of students in teaching the subject "Technology" on the basis of an innovative approach required the solution of both pedagogical and managerial issues. The development of constructive and technological competence of students in technological classes - this educational process involves the use of electronic learning tools by an educational institution. In this environment, the pedagogical activity of the teacher and the educational process (the process of developing the constructive and technological competence of students) are carried out. In understanding the innovative approach in this sense,

pedagogical conditions are an important condition for the activity of a teacher.

The main goal of developing design and technological competence based on electronic learning tools is to prepare students for creative work and ensure its harmonious development in all aspects. The implementation of the goals of developing the design and technological competence of schoolchildren requires ensuring the continuity and integrity of technological education.

The organization and sequence of classes in the areas of the subject "Technology" were taught on the basis of sections of metalworking, woodworking and gas processing technology, taking into account local conditions and opportunities.

On the basis of the innovative approach, students' competencies in technological work were formed in different ways. It is considered as a methodological factor in achieving a high level of formation of technological compensations based on the qualification

requirements of schoolchildren in the process of developing the design and technological competence of schoolchildren based on an innovative approach. In order to organize the pedagogical process in general education schools, it is necessary to improve the content of curricula on technology, improve programs on technological sciences, include innovative technologies in the content of the program, the content of education (TCA, regulations, textbooks and teaching aids). manuals), form (team, group, individual), method (traditional and non-traditional) and means (visual, printed, audiovisual, electronic, interactive whiteboard, electronic educational resources, didactic materials, training workshop equipment, equipment, etc.), technological knowledge of students, work with information, self-management, development and independent acquisition of knowledge, analysis, news search, awareness and use of science and technology news, knowledge of types of goods and products based on technological innovations, methods of formation and processing of competencies, technological design and implementation and also a reflection of self-development is a pattern. The main category of our research is technologies for the development of constructive and technological competence of students, and on the basis of innovative technologies (STEAM, SMART technologies, creative exercises and problematic video tasks, a scientific and technical portal), educational technologies for organizing, managing and determining the results of developing constructive and technological competence students were formed and applied in practice.

Based on the results, it is concluded that the students of the school have formed technological competencies in accordance with the State educational standards. Based on real conditions, students can creatively solve one or another technical solution in the process of practical work and create or improve a product in the production process.

When organizing the educational process, students were given practical tasks to develop the competence of technological creativity through the formation of skills in

mastering educational materials and their properties, characteristics, information about technical objects and technological processes.

When organizing the process of practical operation, students are able to know special and general labor operations with technical objects and technological processes, draw up a technological map based on practical tasks that develop skills in managing technological processes, apply special and general labor operations in practice, as well as methods for sorting materials, hot and cold processing. On the basis of methodological recommendations, an optimal and effective solution of practical problems was found using interactive methods and techniques.

Students were directed to creative thinking and the search for non-standard solutions in creativity (technical and creative thinking, the formation of intellectual abilities, the ability to analyze the sequence of the technological process and finished products and product quality and use them in practice). During the training, students received new ideas and conclusions. Innovative developments are proposed that increase the efficiency of the technical object and the technological process.

Practical exercises and problematic video tasks, technologies such as algorithmic maps for the development of design and technological competence, consolidation of knowledge of the studied material, development of design and technological competence, independent decision-making on the implementation of practical tasks, the ability to perform educational and practical tasks systematically and disciplined served the formation and development of skills independent work, creative approach, creative thinking.

The use of information and communication technologies (ICT) covers almost all areas of our complex society. Therefore, this school system is expected to teach students how to use different types of ICTs. This means that the constructivist knowledge imparted by teachers plays a crucial role in preparing students for the information

society. However, research shows that teachers and students are moving away from the traditional description of education and are incorporating into their lesson and lesson plans ways to use ICT to improve education in a way that is compatible with the process of globalization. makes the lesson brighter, clearer and more memorable. As a result, design education provided by teachers should be an important space for students to learn how to perform design processes.

The use of new technologies in teaching brings only benefits to the teacher and the student. In this dissertation, the teacher also explores how to develop students' didactic competence in the use of technology and describes the analysis of scientific literature.

Research shows that teachers and students do not know how to use ICT to enhance learning (Arneseth, Hatlevik, Kløvstad, Kristiansen & Ottestad, 2007). Therefore, teacher education should be an important area of training in the use of new technologies in teaching. However, several studies have shown that teacher education has a limited impact on teacher practice (Cochran-Smith & Zeichner, 2005; Wideen et al., 1998).

In addition, Beijaard et al. et al. (2007) argue that we know very little about how teachers learn and therefore teacher training has become a hot topic of critical research. We know little about how exposure to new digital technologies in teacher education affects students' subsequent use of new technologies in their classrooms. Because we as teachers strive to learn how to develop students' didactic competence in the use of technology. We also consider the impact of this education on the development of didactic competence, and also identify some other problems and suggestions.

In the current research project "Learning Management System (LMS) in the Learning Environment of the Future", we are exploring how the use of LMS and other forms of technology in teaching can improve students' didactic competence. Didactics in teaching constructivism is encouraged by highly qualified teachers to use new technologies in the classroom. As an LMS framework, it supports

self-made videos (from a movie camera or mobile phone), Power Point, Mind Manager, YouTube, digital applications, Smartboard, the Norwegian interactive science program (viten.no), etc. Students are regularly exposed to technology. At the same time, teachers give many examples of how various technologies can be used in teaching students.

The relevance of the problem of organizing the educational process using project technologies in a modern school remains one of the most pressing issues in the training of future specialists in modern production. Therefore, the purpose of this dissertation is to present a scientific justification for the didactic structure of project technologies in the process of higher education as an effective educational model aimed at educating the personality of a student - a future specialist in demand by the modern labor market. The dissertation discusses the theoretical and methodological foundations for the development and implementation of project technologies in the educational process of the school, the essence and structure of the didactic construction of these technologies as a system category (educational goals, curriculum, means of pedagogical cooperation). , including motivation and training) provides tools, the organization of the educational process, the subjects of the educational process, the results of activities and the level of professional excellence. Scientific literature can be useful for teachers of educational institutions of the system of additional professional education, young scientists, graduate students, school counselors, participants in advanced training and retraining courses.

The processes of modern changes taking place in the educational process in schools are determined by the search for qualitatively new approaches to educating a new generation, which are in demand by society as active subjects of different social strata, as qualified, creative specialists in the labor market develop self-identification and self-awareness. In this regard, as stated in the State Educational Standards for Higher Education (FSSES, 2009), the long-term goal of the educational process in

higher education is to turn scientific knowledge from the main goal of the educational process into a tool.

Development of real competencies of design, self-awareness, self-determination, self-education and activation of the work of school graduates.

According to the research of leading experts in the implementation of project-based innovative educational technologies (Verbitsky, 1999; Grebenyuk, 2000; Zinchenko, 2002; Ibragimov, 2012; Novikov, 2000; Selevko, 1999; Slastenin, 2003; Vlastorsko, 2015; K. ., 2001; Khedrovitsky S., 1993; Yakimanskaya, 1996; Mokeeva et al., 2015; Khairullina et al., 2015) the focus of training on this type of personality development creates a qualitatively new didactic structure, organization, learning technologies and their project approach is based on management, which characterized by the activation of the functions of modeling, design and construction. The project approach to the educational process at school supports a multi-level system for achieving didactic goals through a detailed study of the educational process - cognitive tasks, intentions, situations that lead to specific, practical results. The practical result (constructive product) is presented through lectures, abstracts on a given topic, abstracts, research projects, articles for pedagogical scientific conferences, youth grants, computer programs and other types specified in the curriculum. Within the framework of the project approach, innovative technology is not only a certain sequence of procedures that regulate educational activities to achieve targeted educational goals, but also organizes educational activities to create your own product in accordance with the law of cultural assimilation, primarily in the development of design culture elements. In the process of designing on the instructions of the teacher, students constantly find themselves in the design space, because he is always obliged to design something: his personality, educational and professional trajectory, living space, family, etc.

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