



## Improving the Effectiveness of Education through the Use of Modern Information and Communication Technologies in the Training of Designers

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### Abstract

The article describes the pedagogical conditions for organizing the educational process, training designers using modern information and communication technologies, performing tasks for students in practical and laboratory classes. The radical solution to the problem of increasing the effectiveness of education is not to expand the technical capabilities of modern information technology, but to develop a system of didactic and methodological principles of their application in the educational process.

## Introduction

In the Address of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to the Oliy Majlis, as the wise men of the East said, "The greatest wealth is intelligence and knowledge, the greatest heritage is a good upbringing, the greatest poverty is ignorance!"

Therefore, the acquisition of modern knowledge, true enlightenment and high culture should become a vital need for all of us. Therefore, the active transition to the digital economy will be one of our priorities for the next 5 years said he. "The present and future of our country are in the hands of our highly spiritual and enlightened youth. The reform of the system of continuing education in the Republic of Uzbekistan is aimed at the formation of a new generation of specialists in the future, the laws of high professional culture, creative and social activity, independent participation in socio-political life (Hasiyat 2013).

Today, information technology is one of the most important factors influencing the development of our society. Information technology is also present at different stages of human development, and the peculiarity of today's information society is that information technology takes a leading place among all existing technologies, especially new technologies. The current state of development of society sets the task of forming an information culture as one of the main tasks of the education system, within which all aspects of human interaction with the information environment can be integrated (Ivlev et al., 2016).

The experience of domestic and foreign educational institutions shows that the combination of information technology does not change education, but creates a whole new generation of professionals, reduces the process of their professional adaptation to the changing conditions of practice, the functionality of professionals based on their ability to maintain and develop professional skills. focuses on the development of sustainability.

Informatization of education is the process of developing modern information technologies aimed at achieving the psychological and pedagogical goals of education and providing them

with methodology and practice of optimal use (Fedorenko et al., 2019). This process is primarily associated with the improvement of management systems of the education system based on the use of automated data banks of scientific and pedagogical data, information and methodological materials, as well as communication networks; secondly, by improving the methodology and strategy for selecting the content, methods and organizational forms of education and upbringing in accordance with the tasks of developing the student's personality in the modern conditions of public information; third, the process of informatization of education is associated with the independent acquisition of knowledge aimed at developing the intellectual potential of students, the creation of methodological training systems aimed at developing information-enlightenment, experimental research activities, various types of independent information processing; fourth, the creation and use of computer tests, diagnostic methods for assessing and monitoring students' knowledge. Informatization of education is primarily expressed in the introduction of personal computers in educational institutions, as well as information products and pedagogical technologies based on these tools (Fedorenko et al., 2019). The problems of effective use of computer technology for teaching in the educational process are already widely covered in educational sciences and practice. The first attempts to develop a coherent system of computer training were made abroad. The use of computer technology in the training of specialists in the field of sewing production.

## **Methods**

Research on the introduction of information and communication technologies in the educational process in the achievement of high efficiency in educational work requires the assignment of stratified tasks, taking into account the individual abilities of students. The use of information technology in the teaching of special subjects not only increases the effectiveness of education, but also creates opportunities for the formation of knowledge, skills and abilities of students; helps students to think independently and develop creative activities. The intended goal can be achieved only if the process of informational education is pre-designed pedagogically. One of the main directions of computerization of the pedagogical process is the area in which modern pedagogical technologies should be engaged.

## **Results and Discussion**

Information technology plays an important role in the educational process and helps to solve the following tasks: (1) to discover, preserve and develop in students the individual abilities that are unique to each person, to form in them the ability to learn, the desire for self-improvement; (2) ensuring a comprehensive study of events and phenomena, the close connection between the exact, natural-scientific, technical, social, humanities and the arts; (3) continuous and dynamic updating of the content, form and methods of educational processes. It is not focused on these technologies in terms of its core content and methods and does not feel the need for them. Modern information technology of teaching is not the student's, it is, first of all, the teacher's technology. The student does not study modern information technology, but uses its products as a technical means of teaching. The teacher prepares for the lesson using modern technology, organizes the lesson, monitors the knowledge of students, and his task is to bring the highest level of computerization of information technology into the educational process to improve the content of education.

In developed countries, the integration of their technical means is becoming a key area for the introduction of information technology in education. In this regard, even the concept of 'multimedia' has emerged, which implies the complex use of most technical means in teaching. The most important thing about using multimedia is to teach students to choose the

information they need. The task of the teacher is not to impart information, but to create motivation in finding it, and the teacher is also a guide in the field of knowledge.

Using such a set of educational tools, the impact on the student is carried out only through information channels (sight, hearing, etc.). This increases the effectiveness of education. The rapid pace of development of digital technologies in the modern world places a demand on pedagogy not to lag behind trends (Becerik 2011). The Valentina program is characterized by the convenience of organizing education through the use of modern information and communication technologies in the training of designers and models in higher education institutions. The program is easy to master, the interface is simple and the program allows you to design any object using any technology, easily resize it, add modeling lines to the prepared model templates, save any changes in a large memory, restart when needed and most importantly, it saves time because the program is automated.

Through the use of the program "Valentina" creates an opportunity to increase the interest of students in science, to cover all students individually. The problem of restoring the forms of organization of students' learning activities when using information technology in the educational process must be addressed in a new way. If the most common forms of organizing cognitive activities in a traditional learning environment would be individual and frontal forms, both can be used simultaneously in the context of the use of information technology. It is known that a lot of time is spent on laboratory and practical work of teachers in the traditional teaching method. This is a very important component of specialist training. It not only strengthens the theoretical knowledge of the student, increases the effectiveness of mastering the material, but also helps to develop practical skills in a particular field.

At a time when technology is evolving rapidly, laboratories and stands for practical training need to be improved every academic year. This requires additional costs. Another important factor is that due to the slowness of work or processes in some laboratory studies, learners find it difficult to re-analyze or test in the allotted time, whereas practical training needs to be repeated over and over again to gain sufficient work skills and experience in a particular field. Unfortunately, this is not always the case due to the frequent breakdown of laboratory materials and equipment and the additional costs associated with them under normal operating conditions. Given the above, we can say that there is born a need to introduce a new effective, universal pedagogical method that can help the new system to solve important tasks for the training of specialists. To do this, it is necessary to ensure that classes on laboratory stands and training workshops are not only fun, but also convenient and easy for all students. Classes should be engaging, take into account all the psychological and didactic factors, actively demonstrate the process, provide opportunities for conducting classes and mastering the subject, increase the effectiveness of education in general, self-assessment on the basis of acquired knowledge. It is in this context that the introduction of modern information technology helps to solve the above tasks in an optimal way and to overcome a number of shortcomings of the traditional teaching method.

Multimedia technology is based on the complex representation of any type of data. Such technology allows symbols, texts, graphics, images, documents, sounds, and dots to be processed together (Li et al., 2004). The image can be transmitted to the screen along with the text and audio. Multimedia technologies are effectively used in education systems. The main reason for this is that when the user is active in a multimedia environment, he remembers 75% of the information he sees and only 25% when he hears. It is no secret that in today's market economy, the development of our society requires new technologies, including new information and communication technologies. In particular, the widespread introduction of

multimedia and web technologies, the intensive study of computer-generated graphics, animation and video technologies require computer literacy. In recent years, Uzbekistan has taken a number of measures to develop computerization and information and communication technologies.

Improvements in information technology are focused on solving more intellectual, scientific problems (Smith & Koppel, 2014). Data visualization, image processing, and the creation of a virtual environment enable a person to achieve a goal through innovative approaches to solving complex problems, making it easier to prepare and make management decisions. Today, computer graphics is shaped as an organizational and software science that creates images from simple drawings in a variety of forms, to real-life views of natural objects. Computer graphics is used in the processes of depicting, receiving, processing, and transmitting data views in almost all scientific and engineering fields. The end product of computer graphics is this image.

Learning materials represent a small piece of information that is presented in a specific logical sequence. (1) Hierarchy of controls. The educator is the system manager in the most responsible situations: Create an initial referral system in the program; adjustment of individual support and training (correction). (2) The principle of feedback. For the student to understand the teaching material, and for the teacher to correct (correct). (3) Step-by-step technological processes. The step consists of three interrelated sections: information, feedback practice, and control. (4) Specificity (individuality) of the information process. Everyone moves at a speed that is convenient for him, the information has the ability to return to a separate fragment (division).

Technologies that ensure the activity and independence of learners have a special place. This is consistent with the collaboration methodology. In such education, students understand the importance of helping each other. The work is organized as follows, the performance of the task depends not on the leader of the group, but on each member of the group. A striking example of the activation of technology based on the independent activity of students is project education. Project education contributes to the formation of students' intellectual, creative, and communication skills. It should be noted that the use of ICT is compatible with the use of other educational technologies, but they complement each other without denying it. The urgency of the task of developing a didactic basis for improving the learning process through computer modeling is explained, first of all, by the fact that the use of new information technologies in the learning process did not lead to the expected increase in learning efficiency (Muntean, 2011). Therefore, according to many researchers, the radical solution to the problem of increasing the effectiveness of education is not to expand the technical capabilities of modern information technology, but to develop a system of didactic and methodological principles of their application in the educational process.

## **Conclusion**

In short, the organization of project-based education through the use of modern information and communication technologies in the training of designer-models serves to increase students' creative thinking, independent decision-making and teamwork skills by organizing practical and laboratory classes in specialty subjects. It is obvious that the introduction of project-based education through the use of modern information and communication technologies in the training of designers will be the basis for increasing the effectiveness of education.

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