



## Achieving the Effectiveness of Training Using Information and Communication Technologies in Training Designers

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### Abstract

The purpose of this article is to analyze the introduction and use of information and communication technologies (ICT) in the special disciplines of higher education, to teach teachers how to improve the effectiveness of teaching and learning through information and communication technologies (ICT). This article discusses the issues of improving the knowledge and skills of students through the use of modern information and communication technologies in the preparation of designers, increasing students' interest in the educational process and the ability to apply their knowledge in practice in the future. The focus is on the need to develop appropriate strategies for a new educational role and, in addition, to enhance the role of learners in integrating information and communication technologies (ICT) into the educational process. The role and perspective of the teachers was very important, highlighting them as key players in the process. The data show that there is a belief that the use of information and communication technologies (ICT) in the educational process will help increase the effectiveness of education and facilitate the organization of the educational process. In particular, it shows that the contribution of information and communication technologies (ICT) to the improvement of the educational process in educational institutions, where information and communication technologies (ICT) is an innovative factor, is high. Achieving this high level means that the educational institution must not only modernize technological means, but also change the models of teaching.

## Introduction

The use of information and communication technologies opens up new opportunities and features for the subject teacher in teaching their discipline (Livingstone 2004). When studying any discipline using information and communication technologies, it gives students the opportunity to reflect and take part in creating the elements of the lesson, which undoubtedly contributes to the development of students' interest in any subject. If we include information and communication technologies in the learning process, it contributes to an increase in the efficiency of the lessons, frees the teacher from everyday work, enhances the attractiveness of the presentation of the material, and varies the forms of feedback.

In the modern world, it is required that every teacher can prepare and conduct a lesson using information and communication technologies, and the use of information and communication technologies in the educational process is one of the ways to increase the motivation of learning. Information and communication technologies contribute to the development of the creative personality of not only the student, but also the teacher himself, the use of such technologies contributes to the realization of the main human needs - communication, education. In general, the emergence of information and communication technologies is associated with the emergence of modern means of storing information, the development of

communication means, the ability to process information using a computer (Leu et al, 2004). For the effective use of ICT, it is necessary that these technologies are available to both teachers and students. Providing access for both parties will significantly improve the quality of student achievement.

### **The use of information and communication technologies**

The use of information and communication technologies is not the influence of fashion, but a necessity dictated by the current level of education development. technologies can be a powerful tool for education only when they are used correctly and competently in the learning process, as well as in conjunction with new learning models (National Research Council, 2001). Extensive use of didactic materials that determine the effectiveness of information technology and technical means is one of the main features of modern pedagogical technologies.

It is known that the most effective way of teaching is visual demonstration and synchronous explanation of the material being studied. Classical and integrated lessons, accompanied by multimedia presentations, online tests and software products, allow students to deepen their previous knowledge, as the English proverb says - "I heard - and forgot, I saw - and remembered". It is known that in the process of information exchange, the information received by the human visual organ is most effectively retrieved and leaves a deep mark on the memory. In particular, voice information has a positive effect. The least effective tool is written information, which takes more time to receive and process in the brain, and due to the physiology of each person, a certain amount of information is lost and stored in memory.

The use of animation in slides allows the educator to provide learners with a more vivid presentation of what they heard in the lesson. Students are happy to immerse themselves in the lesson material (Latta & Chan 2010). An increase in motivation and cognitive activity is achieved due to a variety of forms of work, the possibility of including a game moment: if you solve the examples correctly, open the picture, insert all the letters correctly, you will move the fairytale hero closer to the goal. The computer gives the teacher new opportunities, allowing, together with the students, to enjoy the fascinating process of learning, not only pushing the walls of the classroom with the power of imagination, but with the help of the latest technologies it allows you to immerse yourself in a bright colorful world. Such a lesson causes an emotional uplift in students; even students with poor academic performance willingly work with a computer. A computer does not replace live communication with a teacher and other sources of information, however, taking into account the interests of students, it increases interest in studying any discipline.

One of the advantages of using information and communication technologies in teaching is improving the quality of education due to the novelty of activities, interest in working with computers (Albirini, 2006). The use of information and communication technologies in the lessons significantly increases its effectiveness, speeds up the preparation process for the lesson, allows the teacher to fully demonstrate his creativity, provides clarity, attracts a large amount of didactic material, increases the volume of work performed in the lesson by 1.5-2 times.

The use of information and communication technologies opens up didactic opportunities related to the visualization of material, its "revitalization", the ability to make visual travels, the ability to visualize those phenomena that cannot be demonstrated in other ways, allow you to combine control and training procedures (Bikhchandani et al., 1998). "The golden rule of didactics is visibility" (Yan Kamensky). Multimedia systems make it possible to make the

presentation of didactic material as convenient and visual as possible, which stimulates interest in learning and allows you to eliminate gaps in knowledge (Abdurahimovna, 2020).

The essence of ICT lies in the fact that in the modern world it is hardly possible to find a sphere of human activity that would not be associated with the process of receiving and processing information. Information Systems and Management articles were equally likely to be about theory or to provide reviews, but in both cases twice as much as were Communication articles (Rice & Leonardi 2014)

The following types of information and communication technologies can be distinguished visual information (illustrative, visual material); demonstration material (exercises, reference diagrams, tables, concepts); simulators; control over the skills of students; work on the internet; presentations, didactic materials; educational and developmental programs; educational platform

Using such a set of teaching aids, the impact on the student is achieved through a single information channel (sight, hearing, etc.). This will increase the effectiveness of education. The use of information technology in the training of design specialists is the basis for improving the effectiveness of teaching, the development of students' knowledge and skills, the development of independent work, design skills. Ease of using the Valentina program in organizing training using information and communication technologies in training designers, ease of learning, simplicity of the interface and the ability to design and model any product using any technology, it is easy to change its size the ability to add modeling lines to individual templates, the ability to save any changes to large memory, the ability to restart at the right time and, most importantly, time savings as the program is automated.

Through the use of the "Valentina" program, it is possible 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 education must be addressed in a new way. If in the context of traditional education the most common forms of organizing cognitive activities are individual and frontal forms, in the context of the use of information technology, both can be used simultaneously.

## Conclusion

The use of modern information and communication technologies in the training of designers will help to increase students' creative thinking, independent decision-making and teamwork skills by organizing practical and laboratory classes in the organization of project education. This shows that the use of modern information and communication technologies in the training of designers will increase the effectiveness of education through the organization of project training.

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