

# THE ROLE OF DIGITAL TECHNOLOGIES IN TEACHING CREATIVE THINKING TO STUDENTS OF HIGHER EDUCATION INSTITUTIONS

Rasulov Inom Muydinovich

Kokand State Pedagogical Institute

The Head of the Department of Informatics is a Senior Teacher,  
Doctor of Philosophy in Pedagogy (Ph.D)

## ANNOTATION:

**This article discusses the role of digital technologies in teaching creative thinking to students in higher education. Analysis of the features of the use of effective digital technologies in the teaching of computer science, teaching technologies, determining the role and importance of effective digital technologies in the educational process in higher education, the practice of using digital technologies, digital in education development of proposals and recommendations for methodological improvement of technology use.**

**Keywords: creative thinking, digital technology, informatics, methodology, pedagogical technology, computer, internet, interactivity, education.**

## INTRODUCTION:

At present, the role of information and social technologies in education is increasing, which provide universal computerization of students and teachers at a level that allows solving at least three main tasks:

- Providing access to the Internet for each participant in the educational process and preferably, at any time and from various places of residence;
- Development of a single information space of educational industries and the presence in it at different times and independently of each other of all participants in the educational and creative process;

- Creation, development and effective use of managed information educational resources, including personal user databases and data and knowledge banks of students and teachers with the possibility of widespread access to work with them.

Based on the current pace of computerization of the continuous education industry and also taking into account the uneven technological computer-network support of the population at home, it can be expected that in the very near future these tasks will not be fully and comprehensively resolved [1].

At the same time, there is a growing understanding that the traditional scheme of getting education in the first half of life is obsolete and needs to be replaced by lifelong education and learning. New forms of education are characterized by interactivity and cooperation in the learning process. New theories of learning must be developed, such as constructivism, student-centered education, learning without temporal and spatial boundaries. To improve the quality of education, it is also planned to intensively use new educational technologies [2].

Various approaches to the definition of educational technology can be summarized as a set of ways to implement curricula and curricula, which is a system of forms, methods and teaching aids that ensures the achievement of educational goals. Specialists usually deduce the difference in educational technologies from the difference in the teaching aids used. Information educational technologies arise

with the use of information and computer technology. The educational environment in which educational information technologies are implemented is determined by the components that work with it:

- Technical (type of used computer equipment and means of communication);
- Software and hardware (software support for the implemented learning technology);
- Organizational and methodological (instructions for students and teachers, organization of the educational process).

Educational technologies in higher education are understood as a system of scientific and engineering knowledge, as well as methods and tools that are used to create, collect, transfer, store and process information in the subject area of higher education. A direct relationship is being formed between the effectiveness of the implementation of training programs and the degree of integration of the relevant information and communication technologies into them.

The overarching task of understanding and implementing the problem of informatization of higher education is that as a result, a global rationalization of intellectual activity in society should be achieved through the use of new IT in order to increase the efficiency and quality of training specialists to the level of information culture achieved in developed countries. Training of personnel with a new type of thinking that meets the requirements of a post-industrial society should be provided [3].

This aspect of the practice of education is commented as follows. According to Associate Professor of the Institute of Management in the Machine-Building Industry A.V.Fel (Russia), the use of an information system in the learning process "allows not only to give students information about the object of management, but also helps them to realize all the diversity and complexity of the connections

characteristic of real enterprises, to trace the dynamics of these connections with changes in external and internal factors, as well as to destroy the interdisciplinary barriers that have formed among students, due to the temporal sequence of the presentation of educational subjects. Such tools make it possible to build modern educational technologies that provide for the formation of extraordinary thinking in students, a creative approach to management. Ultimately, their activity becomes not a set of standard methods, but is based on an understanding of the cause-and-effect relationships of phenomena and processes, which significantly increases its motivation and effectiveness" [4].

However, now many managers and theorists of higher education believe that the term "educational technology" is not quite adequate today. More often, as a rule, they talk about information technologies, about computer technologies, a little less often about communication technologies, and very rarely - this is already the subject of special discussions - about audiovisual technologies. We consider information, communication and audiovisual technologies as a whole, as subordinate to the solution of a more important task - the creation of a new educational environment, where information, communication and audiovisual technologies are organically included in the educational process to implement new educational models [5].

One of the definitions of the information educational environment formulates its understanding as an information system that combines through network technologies, software and hardware, organizational, methodological and mathematical support, designed to increase the efficiency and accessibility of the educational process of training specialists [6].

The UNESCO Report on the main directions of activity in the field of education

and informatics after the First International Congress "Computer Science and Education" states that it is not the technology itself that is important, but its interaction with learning and its role in the context of the education system as a whole.

Creative thinking is the ability to consider something in a new way. Employers in all industries want employees who can think creatively and bring new perspectives to the workplace.

Creative thinking can involve:

- A new approach to a problem
- A resolution to a conflict between employees
- A new result from a data set
- A previously untried approach to earn revenue
- A new product—or product feature

Find out more about the various types of creative thinking, and why having this ability is very beneficial in the workplace.

Today, one of the characteristic features of the educational environment is the ability of students and teachers to access structured educational and methodological materials that teach multimedia complexes of the entire university at any time and at any point in space. In addition to the availability of educational material, it is necessary to provide the student with the opportunity to communicate with the teacher, receive advice online or offline, as well as the possibility of obtaining individual "navigation" in the development of a particular subject. "Students will strive for a flexible mode of study, modular programs with multiple admissions and deductions, which will allow them to accumulate credits, freely transfer from one university to another, taking into account previous experience, knowledge and skills. The opportunity for personal development and professional growth will remain important for students; degree programs and short courses are likely to be in

the same demand; there will be a sharp increase in the need for vocational training programs and postgraduate programs" [7].

The developers of distance education (DL) concretize the individualization of educational behavior in the following way, believing that in DL the features of a student-centered way of learning are most clearly manifested:

Flexibility - the student is free to independently plan the time, place and duration of classes.

Modularity - materials for study are offered in the form of modules, which allows the student to generate a trajectory of his learning in accordance with his requests and potential opportunities.

Accessibility - independence from the geographical and temporal location of the student and educational institution allows not to limit the educational needs of the population of the country.

Profitability - economic efficiency is manifested by reducing the cost of maintaining the premises of educational institutions, saving time, material resources (printing, reproduction of materials, etc.).

Mobility - the effective implementation of feedback between the teacher and the student is one of the main requirements and foundations for the success of the DL process.

Coverage - simultaneous access to many sources of educational information (electronic libraries, data banks, knowledge bases, etc.) of a large number of students.

Manufacturability - the use in the educational process of the latest achievements of information and telecommunication technologies.

Social equality - equal opportunities for education, regardless of the place of residence, health status, elitism and material security of the student.

Internationality is the export and import of world achievements in the market of educational services [8].

Information technologies bring the possibility and necessity of changing the very model of the educational process: the transition from reproductive learning - the "transfer" of knowledge from one head to another, from a teacher to students - to a creative model (when a life situation is modeled in the classroom with the help of new technological and technical support) or a process, students, under the guidance of a teacher, must apply their knowledge, show creativity to analyze the simulated situation and develop solutions to the tasks set). Experts believe that the development of traditional and new technologies should proceed according to the principle of complementarity and mutual correlation, which, in turn, allows us to talk about a fundamentally new dimension of the educational environment - a global one, a dimension that exists in real time and associates the entire set of educational technologies.

"The Internet is a hypertechnology that includes everything else, and its success is due to the fact that it can "give everything to everyone" ... However, there will always be scope for lower-level technologies, such as computer conferences or e-mail ... Equally, more the time has not come to abandon distance learning courses that are global in nature, but do not use any computer or communication technologies" [9].

According to Barbules, the most important feature of this new technology is that it allows the creation of "networked communities." Thanks to this, the concept of community acquires a global scope and some completely new features. According to the author: "One of the most important features of such a space is its global nature, which allows almost instant communication and

communication. Already, this environment is indispensable for commercial and financial transactions involving the most diverse societies and cultures. Thus, the Internet is both the main cause of globalization and its most visible manifestation. Moreover, it is globalization that determines the nature of network communities" [10].

Thanks to the Internet, various aspects of globalization (scientific, technological, economic, cultural and educational) have had a very significant impact both on traditional face-to-face educational institutions and on the development of various educational innovations, such as distance learning and virtual universities. In all these organizations, globalization requires deep and radical changes in the structure, methods of teaching and research, as well as the training of managerial and teaching staff [11].

The Internet is the most useful technology of our time, which helps us not only in everyday life, but also in professional life. For educational purposes, it is widely used to collect information and conduct research or increase knowledge in various subjects.

The Internet plays a very important role in education. Undoubtedly, in this modern era, everyone prefers to Google answers to their questions, problems or doubts. Popular search engines such as Google, Yandex, etc. are people's best choice as they offer easy and fast access to a huge amount of information in just a few seconds. It contains a lot of knowledge that can be found at any time. The Internet has brought improvements in technology, communication and online entertainment. [12]

Today, it has become more important as well as a powerful tool in a world that everyone prefers. Everyone needs the Internet for one purpose or another. Students need the Internet to search for information related to exams, curriculum, results and more.

The Internet has turned out to be a double-edged sword in education. Teachers and students benefit from the unprecedented access to information that the Internet provides, as well as the ability to share knowledge around the world. However, the use of the Internet also has many negative consequences. Educators need to be aware of the dangers of the Internet in order to avoid potential pitfalls. [4]

The importance of the Internet in education for students means that it makes it easier for them to learn things and re-learn the content taught in an educational institution. People use it according to their needs and interests.

The Internet provides many benefits in the field of education. Here are some of them:

#### **1. Economical and affordable education:**

One of the biggest barriers to education is the high cost. The Internet improves the quality of education, which is one of the foundations for the sustainable development of the nation. It provides training through videos (such as YouTube tutorial videos) and web-based tutorials that are accessible to everyone and very cost-effective.

#### **2. Interaction of the student with the teacher and peers:**

The Internet allows students to stay in constant contact with their teachers or other classmates through social networking, messaging applications, and chat forums. Parents can communicate and communicate with teachers and school management about their child's progress in the school. Interacting with like-minded people in the forums can help students explore new ideas and enrich their knowledge.

#### **3. Effective teaching and learning tool:**

The Internet has become the main tool for effective learning as well as a learning tool.

Teachers can use it as a teaching tool by posting their teaching materials (notes and videos) on the website or forum of the educational institution. The learning process becomes interesting and varied with the use of instructional videos and notes. Teachers can teach using animations, Power Point slides and images to capture students' attention.

#### **4. Easy access to quality education:**

Students can easily access quality study materials such as instructional videos on YouTube for free or pay online for better study materials. Teachers can also use the Internet to offer students additional learning materials and resources such as interactive lessons, educational quizzes and study guides. Teachers can record their lectures and give them to students to review, which is better than reading from notes.

#### **REFERENCES:**

- 1) MUYDINOVICH, R. I. (2020). Problems and Solutions of Online Education in Tertiary Institutions. *International Journal of Innovations in Engineering Research and Technology*, 7(11), 58-60.
- 2) Расулов, И. (2014). Формирование понятий и навыков у учеников при создании ребусов при помощи компьютерных технологий. *Актуальные проблемы современной науки*, (3), 84-88.
- 3) Muydinovich, R. I. (2021). Strategic Conditions for the Modernization of the Educational System in the 3-Renaissance. *CENTRAL ASIAN JOURNAL OF THEORETICAL & APPLIED SCIENCES*, 2(6), 85-92.
- 4) РАСУЛОВ, И. М., & ТОЛИПОВ, У. К. (2018). РАЗВИТИЯ КУЛЬТУРЫ ПРОЕКТИРОВАНИЯ СТУДЕНТОВ ПОСРЕДСТВОМ КОМПЬЮТЕРНЫХ ТЕХНОЛОГИЙ. In *Высшее и среднее профессиональное образование России в*

- начале 21-го века: состояние, проблемы, перспективы развития (pp. 198-203).
- 5) Muydinovich, R. I. (2021). Innovative approach to ensuring the continuity of teaching computer science in the system of continuous education of the New Uzbekistan. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(4), 1622-1629.
- 6) Muydinovich, R. I. (2022). The Role of Digital Technologies in Growing Secondary School Students to the Profession. *Eurasian Scientific Herald*, 6, 137-142.
- 7) Gayratovich, E. N. (2019). USING VISUAL PROGRAM TECHNOLOGY METHODS IN ENGINEERING EDUCATION. *European Journal of Research and Reflection in Educational Sciences Vol*, 7(10).
- 8) Gayratovich, E. N. (2021). SPECIFIC ASPECTS OF EDUCATIONAL MATERIAL DEMONSTRATION ON THE BASIS OF VISUAL TECHNOLOGIES. *International Engineering Journal For Research & Development*, 6,
- 9) Ergashev, N., Meyliqulova, M., Xamitova, R. N., & Namozov, D. (2021). ANALYSIS OF COPYRIGHT SOFTWARE CREATING VISUAL ELECTRONIC LEARNING MATERIALS. *Интернаука*, (18-4), 24-25.
- 10) Холмуродов, А. Э., & Эргашев, Н. Ф. (2021). SPECIAL ASPECTS OF DEMONSTRATION OF EDUCATIONAL MATERIAL BASED ON VISUAL TECHNOLOGIES. *Современное образование (Узбекистан)*, (7), 29-34.
- 11) G'ayratovich, E. N. (2022). It Is A Modern Educational Model Based On The Integration Of Knowledge. *Eurasian Scientific Herald*, 5, 52-55.
- 12) G'ayratovich, E. N. (2022). The Theory of the Use of Cloud Technologies in the Implementation of Hierarchical Preparation of Engineers. *Eurasian Research Bulletin*, 7, 18-21.