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Enhancement the creativity of teachers in the context of digital education

Dekhkonova Mamura Ulmasovna

Associate Professor, Tashkent State Pedagogical University, Tashkent, Uzbekistan.

Ismatova Zulayxo Asadova

PhD, Associate Professor, Tashkent State Pedagogical University, Tashkent, Uzbekistan.

Aripjanova Alfiya Ravilevna

PhD, Associate Professor, Tashkent State Pedagogical University, Tashkent, Uzbekistan.

Tursunova Malika Baxtiyor Kizi

Senior lecturer Tashkent State Pedagogical University, Tashkent, Uzbekistan.

Abstract---This research paper presents the concept of digitalization of the educational process, which is a deep counter transformation of the educational process and its elements, on the one hand, and digital technologies and tools used in the educational process.

Keywords---context of digital education, creativity of teachers, digitalization, digital divide, digital competence, continuous professional enhancement.

Introduction

Nowadays creativity along with digital technologies, according to European researchers, is designed to stimulate education in the 21st century, it is officially classified as a key competency for solving the problems of a changeable, uncertain, complex and ambiguous world using digital tools and artificial intelligence. In a digital society, the concept of creativity is being rethought, the availability of technology has a significant impact on creative processes, new technologies are becoming tools that allow users to design innovative ways to solve problems, change the nature of the activity itself, and expand its boundaries.

Digital creativity, in relation to education, is interpreted as a purposeful creative activity mediated by digital technologies, in the process of which original results

are achieved that are valuable in relation to the student. This concept is associated with innovative thinking, scientific and methodological activities of the teacher.

The actuality and significance of the digitalization of the professional educational process is caused by the need to adapt the system of vocational education and training to the demands of the digital economy and digital society, the formation of which is the global trends of the modern era. Building a digital economy and digital education are significant priorities of the state policy of the Republic of Uzbekistan:

– secondly, a deep modernization of the educational process, designed to prepare a person for life in a digital society and professional activity in a digital economy. Thus, the digitalization of the educational process is a deep counter-transformation of the educational process and its elements, on the one hand, and digital technologies and the means used in the educational process, on the other. The goal of transforming the educational process is to create a flexible and adaptive educational system that meets the needs of the digital economy and ensures the fullest possible use of the didactic potential of digital technologies. The purpose of the transformation of digital technologies is their adaptation for the most effective solution of the set pedagogical tasks.

Methods of Research

The expected educational and educationally significant results of digitalization of vocational education and training are associated with the identification and fullest use of the possibilities of digital technologies. These results include:

- full-fledged personalization of the educational process, based on the construction of individual educational trajectories and continuous personalized monitoring of the educational achievements of students, their personal and professional development;
- expanding opportunities for using various individual and team forms of organizing educational activities;
- involvement of each student in active activities throughout the lesson, increasing the pace of learning activities, ensuring the rational use of time in training sessions;
- ensuring the complete assimilation of the specified educational results - personal qualities, professional knowledge, skills, competencies necessary for obtaining professional qualifications;
- automation and acceleration of the process of formation of the necessary professional skills;
- formation of professional skills, abilities, competencies when working with dangerous, remote, expensive, invisible objects;
- formation and development of sustainable interest in the chosen type of professional activity;
- ensuring the project nature of educational activities, the integration of theoretical and practical training;
- ensuring the simultaneity of different types of activities of the students of the class;

- creation of new and expansion of existing opportunities for pedagogically effective socialization, vocational education and training of persons with disabilities;
- providing prompt feedback with the student, quick and objective assessment of learning outcomes directly in the course of completing learning tasks;
- fixation and monitoring of educational results based on cumulative assessment technologies (rating, portfolio);
- a significant reduction in the development, deployment and mastering of professional educational programs, which is the central requirement of modern employers;
- ensuring the availability of educational programs for people living in remote and hard-to-reach areas;
- the release of the teacher from routine operations, the overall saving of the teacher's working time;
- increasing information openness and transparency of the education system, developing feedback mechanisms for all external VET partners, providing parents with information tools to participate in the educational process.

Building a digital educational process is a complex task that requires scientific justification based on a new direction of pedagogical science - digital didactics [1,2]. The digital economy is the main source of educational goal setting for vocational education and training. The digitalization of the economic sphere significantly changes the educational order, shifting the focus to the need to form a set of new digital competencies, regardless of the profession or specialty received. An analysis of the "promising markets of the NTI" (National Technology Initiative) shows that graduates of various areas of professional education will need to master digital production technologies, including those that were previously associated with the digitalization process only at the level of general computer skills. For example: FoodNet (FoodNet) - a digital market associated with the production, storage and processing of food; FashionNet (FashionNet) - the market of fashion industry products; Edunet (EduNet) - the market for digital educational services; SafeNet is a market for digital services related to security and information security, etc.

In addition to the "IT competencies" proper, which ensure a person's readiness to use computer and digital technologies and form the core of modern functional literacy of any employee, the new set of expected educational results includes a wide range of other competencies (professional, general professional, universal), the content of which is significantly transformed under the influence of digitalization.

The most profound changes caused by the development of the digital economy are associated with a change in lifestyle. The introduction of digital technologies leads to the emergence of new opportunities - to integrate (in various combinations) work, education, hobbies and recreation. The very way of life is becoming more and more "project", focused on the consistent implementation of relatively autonomous complex (social-industrial-personal-developing) tasks.

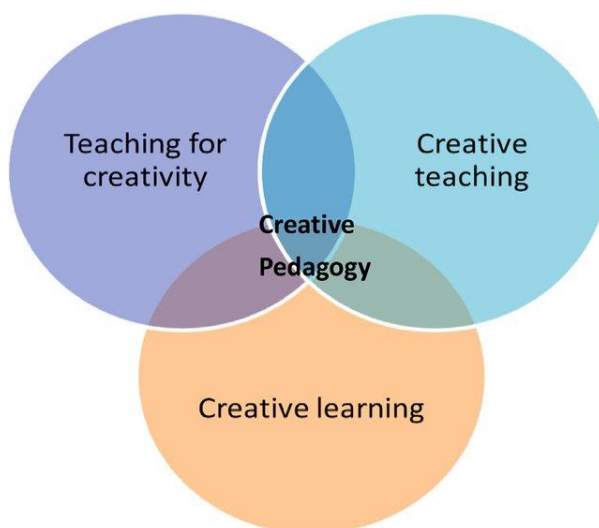


Fig.1. Main elements of enhancement the creativity of digital education

A special concept has appeared - an ecosystem of innovations. The ecosystem implies the solution of issues of joint development with partners. Corporations, institutions and innovation initiatives, start-ups and clients – in one development system that supports each other. For all actions, partner participants definitely need communication skills, creating and developing communities (networking skills), developing relationships with stakeholders and fundraising, patience and perseverance (to capitalize on failure), the ability to develop establish innovation centers and corporate accelerators (innovation labs).

In the context of digitalization, the logic of the production process changes, it ceases to be long, discrete, cyclical and reproducible, based on the distribution of technological stages among many workers. Instead, the production process is increasingly taking the form of a project characterized by autonomy, compactness, complexity, uniqueness, completeness - and based on the team way of organizing work. The key unit of the new economy is no longer an individual skilled worker – “a person in his place”, but a team capable of effectively solving design or functional tasks. Summoned the spread of digital telecommunications, the processes of “compression of time and space”, globalization, the emergence of the spread of new models of labor organization (co-working, remote offices, distributed project teams, freelancing, crowdsourcing and etc.), convergence of professions – impose on employees fundamentally other requirements, including those related to the willingness to work in conditions of uncertainty, continuous self-development.

In the environment of the digital economy, a systemic understanding of the digital transformation of the company is being formed, an understanding of the place and role of digital technologies as a tool for the success and competitiveness of the company. It is important to comprehend, take into account and learn how to apply these approaches in the education system. The performance of all enterprises is visible and manageable in real time [3-8]. Systematized and

accurate data from technological and business processes significantly increase the quality of decisions made.

An effective strategy for the company's digital transformation is to actively work with digital business leaders - start-ups and technology manufacturers. Managerial arrogance, confidence in the inviolability of the company and absolute reliability of its management and product system will be a mistake here. Non-digital companies are actively working on projects of digital and cyber-physical products and services. They strive to ensure that digital products are in the company's product portfolio.

Only in this way the company becomes digital, its digital transformation takes place. Adapting to change is a misguided tactic because change happens too fast. Those who create change themselves win. And the most important rule is to start digital transformation with an understanding of the consumer. Times and technologies are changing - the client remains at the heart of the universe even of the largest corporations.

Regardless of the size and age of the corporation: a deep, detailed understanding of the consumer, work with industry disruptors⁹, the creation and development of consortium ecosystems, the use of Industry 4.0 digital production technologies, the launch of their own digital and cyber-physical products on the market, following, but creating trends and, finally, developing a culture of innovation are the main components of performance in a world of rapidly changing digital technologies.

The rapid change in technology and the constant need to retrain have already caused an explosive growth in the demand for short professional programs focused on the rapid and most effective formation of a limited set of strictly defined skills. Additional professional education and vocational training programs are becoming the most popular types of educational products for the digital economy. At the same time, the tasks of forming broader competencies that ensure the labor efficiency of a person in the long term are still important and should remain in the focus of attention. Solutions, on the one hand, have become very diverse, on the other - complex. And often they are localized outside the formalized education system.

Open centers of digital creation are techshops and fablabs. Educational programs in them are available to everyone. In partnership with large corporations, fablabs and techshops organize programs that are as public as possible. Thus, they show the most remote areas, villages and cities how teams and technologies work to create new products and services. University venture studios are spaces and teams for the development of start-ups in educational institutions. Each startup team is trying to solve a real problem. The real task of business, society, economy, region. Such real tasks and problems are solved by university teams together with teams of venture funds and corporations in university venture studios.

All this is a serious "digital challenge" to the system of vocational education and training. Digital technologies form the core of the current stage of technological development and will retain their dominant role in the foreseeable future.

Currently, the process of digitalization is actively taking place - a deep convergence of digital technologies with material and social and humanitarian technologies and practices, including educational ones. It is important to understand the place and role of digital technologies in any modern field of professional activity. From the point of view of the business sphere, those companies that understand that people make “smart” digital technologies become the most successful. The main corporate capital is the company's culture, which forms the interaction of the talents of employees, transforming the expertise of specialists into profitable methods for the production of products and services. This culture is not technology, robots or computers, but human relations. This is the main tool for developing the company's digital capabilities.

Results

Many digital technologies have a didactic (educationally significant) potential, the characteristics of which are:

- freedom to search for information in the global information network;
- personality - the presence of unlimited possibilities for personal adjustment to the needs and characteristics of each student, including the choice of the method of presenting the material, the level of complexity, the pace work, the number of reinforcing repetitions, the nature of educational assistance, partners, game surroundings, etc.;
- interactivity - the ability to provide multi-subjectivity in the process of communication and interaction);
- multimedia (polymodality) - the ability to comprehensively use various channels of perception (auditory, visual, motor) in the educational process;
- hypertext - freedom of movement through the text, a concise presentation of information (including in the form of infographics), the modularity of the text and the optionality of its continuous reading, the reference nature of information, the folding-expanding of information, the use of cross-references, etc. .;
- subculture – compliance with the usual image of the world for the digital generation, recognizability, emotional and psychological closeness, providing a situation of comfort that contrasts with the uncomfortable environment of traditional learning.

Among the educationally significant digital technologies can be attributed: telecommunication technologies, including those that ensure the convergence of communication networks and the creation of new generation networks; technologies for processing large amounts of data and the “digital footprint”; artificial intelligence; virtual and augmented reality; electronic identification and authentication technologies; cloud technologies; internet of things; distributed registry technologies; digital technologies for specialized educational purposes - edtech (educational technologies), as a rule, using one or more of the listed digital technologies, and others.

Among the digital generation, the differentiation into “lagging behind” and “advanced” is especially noticeable. Among the latter, a new type of students has emerged with high educational independence, aimed at self-education, self-actualization and self-development, where possible - independently forming their

own educational route, in a number of cases, combining study, work and personal development.

Conclusion

Consequently, the strategy of working with representatives of the digital generation should proceed from the fact that it is practically impossible to integrate them into the traditional educational process. Its essential transformation is necessary, the result of which is the construction of a new, digital educational process. One of the socio-psychological barriers that impede the solution of this problem is that many teachers who have successfully passed the stage of adaptation to digital technologies and successfully use digital tools outside of their professional activities retain the usual belief that their professional -pedagogical activity should preserve the traditional character.

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