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Digital Transformation of Departmental Vocational Education: Problems and Prospects

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Abstract

Introduction: the article is devoted to the problem of digital transformation of departmental vocational education. The research is relevant due to the active introduction of digital technologies into education, the creation of a digital environment in universities, and the use of digital tools in the process of teaching and upbringing, which not only contributes to improving the effectiveness of the educational process, but also creates problems and poses new challenges to the pedagogical community. *Purpose*: to conduct a theoretical analysis of the digital transformation of departmental education, to identify positive and negative aspects of this process, to discuss problems and prospects of the educational process using digital tools, and to consider the pedagogical feasibility of integrating digital resources into the system of departmental education. *Methods*: analysis of scientific literature, systematization and interpretation of the results of the conducted research. *Results*: it is revealed that digital transformation opens up undeniable advantages for education in organizing a modern educational space, saturating it with the possibilities provided by digital technologies for individualizing learning, introducing interactive teaching methods, expanding opportunities for self-realization and self-actualization, using a network form of education that allows attracting the best specialists, scientists and experts in the field of penitentiary science. However, digital transformation also creates new challenges that require non-standard solutions and innovative strategies to overcome the problems departmental universities and teachers face, in particular in ensuring the training of teaching staff for the use of technology and cybersecurity. The future of education is associated with the active introduction of virtual reality technologies, artificial intelligence, and digital technologies, teachers should be prepared for the fact that digital transformation of education is a continuous process, but its effectiveness and quality are largely determined by the harmonious interaction of technical innovations and pedagogical expediency.

Keywords: digital transformation; digital technologies; departmental educational organization; cadet; digital educational environment; digital culture; pedagogical expediency.

5.8.1. General pedagogy, history of pedagogy and education.

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Introduction

Digital technologies are actively introduced in all spheres of our lives. Examples of digitalization are used today in the economy, the social sphere, everyday life, the public administration system and other areas of society, making our lives more comfortable. The modern education system is also mastering digital technologies, a digital environment is being created in universities, digital resources and tools are used in the learning and upbringing process.

At the current development stage, the education system is moving from digitalization to digital transformation. At the first stages of the introduction of digitalization there was a transition to a digital form of information representation (digitization of information and its organization). Digital technologies and information were used to improve the quality and effectiveness of the educational process and optimize institutional operations, for example, in the administration of the educational process, admission of applicants, etc. A new stage, digital transformation is being implemented today.

Coverage of the problem under study in the scientific literature

At the state level, digitalization processes, including the education system, are regulated by laws and other regulatory legal acts. Thus, the decree of the President of the Russian Federation No. 474 of July 21, 2020 "On the national development goals of the Russian Federation for the period up to 2030" indicates the achievement of "digital maturity" of key economic sectors and the social sphere as one of the targets of the national goal of "digital transformation".

By the decree of the Government of the Russian Federation No. 3759-r of December 21, 2021 "Strategic direction in the field of digital transformation of science and higher education", digital maturity of an educational organization is "achievement by an educational organization of the indicators established in the methodology for assessing the digital maturity of educational organizations subordinate to the Ministry of Education and Science of the Russian Federation". The decree "On approval of methodological recommendations for the introduction of modern digital technologies into basic general education programs", approved by the Order of the Ministry of Education of the Russian Federation No. R-44 of May 18, 2020, presents indicators of digital transformation, such as digital infrastructure of an educational organization, conditions for solving administrative tasks, use of digital technologies by teachers at various stages of the pedagogical process, use of digital tools by students, formation of digital competence of students, professional development of teachers in the field of digital technology, management of an educational organization in the context of digital transformation".

The works of A.A. Andreev [1], A.A. Verbitskii [2] and others reveal opportunities and risks of active introduction of digital resources.

E.V. Petrova's research presents a position on the digital transformation of didactics, which, according to the scientist, is based on "a paradigm shift from traditional learning to the design of the learning process: learning becomes a reflexive form of multi-cross-action" [3, p. 26].

Relevant problems of digital transformation of departmental education are the following: automation of educational processes in universities and preparing qualified specialists for modern challenges, such as information wars and information warfare in order to achieve information superiority [4].

We consider digital transformation as deep systemic changes in culture, technology, and positions of the educational process subjects requiring the creation of new educational mod-

els, rethinking of pedagogical strategies, innovative directions, and the change in forms and methods of organizing training.

Results and discussion

Significant contradictions in the training of specialists for the penal system in the context of the new technological reality are the following:

– technological equipment of professional activity in connection with the opportunities offered by the use of digital technologies;

– the need for a systematic scientific approach to modernizing the training of penitentiary specialists in modern conditions and the formation of current educational practice of departmental institutions, new goals and function of education.

To resolve the existing contradictions today, it is not enough to adapt new technologies in the educational process – this is the past of the education system, it is necessary to rethink pedagogical strategies, teaching methods, forms of interaction between teachers and students. It is connected with the goals that a modern person tries to achieve due to dynamic development of science and technical re-equipment of all spheres of society. In the modern world, a specialist should be flexible, capable of constant self-development, ready to quickly collect and process large flows of information, sociable, creative, ready for innovation, and having analytical abilities. Training of such a specialist requires introduction of radical changes, which poses new problems, including transition to an innovative culture, administrative processes based on horizontal links, and new ways of presenting educational materials and evaluating knowledge [5–7].

Lifelong learning assumes teaching a person to improve his/her knowledge, gain new competencies, and build new development routes for self-realization and self-actualization.

Educational platforms, multimedia, and virtual reality technologies comprise a digital resource through which cadets not only learn more effectively, form digital competencies, but also practice their skills and consolidate their acquired skills on simulators, and enrich their initial practical experience. Though digital technologies provide certain opportunities for teachers and students, their introduction poses certain problems for educational subjects and creates new challenges.

The main factors that have a significant impact on digital transformation of the educational process are resources and capabilities of the organization; skills of subjects of the educational process; use of digital technologies; and digital culture of employees of the educational organization. We will consider these factors in more detail and analyze their significance for the effectiveness of the educational process.

Undoubtedly, integration of various technologies into the educational process is impossible without a perfect educational and material base of the university (online platforms, software, computers, tablets, interactive whiteboards specially designed for educational purposes, etc.). Today it is the condition of the very existence of the university. Talking about benefits of using digital resources is no longer relevant. It is generally recognized by teachers and students that providing access to information by means of digital tools makes the learning process broader and more convenient, as it opens up opportunities for both teachers and cadets to gain relevant knowledge and view educational materials online at a convenient time, which forms deeper and more versatile competencies. As for psychological advantages, the possibility of visual perception of information is especially important for men (the main contingent of universities in the law enforcement system) for more effective and in-depth assimilation of knowledge. Digitalization enriches the learning process with new forms of interactivity and multimedia, which opens up new forms of interaction between teachers and cadets, stimulating a deeper learning impact.

Taking into account the departmental affiliation of universities, universities of the Federal Penitentiary Service of Russia may not use all

software products in the educational process, but only those that have passed certain expertise or certification.

In the context of digital transformation, civil universities are also facing significant challenges and problems, in particular, restrictions on the use of modern technical devices. Universities of the law enforcement system, the Ministry of Defense, and other law enforcement agencies should meet high standards of cybersecurity. Realizing that the introduction of digital technologies should take into account, first of all, the interests of the department, it is necessary to consider opportunities to meet the needs of participants in the educational process. The problem of exclusion of cadets from the digitalized educational process due to the existing digital divide needs to be resolved. It is possible to create accessible and inclusive conditions for participants in the education system.

It is quite obvious that the pedagogical effect of digital technologies, their impact on the effectiveness of the educational process and the quality of training are largely determined by the teacher. The teaching staff needs to acquire competencies of integrating digital technologies into the educational process.

The methodology "Digital Competence Index" (G.U. Soldatova, E.I. Rasskazova, T.A. Nestik) allows to evaluate an integral indicator of digital competence and its four components by subscales: knowledge, skills, motivation and responsibility [8].

A systematic approach also requires a review of pedagogical approaches, pedagogical expertise of potential challenges and opportunities accompanying digital transformation of education. Digitalization sets teachers the task of developing interactive learning materials and assignments, tests, and individualized learning plans, which requires additional time for their development. A teacher can create such programs together with a student, but the content and methodological aspect should be developed by a teacher. At the same time, such interaction enhances communication between participants in the educational process and facilitates mutual understanding.

The introduction of digital technologies into the education system significantly changes the teacher's mission and the functions he/she performs. Once having been a translator of knowledge, the teacher becomes a mentor providing guidance to students along the educational route. Organizational, pedagogical, and psychological conditions of learning are changing, which obliges the teacher to change, rethink, and develop, including in the field of information and digital technologies [9]. Recognizing that digital educational technologies give a transformational character to the changes taking place at the same time, it is important not to forget that the urgent task is to preserve the humanistic mission of education.

The global goal of education is to introduce an individual to the achievements of human civilization and to relay and preserve its cultural heritage. In this regard, the purpose of the educational process is the formation of personal value-semantic systems based on universal humanistic values. No digital technologies can affect mechanisms of interiorization of values and personal development without the personality of another individual, since "opportunities to empathize, develop a value attitude to the facts of the world around us, and learn to interact with other subjects open up in the process of dialogue as a way of existence for culture and man" [10]. We back the point of view of I.Yu. Kameneva that "it is at this level the educational process includes the student's personal experience and his/her (experience's) further development associated with the development of personal functions – those human manifestations that realize the phenomenon of "being a person" [11].

Let us consider digital culture as a digitalization factor. This definition has appeared in our vocabulary due to the active spread of digital technologies and the emerging digital society.

Culture" is organically related to education. It is easy to assume that digitalization will affect culture, while forming new meanings. Humanity faces a new challenge – to learn how to transform the emotional background to a digital context, which requires a developed emotional intelligence [12]. Today, emotional intelligence is discussed in dissertations and considered in numerous studies. However, it is still required to study new communication formats, aggravation of age-related interactions, complexity of mutual understanding, and openness of digital recourses, as well as to develop regulatory and ethical rules, regulations, and standards [13].

The education system needs a new vision of ways to regulate interpersonal relationships between teachers and students in the digital world. Students, as bearers of other values, easily cross boundaries in the relationship between teacher and student; it requires the introduction of appropriate regulations.

Conclusion

1. The main opportunities that digital transformation opens up for education are the individualization of learning and adaptation to the needs of educational process subjects to ensure the effectiveness of the process and expand opportunities for self-realization and self-actualization. The introduction of online courses and virtual technologies helps involve the best specialists, scientists and experts in the education process. This form will also allow cadets from different universities to interact, share experiences, and create joint projects. Digitalization of education demonstrates indisputable advantages in organizing a modern educational space, saturating it with the opportunities provided by digital technologies for learning, introducing interactive teaching methods, subject-to-subject interaction of participants in the educational process, and optimizing the educational process as a whole through the introduction of digital programs. Digital technologies allow a teacher to conduct any lesson at a higher technical level by saturating it with relevant information, presenting complex educational material visually and in an unusual way, and helping students perceive information more deeply and consciously. The gradual abandonment of paper media will contribute to the optimization of time management in the professional activity of a teacher.

2. The creation of digital textbooks, teaching aids, and educational materials with interactive elements makes lessons visual and exciting, as well as gamifies education as a whole, which will contribute to the deep immersion in the disciplines being studied and the formation of cadets' abilities in demand in the XXI century, such as creativity, critical thinking, interactivity, collaboration, and communication.

3. Digital transformation of education requires effective training of teaching staff for the use of technology, which can be implemented in various forms of self-study, retraining in courses, participation in webinars, specialized trainings, in collaboration with teachers who have successfully integrated digital technologies.

4. Despite its multiple advantages, digitalization of education also creates new challenges, requires non-standard solutions and innovative strategies to overcome the problems, departmental universities face.

Today, virtual reality and artificial intelligence are being actively introduced in the educational process. It enriches cadets' learning experience, contributes to effective knowledge acquisition, and development of the skills necessary for successful adaptation to professional activities in the digital age.

We should be prepared for the fact that digital transformation of education is a continuous process, but its effectiveness and quality are largely determined by harmonious interaction of technical innovations and pedagogical expediency.

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