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# Theory of Digital Educational Environment: Modern Level of Development of Students' Independent Learning

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## ABSTRACT

The article provides information on improving the process of all-round development of future teachers, creating a digital learning environment, creating an independent learning trajectory for students, and the characteristics of digital technology.

**Keywords:** Digital technology, independent learning, paradigm, educational theory, information flow, methodology.

## INTRODUCTION

In today's digitalized society, improving the process of all-round development of future teachers is one of the most important areas of improving the quality of education. Digital education, by its very nature, is a part of the educational process that works mainly with digital technologies and whose teaching methods are digital products: electronic textbooks, electronic lecture collections, virtual laboratory developments, electronic databases of the mechanism for organizing independent work control, and systems based on remote services. As is known, understanding life, studying it occurs through the collection and assimilation of information. The level of human knowledge is also determined by the amount or lack of information absorbed by a person within a certain period. Therefore, opening a wide path to modern knowledge, the effective use of digital technologies in improving the education system has become a requirement of today. The concept of creating a digital learning environment by S. Usmanov and Z. Abdurakhmanov analyzed the principles of creating new learning environments and revealed its content. Z.L. Umarov conducted scientific research on improving the foundations of the science of pedagogy of retraining and advanced training of teachers in the conditions of digitalization of education. In his article Digital Natives, Digital Immigrants, Mark Prensky describes today's educators as follows: Our teachers have changed completely. Modern teachers are no longer people who are trained according to our educational system. The article describes today's audience Digital Natives as young people who are adjusting to the digital language of computers, video games and the Internet as if they were their own native language. Representatives of the educational sector, on the other hand, describe teachers as Digital Immigrants who are adapting to the digital, electronic world and are now accepting many aspects of new technologies. The use of digital technologies and their application in any field involves a number of tasks. There are several methodological approaches in pedagogy: systematic, active, competent, etc. The approach is conceived as a category of pedagogical methodology, a link between the pedagogical paradigm and the theory of education and is characterized by certain characteristics: - the main concepts used in the educational process; principles as the basic rules for implementing educational activities; characterized by the presence of methods and techniques for building the educational process. The digital technological approach is associated with the consideration of the processes of obtaining, transforming, and using information and with the efforts to isolate the system of digital connections of subjects with each other, as well as

with their objects of knowledge in the digital educational environment. 1. In general, the digital technological approach involves organizing the object from a specific perspective, presenting the conclusions drawn from the results of research in one or another theoretical field in special scientific terms. Based on this, its main task, as A.V. Slavin noted, is to illuminate the general structure of digital educational processes, to develop methods and practices for qualitatively changing education. 2. The digital technological approach, as a methodological guideline, considers all processes as a complex system of digital processing that can be carried out both sequentially and in parallel. At each stage of these processes, learning undergoes certain changes, its coding, filtering, comprehension, thinking, decision-making, development of response actions are carried out. The results of these processes, according to Yu.F. Abramov, are the construction of a theoretical-informational-digital knowledge system generalized at the level of principles, a master abstract model of digital existence. 3. Within the framework of the theory of the digital educational environment, the methodology of the digital technological approach is being actively developed by R.F. Abdeev, V.G. Afanasev, V.B. Gukhman, I.V. Melik-Gaikazyan, V.I. Shtanko and others.

When it comes to the independent learning process of students, the digital technological approach is still being formed as a methodological guideline: its essence is being revealed, its possibilities, development The scope of the study is being assessed. One of the best ways to improve the creative potential of a university student studying in the pedagogical direction is independent learning. This method develops the student's skills in formulating an existing scientific problem, developing a scientific and practical solution, achieving optimal results from the solution, and proving it.

Independent learning is of great importance in developing students' effective professional skills. Independent learning teaches students to demonstrate the knowledge they have acquired in class in real life and to make independent decisions without the participation of a teacher. Properly organized independent learning should increase the ability to master any subject, in some sense encourage the student to acquire knowledge, skills, and abilities, and increase his motivation.

4. We follow the description of V.I. Shtanko of the digital technological approach as a method of abstract-generalizing description and study of the communicative aspects of the functioning and structure of complex systems, communicative connections and relationships in the language of the theory of digital learning. The modern level of development of the theory of digital learning environments makes it possible to prove that the concept of digital learning, which is the basic concept of the digital technological approach, necessarily belongs to the philosophical category due to its universality. Currently, information is understood in a very broad sense. Despite the historical aspect of the development of the theory of digital learning environments, there is still no single definition of this concept in science. The digital learning environment is interpreted in terms of diversity, uncertainty, reflection, energy, structure, order, etc. 5. N. Wiener's understanding of the digital learning environment as a reflection of the content received from the outside world in the process of adaptation to it, K. E. Shannon's as a process of communication and communication in which uncertainties are eliminated, U. R. Ashby's concepts of the transmission of various nebulae, A. Mol's concept of the measure of the complexity of structures are considered classical concepts. Each of these concepts is the basis for the development of specific theories of the digital learning environment. Methodologists of the digital technological approach, recognizing the objective foundations of existing interpretations of information concepts, at the same time express their opinion on their relative validity. The complexity of a single interpretation is explained by the impossibility of reflecting a non-classical phenomenon in accordance with its essence through the terms of classical science; the use of a very narrow empirical basis in understanding the information process, which does not cover its individual parts, levels of complexity, etc. In philosophical literature, ideas about the digital learning environment are based on an attributive (dimensional) or functional-cybernetic (visual) approach. The first point of view interprets digitized information as a property of moving matter, a property of objective reality. The second point of view is related to the consideration of digitized information as a property of independently controlled, independently organized systems. In addition, it is recognized that digitized information, by its very nature, is based on interpersonal and group communication and cooperation, reflecting the process of exchange and complementation of digital contents and meanings. In general, it is universally recognized at the scientific and practical level that digital and effective information exchange serves as the main sources and resources of personal and social development. Despite various

differences and similarities in views, the debate ultimately boils down to substantiating the legitimacy of using the term digital technology to organize certain objects of existence. This debate remains outside the scope of the subject of pedagogy, since the educational process is included in digital educational processes by all researchers, for whom information remains the main organizational and management criterion. ....in order to understand and study the characteristics of digital technology, to establish the general laws of digital learning processes and the individual aspects of their manifestation in various fields, it is necessary to reconsider a number of previously formed concepts related to digital learning processes, which are currently used in various fields of scientific knowledge, but are not yet connected with a single scientific methodology of the general theory of digital learning processes. Accordingly, for the purpose of examining pedagogical phenomena, the concept of digital technology can be considered as information that is constantly in motion, collected, processed, stored, transmitted and used (or can be used) by the system. The methodological value of digital technology, fundamental Its universality and universality allow it to be used as a fundamental idea. It is this approach that allows us to consider digital educational processes from a single point of view. All manifestations of a person rely on digital technology and reflect digital educational processes in themselves. N.A. Sirelchuk rightly stated: Digital technology itself cannot be imagined outside the subject of knowledge, which... becomes the creator and user of digital technology, knowledge, meanings, and an active agent of their development and self-development on their basis.... The high heuristic capabilities of the theory of the digital educational environment allow us to reveal the digital nature of pedagogical phenomena, determine the features of the methodological and didactic support of the educational process, evaluate pedagogical digital information and optimize the educational process on its basis. Educational activity, like any other pedagogically based process, is digital by its nature, since it involves performing operations with various digital information. In addition, educational activity consists in its processing, which, according to V. Gasparsky, is a digital preparation for changing reality. In the current conditions of the development of science and practice, it is necessary to determine the boundaries of pedagogy as a science and to have a reliable tool for describing, explaining and predicting pedagogical phenomena, as well as to clarify each pedagogical concept. For this purpose, we chose a digital technological approach as a pedagogical tool. However, despite the high level of interest of scientists in this problem, to date, the scientific foundations of the digital technological approach to education and its heuristic potential have not yet been determined, scientific research methods have not been developed, and the range of pedagogical problems in the solution of which the principles of the theory of the digital educational environment can be applied has not been identified. From the point of view of the informational approach to education, its external (digital educational processes that provide the communicative aspects of education) and internal (digital educational processes occurring at the mental level of listeners under the influence of the environment) aspects should be considered. The value of the digital side of the educational process is determined by the objective law of necessary diversity, which emphasizes that any educational system functions purposefully only on the basis of the received digitized information. The absence of specifically established standards for independent work, their content and methodical modeling leads to the implementation of independent work on the basis of plagiarism.

In order to perform independent work, the student must first of all choose a topic on a competitive basis, and of course receive recommendations and advice from the teacher during the work.

It is important to note that the application of the general concept of digitization in pedagogy makes it possible to replace the traditional approach to pedagogical research of the educational process with the process of digital-educational problems of its participants. It should be noted that at present there is no even the slightest complete and holistic concept of digital-educational activity. It is at its stage of development. We will consider digital educational processes in pedagogical phenomena from the point of view of obtaining, transforming, transmitting and assimilating information in the educational process. As a theoretical generalization of the digital technological approach, we distinguish the basis (basis), ideas and results. We describe this structure of the theoretical foundations of the digital technological approach as follows: − Trends in the digitization of modern society; − Empirical basis (experience in transmitting, processing, storing, transforming digital information, its generalization and regularities); − Theoretical basis: conceptual rules, philosophical, didactic, psychological, informatics, etc. concepts. Digitization, as one of the advanced trends in scientific and technical development, has covered many

aspects of modern society. A digitized information industry, digital technologies are being rapidly created.

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