ТЕОРИЯ И МЕТОДИКА ОБУЧЕНИЯ И ВОСПИТАНИЯ (ПО ОБЛАСТЯМ И УРОВНЯМ ОБРАЗОВАНИЯ) / THEORY AND METHODS OF TEACHING AND UPBRINGING (BY AREAS AND LEVELS OF EDUCATION)

HIGHER SCHOOL DIGITALIZATION DEVELOPMENT

Research article

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Abstract

In the modern world, digitalization has spread into all spheres of human activity, including education. The digitalization of education in general and higher education in particular has become a worldwide trend. Although in each state, this process rather unevenly and differentially affects the educational environment, depending on its financial, regulatory, organizational, technical, qualification and content support. It is supposed to help students in obtaining various competences like digital literacy while adapting digital technologies to the needs of the educational system. Development of Higher School digitalization is considered in the paper as a necessary process due to current situation. Different problems arisen from this adaptation to modern political and economic demands are analyzed. The authors tried to point out some theories used in the Russian technical Higher Schools and clear out digital terms and definitions of education. The psychological and pedagogical theory of contextual education is compared with other ones.

Keywords: Higher School, learning digitalization, digital education terms, contextual education, competitive professionals.

РАЗВИТИЕ ЦИФРОВИЗАЦИИ В ВЫСШЕЙ ШКОЛЕ

Научная статья

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Аннотация

В современном мире цифровизация внедрилась во все сферы человеческой деятельности, включая образование. Цифровизация образования, в целом, и высшего образования в частности стала мировой тенденцией. Хотя в каждом государстве этот процесс развивается и продвигается на сегодняшний день достаточно неравномерно и дифференцированно влияет на образовательную среду в зависимости от ее финансового, нормативного, организационно-технического, квалификационного и содержательного обеспечения. Предполагается, что он поможет студентам в получении различных компетенций, таких как цифровая грамотность, при адаптации цифровых технологий к потребностям образовательной системы. Развитие цифровизации высшей школы рассматривается в статье как необходимый процесс с точки зрения современной образовательной ситуации. Анализируются различные проблемы, возникшие в результате адаптации к современным политическим и экономическим требованиям. Авторы указывают на опыт российских технических вузов, и вносят ясность в цифровые термины и определения профессионального образования. Также авторы сравнивают психолого-педагогическую теорию контекстного образования.

Ключевые слова: высшая школа, цифровизация обучения, условия цифрового образования, контекстное образование, конкурентоспособные специалисты.

Introduction

The digitalization of education in general and higher education in particular has become a worldwide trend. Although in each state, this process rather unevenly and differentially affects the educational environment, depending on its financial, regulatory, organizational, technical, qualification and content support.

In modern conditions of the pandemic, the "digital revolution" has accelerated, consolidated and approved the distance learning system in the activities of the education system. If, before the spread of coronavirus in the world, educational technologies in Russia were gradually, variably, voluntarily changed in the context of the popularization of digitalization, then at the time of the general introduction of self-isolation, quarantine, they become mandatory, necessary, and in demand. In this aspect, digitalization of education approves the remote learning format, and creates the foundations, according to the head of the Ministry of Science and Higher Education V.N. Falkov, for the "new normal" of the functioning of higher educational institutions, namely the emergence of "national platforms of online courses, distance admission to universities". However, to understand the effective digitalization of education in the "new reality", it is important to highlight the main barriers to its development and promotion, as well as the prospects for the implementation of digital educational technologies.

Nowadays, a great changing in all spheres of Higher School is taking place due to the current political and economic situation in Russia. It concerns such prominent aspect as learning digitalization. It is necessary for Higher School's students to have a learning process which combines classical and digital kinds of education. But today, the aspects of learning digitalization gain the importance of both being entered and analyzed [3].

Research methods and principles

Digital learning develops intellectual and cognitive students' abilities and impacts all aspects of their educational process.

Scientists underline the digital means penetration in all aspects of the educational process. They give the full analyses of such phenomena as "cyber sociality" and define it as "combination of skills acquired by a person which provide him an ability to organize his life in cyberspace in the context of fulfilling different social functions as a network community subject but not playing the role of sovereign personality" [1, P. 365].

The question to be asked here is: Will a student gain the required personal and professional skills during the process of digital learning, provided that digital learning would be organized properly in Higher Schools?

Some pedagogical scientists differentiate such terms as "digital learning" and "digital education" and do not consider them to be the synonyms. The term "digital learning" is closely related with the term "digital didactics" i.e. digital education theory has no doubt. In other words it contains laws, principles and mechanisms of students' subjects' knowledge, abilities, skills and competence uptaking including computer usage.

When in fact the term "digital education" which we can find in the pedagogical literature, regulatory and legal documents and is used by teachers and lecturers is not correct. Owing to the fact, the word "education" has three different meanings. The first meaning is an educational background of every man. The second one is an educational system that combines various educational programs and institutions which organize, provide and manage them. The third is an educational process containing both education and upbringing in their combination and interrelation.

Under those circumstances, only such terms as "digital educational system" and "digital learning" should be used because a computer does not bring students up [3].

Such factors as cognitive science advance, technical approach to educational process management, personal computers' industry development and implementing the electronic products and gadgets in education caused the introduction of "digital learning" in all levels of continuous education Internet technologies system.

The computer usage in educational process can be used as a trainer, a simulator, performing some functions instead of a teacher, creating special educational activities for students.

However, trainers should be used for the obtained skills and abilities practicing and systematization. Trainers systems are mostly applied when tasks and conditions of learning information usage are accurately defined and are not probabilistic.

In any event, simulators are suitable when learning material does not have systematic character and its limits are not clear.

Obviously, a computer is only a mean of quantitative strengthening of teachers' functions, the speed of information changing between students and teachers increases, solving decisions efficiency. These are the opportunities being taken in the learning digitalization all over the world.

But they cannot give qualitative situation changing in education because one and the same results can be obtained with less time, human and financial recourses by applying traditional forms, methods and means of teaching.

Together with digital education not enough studied possibilities, there are some problems connected with their total introduction in educational system.

For example:

a) there is no digital education pedagogical or psycho-pedagogical theory to be used by teachers and lecturers, precise numbers of learning quality increasing by the digital education and this is the reason of a great amount of educationalists learning digitalization opposition;

b) information and knowledge are different notions because information is a sign system, notion base (language signs, texts, speech sounds and so on) but knowledge is a person substructure, and people perceive one and the same information differently according to their personal background.

This is notable taking account the digital development in Higher School technical students because they are to learn a lot of technical terms [4], [5].

Main results

Closer examination of learning and educational processes reveals are being realized by means of a teacher and a student communication. The communication consists of three components – communicative, interactive and perceptive ones and of two aspects – verbal and nonverbal. Every word has the information; it concludes the objective term notion, which is consolidated in dictionaries. However, as a rule, every word is polysemantic and its notion for a certain person depends on the linguistics content and the language surrounding of the word. It is also connected with nonverbal speech characteristics. The Australian scientist Allan Peese underlines that a word reflects only 7% of the meaning of what was said, body speech shows 55% and extra linguistics – 38%. The problem is that digital gadgets are not able to differentiate such aspects. One more fact to be accounted is that understanding of a speaking person or a teacher's words by a listener is stipulated by a number of other contexts – gender, national, geographic, scientific and situational ones [7].

Consequently, computers have no capability to turn the connotations into meanings and information into knowledge. This means that a computer metaphor is not more than a metaphor; computer information conversion is not the mechanism of people obtaining knowledge, and it is necessary to look for psychological principles and mechanisms of this process understanding. It causes a real risk of speech and thinking degradation because it is realized in speech which is reduced to button press in computer keyboard in digital learning [6].

As scientists mark, students of digital generation have fragmental thoughts and superficial judgments. The authors observe the constant decrease of students' literacy, especially in technical faculties. They make rude mistakes in their native language

and cannot express their thoughts competently. If a student does not have a developed live communication practice, thoughts in speech formation and formulation, his thinking is not being formed and as psychologists prove, he has not only intellectual but psychological problems. One way to overcome these problems is to communicate with a teacher rather than a computer.

One more disputable point is individualization principle in digital learning. It should be understood as not students' isolation from each other and a teacher but each personality development by means of everyone through others.

L. S. Vigotskii introduced the definition "zone of proximal development": the things that can be done by a student together with a teacher or with other students are able to be realized by him individually at the next stage of his development. Moreover, this skill is kept forever.

One can object that the work of a person with a computer is being realized in a dialogue mode. But human interaction with a computer may not be recognized as a dialogue because of its content.

Discussion

Nowadays, learning and educational processes are being realized by means of a teacher and a student communication. The communication consists of three components – communicative, interactive and perceptive ones and of two aspects – verbal and nonverbal. Every word has the information; it concludes the objective term notion, which is consolidated in dictionaries. However, as a rule, every word is polysemantic and its notion for a certain person depends on the linguistics content and the language surrounding of the word. It is also connected with nonverbal speech characteristics. The Australian scientist Allan Peese underlines that a word reflects only 7% of the meaning of what was said, body speech shows 55% and extra linguistics – 38%. The problem is that digital gadgets are not able to differentiate such aspects. One more fact to be accounted is that understanding of a speaking person or a teacher's words by a listener is stipulated by a number of other contexts – gender, national, geographic, scientific and situational ones [7].

So, computers have ho capability to turn the connotations into meanings and information into knowledge. This means that a computer metaphor is not more than a metaphor; computer information conversion is not the mechanism of people obtaining knowledge, and it is necessary to look for psychological principles and mechanisms of this process of understanding. It causes a real risk of speech and thinking degradation because it is realized in speech which is reduced to button press in computer keyboard in digital learning [6].

As scientists mark, students of digital generation have fragmental thoughts and superficial judgments. The authors observe the constant decrease of students' literacy, especially in technical faculties. They make rude mistakes in their native language and cannot express their thoughts competently. If a student does not have a developed live communication practice, thoughts in speech formation and formulation, his thinking is not being formed and as psychologists prove, he has not only intellectual but psychological problems. And only different communication with a teacher, not with a computer, can solve these problems.

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A dialogue is a theme, position, point of view development made by two or more persons interacting and communicating on certain and unknown content details. A dialogue process includes unpredictable meanings created during it. But a computer program has the beforehand ways which are modeled by computer users [8]. If he applies the wrong way, a computer gives the replica that he does a mistake and suggests repeating or choosing others ways.

Some philosophers think that it is impossible to have a dialogue with any computer gadgets. So-called "dialogue mode" is a sequence variation or certain volume of the given information [9]. These procedures are the main opportunities of ready, fixed data in a computer memory. An acute dialogue is a realized topic contradiction in the communication objective discussion that cannot be mastered by any current computer. It is not able to understand this contradiction. The controversial information is denied by it. Even modern using of ChatGPT which also gives great opportunities for both teachers and students should be monitored by trained specialists.

Conclusion

All these made the authors came to the conclusion that on the one hand, Higher School digitalization is developed very rapidly and current learning cannot do without its advantages and services. Students and teachers use them in their class and independent work because only computers can provide incredible fast speed of electric signal transmission by the program set way and without learning digitalization there will be no competitive professional future.

But on the other hand there are a lot of problems to be solved and questions to be answered caused by this process because computers do not provide creative processes even when they perform educational imitational modeling and gives the mode of intellectual game though it is not disputable that the rapid development of Higher School digitalization is the most perspective in different functions [10]. It helps teachers to create the learning environment which does not form students thinking nowadays but assist to do it to great extent.

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Конфликт интересов

Не указан.

Рецензия

Все статьи проходят рецензирование. Но рецензент или автор статьи предпочли не публиковать рецензию к этой статье в открытом доступе. Рецензия может быть предоставлена компетентным органам по запросу.

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Conflict of Interest

None declared.

Review

All articles are peer-reviewed. But the reviewer or the author of the article chose not to publish a review of this article in the public domain. The review can be provided to the competent authorities upon request.

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