

INDIVIDUALIZATION OF TEACHING MATERIALS BASED ON DIGITAL TECHNOLOGIES IN VOCATIONAL EDUCATIONAL INSTITUTIONS

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Abstract: The article examines the main directions of individualization of vocational education and provides a brief historical overview of the stages of individualization of education using computer technologies.

Keywords: Individualization of education, individualized (personalized) education, programmed education, e-learning, learning management system, interactivity, multimedia, tablet computers, blended learning, electronic textbook, electronic form of textbook.

At the beginning of the 21st century, the education system is experiencing an unprecedented impact of computer technology. Today, outside of vocational schools, children use all kinds of electronic devices to communicate, play and even study. The number of educational programs for computers, tablets and smartphones is increasing every year. A modern vocational school cannot remain aloof from developments in the field of information and communication technologies and is carefully accepting more and more innovations of the digital age. Traditional models of education, which allowed us to be proud of the successes of local vocational schools a few decades ago, are increasingly becoming less and less common. Teachers and parents note the decline in interest of vocational school students in traditional sources of knowledge, such as textbooks and the teacher's words.

At the same time, computer technologies, which are increasingly entering our lives and families, cannot radically change the situation in the field of education by themselves. Thus, the Law of the Republic of Uzbekistan "On Education" establishes the main principles of state policy in the field of education - Primary vocational education is carried out in vocational schools on the basis of graduates of the IXth grade on a free basis on the basis of two-year integrated programs of general education subjects and specialized subjects in full-time education.

- Secondary vocational education is carried out in colleges on a state order or on a fee-based contract basis, depending on the complexity of professions and specialties, on the basis of general secondary, secondary specialized education and primary vocational education in full-time, evening and part-time forms of education for a period of up to two years.

- It is stipulated that secondary specialized professional education will be carried out in technical schools on the basis of general secondary, secondary specialized, primary professional and secondary professional education, based on the complexity of professions and specialties, on a state order or on a fee-based contract, in full-time, evening and part-time forms of education for a duration of at least two years.

It seems like a difficult task to educate an active and creative person capable of self-development and self-education in the conditions of vocational education, independent in choosing goals, as well as ways and means to achieve them, able to objectively assess his achievements.

How can such results be achieved in a vocational school at the present stage of education development? The answer to such a question may be the implementation of a principle known to teachers for many centuries. This principle is the individualization of education - that is, the selection of the content, methods, forms and means of teaching in accordance with the needs and abilities of each student.

Taking into account the student's educational aspirations, current level of preparation, and goals, individualization makes education more tailored to the needs of students, increasing students' engagement in mastering key concepts and applying key skills. This frees teachers from routine tasks and gives them more time to serve as mentors and coaches, focusing on the personal qualities and abilities of students.

The use of modern digital information technologies and electronic textbooks is already making it possible to implement individualized education in practice.

The capabilities of computer technologies to ensure individualized education have been implemented in stages, reflecting the main trends in technological progress over the past few decades.

At the first stage, the capabilities of computers used in education were very modest compared to the modern level, but nevertheless, in the late 70s, pedagogical ideas appeared on the use of computer technologies in technical schools, colleges and schools, which made it possible to at least partially ensure individualization of education.

This approach, based on the ideas of American educators and psychologists (Skinner B.F. and others), was called "programmed education" and found its response in domestic science. The works of Nikandrov N.D., Bospalko V.P., Galperin P.Ya., Talizina N.F., and others are devoted to various aspects of this issue.

Many principles of programmed learning influenced the development of modern electronic learning technologies and became the first step towards the individualization of mass education. Among them, the following can be distinguished: division of educational material into separate parts; sequence of stages of mastering the content; step-by-step control; provision of assistance and explanations in accordance with the results of control; significant independence of students; work at the possible speed; the teacher's acceptance of the role of an organizer of learning, an assistant in difficulties, the implementation of an individual approach.

The technical capabilities of computers at that time did not allow the implementation of solutions aimed at implementing a number of basic principles of individual education into mass education practice. However, many of these solutions are also used in modern electronic educational publications.

The need to form a single global information space led to the creation of a global computer network - the Internet. The rapid development of the Internet was made possible by the World Wide Web technology, which is based on the principles of hypertext. Although computer networks themselves appeared somewhat earlier, the active introduction of network technologies into the educational process covers the 1980s-1990s.

In the USA and many other developed countries, the concept of E-Learning is gradually developing. Due to the spread of electronic distance learning, the possibilities of individualizing learning have allowed students to choose an educational program and educational institution. Online access to educational materials around the clock has allowed students to receive education at their own time and in a convenient place. It has become possible to participate in research and projects that bring together people from different vocational schools, technical schools, colleges, universities, cities and countries.

The development of the concept of e-learning is the emergence of learning management systems (Learning Management Systems, LMS). Such systems not only allow participants in the educational process to interact remotely, but also serve to build an individual educational trajectory based on the variability of educational materials and monitoring of educational achievements.

With the advent of multimedia technologies in 1991, the possibilities of using computers in education have increased significantly. Multimedia technology allows for the comprehensive display of various types of information on a computer: texts, illustrations, speech, music and video images.

Based on the concept of psychological personality types and intellectual characteristics, multimedia capabilities allowed students to choose their own methods and forms of obtaining information and learn at their own pace and style.

In the period from the 1990s to the 2000s, most of the types of electronic educational resources that are currently available appeared, namely interactive computer models, educational computer games, virtual workshops and laboratories.

The emergence of portable computers - laptops, and then tablets - gave a new impetus to the process of individualization of education. At this time, in the USA and other developed countries, a methodology for organizing "blended education" appeared in vocational educational institutions. This methodology complemented the existing models of the traditional classroom system and e-learning. The idea of blended education is based on the combination of interactive network interaction between teachers and students, self-education and the possibilities of personal interaction of participants in the educational process in a vocational school.

With the advent of electronic tablets, the use of electronic textbooks (or electronic educational complexes) has gained new prospects, combining the capabilities of various electronic educational resources on one device. The world experience of companies such as Apple, which created iBooksAuthor (iBooks-Author) and iTunesU (iTunes-U), as well as Samsung, which offers the Smart School classroom management system, has set high standards in the creation of educational publications and applications and has raised the possibilities of individualizing education to a new level. In short, the process of introducing electronic textbooks into vocational school practice has

been rather slow. Printed books have been a familiar and reliable source of information for several centuries, and the use of electronic textbooks is associated with a number of difficulties and risks. The first attempt to replace the paper essence of the textbook with an electronic one did not justify all the hopes of teachers. Copies of textbook pages in PDF format, practically devoid of all the above-mentioned capabilities, could not bring significant innovations to vocational school practice and in no way contributed to the individualization of education.

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