

INFORMATIZATION OF EDUCATION AND CYBERSECURITY ISSUES IN THE EDUCATIONAL ENVIRONMENT**Uzoqov Asliddin Mexritdinovich**

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Abstract. *In the modern educational process, the topic of informatization and cybersecurity threats are relevant today. It should be noted that the processes of informatization and the problems of cybersecurity in the educational environment are interrelated. Due to the rapid development of information technologies and widespread digitalization, there has been a trend of large-scale application of new communication technologies in the field of education, organization of the educational process, knowledge control, etc. The problem of pedagogical support of students on the formation of their information-safe behavior is considered. In the article, the team of authors has developed a list of possible solutions to the identified problems.*

Key words: *informatization, informatization of education, information technology, information security, cybersecurity in the educational environment, threats to cybersecurity.*

ИНФОРМАТИЗАЦИЯ ОБРАЗОВАНИЯ И ВОПРОСЫ КИБЕРБЕЗОПАСНОСТИ В ОБРАЗОВАТЕЛЬНОЙ СРЕДЕ

Аннотация. *В современном образовательном процессе актуальна тема информатизации и угроз кибербезопасности. Следует отметить, что процессы информатизации и проблемы кибербезопасности в образовательной среде взаимосвязаны. В связи со стремительным развитием информационных технологий и повсеместной цифровизацией наметилась тенденция масштабного применения новых коммуникативных технологий в сфере образования, организации учебного процесса, контроля знаний и т.д. Проблема педагогического сопровождения обучающихся на формирование их информационно-безопасного поведения. В статье авторским коллективом разработан перечень возможных решений выявленных проблем.*

Ключевые слова: *информатизация, информатизация образования, информационные технологии, информационная безопасность, кибербезопасность в образовательной среде, угрозы кибербезопасности.*

INTRODUCTION

In the modern world, there are processes of informatization of all spheres of public life. It should be noted that the term "informatization" can be interpreted from different positions. We agree with the opinion of I. D. Alekperov, who in his research indicates that "the informatization of society is a large-scale social process. Its peculiarity lies in the fact that the main and main activity is the collection, accumulation, processing, storage, transmission and use of information.

At the same time, modern means of microprocessor, computer technology, as well as various means of information communication are used" [1, p. 17].

In a broad sense, informatization of education is understood as a set of conditions of a social, organizational, pedagogical, technical, methodological nature, as well as changes in the introduction of technical devices and information products into the educational process, electronic educational resources, digital educational resources, new applications and programs for communication.

RESEARCH METHOD AND METHODOLOGY

In a narrow sense, under the informatization of education, we consider the introduction of information tools, computer equipment, information products, as well as relevant new technologies into educational organizations.

At the same time, the process of education does not lose its traditional function. On the contrary, it is being improved, a new function is being added - the development of highly adaptive pedagogy of the information society.

The use of ICT and distance learning technologies has led to significant changes in the teaching and learning processes. At the same time, the process of including ICT in education involves a revision of the dynamics of interaction with students, as well as the creation of new information processing tools [2, p. 14]. If we analyze the world experience, we can come to the conclusion that the distance learning format is most widespread where the appropriate infrastructure is present and developed (there are fairly good conditions for the development of new technologies, there is widespread technical equipment, the population has a high level of information literacy). If we analyze the statistics and analytics provided by International Data Corporation (IDC) on its official website, we can conclude that distance learning occupies a third of the education market in Europe [3, pp. 32-33]. The Uzbek distance learning market has been around for more than twenty years. At the same time, many educational Internet platforms have been developed on the market, which accumulate a variety of educational materials and online courses, proctoring systems.

It is necessary to say that the conditions of traditional and distance learning differ significantly from each other. With distance learning, there is no familiar classroom-based system, there is no familiar "immersion effect". It is impossible to ignore the situation associated with the worldwide spread of the Covid-19 coronavirus infection. The pandemic has changed modern realities; there have been changes in almost all spheres of life of Uzbek society – in the economy, healthcare and, of course, in education. It should be noted that new technologies and forms of organization of the educational process have been introduced everywhere in Uzbek education. In a short time, schools, colleges, universities and other educational organizations have almost all switched to a distance learning format.

The decision to use the distance format in the educational process for the period of the pandemic was made by educational organizations in different regions of Uzbekistan independently, based on the level of danger of the epidemiological situation, the presence or absence of a threat to students.

At the same time, e-learning materials should be available to every student.

WeChat Facebook Messenger, any suitable technology can be used for communication between teachers and students, including WhatsApp, Viber, Telegram, Skype, WeChat, Snapchat, Facebook Messenger, etc.

The second option of distance learning was developed for regions with a non-critical epidemiological situation and consists in partial transfer of students to distance learning. Those students who, for personal reasons, have expressed a desire to switch to distance learning, such an opportunity will be provided.

RESEARCH RESULTS

Both options for transferring students to distance learning are aimed at minimizing direct communication between the subjects of the educational process. In accordance with the laws of Uzbekistan, both scenarios were possible. In this aspect, it was useful to use video lectures and video lessons developed by Uzbek teachers, the Online maktab online platform project, a unified collection of digital educational resources, etc.). In addition, it is necessary to develop an electronic information and educational environment in schools, colleges, universities [6].

After analyzing the features of distance learning, N. Y. Marchuk identifies the following characteristics. Distance learning differs from other types of learning by a new way of transmitting and perceiving educational information.

Sometimes distance learning is accompanied by the presence of a specially created virtual environment. For such a format of training, special methods of building learning strategies are being developed, new information and communication technologies are being used [7, p. 78].

The difference between distance learning from traditional, according to G. V. Mozhaeva, lies primarily in the presence of a certain distance between the subjects of the educational process (between a teacher and a student or a group of trainees, between administrative staff, methodologists and students, etc.). That is, with a distance format, there is completely no direct communication between the subjects of the learning process [8, p. 41].

An important aspect related to the process of organizing a distance learning format is ensuring the cybersecurity of the educational environment. Note that by the term "cybersecurity" we mean the process of using security measures in order to ensure the confidentiality, integrity and availability of information, personal information. In other words, these are methods and methods of protecting servers, mobile devices, personal computers, electronic systems, networks and data from cyber attacks.

DISCUSSION

Let's analyze the Uzbek, as well as foreign experience in this direction. As a result of the analytical work carried out, we have identified a number of cybersecurity threats that arise in educational organizations.

Among the main problems in this aspect are the following. Firstly, it is the use of outdated, obviously unsafe platforms. These platforms are vulnerable, they are obviously susceptible to cyber attacks if preventive measures are not taken to eliminate these vulnerabilities. Secondly, it is the installation and use of unlicensed software. Such "hacked" (counterfeit) software is highly likely to contain "spyware" or other malicious programs. These computer viruses can disrupt the normal functioning of information systems [9, p. 37].

At the same time, hacked, "pirated" software, as a rule, does not allow for software updates. This, of course, increases vulnerability, does not allow you to deal with emerging threats and attacks.

In order to solve cybersecurity problems in the educational environment, programs should be regularly monitored. It is recommended to preventatively eliminate all problems identified as a

result of diagnostics. However, practice shows that most educational organizations resort to those solutions that they "have at hand". This explains the lack of regular security audits, and, as a result, the increasing vulnerability.

The problems of cybersecurity in the educational environment cover not only technical aspects, but also the issue of protecting the student from information that negatively affects his development, personal formation (for example, various kinds of propaganda). That is, the dissemination of unwanted information among students is a significant threat that requires an immediate response from the staff of the educational organization. To solve it, it is necessary to take measures to counter extremist ideology, to block pornography, provocative materials, propaganda of drugs, psychotropic substances, etc.

There are problems that arise as a result of social media communication.

In the Internet space, it is more difficult for students to resist threats, intimidation and other manipulations by third parties. That is why it is recommended to form and develop the skills of information-safe behavior among children and students.

Let's list the various options for ensuring the cybersecurity of the technological infrastructure. The first recommendation is to diagnose and check systems on a regular basis.

Speaking about ensuring cybersecurity, it is necessary to talk about reliable and complex passwords that are regularly updated and stored in secure places. However, modern realities are such that often in educational organizations, simple passwords are set for students' personal accounts, which are easy to pick up and crack. This problem is not an isolated one, but a systemic one. At the same time, this situation occurs not only in educational organizations, it occurs even in commercial companies.

CONCLUSION

It is worth noting that often assigned passwords and transmitted to students are not kept secret, on the contrary, they are distributed openly, pasted into diaries and workbooks of students. Moreover, passwords set at the beginning of the school year, as a rule, are not updated and serve to log in to your personal account for several months or even several years.

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