Assessment of digital equipment of higher educational institutions

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Abstract. The article considers the assessment of the digital equipment of higher educational institutions. As part of the work carried out, the indicators of the digital equipment of higher educational institutions were considered, which indicate that there is one personal computer for four students and a computer with Internet access for five students. In libraries of higher educational institutions, this indicator is lower, here there is one personal computer with Internet access for about six students, while in private educational institutions this indicator is one personal computer for three students. At the end of the study, mechanisms were proposed to increase the level of digital equipment in higher education institutions.

1. Introduction

Breakthrough technologies that exist in the world affect all spheres of activity, including education and science. Today, for educational institutions, a necessary need is the presence of a computer class with Internet access, an electronic library, connection to a local network of an educational organization, the use of international sources in educational and training activities. In modern times, the use of various information platforms, the Internet, software products and much more is a necessary need for higher educational institutions, students and teachers [1]. These requirements are dictated by time, due to the fact that in the spheres of education there is a constant renewal of the educational fund, the appearance of more and more scientific works devoted not only to teaching, but also to the areas of activity taught, new software products that independently build algorithms for performing tasks and quickly solve the tasks assigned to him, the presence of a large amount of reference and educational material in electronic form. In this regard, the assessment of the digital equipment of higher educational institutions is an urgent task for science [2-3].

The equipping of educational institutions with digital devices and computers in Russia began in the early 2000s, today all higher educational institutions have the necessary computer labs, equipped libraries, Internet access from stationary computers within a higher educational institution and connection to paid educational platforms. However, of course, the process of equipping has not yet been completed and the requirements for the number of computers per student are constantly being updated,
the availability of necessary requirements for computer equipment changes annually. Of course, in the age of digital transformation of all spheres of activity and industrial industries, the presence of a digital base at the university is also the most important requirement for the economy and the educational sphere of activity. In this regard, we decided to conduct a study related to the assessment of the digital equipment of modern educational institutions [4-6].

2. Materials and methods

In this study, the aim of the work was to assess the digital equipment of higher educational institutions. As part of the work, the following tasks were set:

- Assess the level of digital equipment of Russian higher educational institutions;
- Propose mechanisms to increase the level of digital equipment in educational institutions.

In the study, analytical reports and data were used, which made it possible to present statistical indicators, and methods of systems analysis, statistical, analytical, critical and other scientific approaches were used as methods and approaches.

3. Results

Let's analyze the equipment of educational institutions with personal computers. For a more objective analysis, it is advisable to consider not only the number of personal computers, but also the connection of computers to the Internet and the local network of an educational organization (figure 1) [7].

![Figure 1. Personal computers used for educational purposes, in educational institutions of higher education, thousand units.](image-url)

It can be seen from the presented figure that until 2014 there was an increase in the number of personal computers, as well as the number of computers connected to the local network and the Internet. By 2017, the number of personal computers used in higher educational institutions decreased by 60 thousand units, and the number of computers connected to the Internet and a local network decreased in about the same ratio. Considering 2012 and 2013 by the number of personal computers purchased in the reporting year, we can conclude that in these years there is a maximum of purchased computers, but in 2017 their number, compared to 2012 and 2013, decreased by half.

Further, it seems relevant to consider the provision of educational computers for students of higher educational institutions (figure 2) [7].
Figure 2. Provision of personal computers used for educational purposes by students of organizations carrying out educational activities in bachelor's, specialist's and master's programs, units per 100 students.

The figure shows that about four students have one personal computer, and five students only have one computer with Internet access. Of course, in the age of digital transformation and the introduction of "digital" in all spheres of activity, such a situation cannot fully satisfy the needs of students and educational institutions. At the same time, it can be seen that since 2015 the number of personal computers and computers with Internet access is insignificant, but is decreasing.

Consider the number of footprints in libraries equipped with personal computers (figure 3) [7].

Figure 3. Number of seats equipped with personal computers for library users in educational institutions in 2017.

The figure shows that the number of seats in libraries equipped with personal computers is lower than the average for educational organizations, here, there is one personal computer with Internet access
for about six students. It should be noted that in private educational institutions this indicator is higher and there is one personal computer with Internet access for about three students. It should be noted that, in connection with the development of electronic libraries and the emergence of educational platforms, the specified number of computers will not be able to fully meet the needs of students in using these services.

Thus, the analysis showed that the existing personal computers in educational institutions are not able to fully provide all students with personal computers with Internet access [8].

4. Discussion
In our opinion, in order to meet national needs for the transition of spheres of activity and industries to digital technologies and the development of new digital technologies, educational organizations should be in the trend of these events and the educational process will be reduced to conducting classes through personal computers with Internet access. In this regard, at the state level it is necessary to solve the following tasks [9-11]:

- Increase the number of places equipped with personal computers to the level of two students, one personal computer with Internet access;
- Equip all seats in libraries of educational institutions with computers with Internet access in order to use new electronic educational resources, international platforms and other Internet sources;
- Increase the number of purchased computers, including those with installed software to meet the needs of the educational process.

Thus, the digital equipment of educational institutions must be carried out annually and not only with the participation of the state, but also with the support of private investors, who can also solve these problems and ensure the digital development of higher educational institutions.

5. Conclusion
Within the framework of the presented study, an analysis was carried out to assess the digital equipment of higher educational institutions. The analysis carried out in the work showed that the level of equipment with personal computers and computers with Internet access per student is approximately 25% and 20%, respectively. The equipment of libraries with personal computers, of the number of seats, is about 17%, which, of course, will not be able to fully meet the needs of students in the age of the emergence of new electronic educational resources, software products and electronic libraries. In this regard, mechanisms were proposed to improve the level of digital equipment of higher education institutions.

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