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*ПРЕИМУЩЕСТВА ИСПОЛЬЗОВАНИЯ БОЛЬШИХ ДАННЫХ В ПРОЦЕССЕ ОБУЧЕНИЯ*

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*ADVANTAGES OF USING BIG DATA IN THE LEARNING PROCESS*

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Аннотация. Несмотря на то, что термин Big Data - большие данные был введен недавно, он стремительно внедряется в современную образовательную систему. В статье рассматривается внедрение больших данных в образовательную практику как новую форму современных технологий оценивания. Дан анализ современного состояния использования больших данных и результатов анализа внешней и внутренней информационной среды для оценки качества образования. Основываясь на технологиях больших данных, можно улучшить и упростить принципы оценки качества образовательной среды. Для обработки и хранения информации о качестве образовательной среды с использованием больших данных требуется большой объем дисковой памяти. При правильном подходе, с помощью цифровых технологий больших данных можно упростить процесс отслеживания оценок учащихся и выявления проблемных областей обучения. Быстро реагировать на любые изменения в процессе обучения можно путем получения и анализа данных на автоматизированном уровне, что позволяет достичь гибкости, масштабируемости, доступности, безопасности, конфиденциальности и простоты использования учебной информации. Возможности Больших данных еще недостаточно используются для повышения качества образовательной деятельности. Однако быстрое развитие цифровых технологий может сделать большие данные эффективным инструментом оценки качества образования.

Abstract. Despite the fact that the term Big Data – Big Data was introduced recently, it is rapidly being introduced into the modern educational system. The article discusses the implementation of big data in education practice as a new form of modern assessment technologies. The analysis of the current state of the use of big data and the results of the analysis of the external and internal information environment to assess the quality of education is given. Based on big data technologies, the principles for assessing the quality of the educational environment can be improved and simplified. To process and store information about the quality of the educational environment using big data, a large amount of disk memory is required. With the right approach, with the help of digital technologies of big data, the process of tracking the marks of students and identifying problem areas of learning can be simplified. It is possible to quickly respond to any changes in the learning process by receiving and analyzing data at an automated level, which allows achieving flexibility, scalability, accessibility, security, confidentiality and ease of use of educational information. Opportunities Big Data are not yet used sufficiently to improve the quality of educational activities. However, the rapid development of digital technology can make Big Data an effective tool in assessing the quality of education.

Ключевые слова: образование, образовательная система, индивидуальное обучение, большие данные, информационное пространство.

Key words: education, educational system, individual education, Big Data, information space.

In the modern world, the ability to operate comes to the fore big data, every year the volume of information and opportunities of digital technologies. This is facilitated by scientific progress, virtualization and automation of many processes, data is being digitized, and therefore the need to process and account for them, which entails an explosive growth in computing capacities and speeds of information transmission.

The idea of ​​"big data" (BigData) appeared a long time ago, but has been actively developing for the last 2-3 years, the main factors of its development are political, economic and social trends development of society. BigData allows you not only to analyze consumer image and volume planned costs, demand for certain tourist destinations, but also to model the future in finance, business, education, etc. They allow you to find out the state objects under study, for example, what they like to eat for lunch, those who like the classic music, or what kind of car a family with two children and a dog will buy [1].

Finding new solutions and methods is also relevant for the education system, especially to improve the efficiency of management of educational systems and ensuring the quality of education. For this, on the one hand, you need to use a huge amount of accumulated information that needs to be analyzed and systematize. On the other hand, Big Data makes it possible for everyone to rebuild the student his individual educational trajectory, and also to evaluate the quality of training in an educational organization and choose an acceptable way for yourself learning. In this regard, consideration of the possibilities of using big data for assessing and improving the quality of education is relevant.

Using big data in education, you need to present the material in such a way that interesting to learn, identify patterns and use them. Relatively speaking, they can show that schoolchildren living in Kazan are ready to solve complex problems in the solar the weather in the morning, and children from Naryan-Mar will solve the same problems better in bad weather after lunch. If there is data on the location of students, the weather in the region and the percentage positive decisions, it is easy to solve the problem. Such unobvious patterns that are random but objective can form the basis new scientific and engineering discipline, which can be called "computational pedagogy "[2].

The essential role of the teacher will remain for a long time, if not forever and no information system can replace Pythagoras. But for tasks of mass and corporate education computer systems can be very effective, additional teaching aids. At the very least, they will help save time on search for information. Intelligent systems working at the level of the best teacher in future will be available in any educational organization. Then it will be possible to overcome the concept of educational inequality, reduce learning barriers for people with restricted abilities. And although you can't make a prodigy out of a poor student, but it will be possible to bring it up to the average level. And it's all thanks a personalized approach and a smart computer that knows everything about how the student learns the material [3]. They will also allow you to provide information about the best methods of teaching and monitoring knowledge, skills and competencies acquired in various educational organizations or independently. Objective data analysis methods, forming the basis of the algorithms of our actions, allow us to calculate the patterns, arising in the learning process. And this, in turn, will help optimize the process. learning and make it more fun for both the C grade and the A student. In fact, there are a lot of dependencies when using big data, they just not all are open and used yet. Much interesting is yet to come.

Big Data helps to process the experience of thousands of teachers and students, based on analysis to obtain an effective methodology. If traditionally teaching methodology is created based on the personal experience of one or more teachers, then on the basis of big data technique becomes a product of mass experience [4]. Besides raising the quality and effectiveness of the created methods, big data helps personalize content for the needs of each student. By the way, what is the role teacher? He is good at explaining and getting feedback. The computer cannot track the student's reaction, does not possess the magic when the teacher sees in the student's eyes, whether the information they received became clear in their minds or not, whether they understood it or not. Besides Moreover, the teacher creates an emotional background and motivation for learning. The computer just writes "Well done", and the teacher looks into the eyes, believes, says that you can, and then rejoices: "You can do it when you want!"

Big data, like any technology in education, does not save the teacher from empathy and interaction with the learner, the person's ability to empathize and motivating is always important, and this function is not available to computers. Their advantage in what they help to make of a teacher a super teacher. How does this happen?

For example, the system can analyze hundreds of thousands of texts on the Internet and select

the one that contains the required number of new words. This is what a person is not capable of, but a machine can do it. With the help of big data, you can do, relatively speaking, three important things: to create methodologies adapted to a large number of students; personalize content; select a training mode. Note that Big Data will soon change higher education technologies, allowing to make the teaching of students more individual: not only to choose their own course curriculum, but also to give separate homework, as well as provide verification assimilation of the content. The method of working in groups will also be different: at Harvard now in one of the courses, students are paired with different answers to the same task so that they can come to a common decision, defending their point of view in the process of finding the right answer. Students will receive more detailed recommendations on various topics and have an expanded information space. They know how to predict how successfully the course is completed even before the start of training now. Students will have the opportunity to choose their course program, complete a separate homework assignment, get more detailed recommendations. FROM with big data, there will be fewer laggards in university groups as technology will allow early identification of students who may be at risk, and teachers will be able to better help lagging students, as the program will indicate in which areas of knowledge there are problems. The system will also help teenagers in choosing a university: it is assumed that robots will select the best places to study for prospective students, they don't even have to apply. The system will choose the best places for future students, and by the end of the university, each student will have digital portfolio to help young professionals navigate the market labor, it is easier to navigate when choosing a career, and employers in the selection of specialists [5, 6].

There are five main types of big data analysis in education: personal data; data on student interaction with electronic systems learning and with each other (e-textbooks, online courses, bounce rates, pageview speed, backtracking, number of links, distance of links, number of page views by one user, etc.); performance data learning materials (which type of student interacts with which piece of content, interaction results, educational outcomes, etc.); administrative (system-wide) data (attendance, absences due to illness, number of lessons, etc.); predictive (assumed) data (what is the probability of student participation in of a particular activity, what is the probability of completing the task, etc.).

It is obvious that today almost all educational organizations work in mostly with small data. This is due to the fact that in educational organizations there is no special electronic environment that contains a lot of online content and how consequence - a large number of users of content and interactions with each other regarding him.

**Conclusion:** In conclusion, we note that the ability to generalize and use the data in the electronic environment is great. The reasons for this are a number of factors

First, data analysis allows you to work with individual programs. learners, personalize learning. The data shows which type of student with what part of the content interacts, how does this interaction take place, where it manifested interest, and where he was bored, with whom and how he interacted in the learning process, how the passage of a course influenced educational results, at what stage learning he needs help. Learning becomes adaptive and personal oriented.

Second, educational analytics powered by big data is changing understanding of the format of educational programs. Texts used in educational process, can be not only digitized, but also converted into numerical data. Users move through the content with more freedom, then the analysis of how users interacted with the material is carried out: what turned out effective, which is ineffective. The result of such analytics is a change content. Therefore, the educational program is being transformed from an approved format text into the format of some collection of online content that changes dynamically through the analysis of data resulting from interactions with online content students. The so-called "smart program" and "smart curriculum" appear. It can be assumed that the curricula of training courses will also undergo changes: they can become meta-subject.

Third, a change in approaches to monitoring and evaluation, as the most educational process and educational outcomes. Monitoring becomes permanent. The interest of students in continuous monitoring is due to the fact that data analysis allows you to make its curriculum individual, the interest of teachers associated with the possibility of obtaining information about productive groups, feedback from students to the created content (interesting / not interesting, difficult / easy, etc.), for teachers - efficient allocation of resources. Assessment of educational results can be independent and / or collective, aggregated on the basis of all student data obtained from all interactions. The assessment is carried out for in order to competently expand the educational program of the student. Dynamics educational results are recorded constantly, based on this data, patterns (repeating patterns) by which you can judge the development of the student.

Fourth, new methods will become an integral part of educational analytics: a) forecast when a combination of known data will make it possible to predict the desired unknown; b) the method of identifying the structure and clustering; c) network analysis [7].

Big Data opens up new horizons in modern education, with the development of these technology education reaches a higher level when the use of Big Data allows you to identify students who find themselves in a situation of expulsion or deserve special merit. This allows you to track such situations and help them. Both in successful advancement along an individual educational trajectory, and for excluding the situation of losing a place at the university. Analysis of data on the quality of training can guide the participants to choose the education and career most corresponding to personal qualities and their interest in the long term.

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