USE OF CLOUD TECHNOLOGIES TO IMPROVE THE QUALITY OF EDUCATION IN THE DIGITAL EDUCATIONAL ENVIRONMENT

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Abstract

In this article, the issue of using cloud technologies to improve the quality of education in the digital educational environment is covered in detail. In the modern education system, cloud technologies are distinguished by such important aspects as increasing the efficiency of the educational process, creating a wider access to educational resources, and making the educational process flexible and interactive. The article analyzes the role of cloud technologies in the field of education, their advantages and their role in improving the quality of education.

Keywords: Cloud technologies, quality of education, educational platforms, distance education, educational resources, multimedia, informatics, innovation, automatic assessment.
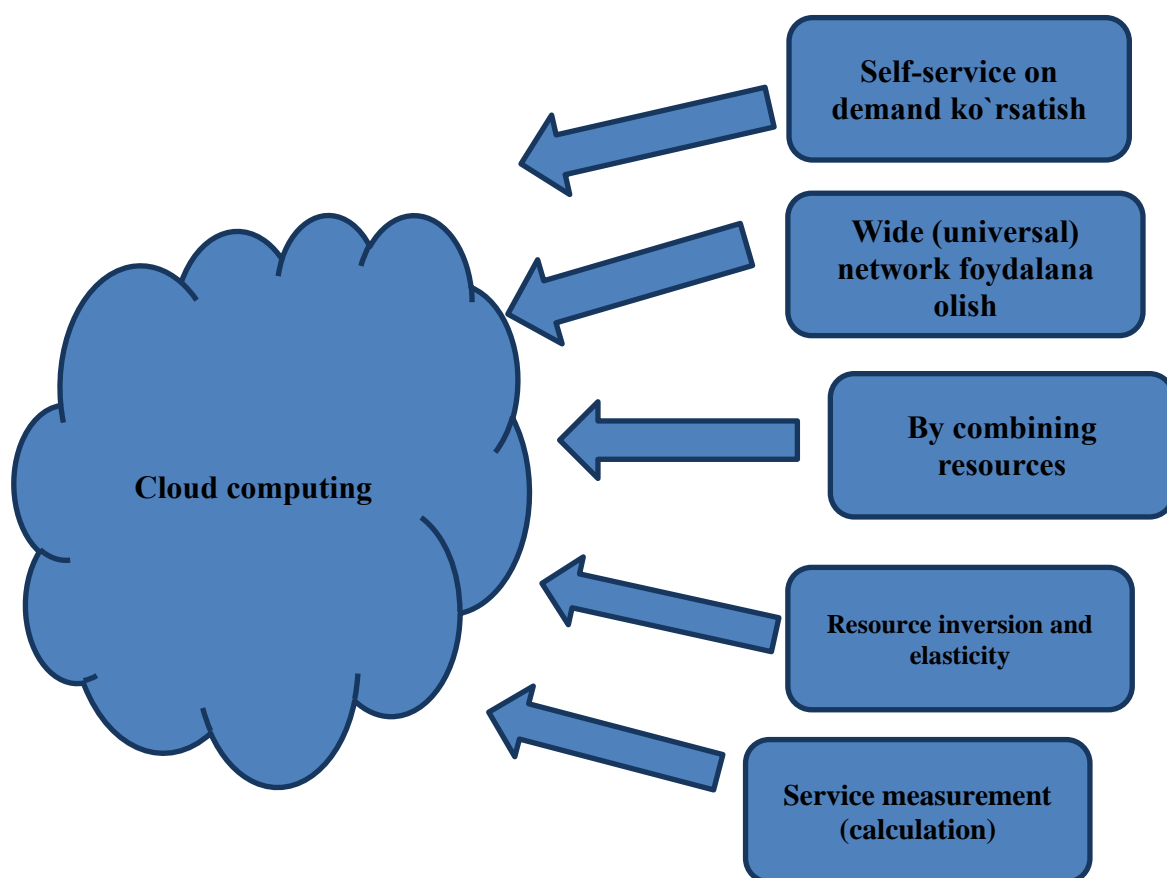
Introduction

In the modern era, when the modern education system is rapidly developing on the basis of digital technologies, improving the quality of the educational process is one of the important tasks. As a result of the formation of a digital educational environment, pedagogical activity and educational processes are enriched with new innovative tools, and a transition from traditional education to an interactive and flexible education system is observed. Cloud technologies make a great contribution to the effective organization of the educational process by improving the quality of education, widely distributing educational materials, and creating the possibility of using them anywhere.[1]

With the help of cloud technologies, the interaction of teachers and students is strengthened, and the process of information exchange is accelerated. These technologies also serve to automate the educational process, develop distance learning, and expand access to educational resources. This article extensively discusses the importance of cloud technologies in education and their role in improving the quality of education.[2]

Cloud technologies are widely used in the field of education and serve the interactive and effective organization of the educational process. Their role in the education system is expressed as follows:

Data storage and sharing - Cloud technologies allow centralized storage of educational resources and their use at any time. Cloud storage services, such as Google Drive, Dropbox, OneDrive, allow teachers and students to quickly exchange data.

Opportunities for distance learning - Through cloud technologies, students and teachers can exchange knowledge and work together in real time via the Internet. Such platforms as Moodle, Google Classroom, Microsoft Teams serve to effectively organize distance learning.

Automation of the educational process - Through cloud technologies, it is possible to automatically evaluate tests, assignments, and results. This facilitates the work of teachers and increases the effectiveness of the educational process.

Interactive and flexible learning - Learning with the help of cloud technologies can be personalized. Students will have the opportunity to learn based on an individual approach, using resources tailored to their level of knowledge.[4]

Resource saving and economic efficiency - As a result of the digital presentation of educational materials through cloud technologies, the need for paper and other traditional means is reduced. This will also reduce software costs and create economic benefits for educational institutions. [5]

Numerous studies have been conducted worldwide on the integration of cloud technologies into the educational process. In particular, scientists such as John Biggs (Great Britain), Sugata Mitra (India), and Paul Kim (USA) have conducted research on the development of education based on cloud technologies.

Scientists of the Russian Academy of Sciences from the CIS countries, especially such researchers as Sergey Avdeev and Pavel Mikhailov, are studying the role of cloud technologies in education.

In our republic, such scientists as Professor J. Aliev and B. Karimov are conducting leading research on cloud technologies and distance learning. In their research, methods of effective application of cloud technologies in improving the quality of education are widely covered.

Advantages and disadvantages of cloud technologies

Cloud Computing is currently one of the most widely used innovative solutions in the field of information technology. It allows users to work with applications, services, and data over the Internet. In the table below, we will discuss in detail the main advantages and disadvantages of cloud technologies.[6]

Advantages of cloud technologies	Disadvantages of cloud technologies
Cloud technology Resource-saving management • The use of cloud services helps organizations reduce the costs of purchasing and maintaining servers. • No additional infrastructure is required for data storage. • Deficiencies of medicinal plants	**Internet dependence** • Continuous and stable internet access is required to use cloud services. • • If the internet is disconnected or the speed is low, the ability to use the services effectively is limited.
Accessibility from anywhere Cloud services can be accessed from any device connected to the Internet. • It is very convenient for remote work.	**Security and Privacy Issues** Data is stored on the servers of a third-party provider, which can increase the likelihood of unauthorized access to the data. • Some organizations are reluctant to entrust their sensitive data to cloud services.
Scalability There is the ability to expand or reduce services depending on the needs of the organization or individual users. • Server size or computing power can be increased as needed.	**Limited management options** When using cloud infrastructure, users do not have full control over resources. • The operation and configuration of servers are managed by the service provider.
Automatic updates and maintenance Cloud service providers take care of software updates, security, and maintenance. • Users have constant access to the latest updates.	**Subscription fees and long-term costs** Using cloud services requires long-term subscription fees. • Can be more expensive in the long run than a one-time purchase of software.
Data Security and Protection Many cloud service providers protect data through encryption, automatic backups, and firewalls. • Backup systems are in place to prevent data loss.	**Risk of data loss or service outage** There is a possibility of data loss due to technical failures or attacks by the cloud provider. • If the service provider's operations are disrupted, users may lose access to their data.

While cloud technologies have many advantages, their implementation should be approached with caution. Considering the Internet dependency, security concerns, and long-term costs, it is advisable for organizations to use cloud services according to their needs. At the same time, these technologies serve as a convenient solution for increasing efficiency, reducing costs, and streamlining business processes.

Improving the quality of education based on cloud technologies

Cloud technologies are widely used to improve the quality of the educational process and play an important role in creating a modern educational environment. To improve the quality of education based on cloud technologies, electronic libraries are being created that can be accessed from anywhere by students and teachers. For example, rich educational resources are provided through Google Books, Open Educational Resources (OER) and other open educational platforms.

At the same time, platforms such as Moodle, Coursera, Udemy, EdX are of great importance in the process of distance and blended learning. Through these systems, students can access lessons at any time and consolidate their knowledge. Using services such as Google Docs and Microsoft OneNote, students and teachers can organize interactive lessons and work together on projects. With the help of cloud technologies, the educational process is being optimized according to individual needs. For example, Khan Academy, IBM Watson Education and similar systems provide individual educational materials according to the interests and knowledge levels of students.[7]

Cloud technologies have become an integral part of the modern educational process, playing a significant role in improving the quality of education and providing students with flexible learning opportunities. They allow for increased access to educational materials, the development of distance learning, and increased efficiency of the educational process.[8] Therefore, in the future, further improvement and widespread implementation of cloud technologies in the educational process will be one of the important factors in improving the quality of education.

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