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THEORETICAL FOUNDATIONS OF ORGANIZING INDEPENDENT LEARNING THROUGH CLOUD TECHNOLOGIES

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Annotation: The article presents theoretical considerations on the introduction of effective educational systems in the organization of independent education today. In particular, opinions are given about the possibilities and convenience of independent education with the help of cloud technologies.

Keywords: independent education, effective educational systems, theoretical considerations.

Introduction

Today, at the global level, numerous scientific studies are being conducted within the education system aimed at developing electronic educational and methodological resources through cloud technologies to ensure the intellectual development of future primary school teachers, improve their digital competence, create mechanisms for enhancing the quality of education, and introduce modern creative modular technologies into the educational process. Special attention is currently being paid to scientific research focused on applying textual and graphical content, audio and video materials, as well as cloud technology elements capable of fully replicating teaching functions that enable independent learning opportunities. Moreover, emphasis is being placed on expanding learners' opportunities to access дистан learning resources from any location, developing software tools intended to replace or improve traditional educational systems and models based on cloud technologies, and implementing these tools into educational practice.

In recent years, our republic has been creating regulatory and legal foundations for the use of cloud technologies in various sectors, including the field of education. The introduction and implementation of "cloud technologies," the study of advanced experiences of foreign educational institutions in this area, the development of necessary action plans for their gradual implementation, and the organization of scientific training sessions involving professors, teachers, and specialists in higher educational institutions regarding the use of cloud technologies in the educational process have been identified as priority tasks. This significantly expands the pedagogical possibilities for the effective use of cloud technologies as a priority direction aimed at improving the digital competence of future primary school teachers.

Literature Review

In our country, the issues related to the introduction of information and communication technologies into the educational system for the training of future primary school teachers have been studied by such scholars as A.A.Abduqodirov, F.M.Zokirova, S.S.G'ulomov, U.I.Inoyatov, B.S.Xurramov and Sh.E.Kurbanov.[1]

The development of professional competence among future economics specialists has been researched by B.S.Abdullaeva, R.X.Djuraev, U.U.Jumanazarov, S.Xasanov,

J.Yo‘ldoshev, R.G.Isyanov, M.E.Mamarajabov, D.Fayzullaeva, I.Mamajonov, D.N.Mamatov, D.Tojiboeva, N.N.Muslimov, A.A.Xalikov, O.A.Qo‘ysinov, H.Sh.Qodirov and Sh.S.Sharipov. Furthermore, scientific research on cloud technologies and their application in various fields has been conducted by R.H.Ayupov, J.Safarov, Sh.Q.Ashirov, T.E.Delov, A.U.Anorboev, Sh.B.Bekchonova, M.K.Djuraev, Z.Z.Xodjimuratova, M.A.Muydinova, E.Sh.Nazirova, Sh.Eshonqulov and L.A.Ablazov.

Research Methodology

Today, the processes of digitalization and the rapid development of information and communication technologies observed worldwide are exerting a significant influence on the education system. In particular, the integration of cloud technologies into the educational process is creating new opportunities for the effective organization of independent learning activities. In the modern educational environment, cloud technologies facilitate the storage of educational materials, remote access to learning resources, information exchange, and the establishment of interactive collaboration, thereby contributing to the enhancement of independent learning efficiency.

Furthermore, the use of cloud technologies in independent learning processes creates a foundation for developing learners’ competencies in information management, self-regulation, independent decision-making, and reflective thinking. An educational environment organized on the basis of these technologies ensures the systematic implementation of the learning process, the effective utilization of educational resources, and the optimization of control and monitoring activities. As a result, the quality and effectiveness of independent learning activities increase, while a modern didactic environment is formed for the development of future teachers’ professional competencies.

In recent years, the processes of developing the digital economy and widely introducing modern information and communication technologies into all sectors have accelerated in our country. Alongside this, the practice of applying cloud technologies across various fields has also become increasingly widespread. The integration of these technologies into the education system creates opportunities to optimize educational processes, effectively utilize educational resources remotely, and organize independent learning activities on the basis of modern pedagogical approaches.

Particularly, the organization of distance education through cloud technologies, ensuring continuous access to educational materials, developing interactive collaboration, and increasing the flexibility of the educational process have become highly significant. Consequently, learners’ independent learning skills, digital competencies, and information literacy culture are enhanced, leading to the formation of a modern digital educational environment aimed at improving the quality of education.

With regard to the concept of cloud technologies, according to Roger McHaney, the term “cloud computing” originated from the “cloud” symbol commonly used in flowcharts and diagrams to represent the Internet network. The scholar emphasizes that any computer equipped with a web interface enables users to remotely access extensive resources, including software applications, databases, and files. From this perspective, cloud computing technologies represent a modern digital environment that ensures the centralized management, storage, and efficient use of information resources.

Moreover, cloud technologies contribute to further optimizing existing infrastructures

in the field of information technology, increasing the speed of data exchange, and creating flexible and user-friendly services for users. Systems organized on the basis of these technologies allow users to access educational resources anytime and anywhere, which plays an important role in increasing the effectiveness of independent learning activities.

Analysis And Results

The "Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030," approved by the Decree of the President of the Republic of Uzbekistan Shavkat Mirziyoyev No. PF–5847 dated October 8, 2019, identifies the radical modernization of the higher education system and the preparation of competitive specialists possessing modern knowledge, competencies, and independent thinking skills as priority objectives. The Concept places special emphasis on the introduction of advanced pedagogical and information-communication technologies into the higher education process, the development of digital educational infrastructure, and the improvement of educational quality based on international standards.

Furthermore, the Concept highlights the development of students' independent learning activities through the organization of educational processes based on modern technologies, the formation of creative and analytical thinking skills, and the expansion of distance and digital learning opportunities as one of the important strategic directions. This further increases the relevance of the effective use of cloud technologies in higher education and the organization of independent learning on the basis of innovative approaches.

Indeed, the Concept identifies the development of students' independent learning activities, the formation of critical, free, and creative thinking skills, and the introduction of modern methodologies and technologies aimed at strengthening the competency-based approach in the educational process as priority tasks. In addition, particular attention is paid to developing students' competencies in independent work, information management, and lifelong self-development through the broad implementation of advanced pedagogical technologies, digital educational tools, and innovative teaching and methodological materials based on international standards. This creates the necessity for improving the theoretical and methodological foundations of organizing independent learning effectively within the higher education system.

The increasing proportion of independent learning alongside classroom instruction in modern educational programs requires the development of students' competencies in organizing their educational activities independently. At present, a significant part of academic workloads in bachelor's and master's degree programs is organized in the form of independent learning, making it essential for students to independently acquire, analyze, and apply subject-related knowledge in practice. In this regard, a digital educational environment organized on the basis of cloud technologies expands opportunities for the systematic management of independent learning processes, rapid access to educational resources, the establishment of remote collaboration, and the monitoring of learning outcomes. As a result, the effectiveness of independent learning increases, while an innovative pedagogical environment is formed for developing the professional and digital competencies of future specialists.

According to the "Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030," approved by Presidential Decree No. PF–5847 dated

October 8, 2019, the majority of higher educational institutions in the country are to be gradually transferred to the credit-module system. Within this system, the average ratio between classroom instruction and independent learning hours constitutes approximately 40/60 percent. This demonstrates the priority significance of students' independent activities within the educational process. In other words, students are expected to independently reinforce the knowledge acquired during classroom sessions, study additional resources, and enrich their theoretical knowledge through practical application.

This approach serves as an important factor in developing competencies related to independent learning, enhancing students' analytical and creative thinking, and fostering their lifelong self-development skills. From this perspective, cloud technologies play a particularly significant role in the effective organization of independent learning activities. A digital educational environment created on the basis of cloud technologies enables students to access educational resources anytime and anywhere, engage in remote collaboration, complete assignments electronically, and independently manage their learning activities. Therefore, subject teachers are required to organize independent learning processes using modern pedagogical and digital technologies, monitor students' independent activities, and apply methodological approaches aimed at increasing their academic motivation.

The main objectives of independent learning for future primary school teachers include the following:

- developing skills for searching, analyzing, and effectively utilizing new pedagogical and methodological information within the independent learning process;
- organizing the independent use of educational resources based on information-communication and cloud technologies;
- improving competencies in working with regulatory and legal documents, scientific-methodological literature, curricula, and didactic materials;
- teaching the effective use of electronic educational literature, digital platforms, and databases;
- developing skills in substantiating, presenting, and defending pedagogical ideas, projects, or methodological recommendations;
- enhancing competencies related to independent learning, reflective thinking, and self-management.

The advantages of independent learning for future primary school teachers are reflected in the following aspects:

- it creates opportunities for learners to study independently anytime and anywhere;
- it develops a culture of utilizing Internet resources and digital educational platforms effectively;
- it enhances skills in working with educational and regulatory documents necessary for pedagogical activities;
- it contributes to organizing the educational process on the basis of modern digital technologies;
- it expands learners' opportunities to independently monitor and assess their own knowledge, skills, and competencies;
- it enables the effective use of time and educational resources;
- it develops collaborative skills within distance and interactive learning environments;

- it contributes to fostering creative thinking and innovative approaches among future teachers.

The effectiveness of independent learning activities among future primary school teachers largely depends on the formation of a stable interest and strong internal motivation toward independent learning. One of the most important factors in this process is the need for thorough preparation for future pedagogical activities. Independent learning serves as a significant means of developing future teachers' professional competencies, shaping their methodological thinking, and improving their skills in using modern educational technologies. From this perspective, the internal factors that stimulate independent learning can be characterized as follows:

1. Understanding the practical significance of the performed activities. If future primary school teachers realize that the knowledge and skills acquired through independent learning are essential for their future pedagogical practice, including lesson planning, developing methodological recommendations, organizing practical classes, and applying innovative pedagogical approaches, their attitude toward independent learning becomes more positive. As a result, the effectiveness and quality of educational activities increase. Therefore, the professional significance and practical necessity of the assigned tasks should be clearly demonstrated throughout the educational process.

2. Participation in creative and innovative activities. The involvement of future teachers in scientific research, methodological projects, the development of innovative educational technologies, the preparation of interactive lesson plans, and various pedagogical initiatives increases their interest in independent learning. In particular, digital educational environments organized through cloud technologies expand opportunities for collaborative work, experience exchange, and the development of creative approaches among students.

3. Active participation in scientific and practical competitions. Participation in pedagogical contests, scientific-practical conferences, methodological projects, innovative developments, and educational competitions stimulates the independent learning activities of future primary school teachers. Such activities contribute to the development of analytical thinking, reflective approaches, problem-solving abilities, and competencies related to the application of modern pedagogical technologies.

The primary purpose of organizing independent learning processes for future primary school teachers is to develop and enhance learners' knowledge, skills, and competencies related to independently organizing educational activities, working with information, analyzing pedagogical problems, and effectively utilizing modern educational technologies. At the same time, independent learning contributes to strengthening future teachers' professional preparation, improving their reflective thinking, fostering creative approaches, and enhancing their capacity for lifelong self-development.

Conclusions

Today, cloud technologies have become an integral component of modern digital society and are widely applied in nearly all spheres of human activity. In particular, the use of cloud computing technologies within the education system plays a significant role in the digitalization of the educational process, ensuring rapid access to educational resources, and effectively organizing independent learning activities. A digital educational environment

created on the basis of cloud technologies expands opportunities for the development of distance education, supports scientific research activities, and enables access to educational materials anytime and anywhere.

The use of cloud technologies in the education system ensures the openness, flexibility, and interactivity of the educational environment. At the same time, several organizational and technical challenges remain in the process of integrating these technologies into education. Specifically, not all teachers possess sufficient competencies for effectively managing cloud resources and digital platforms, which may negatively affect the efficiency of the educational process. In addition, the use of cloud services is directly dependent on the stability of Internet connectivity, while issues related to the storage and protection of important information also remain highly relevant. Therefore, within the educational process, it is necessary to create backup copies of data, ensure information security, and continuously improve teachers' digital competencies when utilizing cloud technologies.

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