DIGITALIZATION OF EDUCATION IN AZERBAIJAN

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Abstract: In the 21st century, in the conditions of information abundance, management, that is, management of education, which is the basis of the state, society, and all economic development, is the most important issue. In modern times, all educational institutions are exposed to digital globalization in one way or another. Given the rapid development of information and the number of educational institutions due to high development and increase in student knowledge, technology increases the need for constant updating. Accelerating the implementation of digitization in the field of education in Azerbaijan is considered one of the urgent issues. In this situation, it is important to establish a mutual relationship in the field of globalization education, which has a mutual goal, to help the schools and universities of Azerbaijan. In this process, it is necessary to apply information technologies related to the use of changes, modern information and communication technology tools, databases, and provision with modern telecommunication tools at all stages of the digitization process of education and in the training content. The article analyzes the main directions of the application of digitization in education in Azerbaijan and shows the characteristics of the digital educational environment.

Keywords: information society, artificial intelligence, distance education, digital transformation, innovation.

INTRODUCTION

The development of ICT leads to faster and faster communication between people in the world, the deepening of globalization processes in the economic and socio-cultural fields, and the role of information in all spheres of society and economy.

The new relations formed in the modern era have determined the transition of humanity to a new stage of development - the information society. Information and knowledge form the basis and purpose of the information society we mentioned, through which the digital world is formed. (Knox, 2019). Digitization of education means the use of various programs, applications and other digital resources for e-learning, both remotely and directly at school or university. In addition, digitalization applies not only to educational processes, but also to organizational processes. For example, the same

electronic diaries and journals, as well as the ability to write an e-mail to the teacher instead of calling or coming to school in person, are also elements of digitization. It is no longer possible to imagine and talk about education without digitization. Because the digital internet environment has become an integral part of our life. (Humbatov, et al.,2020). Therefore, it is necessary to use the development of information technologies more effectively in the field of education. Those who do not keep up with what is happening will face many problems. This problem reveals the situation: today it is almost impossible to realize education without using new educational technologies. (Sarsici & Celik 2019)

DISCUSSIONS
1. The process of digitization in education

Educational institutions in the world and in Azerbaijan should build their presence on the basis of the above-mentioned changing innovations. The public goods produced by educational institutions must be desirable in the labor market. Studies conducted in the field of education show that the purely theoretical education, which is not enriched with practical knowledge and skills as a result of scientific and technological progress, innovations, and modernization, is already losing its fundamental importance. The application of new information and educational technologies of the century requires the use of progressive forms of methodical materials corresponding to the modern world level along with the organization of the teaching process and active teaching methods. Thus, digital technical skills transcend education, both academically and pedagogically.

Electronic textbooks incorporate the advancements of modern technology, subject matter, design and artistic qualities, while limiting the use of paper. Graphical images are an attractive approach for students to learn better. By providing a visual representation of the subject, students grasp the concept better. The most difficult topics can be presented in a simplified way with the help of such images: Appropriate programs help students to better understand new materials thanks to graphic images. (Ivanova,2015).

Due to the start of the coronavirus pandemic, the trend of digitization of education has shown itself in our country as well as in the world. Schools and universities everywhere have switched to distance learning, affecting almost all students, their parents and teachers. With the onset of the pandemic, the process of digitization in education has developed rapidly. The size of the educational technology (EdTech) market proves this once again. The educational technology (EdTech) market is growing rapidly and, according to the World Economic Forum, it will reach $342 billion by 2025.

2. The current state of digitization of education in Azerbaijan

Important work is being done in Azerbaijan in the field of digitalization of education, construction of new ICT infrastructure, and application and modernization of modern technologies. As a result, educational institutions are provided with basic ICT infrastructure. During the pandemic, the "Virtual School" platform for distance education has been launched in our country. By the end of the 2020-2021 academic year, the number of students registered on the platform reached 1,426,721, the number of teachers reached 128,186, and the number of active users reached 1,123,126 (www.stat.gov.az).

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Through the electronic services created in Azerbaijan, the admission of students to schools, the recruitment of teachers and principals, the transfer of students from school to school, the organization of various competitions and Olympiads, the electronic submission of applications, certificates, etc. are already done through online platforms. In addition, we can note that currently work is being done in the direction of the digitalization of the issuance of educational certificates and diplomas. Currently, information about employees, pupils, and students working in general education and higher education institutions operating in our country is recorded centrally, and statistical analysis and electronic management are carried out through the educational information system. Deployed systems generate data on about 2 million people every day.

The portals www.e-derslik.edu.az and www.video.edu.az are regularly updated by the Ministry of Education to create innovative content in the Azerbaijani language. New electronic textbooks, teaching aids, interactive exercises, television lessons on general and professional education, video lessons for teachers, 3D animation videos, video lessons of the STEAM project, Khan Academy lessons and video lessons with an evaluation system have been added to these portals (www.edu.gov.az), In addition, 96% of the country's educational institutions are connected to the Azerbaijan Education Network and are provided with a single and secure network infrastructure. Currently, the Azerbaijan Education Network is working towards the transfer of educational institutions to high-speed fiber-optic communication.

Storage and analysis of information about students and teachers in educational institutions in a single database, electronic management, preparation of statistical and forecast reports based on collected data is carried out through the information system of higher and secondary education. Accordingly, the registration of students in higher and secondary educational institutions in our country is carried out electronically through the single electronic services portal of the Ministry of Education (portal.edu.az).

Based on the conducted research, it was found that a number of higher education institutions joining the Azerbaijan Education Network have access to the GEANT international academic network, the world's largest research and development network, so they can take advantage of the research potential of this resource. It should be noted that the GEANT network allows all participants to join together for scientific activities and joint research, as well as to develop joint educational programs. In our country, the service of reviewing citizens' applications by the Ministry of Education is gradually being carried out online, the reception of citizens in the format of video communication is widely used. The main goal of the Ministry of Education in implementing online admission of citizens is to provide timely and quality services to citizens and promptly respond to citizens' questions about education. Therefore, the system of citizen appeals has been improved in order to increase accessibility and convenience for citizens. "Citizens' applications" service has been created on the portal.edu.az portal, which combines electronic services in the field of education in a single window, where everyone can submit and track their application to the Ministry of Education and its subordinate institutions. As a result, compared to the submission of written applications, the time required for filling out the application and responding to the citizen's application has been reduced by more than half. Starting from 2021, the registration of students in higher and secondary educational institutions and the issuance of certificates of study will be carried out electronically through the single electronic services portal of the Ministry of Education (portal.edu.az). In addition, transfer of students by higher

education level, recognition of qualifications of foreign countries in the field of higher education, and online verification of the authenticity of educational documents are carried out electronically.

The Virtual School platform implemented in our country in 2020-2021 due to the spread of the pandemic period has succeeded in collecting enough information about the educational process of pupils and students. Thus, the national evaluations held twice on the platform in that period enabled the creation of a database of students' exam results. The algorithm was developed depending on the time students spend on the "Virtual school" platform, the tools they use on the platform during distance education, and the exam results of these students. This algorithm allows you to digitally monitor and analyze the educational performance of students and predict their future education. Therefore, the use of artificial intelligence and machine learning technologies can serve to make immediate and long-term decisions in the field of education. In this direction, relevant studies in the field of education continue in our country. (Digitalisation Webinar, 2020)

Digitization in education affects not only the direct training process, but also the system of certification of students' knowledge level. This is currently used as an electronic record of student activity in many schools and higher education institutions. Thus, as a result of digitalization in education, it is possible to follow the daily page of the higher education institution on the Internet, to view the subjects and the student's class schedule for a semester, to view the attendance data and summary data of students in weeks, missed classes, registration of students' grades in educational semesters, total scores for the current year and previous academic years can be calculated.

3. **Effectiveness of digitization of education in Azerbaijan**

Digitization of education in Azerbaijan and the effectiveness of digital technologies have shown themselves as follows:

- digitization in education facilitates organizational tasks.
- digitization makes education more convenient for schoolchildren and students.
- the online mode provides access to a wider variety of educational content than the traditional format.
- the virtual environment allows you to practice real-life skills in a safe environment.
- learning in a digital environment provides an opportunity to collect and analyze data to further improve the educational process. (Hajiyeva et al.,2021)

4. Problems arising from the application of digitization in education

As we mentioned above, there are high results related to the application of digitalization in education, but there are also problems in our country. They are mainly the following:

 - people who have no experience of using the internet and digital resources find it difficult to study online. Some people are not aware of the useful possibilities of digitization and use the smartphone only for entertainment, while others, although they are aware of such possibilities, cannot learn to work with applications without outside help.

- some part of the population does not have computers or other devices necessary for online education and high-quality Internet connection.

Thus, taking into account the dynamism of the era, such as the knowledge economy, or rather, the commercialization of knowledge, artificial intelligence, the emergence of new professions, some

of them joining history, and taking into account the research-oriented character of the development of education and teaching, it is necessary to meet the demands of great responsibility, accountability, and result orientation on educational institutions. falls. (Valentina et al., VI International Forum on Teacher Education)

Like all countries of the world, Azerbaijan has been affected by global trends related to the development of digital technologies. Today, the application of digitalization, which changes the economic and social development models of developed countries, has put serious issues before us. In addition to being the basis for the development of new fields, digitization also performs important social functions and makes significant contributions to the solution of existing problems in society. (Armila et al., 2022)

The main factors of the digitization process are the availability of relevant jobs, along with highly qualified specialists. This requires the cooperation of education and the digital economy, making it inevitable.

According to the conducted research, we can say that science in the information society is being updated rapidly, to regulate the growing amount of information and to use it as a basic science and resource, the study and use of the aspects of Informatics and its parts: Elmmetrics, Webometrics, Cybermetrics and Bibliometrics also stimulate the development of science and educational institutions. is one of the main factors. In addition to all this, one can also mention the contrasting features of the digital world. (Hajiyeva,2018)

5. **Requirements for the development of education in the country**

Diffusion of information, against the background of globalization of capital and the knowledge economy in which intellectual capital surpasses physical capital, further increases the commercialization of knowledge. Improving the management system with information using the databases of higher education institutions increases the confidence that the public good will meet the desired requirements. The quick and flexible implementation of such an educational system, database and management brings the following requirements for the development of education:

• improving the quality of the educational process, improving the structure of transferred knowledge and achieving high-level qualification of graduates with higher education;

• development of modern teaching technologies and orientation of the education system to modern standards and innovative programs;

• integration of educational environment, scientific research and business circles (especially in university complexes);

• development and implementation of various forms and systems of continuous and additional education;

• strengthening the potential of innovative scientific and technical research in educational institutions;

• creation of wide opportunities for the business activity of higher education institutions (granting the status of an independent institution, a public person, etc.) (www.researchgate.net).

• ensuring the necessary freedoms and using preferential capital funds, etc.

Objective factors for the management of educational institutions with information, existing information bases, at the same time, the use of evaluation and monitoring information bases can help and, as a result, help to improve pedagogical processes.

6. **Innovative educational projects implemented in Azerbaijan**

Currently, one of the important directions among the innovative educational projects that are being implemented in the country in the direction of modernization of education is the electronicization of state documents on education. In this regard, on February 5, the President of the Republic of Azerbaijan Ilham Aliyev signed a Decree on the implementation of the Law of the Republic of Azerbaijan dated December 18, 2020 "On Amendments to the Law of the Republic of Azerbaijan "On Education".

According to the law, persons who have completed any stage and level of education in an educational institution (except doctorate) are supposed to be given a state document on the relevant education created in the form of an electronic document in the "Education Centralized Information System" in accordance with the legislation. Also, persons who have not completed any stage and level of education due to various reasons will be given a certificate of relevant education created in the form of an electronic document in the "Education Centralized Information System" in the manner determined by the relevant executive authority. (Law of the Republic of Azerbaijan "On Education", 2009).

The aforementioned works will create wide opportunities such as the complete digitalization of the process of preparing and issuing educational documents in the country with the application of the latest technologies, verification of the authenticity of electronic documents from any place through a single verification portal, and permanent storage of educational documents in electronic resources.

The digitalization of educational documents, which is the first in the world in our country, which advanced countries are in the preparation stage, is not only a great achievement in the field of education, but also an important contribution to the digitization of the country. Application of such an innovative approach allows Azerbaijan to take more leading positions in international rankings. In addition, it is planned to provide information in the electronic educational documents in Azerbaijani and English languages. This will simplify the process of recognition and verification of educational documents in foreign countries, thereby enabling our country to participate more closely in the integration processes in the modern world.

The digitization of education leads to the acquisition of knowledge, skills, and habits, especially in the field of lifelong learning. In this process, we can see a shift from technique, competition and currency to innovation, stimulation, empowerment and quality. (Armila, et al., Postdigit Sci Educ).

CONCLUSIONS

The issue of digitalization of society, life, and education is increasing day by day. Today, the field of education is actively developing and has created conditions for the creation of a digital environment. In the sphere of education, electronic instructions and educational platforms are applied. But to use modern digital technology, it is necessary to have durable and quality content. It is

important to be aware of the positive or negative effects of other countries when a country is starting to use digital technologies. (Digitalisation Webinar,2020)

The main direction of the implementation of the digitalization of education project is the introduction of digital technologies and platforms, education, as well as the creation of a motivation system for the necessary development. Digitization of education allows access to the best data processing system for schools, universities, colleges.

As a result of the conducted research, we should note that digitalization is changing the education system in Azerbaijan as well as in the whole world. But that doesn't diminish the value of what we teach in the classroom. The process of digitization in education requires the integrated use of visual learning and online learning methods. So we have to do both learning methods in parallel.

In addition, the digitization of education is the most reliable and correct step towards the future, so it directly serves the content of education, as well as improving its quality. Therefore, it is necessary to more intensively implement the process of promoting the use of modern technologies in the field of education in the country.

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