ПІДГОТОВКА ФАХІВЦІВ В УМОВАХ ІНФОРМАТИЗАЦІЇ ТА ЦИФРОВІЗАЦІЇ

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ICT TECHNIQUES IN HIGHER EDUCATION: AZERBAIJAN EXPERIENCE IN PANDEMIC

The purpose of the article is to study the use of ICT techniques in Azerbaijan higher education. The objectives of the study are: 1) to substantiate the role of ICT sector in the Azerbaijan national economy, 2) to study the use of ICT sector tools in higher education, in particular in Azerbaijan higher education, 3) to analyse the external factors affecting the implementation of ICT sector tools in Azerbaijan higher education, 4) to analyse internal factors influencing the educational process in Azerbaijan higher education in with the use of ICT techniques and 5) to provide expert assessment of the use of ICT techniques in Azerbaijan higher education.

The research methods are the analysis of statistical data, their grouping and comparison, expert evaluation of external (PEST analysis) and internal factors (SWOT analysis) that affect the use of ICT technologies in Azerbaijan higher education. Here were used the statistical data of Azerbaijan State Statistics Committee, electronic pages and internal reports of the Azerbaijan State University of Economics – UNEC. To reveal the role of ICT sector in the national economy, here were used the data for 2015-2022, and data for 2000/01-2021/22 academic years to analyse the activities of Azerbaijan higher education.

The main questions of the study were: 1) Is the ICT sector of Azerbaijan sufficiently developed for the application of electronic spheres in the field of banking services, trade, commerce, as well as in the field of medical services and education?; 2) Is the level of ICT techniques provided sufficient for their active application in the field of Azerbaijan higher education?; 3) How has the pandemic contributed to the accelerated use of electronic services – e-education, e-training, e-conference, DocuSign, e-banking etc.?

PEST analysis of political, economic, social and technological factors has been conducted and demonstrated the positive and negative assessment of ICT techniques in higher education in Azerbaijan.

It has been shown that in a pandemic situation there are both positive and negative aspects of online classes as regards in the fields of techniques, methodology and psychological features.

SWOT-analysis has been used to examine the opportunities of the ICT sector in higher education in Azerbaijan.

It has been found out that in the current situation in the Azerbaijanian higher education system, more flexible and optimal content, as well as the implementation of teaching strategies, and the expansion of initiatives related to the promotion of innovations have come to the fore. In the field of higher education attention is paid to the application of distance education, solving and developing the issues of technological equipment and providing quality internet connection. Yet another important direction of the state strategy is improvement of the legislative framework related to the new digital forms of education, as well as development of digital skills of pedagogical staff and students of HEI.

Keywords: ICT services in Azerbaijan, ICT techniques, ICT techniques in high education, Azerbaijan high education and ICT sector, PEST and SWOT analysis of ICT techniques in Azerbaijan high education.

Абасова С.Х. ІКТ-технології у вищій освіті: досвід Азербайджану в період пандемії

Метою статті є вивчення стану використання техніки та інструментів ІКТ у вищій освіті Азербайджану. Завданнями дослідження є: 1) обґрунтувати роль сектора ІКТ в національній економіці Азербайджану, 2) вивчити використання інструментів сектора ІКТ у вищій освіті, зокрема у вищій освіті Азербайджану, 3) проаналізувати зовнішні фактори, що впливають на впровадження інструментів сектора ІКТ у вищій освіті Азербайджану, 4) провести аналіз внутрішніх факторів, що впливають на освітній процес у вищій школі Азербайджану з використанням технологій ІКТ та 5) здійснити експертну оцінку використання технологій ІКТ у вищій освіті Азербайджану.

Методами дослідження є аналіз статистичних даних, їх групування та порівняння, експертна оцінка зовнішніх (PEST-аналіз) і внутрішніх факторів (SWOT-аналіз), які впливають на використання ІКТ-технологій у вищій освіті Азербайджану. Також були використані дані Державного комітету статистики Азербайджану і ті, які розміщено на електронних сторінках, внутрішні звіти Азербайджанського державного університету економіки – UNEC з метою виявлення ролі сектора ІКТ в національній економіці, де були опрацьовані дані за 2015-2022 роки та дані за 2000/01–2021/22 навчальні роки для аналізу діяльності системи вищої освіти Азербайджану.

Основними питаннями дослідження були: 1) Чи достатньо розвинений сектор ІКТ Азербайджану для застосування електронних засобів у сфері банківських послуг, торгівлі, комерції, а також у сфері медичних послуг та освіти? 2) Чи достатній рівень наданих ІКТ для їх активного застосування у сфері вищої освіти Азербайджану? 3) Як пандемія сприяла прискоренню у використанні електронних послуг – електронної освіти, електронного навчання, електронних конференцій, DocuSign, електронного банкінгу тощо?

Був проведений PEST-аналіз політичних, економічних, соціальних і технологічних факторів, який продемонстрував позитивні та негативні оцінки технологій ІКТ у вищій освіті в Азербайджані. Було показано, що в умовах пандемії онлайн-заняття мають як позитивні, так і негативні сторони щодо технологій, методології та психологічних особливостей їх проведення.

Для вивчення можливостей сектора ІКТ у вищій освіті Азербайджану був використаний SWOT-аналіз. Установлено, що в поточній ситуації в системі вищої освіти Азербайджану на перший план виходить більш гнучкий і оптимальний зміст, а також реалізація стратегій навчання та розширення ініціатив, пов'язаних із просуванням інновацій. У сфері вищої освіти увага приділяється застосуванню дистанційної освіти, вирішенню та розвитку питань технологічного оснащення та забезпечення якісного підключення до мережі Інтернет. Ще одним важливим напрямом державної стратегії є вдосконалення законодавчої бази щодо нових цифрових форм навчання, а також формування цифрових навичок у педагогічних працівників та студентів ЗВО.

Ключові слова: ІКТ-послуги в Азербайджані, методи застосування ІКТ, методи застосування ІКТ у вищій освіті, азербайджанська вища освіта та сектор ІКТ, PEST та SWOT аналіз методів використання ІКТ у вищій освіті Азербайджану.

Statement of the problem. Information and communication technologies are actively used not only in the field of communications and telecommunications, but also rapidly entered the social life of people. The pandemic has accelerated the use of ICT in the banking sector, in the provision of medical services, in the purchase and delivery of goods, medicines, food from public catering, as well as in training and education.

The purpose of the article is to study the use of ICT techniques in Azerbaijan higher education. The objectives of the study are: 1) to substantiate the role of ICT sector in Azerbaijan national economy, 2) to study the use of ICT sector tools in higher education, in particular in Azerbaijan higher education, 3) to analyse the external factors affecting the implementation of ICT sector tools in Azerbaijan higher education, 4) analysis of internal factors influencing the educational process in Azerbaijan higher education in with the use of ICT technologies and 5) expert assessment of the use of ICT technologies in Azerbaijan higher education.

Presentation of the main study material.

1. ICT sector and high education in Azerbaijan

Information technologies are deminstrating their impact not only on the economic, but also on the social sphere. Information technologies' using has increased during the pandemic. Internet has affected the functioning of many infrastructures – banking, healthcare, education. Internet users become an important part of online services, espicially in education sphere. (see Table 1.) [Azerbaijan Statistic Collection, 2021].

Table 1

Volume of information and telecommunication services in Azerbaijan, AZN

Indicators	2015	2017	2019	2021	In 2021 compared to2015,%
Total:	1623550.0	1731752.0	2229982.0	2391079.0	147,3
Documentary electrical communication service	617.0	1600.0	1108.0	680.7	110.3
Intercity and international relations service	115359.0	63395.0	45447.0	34143.0	70.4
Mobile phone communication service (thousand AZN)	873396.0	857034.0	9112166.0	980960.0	112.3
Internet service (thousand AZN)	122018.0	132692.0	157102.0	249071.0	204.0

Compared to 2015, documentary telecommunication service increased by about 47.3% in 2021, mobile phone communication service by 12.3%, internet services by almost 2 times, and long distance and international communication decreased by 29.6%. The decrease in the volume of intercity and international communication is due to the wide spread of Internet and the growth of social networks. The communication services provided to population make up about half of the communication services for the whole country and decreased from 61.2% in 2015 to 52.1% in 2021 (Table 1).

As can be seen from Table 2, the share of mobile phone communication in the export of ICT products and services, which is equal to 43.6%, the share of internet communication – 11.0%, the share of other communication activities – 11.6%, and the share of telephone communication – 10.0%. In 2021 compared to 2015, computer production increased 17 times, and internet communication increased by 221.3 [S.H. Abasova, 2022].

According to Azerbaijan Statistic collection [Azerbaijan industry, 2022; Azerbaijan Statistic Collection, 2021] in 2015-2021 the documentary electronic communication service for population has increased by 59.4%, mobile electronic communication – by 45.1%, and internet service – by 15 times. The volume of intercity international telephone communication service for population has decreased 15 times.

Table 2

Azerbaijan ICT sector's producing outputs and services, million AZN

	2015	2017	2019	2021	In 2021 compared to 2015,%
Total:	1589,3	1688,0	2089,2	2249,6	141,5
From them:					
– Internet communication	112.5	132.7	157.1	249.0	221.3
– Other communication activities	137.1	174.5	264.9	260.1	189.7
– Mobile phone communication service	874.3	857.0	912.2	980.9	112.2
– Phone communication service	222.3	194.5	196.9	224.3	100.9
– Sales of computer and peripheral equipment	27.3	22.3	35.5	46.0	168.5
Computer manufacturing	0.01	1.7	8.0	17.0	17 times

Source: [İnformation society, 2021].

Table 3

Dynamics of service costs for ICT equipment, million AZN

	2019	2020	2021	In 2021 compared to 2019, %	In 2021 compared to 2020, %
Total:	128.6	157.7	216.4	168.1	137.2
Maintenance costs	34.0	44.0	62.5	183.8	142.0
Expenditure on ICT equipment	25.4	28.3	27.5	108.3	97.2 (-2.8)
Internet service costs	19.7	23.1	28.2	143.2	122.1
Expenses incurred on purchased licenses	29.9	32.6	64.8	216.7	198.8
Other costs	19.6	29.7	33.4	170.4	112.5

Source: [Information society statistic collection. Part 3.2, 2021]

In 2019-2021 the technical support costs were equal to 83.8%, in pandemic period (2020-2021) – 42.0% (Table 3.). Internet connection expenditures amounted to 43.2 and 22.1% respectively. ICT equipment spending expenditures increased by 8.3% during 2019-2021, in pandemic period (2020-2021) the spending expenditures decreased by 2.8% (Table 4).

Table 4

Dynamics of service expenditures for ICT equipment, million AZN

	2019	2020	2021	In 2021 compared to 2019, %	In 2021 compared to 2020, %
Total:	128.6	157.7	216.4	168.1	137.2
Maintenance costs	34.0	44.0	62.5	183.8	142.0
Expenditure on ICT equipment	25.4	28.3	27.5	108.3	97.2 (-2.8)
Internet service costs	19.7	23.1	28.2	143.2	122.1
Expenses incurred on purchased licenses	29.9	32.6	64.8	216.7	198.8
Other expenditures	19.6	29.7	33.4	170.4	112.5

Source: [Information society statistic collection. Part 3.2, 2021]

PEST analysis demonstrates the positive and negative assessments of ICT techniques in higher education of Azerbaijan (Table 5.).

Table 5

PEST analysis of ICT implementation in higher education in Azerbaijan in pandemic

Positive assessments	Negative assessments
Political factors	
– in the world's formal education sector, the following systems are used: Openmeetings; Web-CT; Adobe Connect; E-Nocta; Moodle; BlackBoard; – ensuring the development of a national platform for online courses, increasing the number of online courses posted on this platform; – ensuring the development of a digital learning environment for all.	– in Azerbaijan, the teaching process is carried out mainly through Microsoft Teams and Zoom programs under the Ministry of Education; – adoption of basic decisions by the regulator (Government, Ministry of Science and Education) in the field of application of distance learning technologies; – measures to support universities (including non-state ones) from the state.
Economic factors	
– creation of national services for providing remote work (for example, a proctoring system, a service for remote admission of students to universities); – to join forces with technology companies, to position universities as a qualified customer and incentivize the creation of pampered and competitive services (through grant competitions for potential suppliers).	– problems of organizing quality education during the pandemic; – risks of a decrease in the income base of the University (decrease in the solvency of potential applicants/students, etc.); – lack of own resources for the continuous development of the educational and methodological base and material and technical infrastructure of distance education.
Social factors	
– mutual communication and feedback; – limited opportunities in some subjects; creation of virtual project groups that perform tasks together; – creation of volunteer groups that help weak students remotely; – development of IT volunteering – providing assistance in distance learning for both students and teachers.	– social isolation; – the problem of adaptation; – lack of self-motivation and time management; copying; – with the increase in the share of distance education, it is necessary to pay special attention to the issues of socialization of students.
Technological factors	
– there are virtual learning spaces such as U-Demy, Coursera, Khan Academy, Quora, EdX platform; – application of relatively inexpensive and scalable technological solutions for ensuring security in the digital environment; – development and implementation of programs for the development of digital tools and digital content required for the organization and conducting of online practical classes, virtual laboratories, the use of simulators, virtual and augmented reality.	– internet connection; – the presence of technological inequality in transition to the distance education format.

The state attention to the development of higher education in Azerbaijan is increasing. Since 2005, Azerbaijan has joined the world educational space – the Bologna process. Thousands of young people were sent to the most prestigious universities of Turkey, Germany, France, Canada, Russia, Singapore, the USA, Lithuania, Great Britain, Italy and other countries within the framework of the State Program for the education of Azerbaijanian youth abroad for the period of 2007-2022 [Management and Quality of Education during the Pandemic, 2021, p. 8].

In the higher education system, more flexible and optimal content, as well as the implementation of teaching strategies, the expansion of initiatives related to the promotion of innovations have come to the fore. In the field of higher education, the attention has been paid to the application of distance education, solving and developing the issues of technological equipment and providing quality internet connection. Improvement of the legislative framework related to the new form of education is one of the important directions of the state strategy.

In this regard, the higher schools of Azerbaijan should transfer to new areas of activity, including:

– ensuring a quality educational process based on distance learning educational technologies;

– ensuring the remote functioning of the educational organization itself as an object of management.

The new situation significantly changes the legal, economic, organizational and managerial regime of their functioning. On the one hand, significant investments are needed in new distance learning technologies that ensure the transfer of the educational process into the format of indirect (remote) interaction between teachers and students. On the other hand, it is necessary to organize the remote functioning of educational organizations as objects of management, create fundamentally new content, and provide the retraining of teaching and administrative personnel.

For 22 years, new universities have been created in Azerbaijan, among which we can name the aviation university, the university of tourism, and the university for the training of chief personnel of border services, customs control and specialists in the field of communications and high technologies. Many branches of state universities in the periphery of the republic have grown to the rank of independent universities. If before 1990 there were 17 universities functioning in the republic, then by 2022 there were 3 times as much. For the period 2000/01 – 2021/22 the number of universities increased by 18.6%, and the number of students – by 76.7% (Table 6.). The table provides comparative data of the countries of the former USSR [Science, Education and Culture, 2022].

Table 6

Number of Universities (NU) and number of students (NS, in thousand person) in former USSR countries

Countries	2000/2001		2010/2011		2019/2020		2020/2021		2021/2022		In 2021/22 to 2000/01, in %	
	NU	NS	NU	NS	NU	NS	NU	NS	NU	NS	NU	NS
Azerbaijan	43	120	51	140	52	188	52	199	51	212	118.6	176.7
Armenia	90	61	74	111	60	75	59	80	59	79	65.6	129.5
Belarus	57	282	55	443	51	273	50	263	50	255	87.7	90.4
Kazakhstan	170	441	149	620	125	604	125	577	125	576	73.5	130.6
Kyrgyzstan	45	189	56	230	38	160	57	214	60	230	133.3	121.7
Moldova	47	79	33	108	27	57	24	59	24	60	51.1	75.9
Tajikistan	30	78	33	152	40	230	41	246	41	240	136.7	307.7
Russian Federation	965	4741	1115	7050	741	4168	741	4049	741	4044	76.8	85.3
Ukraine	315	1403	349	2130	281	1266	515	1142	386	1047	122.5	74.6
Uzbekistan	61	184	–	–	119	441	127	572	154	808	252.5	439.1

If we turn to the ratio of state and non-state universities, we can see that for 2000/01 – 2021/22 the number of public universities grew, while the number of non-state universities decreased.

Table 7

**Number of state and non-state Universities (NU) and number of students
(NS in thousand person) in Azerbaijan**

	2000/2001		2010/2011		2019/2020		2020/2021		2021/2022		In 2022/21 to 2000/01, %	
	NU	NS	NU	NS	NU	NS	NU	NS	NU	NS	NU	NS
State	47	119.7	51	140.2	52	187.6	52	198.7	51	212.2	108.5	177.3
Non-state	18	28.7	15	19.7	12	18.7	12	21.6	12	24.2	66.7	84.3

As can be seen from Table 7, for 2000/01-2021/22 the number of state universities increased by 8.5% against the number of students, which increased by 77.3%. During the same period, part of the non-state universities was transferred to the status of state universities, and their common number decreased by 33.3%, and the number of students also decreased by 15.7%. If you look at the data during the pandemic, you can see that the decrease in the number of universities did not affect the number of students (for 2019/20-2021/22, their number in state universities and non-state universities increased by 13.1% and 29.4% respectively).

During the pandemic in 2020, according to the decision of the Cabinet of Ministers of Azerbaijan No. 179 dated May 18, 2020 "On some measures related to the elimination of the negative impact of the Corona virus (COVID-19) pandemic on the educational process in the educational institutions of the country", the examination results of the students are based on the grading of previous years (Accepted according to the General Average Success Indicator – GPA). For students who could not participate in the organized assessment (final assessment or interim assessment) or who participated and received an unsuccessful grade (in August – September 2020), the next exam will be held until the start of the next semester.

During the pandemic, teaching staff and students received 3 doses of antiviral vaccines. In the 2020/2021 academic year, taking exams and defense of master's dissertations were conducted online only; various documents were signed through the docusign program. For the September-October months of the 2021/22 academic year, 5623 lessons were organized at the baccalaureate level only at the Azerbaijan State University of Economics - UNEC, 1886 or 33.3% of which were conducted online, and 3737 or 66.5% of the lessons were conducted offline. As of 07 October 2021, 97.4% of students participated in online classes and 87.9% in offline classes.

2. Analysis and evaluation of ICT techniques applied in Azerbaijani universities

During the 2021/2022 and 2022/2023 academic years, classes in large universities such as UNEC and Baku State University continued to be held both offline and online. This was caused by a number of factors:

– part-time students joining distance learning;

– about 30% of the teaching staff is of retirement age (people over 65 years old) and people with certain diseases (diabetes, hypertension, allergies, etc.) due to work restrictions during the pandemic;

– lack of rooms in universities.

In October 2021, a survey was conducted among 11,289 professors and teachers at UNEC on the organization of classes related to the pandemic, and the following results were obtained:

– 50.6% of teachers, 46.4% of students, 45.9% of employees prefer the online mode;

– 16% of teachers, 19.65% of students, 19.1% of employees choose a blended (online+traditional) mode;

– 33.4% of teachers, 34% of students, and 35% of employees said that they wanted to restore traditional work [Unec. Instagram, 2021].

Since the announcement of the pandemic, all teachers have placed the lectures and reports, programs for seminars on all subjects in university library database, as well as sent students by e-mail. At the same time, it was decided to hold online classes, taking into account the laziness and inattention of the students.

It should be emphasized that the educational platform implemented in Azerbaijan during the pandemic was included in the list presented on the official website of UNESCO. So, in connection with the spread of the COVID-19 pandemic in the world, a list of distance education plat-

forms, electronic portals and training applications has been presented on the official website of UNESCO [Education: from school closure to recovery, 2021] in order to facilitate the learning process of students. Taking into account that the state television covers the whole country, it was decided to broadcast the lessons on 2 television channels ("Culture" channel of Azerbaijan Television and "ARB Gunesh" channel). Video lessons on theoretical subjects (Economic Theory, Basics of Management, etc. for the 1st and 2nd year students) have been written and demonstrated at UNEC and Western Caucasus University.

All the tele-lessons shown are posted for free use on the electronic portal of the Ministry of Education [Təhsil Nazirliyinin teledərsləri, 2023] www.video.edu.az and on the official Facebook page and on the Youtube channel, which creates additional opportunities for students.

Higher education institutions have been given the opportunity to use the MS Teams platform provided by the Ministry of Education free of charge, and technical support is being provided to them. In addition, during the distance organization of the educational process more of universities have widely used the Coursera for Campus program of Stanford University (Azerbaijan State Economic university – UNEC, Baku Higher Oil School – BHOS), Blackboard Collaborate program (Azerbaijan Academy of Diplomacy – ADA), KOICA company system (Azerbaijan Technical University – AzTU), ZOOM and Moodle, Google classroom and the capabilities of other programs by their universities' internal electronic management system. Students who cannot participate in online classes for certain reasons have the opportunity to watch video recordings of lectures. Students have a chance to receive the listed programs, lectures, syllabi, presentations, exam questions and other educational materials [Azərbaycan təhsilinin pandemiya sınağı, 2022].

Here are our results after the pandemic:

– in Azerbaijan, which has 2 artificial satellites, the speed and volume of ICT services should increase;

– state institutions should support the high level of ICT services in Azerbaijan;

– both educators and students must have excellent digital skills;

– control of the quality of education during online education, the use of different tools and technologies in training should take the main place;

– regular dialogue and feedback should be carried out remotely.

Along with the existing challenges mentioned above, some of the following positive aspects of online classes can be noted [Management and Quality of Education during the Pandemic, 2021, p. 18]:

– in contrast to traditional teaching, online teaching provides more openness and transparency. In the conditions of a pandemic, the control of classes through the Internet is easier and more effective;

– open classes held once a year in traditional education are mandatory in online education. This also affects teachers to approach lessons more responsibly, and to work more on themselves;

– participation and activity of students in online classes is more noticeable.

The transition to a distance form of education had an impact on all participants in the educational process, the stressful situation affected students, teachers and the management of higher educational institutions in Azerbaijan.

Negative factors affecting the distance form of education can be divided into 3 blocks of problems. The first block of problems is instrumental. The teachers reviewed their technical means, and the first two weeks were devoted to mastering information technology programs in the field of education. The second block of problems is methodical. It was necessary to methodically reformat educational materials within two weeks, upload them to the databases of university libraries and university websites. And the third block of problems is psychological. A professor without the student audience feels like a performer in an empty auditorium. The professors had to master a new format - the format of a film actor's game, when they have to lecture without eye contact, without audience. It should be noted that webinar classes compensate for this lack [Management and Quality of Education during the Pandemic, 2021, p. 16].
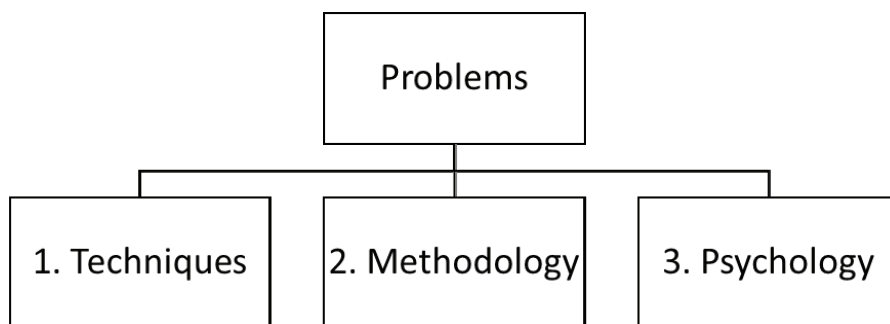
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Figure 1. Problems of online education in Azerbaijan

Thus, it should be noted that when introducing ICT into the process of distance education, it is necessary to take into account not only psychological and organizational factors, but also regional, national, cultural characteristics, spiritual and moral values of the population of Azerbaijan. A SWOT-analysis of using the opportunities of the ICT sector in higher education in Azerbaijan might be a useful tool in this regard [Management and Quality of Education during the Pandemic, 2021, p. 18-20, 65].

The lack of the skills mentioned in Table 8 limits the possibilities of using high technologies and modern applications, creates serious obstacles to education and activity. Thus, one of the main directions of action should be the expansion of the scope of measures that serve to develop digital skills.

Table 8

SWOT analysis of ICT techniques' implementation in higher education in Azerbaijan in pandemic

Strengths	Weaknesses
– Experience in distance teaching using ICT technology. – The presence of a special unit responsible for quality assurance of educational process based on distance learning technologies. – Availability of modern information and communication infrastructure at universities (including software and hardware, technical complex) for the implementation of educational programs in a remote format. – Availability of highly qualified teaching staff with knowledge of modern information technologies. – Constant monitoring of the quality of the implementation of the educational process. – Studying the degree of student satisfaction (feedback from students).	– Decrease in solvency of potential applicants/ students, etc. – Insufficient preparedness of some teachers, especially older ones, for distance learning. – Insufficient technical equipment (problems with electricity, lack of an equipped computer, poor Internet connection, etc.) of some teachers to conduct a quality educational process remotely. – Insufficient technical equipment of some students for high-quality distance learning. – Psychological problems (for lecturers and students) during the transition to distant learning.
Opportunities	Threats
– Availability of certain accessible (including free) domestic and foreign positive experience in the development and application of modern distance learning technologies (platforms, content of educational programs, guidelines, etc.). – Increasing the readiness of potential students for distance learning.	– Decline in the quality of education, the level of training and qualifications of specialists. – Insufficient elaboration of the regulatory legal framework for regulation of distance education. – «Washing out» of the educational space of small (especially non-state) universities that are unable to compete with large state universities.

Conclusion.

Constructive training by ICT techniques has also confirmed its effectiveness among the new methods, training and tools that educational reforms have brought to the educational system:

– In order to change the education system, attention should be paid to the fact that the teachers are alive and the learners are creative, and the importance of the taught subjects should be paid attention to.

– The state should be interested in the problems of teachers and take care of improving their living conditions.

– Students' creativity and work should be evaluated in modern universities.

– Creative application of knowledge should be valued.

– Demonstration of the most exemplary works of students should be applied as a way of evaluating the possibilities of impact on education.

– The development of the society between the country, state, university-institutions should be evaluated.

– It is necessary to specify learning together, create conditions, and be ready to change. It is necessary to improve the young generation, prepare it for the new world, and direct it to a different format.

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ICT TECHNIQUES IN HIGHER EDUCATION: AZERBAIJAN EXPERIENCE IN PANDEMIC

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The purpose of the article is to study the use of ICT techniques in Azerbaijan higher education. The objectives of the study are: 1) to substantiate the role of ICT sector in the Azerbaijan national economy, 2) to study the use of ICT sector tools in higher education, in particular in Azerbaijan higher education, 3) to analyse the external factors affecting the implementation of ICT sector tools in Azerbaijan higher ed-ucation, 4) to analyse internal factors influencing the educational process in Azerbaijan higher education in with the use of ICT techniques and 5) to provide expert assessment of the use of ICT techniques in Azer-baijan higher education.

The research methods are the analysis of statistical data, their grouping and comparison, expert eval-uation of external (PEST analysis) and internal factors (SWOT analysis) that affect the use of ICT technolo-gies in Azerbaijan higher education. Here were used the statistical data of Azerbaijan State Statistics Com-mittee, electronic pages and internal reports of the Azerbaijan State University of Economics – UNEC. To reveal the role of ICT sector in the national economy, here were used the data for 2015-2022, and data for 2000/01-2021/22 academic years to analyse the activities of Azerbaijan higher education.

The main questions of the study were: 1) Is the ICT sector of Azerbaijan sufficiently developed for the application of electronic spheres in the field of banking services, trade, commerce, as well as in the field of medical services and education?; 2) Is the level of ICT techniques provided sufficient for their active appli-cation in the field of Azerbaijan higher education?; 3) How has the pandemic contributed to the accelerat-ed use of electronic services – e-education, e-training, e-conference, DocuSign, e-banking etc.?

PEST analysis of political, economic, social and technological factors has been conducted and demon-strated the positive and negative assessment of ICT techniques in higher education in Azerbaijan.

It has been shown that in a pandemic situation there are both positive and negative aspects of online classes as regards in the fields of techniques, methodology and psychological features. The most signifi-cant conclusions concerning ICT implementation in higher education in Azerbaijan after the pandemic have been shown. They cover the following positions: in Azerbaijan, which has 2 artificial satellites, the speed and volume of ICT services should increase; state institutions should support the high level of ICT services in Azerbaijan; both educators and students must have excellent digital skills; control of the quality of edu-cation during online education, the use of different tools and technologies in training should take the main place; regular dialogue and feedback should be carried out remotely.

SWOT-analysis has been used to examine the opportunities of the ICT sector in higher education in Azerbaijan.

It has been established that in the current situation in the Azerbaijanian higher education system, more flexible and optimal content, as well as the implementation of teaching strategies, and the expansion of initiatives related to the promotion of innovations have come to the fore. In the field of higher educa-tion attention is paid to the application of distance education, solving and developing the issues of techno-logical equipment and providing quality internet connection. Yet another important direction of the state strategy is improvement of the legislative framework related to the new digital forms of education, as well as development of digital skills of pedagogical staff and students of HEI.

Thus, the new world's situation significantly changes the legal, economic, organizational and man-agerial regime of HEI functioning. On the one hand, significant investments are needed in new distance learning technologies that ensure the transfer of the educational process into the format of indirect (re-mote) interaction between teachers and students. On the other hand, it is necessary to take a decision on organizing the remote functioning of educational organizations as objects of management, creation of fun-damentally new content, and the retraining of teaching and administrative personnel to ensure their read-iness to work with the use of ICT techniques.