SciencePG
Science Publishing Group

Research Article

Higher Education in Uzbekistan: Transition to Digital Learning

Usmonov Botir[*] (iD)

Education, Tashkent Institute of Chemical Technology, Tashkent, Uzbekistan

Abstract

The author analyzes stages of digitalization and the emergence of new digital technologies, which represent a huge educational potential. The possibilities of digital technologies in the educational process of the university are also considered. The economic development in Uzbekistan presupposes an active position of the educational community in analyzing and developing new proposals in the context of digitalization of higher professional education. The situation is such that it is simply impossible for us not to use digital in order to keep up with further processes of informatization and digitalization in education. The article discusses the benefits and some challenging aspects that have impacted Uzbek Universities and Technical Institutes (HEIs of Uzbekistan) as they continue to educate students during the COVID-19 pandemic. This reflects the impact of unprecedented COVID-19 on the educational services of higher education institutions. There was suddenly an expectation that universities would adhere to COVID-19 prevention measures, including social distancing and hygiene. As a result, many universities have switched to remote transfer of knowledge and courses. This article encourages university leaders to embrace online teaching methods and digital learning systems that support universities to continue educational processes in the post-COVID-19 era. The author conclude that the digitalization of education is changing the content of the courses taught, as well as the flow of information, this is not only presentations or videos, but these are also direct connections to information networks, databases, forums. The article summarizes, demonstrating key implications for university presidents and identifying future research directions for academia.

Keywords

Higher Education, Coronavirus, COVID-19, Universities, Educational Technologies, Digital Learning

1. Introduction

For the following academic year, all higher education institutions, including all regional universities and institutes, have ceased classroom use to stop the widespread spread of the virus (COVID-19) among university students and staff. This was a situation of both challenges and opportunities for university management. The country's leadership had to start applying all preventive measures, including all possible WHO recommendations, in order to slow the spread of coronavirus infection. Thus, higher education institutions have embraced the development of digital learning technologies to deliver their learning materials to students [5]. The government and policymakers of Uzbekistan began developing contingency plans and collected detailed information about the spread of the virus, began training their employees to work remotely,

and organized digital information sessions with their students and/or other stakeholders [4]. All universities are recommended to close academic buildings in accordance with WHO recommendations [11]. Thus, Uzbek universities have begun to accelerate the use of all digital educational technologies to continue the educational process beyond campuses.

Today more universities use digital learning forms. This form of online courses becoming more popular and fast-growing teaching methods for instructors (Figure 1).

For a university, the use of digital form of learning is cur-rently a necessary condition for become competitive among higher education institutions [1]. The number of universities offering digital form of learning programs has increased sharply over the past five years, the courses taught have diversified, and the number of learners of the online courses has increased significantly. Moreover, the question remains open what the acceptable share of the use of digital education in the advanced form of teaching undergraduate and graduate programs in universities is [7].
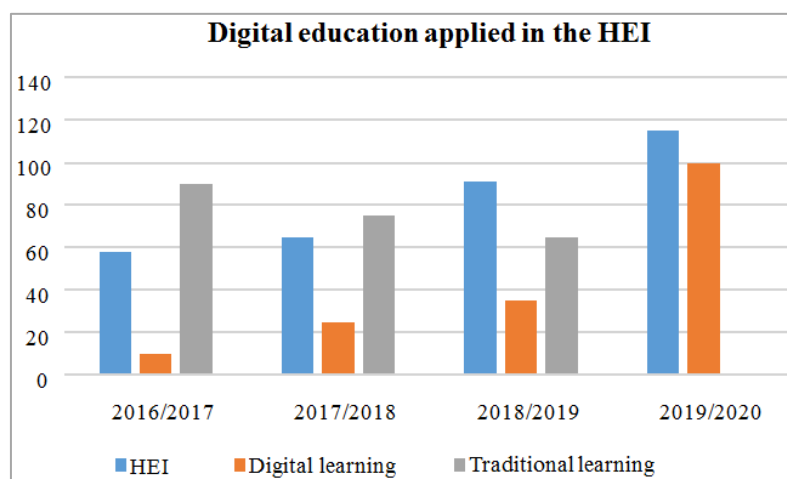
Figure 1. Application of digital education in the higher education system of Uzbekistan.

Currently, digital education and training is understood as the combination of new teaching processes via electronic services and advanced telecommunications and digital technologies. The digital form of education allows you to create systems of continuous mass training and information exchange.

Digital education and training have a several of advantages which make it possible to present it even as an alternative to classical higher education. Although, these advantages include the opportunity to study extraterritorially and at a pace and time convenient for students, and it does not problem where you are. Also, an instructor uses those advantages to save time, finances on training, the possibility to choose a course of interest, a specific teacher or researcher of the required level. Compensation for the lack of qualified teaching staff with full knowledge of modern trends in the development of the research and technological achievements. Thus, in today's dynamically changing world the efficiency, flexibility and modularity of digital education meets the requirements of the education [2].

However, there are being counted a number of significant disadvantages of the digital teaching and learning, perhaps the inability to transfer complex specialized courses that require specialized laboratories and conditions (Table 1).

Table 1. Areas of study implemented at the university as part of digital learning*.

Faculty or departments	Training profile (remote)
Economics and management of technical systems	Economy Management in technical systems Control Pedagogical education under the programs "Pre-university education"
Food engineering and technology	Technological machines and equipment Food engineering Automation of technological processes and production Food safety

* Analytical note for the development of the university education system.

This analysis demonstrates preventative measures at Uzbekistan's HEU to address the impact of COVID-19. It shows the difficulties and serious responses that Uzbekistan's HEUs face in the short to medium term. The authors conclude by discussing next steps in the post-pandemic period.

2. Methods and Materials Digital Learning Technologies

Some educational institutions have managed to shift from traditional classroom and blended approaches to entirely out-of-classroom and digital learning due to the pandemic lockdown [5]. However, this situation creates many different problems for teachers and their students. Governments and university presidents should create learning environments and/or introduce training courses on electronic learning (e-learning) resources. Public and private HEIs of Uzbekistan must have wide access to a wide Internet connection (at home or in remote locations) to use their learning management systems (LMS), such as Moodle, e-Class and Google Classroom. Otherwise, teachers communicated with their students through virtual video conferencing systems in real time [4]. Instructors should be prepared to potentially use a variety of massive open online course (MOOC) platforms, such as Coursera and EdX, or video conferencing platforms, including Zoom, Skype for Business, and EduMeet, for use in their classrooms. There is a global market for solutions that leverage cloud technologies owned by Microsoft, Google, and National Research Education Networks (NRENs).

Many universities have started using LMS when uploading asynchronous learning materials, including resources such as research papers, case studies, video lectures, and others. To maintain interactive learning sessions with students, universities are using synchronous methods to convey information to their students (as they use video conferencing) to improve their learning skills. COVID-19 is pushing universities to adopt e-learning and mobile learning (eLearning) in their daily teaching processes. It was expected that the university management and course teachers would develop new teaching methods and techniques. Course developers have been asked to organize remote learning classes using virtual classroom services [11].

Consequently, university course instructors have developed questionnaires, computerized tests, or laboratory/practical exercises that are completed using digital and mobile technologies. Using these designed instructions, they interacted and worked with students in real time. However, starting off-campus classes was not natural or easy. As part of testing the work of students in training programs using digital learning and teaching methods, a survey was conducted among students of faculties No. 1 and No. 2 of the Tashkent Institute of Chemical Technology (Tashkent). The following

questions were distributed and used in the questionnaire. What kind of tasks do you think e-learning solves? What are the most important benefits of e-learning for you? Why are your teachers using digital learning technologies in e-learning? Please indicate the best channels of communication with the instructor. How will affect e-learning system for the improvement of quality of your education? How do you rate the use of e-learning system at your university? 52 students from Department No. 1 and 50 students from Department No. 2 took part in the survey.

3. Challenges and Responses in Real Perspective

From a technical perspective, some teachers and students initially found it difficult to embrace digital learning. They may benefit from having a quick way to get support if they encounter difficulties and/or resolve technical issues. Isolating students has the potential to throw them off track [3] or develop a bad side of self-discipline. It is the responsibility of teachers to observe and explore their students' emotions [8] and psychosocial problems [3]. Another obvious negative challenge is the socialization of students, since they all remain remotely and have the opportunity to personally communicate with each other, with instructors and other learners in the educational process. And another problem in the context of Uzbekistan is access to e-technology and high-speed Internet. Universities should organize regular virtual meetings to help avoid feelings of loneliness or helplessness of students, supporting them to share their experiences and discuss coping strategies [10]. In other cases, educators can manage the length of their digital learning sessions to support students' self-regulatory and metacognitive abilities.

Their digital lectures can be complemented by non-digital learning activities. Universities must make their digital learning programs accessible to all students and faculty, including people with disabilities or from disadvantaged backgrounds. UNESCO (2020) suggested that governments of every country should help these vulnerable people by providing them with learning technologies (such as laptops or tablets, if necessary). At the same time, supporting them with internet connectivity and other issues. However, universities must have policies to protect the privacy and security of faculty and students downloading course materials online [6]. Internet resources, platforms, and applications (apps) are best used for e-learning without compromising the privacy of their users.

4. Challenges of E-learning in the Post-Pandemic Period

Online education will become one of the areas of strategical development in the education system of Uzbekistan, which is

reflected in the development strategy until 2030. Successful integration will require large human and material resources. This initiative may face a number of challenges of the information technology such as:

1) Infrastructure of internet and communication system.
2) Access to the internet.
3) digital literacy of society.
4) lack of IT-specialists.

As counted above the biggest challenge for development of e-learning system are communication infrastructure and access to electrical power supply. For example, Westminster International University in Tashkent (WIUT) conducted a survey among students and teachers in October 2020. It showed that 70% of students and 60% of teachers have problems connecting to the Internet. Additionally, 25% of students and 7% of teachers surveyed experienced power outages [9].

Another problem in the implementation of online education is equal access to online resources, while in the country about 12-15 % of the population have an income equal to the poverty level. The reason is that this section of the country's population does not have the necessary sources to purchase laptops and the necessary equipment to participate in online classes. Consequently, this low-income category of the population cannot afford to pay for high-speed Internet [3].

Those HEIs of Uzbekistan that have classroom educational services force and require all students and teachers to wear masks, maintain social distance and limit their gifts in public places, including outdoors. Of course, compliance with these requirements includes daily monitoring and screening for symptoms before entering campus; compliance with campus hygiene measures in public places; maintaining social distance (two meters); and compliance with signage in hallways, elevators, and stairwells.

Everyone is expected to follow government health and safety policy guidelines. Students were asked to use nearby hand sanitizing stations and not congregate at building entrances and exits.

However, most students are young people, so they are not at serious risk, but academic, office and technical staff are at risk. In this sense, HEUs of Uzbekistan always follow WHO instructions and regulations on COVID-19 procedures. In some cases, universities have discovered violations of virus control rules and are addressing the consequences. Accordingly, universities encourage conscientious behavior among their faculty and students. The university management is well aware of the restrictive measures to combat the pandemic. They also tried to track what students were doing off campus. However, students have responsibilities as members of university communities whose health and safety depend on individual and group behavior.

5. Results

It turned out that for the majority of respondents, the key advantage of digital education and learning is the ability to gain knowledge at a time convenient for them. Independent work skills were developed (Figure 2).
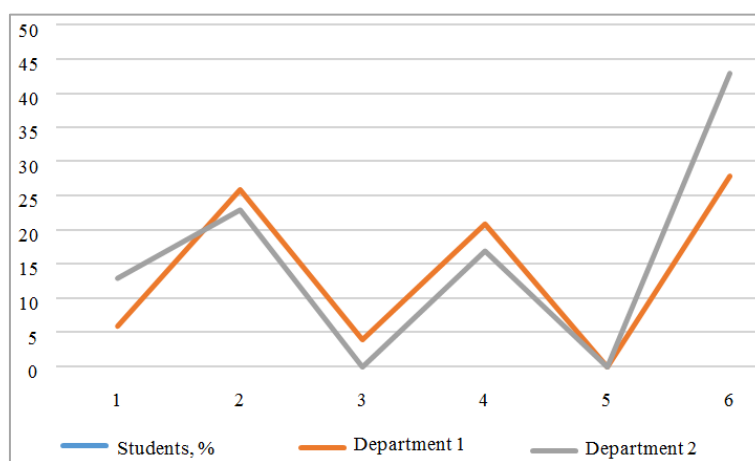
Figure 2. What problems, from your point of view, does e-learning solve? Answer options: 1. Increases the level of knowledge and skills. 2. Forms skills in working with volumes of information, develops independence in searching and using the necessary information. 3. Provides an opportunity to expand your social circle. 4. Develops abilities. 5. Develops self-control skills. 6 Forms motivation for self-education.

The survey confirmed the advantage of digital teaching and learning, noted by many, in the ability of students to independently create a convenient schedule for themselves with the allocation of a significant amount of free time, which allows them to combine study and work (Figure 3).
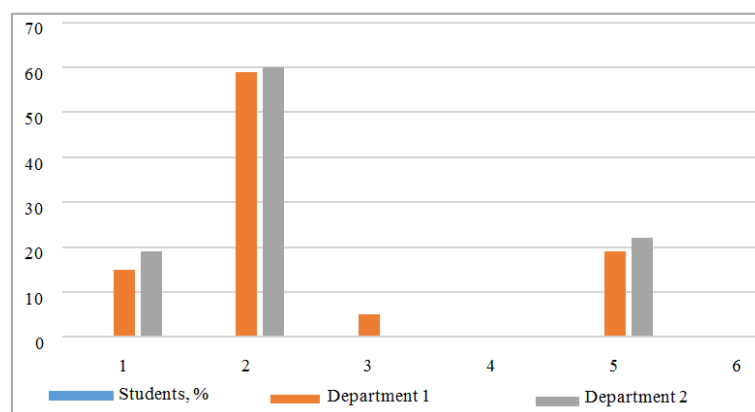
Figure 3. What are the most important benefits of e-learning for you? Answer options: 1. Flexibility of the educational process. 2. Ability to combine work and study. Technological learning process (use of information technology). 3. Gaining practical skills. 4. Training in a comfortable and familiar environment. 5. Easy contents updating and the ability to archive old materials: any educational materials remain available for download.

Online learning in higher education opens wide possibilities for applying electronic and media resources in the educational process. The studies demonstrated that for students, digital learning via the Internet is, first of all, access to educational materials posted on it. This was noted by 80% of respondents from both departments.

6. Conclusions

The emergence of COVID-19 has affected the quality of education and educational services in universities in Uzbekistan. The pandemic has impacted the delivery of quality education to students. Despite this, and positively, the pandemic has provided such an opportunity to develop and accelerate the adoption of digital education elements by higher education stakeholders. COVID-19 has prompted Uzbek universities to use new teaching methodologies, including synchronized online teaching and communication, to continue delivering curriculum and educational programs to students. The sudden and unprecedented closure of universities is forcing them to experiment with virtual/digital learning technologies and communicate with students in real time through video conferencing techniques.

In Uzbekistan, universities have faced a number of complex challenges and implications for successfully transitioning from traditional and blended teaching methods to fully virtual and digital learning. COVID-19 has impacted the quality of education and other university services in various ways. The pandemic has forced university presidents to embrace virtual technology to continue student-centered learning, disseminate high-impact research, and engage with stakeholders and expand outreach.

Indeed, there is scope for future research to explore the impact of digital learning through digital and mobile learning technologies for students.

In future studies, author will apply more advanced methodologies and analytical techniques to demonstrate the bene-

fits of digital learning adoption and effectiveness. Future research could explore students' perceptions of service quality and productivity of higher education services based on digital learning approaches [4]. They can also explore the impact of fully virtual and remote courses on student experiences and learning outcomes.

Author Contributions

Usmonov Botir is the sole author. The author read and approved the final manuscript.

Conflicts of Interest

The author declares no competing interests.

References

[1] Aktaruzzaman M., Plunkett M. (2016). "An Innovative Approach to a Comprehensive Digital Education System for a Developing Country," American Journal of Digital Education, vol. 4. pp. 211-224.

[2] Davletov F., (2020). Economic Review, 5(245), 10-15 [Electronic resource] // Access mode: https://review.uz/journals/05-245-2020

[3] Zhai, Y. and Du, X. (2020). Addressing student mental health during the COVID-19 pandemic. Psychiatric Research, 288 [Electronic resource] // Access mode: https://doi.org/10.1016/j.psychres.2020.113003

[4] Akhmedjanova D. (2020). Kak izmeneniya online-obucheniya v Uzbekistane posle karantina [Elektronnyy resurs] // Mode dostupa: https://www.spot.uz/ru/2020/11/18/education/

[5] Allen I. E., Seeman, J. (2017). Digital Learning at the Compass: Digital Education Enrollment Report, vol. 3. Babson Survey Research Group, p. 4351.

[6] Firat M., (2016). "Measuring Digital Learning Students' E-Learning Autonomy", Open Praxis, vol. 8(3), pp. 191–201.

[7] UNESCO (2020). COVID-19: 10 recommendations for planning solutions for digital learning, United Nations Educational, Scientific and Cultural Organization, Paris, France [Electronic resource] // Access mode: https://en.unesco.org/news/covid-10-19-recommendations-plan-distance-learning-solutions

[8] OECD (2020). OECD Coronavirus Policy: Education's Response to COVID19: Leveraging Digital Learning and Online Collaboration, Organization for Economic Co-operation and Development, Paris, France [Electronic resource] // Access mode: http://www.oecd.org/coronavirus/policyresponses/education-responses-to-covid-19-embracingdigital-learning-and-onlinecollaboration-d75eb0e8/

[9] Resolution of the Cabinet of Ministers of the Republic of Uzbekistan, No. 254. On additional organizational measures to prevent the spread of coronavirus infection in the Republic of Uzbekistan., Adopted on 04/25/2020, entered into force on 04/25/2020 [Electronic resource] // Access mode: https://iiv.uz/ru/pages/ozbekiston-respublikasi-vazirlarmahkamasining-qarorlari

[10] Uzbekistan Republic employment and work relations of the minister command. Quarantine OID measures action to do during employees in the remote MOG method, flexible MOG schedule Or at home to work of transfer temporary order about the charter confirmation about _ [Republic of Uzbekistan justice Ministry by March 28, 2020 register held, list number 3228] [Electronic resource] // Access mode: https://lex.uz/ru/docs/4776265

[11] EUA (2020). Covid-19 and universities", European University Association, Brussels, Belgium [Electronic resource]//Access mode: https://www.eua.eu/issues/27:covid-19and-universities-in-europe.html

Biography

Dr. Usmonov Botir is a professor at Tashkent Institute of chemical technology, Education and Automation Control Engineering Department. He acquired his DSc in Engineering from Tashkent State Technical University in 2020, and his Master of Science in Mechatronics from Hamburg-Harburg Technical University in 2001. He has been awarded the Global Engineering Certificate by Hamburg-Harburg Technical University. He has participated in multiple international research collaboration projects in recent years. He currently published numerous papers in the International Journals and at international conferences.