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**EXPLORING STUDENT BARRIERS TO DISTANCE  
EDUCATION IN HIGHER EDUCATION INSTITUTIONS IN  
THE CASE OF UZBEKISTAN**

Master's thesis

Technology Governance and Digital Transformation

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I hereby declare that I have compiled the thesis independently and all works, important standpoints and data by other authors have been properly referenced and the same paper has not been previously presented for grading.

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## **ABSTRACT**

Nowadays, technology is developing alarmingly, and more and more Higher Education Institutions opt to exploit modern technologies so as to provide high-quality education for their learners. Distance education become a solution for the majority of universities in the current pandemic. However, most developing countries were not prepared for a sudden transformation of education towards e-learning. It is evident that there are a number of barriers and problems for students in terms of the acquisition of knowledge distantly. The purpose of the thesis is to gain theoretical knowledge of barriers and problems faced by students and Universities in the process of implementation of distance learning in Higher Education Institutions. The author chose to explore the case of Uzbekistan as the country is actively attempting to develop modern information and communication technologies and ongoing reforms in the context of the digitalization of the economy. The author puts an emphasis on the theoretical framework in which disruptive innovation is taken as distance learning has a tendency to disrupt the system with its modern technologies. The author is in favor of analyze what factors hinder students to get a distance education of high quality in Uzbekistan. This thesis is dependent on quantitative information which is held in a survey of students in Uzbekistan. Besides the fact that the survey was conducted through the making the form of a questionnaire which target audience has been researched regarding the types of questions.

**Keywords:** Distance education, Information and Communication Technologies, Higher Education Institutions, Student Barriers

## **List of abbreviations and terms**

DE            Distance Education

HEIs        Higher Education Institutions

ICT         Information and Communication Technologies

GT          Grounded Theory

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# 1. INTRODUCTION

The introduction of modern information and communication technologies (ICT) in the educational process has brought to the creation of distance education which is opposite to traditional teaching methods. More and more universities are in favour of developing their online learning segment in order to increase the volume of students. Higher Education Institutions (HEIs) have experienced several challenges in terms of the integration of ICT in distance learning. Although there are various reasons for the adoption of e-learning in HEIs, e-learning has helped to transform education and has become associated with, and construed in a variety of contexts, such as distance learning, online learning, and networked learning (Wilson, 2001). “Distance learning, also called distance education, e-learning, and online learning, form of education in which the main elements include the physical separation of teachers and students during instruction and the use of various technologies to facilitate student-teacher and student-student communication” (Simonson, 2016). “The foundational purpose for distance education was to allow remote students to study at home” therefore the method of delivering instruction would “evolve to methods and media that are the current status for technology-based instruction and training” (Claus, 2005, p. 426). Technological development is increasing alarmingly which has made the Internet available to the vast majority of people in the world. Volery (2000) states that the fast expansion of the internet and related technological advancements, in conjunction with limited budgets and social demands for improved access to higher education, has produced a substantial incentive for universities to introduce e-learning courses. Universities will leave behind in the context of technological advancements if they do not tend to maintain e-learning technologies. However, it is a gruelling process for countries that have Internet issues and a lack of technological involvement in HEIs. Holley (2000) states that e-learning is difficult to implement without the full cooperation and support of lecturers. Thus, the author would like to review the challenges and problems encountered when the process of implementation of distance education is taking place. The author would like to address the barriers to distance education in HEIs in today’s modern world and point out the significant factors that should be taken into account before the implantation of distance education in HEIs.

## **1.1. Problem statement:**

The establishment of distance education in HEIs is vitally important to bring high-quality education and access to educational materials for students easily. If e-learning is to benefit students by offering students greater access to higher education, it is necessary to consider not only access to education but also the access to technology where computers become an indispensable element of effective e-learning courses (Ribiero 2002, p. 85). However, there is a myriad of challenges and issues for students to get distance learning with high quality. The author would like to describe what factors and obstacles hinders students in HEIs to get distance learning.

Most governments around the world have encountered a new type of crisis in their educational systems due to the spread of the coronavirus (Covid-19). According to World Bank (2020), more than 180 countries decided to close schools while affecting about 1.7 billion students as of April 22. It is evident that there is no exception for Uzbekistan here and the restrictive response measures were deployed by the government of Uzbekistan to prevent the spread of Covid-19 infection. The author chose the case of Uzbekistan to explore the perception of students regarding barriers to distance learning and the use of distance education for the first time in vast volume due to the Corona Virus (COVID-19) emergency in a given area. However, it is not the whole picture and there are other justifications for choosing the case of Uzbekistan. As World Bank (2018) provided statistics on Internet connection around the world which states about around one-third of the population still does not have Internet access and nearly 50 percent live in rural areas. Remarkably, one of Uzbekistan's issues is connectivity. The country ranks 122nd in the world for mobile internet speed and 95th for fixed broadband, as of March 2020. Uzbekistan (World Bank, 2020).

The author opts to denote challenges and issues regarding the implantation of DE in Uzbekistan. Uzbekistan had to act a rapid action to engage students with education during the pandemic. Although the country was exploring the introduction of distance learning in the past years. Admittedly, the usage of distance learning in higher education was not tested and scattered across universities and institutions in Uzbekistan. A sudden need for DE was inevitable during the pandemic and it was used for the first time in the history of Uzbekistan. The Republic of Uzbekistan is in favour of entering a solid educational system and developing its state services

to be more online. It is worthwhile to note that the Uzbek government approved several resolutions and decrees for example as indicated by the 228th pronouncement of the Cabinet of Ministers of the Republic of Uzbekistan on 25 July 2012 “On setting up the e-learning focus at instructive establishments under the ministry of higher and secondary education” the e-learning centre, which arranges with the establishment of e-learning, was managed. The solid management of HEIs and ICT in the educational process was one of the main directions of the “Program of integrated development of higher education in 2017-2021” approved by the President of the Republic of Uzbekistan. Concerning providing the foundation for the development and improvement of the society based on ICT, which has created a consistent mechanism for the tasks in this area. Although not all of the population of the Republic of Uzbekistan is fully aware of it, world experience shows that over time this system covers all aspects of social life. Transition to cooperation is exactly the process of e-government formation. One of the main reasons for inefficiency is not enough IT knowledge among people and the access to the Internet. The author would like to give broader information regarding Internet access and electronic learning platforms. The size of the country and its geographical distance from the centre, the presence of regions is a major factor in the development of distance learning which opts to lead to attention. In the current difficult times, this type of education should be widely used. The establishment of distance education provides many problems in Uzbekistan for sure. These are funding, technical support, and a qualified engineer and educator in the field of distance learning. For example, the lack of staff, but the government needs to solve these problems profoundly. Admittedly, the needs of highly qualified personnel are worthwhile to take into account in online education who is capable of working with e-learning systems and comprehending computer equipment. The organization of distance learning in Uzbekistan is worthwhile to consider and its effectiveness is obvious.

## **1.2. Research question:**

The author would like to emphasize the research question and objective. The principal objective of the paper is to analyse the challenges of distance education in higher education to identify the main problems of its development based on the Uzbekistan case. The research questions are as follows:

1. What are the barriers to the effective implementation of distance education in higher education institutions (HEI)?

1.1. What factors do students limit to getting high-quality distance education in HEI in the case of Uzbekistan?

The author claims to manage a solid understating of the paper with the help of quantitative data. Furthermore, the author will study the theoretical foundations of distance education and provide a rationale for disruptive technologies in education.

The study of barriers to distance education

### **1.3. Overview of the thesis structure:**

To make an overview of the thesis, the author would like to provide brief information on how the thesis is structured and formulated. This thesis includes several chapters and sub-chapters. **The first chapter** of the thesis gives data on the formulation of DE in HEIs and discusses the overview of DE in HEIs. The current scope and state of Uzbekistan in terms of ICT, digitalization of various government sectors as well as education. Then, the development stage of distance education and problems in a given area is discussed, and formulated research question is based on it. In **the second chapter**, the literature review is presented where distance education, barriers to distance education, and factors influencing barriers to distance education are described. In according to **the third chapter**, consists of the research methodology where the research designs, case selection, and the data collection method are identified. The **fourth chapter** provides data on empirical findings which are discussed in **the fifth chapter**. The discussion part is depicted in terms of literature and empirical findings discussed. Overall, **the sixth chapter** sums up the thesis with the whole picture of the given information, defining barriers for students in Uzbekistan.

## **2. LITERATURE REVIEW**

This chapter presents and studies literature related to the purpose of the study and research questions. The theoretical foundations of distance education are presented, and the types of distance education and barriers to distance education are revealed. Distance education barriers have been classified and factors analysis is accomplished. The role of information and communication technologies in the Uzbek government is described. the Challenges of DE in Uzbekistan are analysed. The concepts, features, and essence of each studied term are revealed.

### **2.1. Distance education in Higher Education Institutions**

It is worthwhile to state that various terms were used to identify distance education. Distance education (DE) can be defined as “a process to create and provide access to learning when the source of information and the learners are separated by time and distance, or both” (Miller and Honeyman, 1993). Distance education must be defined on another path through decades such as “institution-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors” (Schlosser and Simonson 2009, p. 1). Furthermore, Gunawardena and McIsaac (2004) defined DE as an umbrella term that covers many terms and a variety of models, including distance learning, open learning, networked learning, online learning, flexible learning, and distributed learning in connected space. Edge and Loegering (2000) stated that there are factors that distance learners demand in high-level quality and Edge and Loegering (2000) included the following factors in their studies which are “registration, delivery of course material and exams, quick turn-around times for grading exam and assignments and answering questions”. At present, due to the lack of conceptual views in this area that meet the requirements of the 21<sup>st</sup> century, the introduction of information systems in some activities of higher education institutions is vitally important. Distance learning in higher education is the fastest-growing segment of education technology (Moore and Fodrey, 2018). Full informatization of the activities of higher education institutions has become more complicated due to new reforms in the higher education system and did not require relevant changes in some regulations. To do this, the first task of informatization will be to re-engineer existing processes. In improving the quality of education, the main focus is on creating educational content and

organizing its open use. It does not require the teacher and student to be in the same physical environment, in a so-called face-to-face situation (Hiltz and Turoff, 2005; Sife et al., 2007)

It is pivotal to review that DE in higher education plays a significant role to keep up with the needs and requirements of students. Information technologies and e-learning systems are seen as essential factors in carrying out the activity of universities, these institutions investing more and more in online systems and devices (Popovici, 2015). However, the establishment of distance education needs to have a plan to run it on an effective path. Traditional face-to-face educational institutes that plan to implement distance learning initiatives require concrete strategic thinking to integrate educational programs based on technology into their established learning methods and traditions (Oliver, 2010). Watkins and Kaufman (2003) state that there are several challenges for DE which prevent effective planning of distance education such as globalization, collaborative course development, educational content sharing, and adaptation to individual learners. Moreland and Saleh (2007) state that distance education became an important aspect in the process of teaching and learning in higher education because of technological innovation. Furthermore, it is common to fathom that universities are likely to complete routine tasks such as the preparation of their syllabus while becoming adaptive to new technology, such as receiving homework, answering emails, and using Internet technology (Almobarraz, 2008). All in all, students should be prepared for the use of this technology on the same path to accomplish their educational research.

Distance education has the following characteristics (Keegan, 1986):

- the separation of teacher and learner
- planning and preparation of learning material in educational organization,
- use of media, often print-based, to carry course content and to unite teacher and student,
- some form of two-way communication
- students learning as individuals

However, Sherron and Boettcher (1997) pointed out five characteristics which are as follows: 1) media and technologies, 2) communication features, 3) student characteristics and goals, 4) educational philosophy and curriculum design, and 5) infrastructure. It is indisputable fact that the development of technology plays a profound role in distance education in HEIs.

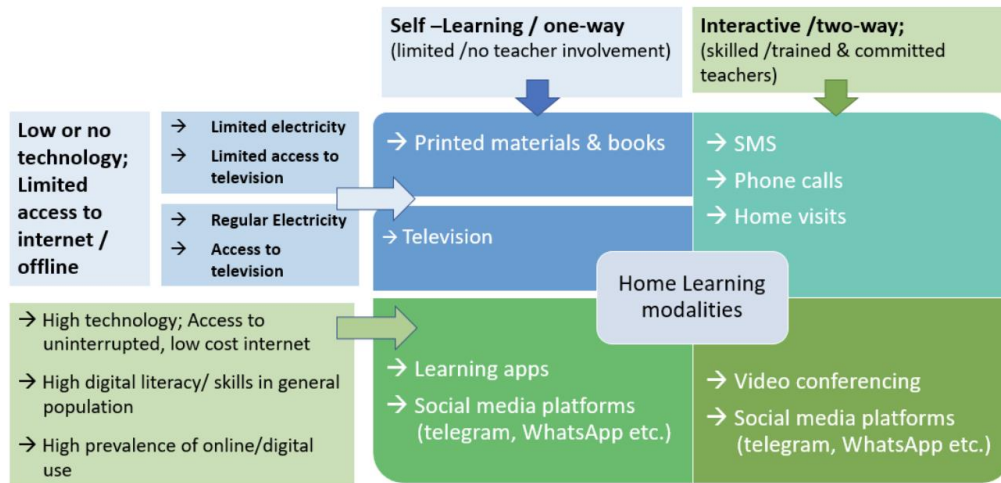


Figure 1. Various ways of distance education

Source: (UNESCO, 2020)

Figure 1 shows different ways of distribution of DE in HEIs. Two categories (one-way and two-way) are illustrated with their ways of sharing education on distance. Those students, who possess problems with access to technology and the Internet, are suggested to provide with printed materials, books, and television in terms of no teacher involvement. Concerning interactive students, SMS, phone calls, and home visits are given as a solution to get the acquisition of the knowledge distantly. However, students, who have availability to the uninterrupted Internet and obtain high digital literacy and use, can access learning apps and social media platforms from the perspective of self-learning. It is followed by interactive learners who can use the features of video conferencing and social media platforms as well.

## 2.2. Types of distance education

There are mainly three classifications for the types of distance education which are synchronous, asynchronous, and hybrid e-learning courses. The term e-learning is required to define as “e-learning involves the use of a computer or electronic device in some way to provide learning, educational or learning material” (Derek, 2003). Synchronous learning is described as “distance education delivery where students and teachers interact with one another from different locations but at the same time. It is a relatively recent phenomenon in terms of e-

learning, facilitated by technology like Skype, Google Hangouts, and Zoom”. (Woodcock, 2020) The Internet plays a profound role in this delivery type as it plays a basis for the practice of this online course. This model focuses on the distribution of a class-based course using interactive telecommunication technologies, consisting of students living at different locations. The result is a mixed classroom that combines traditional learners and DE learners. It can be indicated as students and teachers must be at a certain time, in a certain place and the number of participants varies from one to five and more, the greater the number of participants, the greater the technical, logical, and educational complexity. Synchronous e-learning requires all students to participate in the classes at the same time and the method of delivery is usually interactive and includes Internet chat sessions, teleconferences, telecourses, and web conferencing (Harrison, 2011). It is possible to organize educational places for students not at school, but home or work, and educational institutions are adapted to serve students living in nearby areas.

Whereas Asynchronous e-learning is the opposite term for Synchronous, it is defined as “Asynchronous e-learning, commonly facilitated by media such as e-mail and discussion boards, supports work relations among learners and with teachers, even when participants cannot be online at the same time. It is thus a key component of flexible e-learning”. (Hrastinski, 2007) This model focuses on the use of printed text and other tools of the course (e.g., video or computer disks). This allows the student to organize student interactions within a remote group maturity and helps transmit interactive telecommunications using technology to learn the course. All course materials are provided in the form of printed publications, computer disks, or videos, and students can use them individually or in groups at any time. Moreover, course materials are used for more than one semester and are different for each teacher, and students and teachers gather from time to time for classes. One of the principal advantages of this delivery model is noted as “audio files, video files, and documents can be made available to stream or download, and the creation of this kind of teaching archive is a major advantage” (Woodcock, 2020). Classes are organized to clarify the basic concepts of students, develop problem-solving skills, work in groups, and perform other tasks.

Hybrid online courses, it is defined as “classes in which instruction takes place in a traditional classroom setting augmented by computer-based or online activities which can replace classroom seat time” (Scida and Saury, 2006). In this model, students are not responsible for



being at a specific time or place. Students have a detailed syllabus of the course and content representative materials package and have the opportunity to contact a teacher who will evaluate the work by answering the supervisor's questions. Communication between students and teachers is accomplished through the use of telephone, computer conferences, e-mail, and regular mail. It can be indicated as classes are not conducted in the classroom and students study subjects independently based on detailed instructions in the program. Additionally, it is also called blended learning the concept of blended learning is denoted as “a deliberate ‘blending’ of face-to-face and online instructional activities, intending to stimulate and support learning” (Boelens, et al. 2015). Students communicate with the teacher only at certain times, and with other students at any time and place, and all course materials are provided in the form of printed publications, computer disks, or videos, and students can use them at any time, in any place. Additionally, course materials are used for several years. These materials will be created with the participation of course organizers, experts, and specialists and will be used in a common form for all teachers. The author would like to address the number of barriers to the above-mentioned types of DE.

### **2.3. Classification of distance education barriers**

The principal classifications of DE barriers are situational, institutional, dispositional, epistemological, and technical barriers (Rezabek, 1999; Garland, 1993; Schilke, 2001).

Rezabek (1999) classified the barriers to DE into three categories which are situational, institutional, and dispositional. However, Garland (1993) grouped barriers for DE into four categories and added epistemological barriers to Rezabek’s (1999) barriers categories. Moreover, Schilke (2001) updated the categories of DE barriers and added technical barriers to Garland’s (1993) model.

The author decided to define the main classifications of DE barriers through Table 1. Thus, Table 1 below provides information regarding what factors and issues are involved in the study of barriers by Rezabek (1999), Garland (1993), and Schilke (2001).

Table 1. Description of distance education on the barriers' classifications

Barriers	Factors	Issues
Situational	An individual's general situation or environment	issues as transportation, age, time constraints, and family responsibilities.
Institutional	The creation of an institution's programs, policies, and procedures	problems with admissions, registration, scheduling of courses, financial aid, and support services.
Dispositional	The association of an individual's background, attitude, motivation, learning style, and self-confidence.	lack of student's confidence for one's ability
Epistemological	The course's difficulty, technicality, considerable theorization	that students lacked prerequisite knowledge; and that the content lacked personal interest or relevance
Technical	The lack of computers, difficulty accessing the Internet	student access to educational materials

Source: (Rezabek, 1999; Garland, 1993; Schilke, 2001)

By and large, other scholars and researchers used various classifications in their studies regarding DE barriers. Leggett and Persichitte (1998) used five basic barrier categories in their investigation: time, access, resource, expertise, and support. Merriel et al. (1992) discussed three main categories in connection to barriers which are ethical, legal, and cultural issues. Galusha (1997) classifies barriers as a student, faculty, and organizational barriers in distance learning. The author decided to touch upon the following principal barriers to distance learning more in detail: situational, institutional, and dispositional.

## 2.4. Situational barriers to learning

Cross (1981a) made the research on adult students' participation in the sphere of education. In her studies, she categorized barriers to participation as follows: situational, dispositional, and institutional. Situational barriers are followed by an individual personal condition in life. Studies showed that working related or family conditions tends to be a leading factor concerning a certain situation. Cross (1981b) defined situational barriers as association with a person's life situation at a given point in the family life cycle and working life. In addition,

Deggs (2011) defines situational barriers as an issue that effect adult learners' life circumstances. The definition of situational barriers lays profound stress on students' issues that end up with the limitation of an effective learning environment. Many scholars researched key factors for situational barriers. "After enrolling in a higher education program several situational barriers such as time management and health issues have impacted adult learners' academic success" (Gato and Martin, 2009).

## **2.5. Institutional barriers to learning**

Institutional barriers consist of limitations regarding methods institutions use to design, deliver, and administer learning activities (MacKeracher et al., 2006a). "Institutional or structural barriers include institutional practices and procedures that discourage or prevent participation, such as lack of provision or opportunity, the timing of provision, high fees or entry qualifications, general lack of flexibility" (Saar et al., 2013). However, MacKeracher et al., (2006b) added more issues in their study such as the issues of providing financial support to learners to pay for tuition fees, resources needed for learning activities, a general lack of support services at times and places suitable to adult learners; and recognition of prior learning and previously obtained academic credentials. Cross (1981) classified four issues concerning institutional barriers: (1) scheduling problems; (2) problems with location or transportation; (3) procedural problems related to enrolment; and (4) lack of information regarding procedures or the programs of study. Whereas Schuetze and Slowey (2000) made the researched ten countries in terms of the changes in adult's participation in HEIs and they figured out six institutional factors for the participation of adults which are as follows: (1) institutional differentiation, (2) open admission for those without traditional entry qualifications; (3) mode of study; (4) financial and other support; (5) institutional governance and control; (6) continuing educational opportunities.

## **2.6. Dispositional barriers to learning**

Cross (1981) defined dispositional barriers as "those related to attitudes and self-perceptions about oneself as a learner" (p. 98). Merriam (1984) proposed that dispositional barriers are the most powerful barriers rather than institutional or situational barriers due to the reflection of

past negative experiences with education. “Dispositional barriers are psychological perceptions about oneself as a learner which cause difficulties for a student in adapting to the educational environment” (Mertesdorf, 1990). Muilenberg and Berge (2005) investigated severe barriers for the student by online learning and their empirical results found dispositional barriers as well which are lack of social interaction, learner motivation issues, lack of technical skills, and lack of academic skills.

## **2.7. Influencing factors of distance education barriers**

There are some influencing factors for the effective establishment of DE. Scholars made several research on the identification of factors for DE. The author opts to explore the conducted survey regarding barriers to distance education in 2000. Berge and Muilenburg (2000a) announced results by rank as follows:

1. Increased time commitment
2. Lack of money to implement distance education programs
3. Organizational resistance to change
4. Lack of shared vision for distance education in the organization
5. Lack of support staff to help with course development
6. Lack of strategic planning for distance education
7. The slow pace of implementation
8. Faculty compensation/incentives
9. Difficulty keeping up with technological changes
10. Lack of technology-enhanced classrooms, labs, or infrastructure

Moreover, Berge and Muilenburg (2000b) identified the weakest barriers to distance education by rank as follows:

1. Competition with on-campus courses
2. Lack of personal technological expertise
3. Lack of acceptable use policy
4. Lack of transferability of credits
5. Problems with vast distances and time zones
6. Technology fee

7. Tuition rate
8. Local, state, or federal regulations
9. Ethical issues
10. Existing union contracts
11. Lack of parental involvement

Other scholars and researchers also analysed problems and barriers to the effective establishment of distance education. Meacham and Evans (1989) stated that geographical isolation has been identified as one of the major problems for distance students. However, telecommunication is a key factor in DE to maintain solid DE training. The frustrations resulting from problems with communication between students and academic institutions are factors of which distance education planners should be well-informed (Wood, 1996). It is worthy to note that “problems and barriers encountered by the student fall into several distinct categories; costs and motivators, feedback and teacher contact, student support and services, alienation and isolation, lack of experience, and training” (Galusha, 1998). It is pivotal that an organization or a country possess fundamental planning for the effective running of DE in a given area. Distance education enterprises are highly complex organizations and the issues concerning distance education enterprises are as complex as the enterprises themselves. To be successful, distance education enterprises require a high degree of planning, management control, and excellent communications (Schlosser, 1994). These problems include “the quality of instruction, hidden costs, misuse of technology, and the attitudes of instructors, students, and administrators. Each one of these affects the overall quality of distance learning as a product” (Valentine, 2002). Niebuhr et, al. (2014), Dyrbye et, al. (2009), and Attardi (2015) introduced the number of problems with online classes as online classes also have limitations, including problems with internet access, poor internet connection quality, and insufficient digital skills of the respondents. Some benefits such as time flexibility can also be a limitation, especially for students who have difficulties with self-discipline. To sum up, the author would like to give overall barriers to DE in today’s modern world which Tsai et, al. (2020) counted following: personal, technical, logistical, social interaction, and financial barriers.

The author would like to touch upon the doctoral dissertation of Wang (2013) who made the research on DE barriers in China as well. Wang (2013) suggested the key influencing factors of barriers for online learners in Table 2.

Table 2. The key influencing factors

Factors	Involved issues
Learners' demographic variables	gender, age, ethnicity, marriage, children, entry education level, work pressure, financial burdens, support from family, the number of online courses completed, the number of online courses dropped, and the likelihood of taking a future online course
Learners' psychological features	learning motivation, learning preferences, influence of previous education experience, whether or not students experienced prejudicial treatment in the traditional classroom, ability of self-control and self-adjustment, expectation on success, learning effectiveness in the online environment, and learning enjoyment in the online environment
Learners' learning skills	the ability in using computers to learn, ability to balance learning requirements with other responsibilities such as household work, accomplishment of successful learning based on the use of resources, ability to understand feedback and dealing with assessment.
External factors	teachers' instruction and support, the learning environment, availability of a learning support system, whether or not the courses are well deSigned, appropriately presented and suitable for students' needs and levels, access to learning resources and facilities, including computers, the Internet and World Wide Web

Source: (Wang, Q., 2013)

It is not the whole picture there are other justifications for the given area as well and the author will follow the above-mentioned favors in the author's empirical studies.

## **2.8. Barriers for students in distance education**

By and large, researchers and scholars argued with their findings to determine challenges and barriers for students in HEIs. As Bates (2005) clarifies E-learning is a great opportunity for those individuals who have little time to study because of work or other commitments as well as those who cannot undertake or continue face-to-face education because of physical barriers. Karatas and Simsek (2009) made research on the level of satisfaction of students in terms of conventional, hybrid, and online education and their findings described that most of the students are in favour of getting education conventionally. The students explained this factor by claiming a desire to communicate with classmates face to face manner rather than online. Whereas the completed research regarding the level of satisfaction of distance education is distinguished relatively. Gillett-Swan (2017) provided some of the issues experienced by a student in HEIs such as anxiety associated with using technology; being out of one's comfort zone; (perception of) inequity in assessment, particularly in "group" assignments; and the (perceived) inability or difficulty in peer interaction, particularly in presentations. Graham and Misanchuk (2004) highlight that collaborative learning tasks where individuals may be barely managing to navigate the system on their own, let alone need to traverse the complex environments of group interaction and social negotiation. It is worthwhile to indicate the online assessment of student's tasks Boyles (2011) research showed that University students choosing to undertake study online have indicated a preference for online assessment and often perceive their learning experiences to be enhanced through online media. Simonson et al. (2011) believe that measurement and evaluation are one of the most vital issues in distance learning. Valentina (2002) showed problems that affect the overall quality of distance learning as a product and these problems are the quality of instruction, hidden costs, misuse of technology, and the attitudes of instructors, students, and administrators.

Ajay (2012) emphasized seven problems faced by students in distance education which are as follows:

1. Nature of Study Material
2. Lack of Multi-Media Instruction
3. Insecurities about learning
4. Lack of feedback or contact with the teacher
5. Lack of support and services
6. Lack of Social Interaction

## 7. Lack of student training

According to the first factor, study materials must be taken into consideration for the students who are not well-known in distance study. Another challenge that lacks multi-media instruction, is a key segment to focus on as study materials are not well evolved based on concrete instruction. Suggested the third issue Knapper (1988) states that distance learners are more likely to have insecurities about learning from traditional students. Lack of feedback is also a principal problem of distance learners which could be tackled by technological methods. About the fifth suggested problem, the level of support and services for distance learners lacks in terms of recommendations, library services, financial aid, and others. The shortage of social interaction is crucial to note as students would like to be engaged with other students face to face manner and contact with academic staff or administration lacks considerably. Lack of student training is a major problem for distance learners who do not know the use of technologies.

## **2.9. Description of distance education in Uzbekistan**

In the Republic of Uzbekistan, the most important issue is the renewal and modernization of the model of education to enrich the stages of continuing education. It is also worthy to recall that open educational resources in Uzbekistan are inextricably linked with the distance education system. DE is based on, along with traditional educational technologies, “the student's independent work with specially developed electronic teaching materials, manuals, audio, and video resources within the information and educational environment” (UNESCO, 2011). The formation of the information economy in Uzbekistan is inextricably linked with the development of ICT, characterized by several stages of development. The history of the development of ICT in education was a step ahead after the acquisition of independence by the Republic of Uzbekistan which made it “necessary to improve the structure of the education system and make adjustments to its content. An effective step on this path was the Law “On Education” in 1992. The author would like to go through the development of higher education from the early stages of the education system’s formation in Uzbekistan. It is important to state that “academic year in software development, network technology, mobile radio, e-commerce, and information security began training specialists from 2002-2003” (Siddikov, 2021). The development of ICT in the sector of education was developed in



further years as “all higher education institutions were connected to the global Internet, and the number of computers in the higher education system reached 18,332, there were 6.7 computers per 100 students in 2005. Ziyu.edu.uz e-learning database includes subjects taught in higher education institutions” (Siddikov, 2021). There was an active modernization of technical infrastructure and materials in 2011. Based on the Resolution of the First President of the Republic of Uzbekistan dated May 20, 2011 “On measures to strengthen the material and technical base of higher education institutions and radically improve the quality of training of highly qualified specialists” aimed at further strengthening the material and technical base of higher education in Uzbekistan Program for modernization of material and technical base and radical improvement of the quality of training” (Uralov, 2020). It is also worthy to state that the material and technical base of higher education institutions was equipped with computers and information technology from 2011 to 2016 (Siddikov, 2020). Additionally, in the higher education system of Uzbekistan in 2018 an important decree the Decree of the president of the Republic of Uzbekistan Sh. M. Mirziyoyev dated May 8, 2018, PD No.-5438 “On measures to fundamentally improve the system of training, retraining and advanced training of personnel of prosecutor's office”. The president of the Republic of Uzbekistan signed a significant decree regarding distance education on 19 May 2020 as a “remote directed training manual for obtaining the necessary knowledge, skills, and abilities using information and communication technologies and the world information network Internet and the procedure for organizing distance education is determined by the Cabinet of Ministers of the Republic of Uzbekistan”. The widespread use of information technology, telecommunication technologies, and technical means in the education system in Uzbekistan in this area, as well as in all areas. A well-developed student support system is also a guarantee for success in distance learning teaching and learning (Segobye, 2007). Uzbektelecom JSC has developed a set of necessary software and organizational software for high-speed and high-quality Internet-based video conferencing systems. The system, which includes six facilities, consists of 24 special computers, 24 webcams and microphones, 48 special speakers, and 48 widescreen screens. In addition, the current system provides rapid transfer of new knowledge and experience, connection and exchange of experience with other universities, increasing the economic efficiency of education, the widespread use of audio-video, animation, and graphics in the educational process, the theory and practice. the Ministry of Higher and Secondary Specialized Education began to form online resources on

higher education standards and launched the EDUUZ telegram channel, which also publishes information on the latest developments in the field of education and posts materials for self-education. At the same time, the process of formation of more than 3500 electronic textbooks in various disciplines continues, which are posted on the website “Innovation Kutubkhona” (Inoyatova, 2021). Through the system of distance education, it is possible to improve the quality of training, create opportunities for distance learning for students, and bring together various interactive forms of education. Today, the practice of distance learning abroad at home based on an individual plan, the use of video lessons prepared by the university, in-service training, as well as additional training in other areas, and capacity building for personal interests is widely used. The information and communication technology infrastructure introduced in the educational institutions of our country also serves to use such opportunities in the future. Summarizing the above, it can be said that the introduction of the distance learning complex in educational institutions will bring all-around benefits. The higher education system has all the conditions for the introduction of this complex. All higher education institutions (HEIs) throughout the country are equipped with computers, and information and communication technologies. They are all connected to the Internet with limited speed. The widespread introduction of these technologies in the education system will help to solve many problems facing universities promptly. Nowadays, computer science is becoming more and more important. The opportunities of computer technology can be effectively used in the development of students' personality-oriented development, and creative abilities. Educators are not only in the preparation of methodical materials for the lesson from the computer but also in the process of individual work with students, in the use of computer programs necessary for the teaching of science. It should also be noted that the distance learning method based on videoconferencing technology is one of the methods that require a little more money than other methods of distance learning, as it requires a high-quality channel and special equipment.

## **2.10. A policy analysis of Uzbekistan on Information Communications Systems and Distance Education**

Before touching upon a policy analysis of Uzbekistan on distance learning, the author investigated the government policy models on DE, and Gellman-Danley and Fetzner (1998)

and Berge (1998) claimed a potent model to provide an incentive for decision-makers in the policy area of DE. They suggested nine elements for attention: 1) Academic, 2) Fiscal, 3) Geographic, 4) Governance, 5) Labour-Management, 6) Legal, 7) Student Support Services, 8) Technical, and 9) Cultural.

It is worthwhile to mention that the modern distance learning technologies have been considerably used in HEIs of Uzbekistan such as cloud technologies, mobile learning elements, and mobile educational applications. However, Karimov and Xikmatov (2018) comprehend those advanced innovative educational technologies should be systematically implemented throughout the country in order to evolve the training of specialists with quality. Thus, the systematic implementation of educational technologies requires solid legal regulation in this area.

It is indisputable fact that Constitutional norms regulate the area of education in Uzbekistan. For the sake of a broader view of n given point, several government institutions are in charge of providing and fulfilling legal acts of education including the Law of the Republic of Uzbekistan “On Education”, the Resolutions and Decrees of the President of the country, Order of Minister of Higher and Secondary Special Education of the Republic of Uzbekistan, Decree of the Cabinet of Ministers of the Republic of Uzbekistan. The author decided to investigate the numbers of decrees and laws which were promulgated by the above-motined government institutions. Table 3 mainly presents decrees and laws in the area of DE and ICT. Uzbekistan got its independence in 1991 and the author made the policy analysis of the given area from the year independence to 2021.

Table 3. The policy analysis of Uzbekistan on distance education

<b>President of the Republic of Uzbekistan decree</b>		
22.06.2021	On the parameters of the state order for admission to higher educational institutions of the Republic of Uzbekistan in the 2021/2022 academic year	To submit to the State Commission a list of state higher educational institutions in which, starting from the 2021/2022 academic year, distance learning is organized, as well as proposals on admission parameters for the relevant areas of education.

04.09.2001	On measures to improve the system of training pedagogical staff for secondary special, vocational educational institutions	Introduction of a distance method of teaching staff with the wide use of the capabilities of modern information technologies and the international information network Internet.
16.04.2012	On measures for the implementation of the investment project "creation of the national network "electronic education" in the Republic of Uzbekistan"	In order to create a single information and computer network that unites all higher educational institutions of the republic and ensures their integration with international educational resources, the widespread introduction of modern information and pedagogical technologies into the educational process, including distance learning.
27.08.2019	On the introduction of the system of continuous professional development of management and pedagogical staff of higher educational institutions	development of leadership and teaching staff skills in advanced pedagogical, information and communication and innovative technologies and their active implementation in the educational process using the worldwide information network Internet, multimedia systems and distance learning methods.
06.08.2020	On measures to develop the spheres of education and upbringing and science in the new period of development of Uzbekistan	automation of education management and creation of a comprehensive analysis system using modern information and communication technologies, further development of electronic resources and distance education, promotion of IT professions among students.
08.03.2020	on the state program for the implementation of the action strategy in five priority areas of development of the republic of Uzbekistan in 2017 - 2021 in the "year of development of science, education and digital economy"	To experimentally introduce distance learning in stages from the 2020/2021 academic year at the Tashkent University of Information Technologies named after Muhammad al-Khwarizmi, Tashkent State University of Law and Tashkent State Pedagogical University.
24.09.2021	on additional measures to ensure academic and organizational and management independence of state higher educational institutions	the introduction of correspondence, distance and evening forms of education at the master's stage, the introduction of a system for assigning dual qualifications, including practical qualifications, in areas of education and specialties. admission to study of citizens of foreign countries on a paid-contract basis and the organization of a distance form of their education at the second stage

		- by May 1, 2022, introduce the section of the Information system "Supervision of the quality of education". At the same time, a database of indicators of higher educational institutions on the quality of education is being formed, the maintenance of the national rating of higher educational institutions is being automated, and it will also be possible to monitor the quality of education remotely.
28.09.2005	on creating a public educational information network of the Republic of Uzbekistan	promoting the introduction of distance learning methods into the education system, a wide range of other information and communication services for students and youth of the republic.
<b>Law of the Republic of Uzbekistan about education</b>		
19.05. 2020	<p>Article 16. Distance education:</p> <p>Distance education is aimed at obtaining by students the necessary knowledge, skills and abilities in accordance with the curriculum at a distance using information and communication technologies and the global information network Internet.</p> <p>The procedure for organizing distance education is determined by the Cabinet of Ministers of the Republic of Uzbekistan.</p>	
<b>Order of Minister of higher and secondary special education of the Republic of Uzbekistan</b>		
09.01.2003	on the approval of the regulation on higher education	introduction into practice of interactive teaching methods, new pedagogical and information technologies, methods and means of self-education and individualization of education, distance education systems.
05.09.2017	on the approval of the regulation on the procedure for organizing and carrying out retraining and professional courses of management and pedagogical staff of higher educational institutions through educational distance learning methods	Retraining and advanced training through distance learning methods are carried out in the form of online (video lectures, consultations, types of control in real time remotely) and offline (independent development of relevant teaching resources in the distance education system).
<b>Decree of the cabinet of ministers of the Republic of Uzbekistan</b>		

20.07.2004	on improving the activities of the ministry of higher and secondary special education of the Republic of Uzbekistan	introduction and effective use in the educational process of progressive forms of education, including distance learning, new pedagogical and information and communication technologies.
26.09.2012	on measures to further improve the system of retraining and professional development of pedagogical staff in higher educational institutions	develop and implement programs for advanced training and retraining of teaching staff of universities, considering innovative scientific achievements, promising development of technology, technologies that involve the use of modern pedagogical and ICT, distance learning methods, and the expansion of independent education.

Source: Adapted from National database of legislation of the Republic of Uzbekistan ([www.lex.uz](http://www.lex.uz))

Karimov and Xikmatov (2018) believe that the current legal regulation on DE is not sufficient for the proper disclosure of the functions of e-learning and electronic educational technologies. They recommended several areas for enhancement such as legislative amendments to education, the control of licensing procedures by educational institutions through DE technologies, and the creation of legal norms on defining working hours of e-tutors. To sum up, there is a need for new legal norms to secure the usage of advanced electronic educational technologies for the effective implementation of DE in Uzbekistan.

## 2.11. Challenges of Distance Education in Uzbekistan

By and large, the Internet network made difficulties in the introduction of communication between teachers and students effectively. According to the Speedtest Global Index ([www.speedtest.net](http://www.speedtest.net)) in April 2020 Uzbekistan had Mobile Internet with a speed of 9.68 Mbps and Fixed Internet with a speed of 25.88 Mbps that which is much less than neighboring countries. It is worthwhile to state that the official website of the Ministry of Innovation reports the mobile telephony and digital TV access: 96% of the population have mobile connection and the vast majority of households have access to republican DTV broadcasting channels. Connectivity is an issue in Uzbekistan, as around one-third of the population still do not have Internet access and nearly 50 percent live in rural areas (World Bank, 2018).

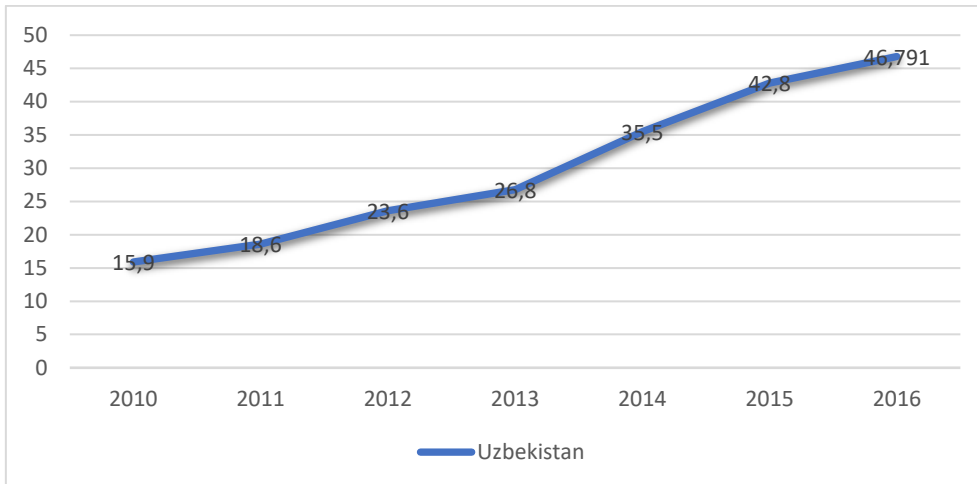


Figure 3. The Internet usage (% of the population) in Uzbekistan

Source: (data.worldbank.org, 2018)

It is interesting to note that the population of Uzbekistan is growing steadily year by year and the statistics indicate that the population of Uzbekistan is near 34 million in 2018. Figure 2 illustrates the percentage of the population who are using the Internet in Uzbekistan for the period of 2010 and 2016. In today's world, information and communication technology is one of the fastest increasing spheres. Information and communications technology (ICT) was a lack side of Uzbekistan for many years, but the last year Uzbekistan government gave national priority to the transformation of ICT gradually.

Song (2004) states "e-government can be simply defined as the use of ICTs in general and the utilization of the internet in particular to improve the efficiency, effectiveness, transparency, accountability, and the activities of public sector organizations". The statistics show that the Internet users in Uzbekistan remain low in contrast to other developed Asian countries. The principal reason for the limited access to the Internet in rural areas of Uzbekistan is the low speed of the Internet in given zones which rural areas consist of 60 percent of the population. The author touches upon that over the past five years it has increased considerably and is expected to grow. Besides the fact, that Uzbekistan's mobile market has difficulties evolving throughout the regions of Uzbekistan. According to the 2017- 2021 reform, the government opts to increase the speed and accessibility of the Internet in vast numbers. More significantly, no organization could survive without a set of operational systems in place, and as such an

organization, distance learning relies on a wide system variety for its smooth function and students' satisfaction (Keengwe and Onchwari, 2008).

Despite the formation of a modern integrated system of continuing education in Uzbekistan over the past period, the higher education system has not been able to fully adapt to the radical changes in the country's economy during the years of independence (Nigora and Ravshan, 2021). About teachers' knowledge of online platforms, it is a key problem in training teachers in new digital products and new infrastructure (Ferri et, al. 2020). It is arising difficulties for teachers in terms of the usage of distance learning technologies. Online education is divided into two parts: supplier and consumer, and there are problems on both sides. 90% of teaching is conducted in the state language, there is a huge lack of content. Students believe that having a good tutor is vitally important in helping them get the most out of a course and achieve a credit (Meacham and Evans, 1989). It is likely to state that there is a lack of specialists who can provide high-quality author content in the Uzbek language. It is to be expected that a tremendous amount of work will be done to localize existing content in the first place. Distance learning can only be successful in a system where the teachers are the specialists within a system (Casey, 2008).



### 3. METHODOLOGY

The author would like to show the methodological framework of the paper in this chapter. Creswell (2003) explains methodology as a coherent group of methods that harmonize one another and that have the capability to fit to deliver data and findings that will reflect the research question and suits the researcher’s purpose. The principal concentration of the chapter is to provide information on which method is used for gathering data regarding the barriers for a student based on distance learning in a given area. In general, this chapter provides information about the author’s choices in terms of methodology. The figure 1 demonstrates and sums up the research onion of this methodology choices. I have opted to use a qualitative study with an inductive approach. Furthermore, interpretivism is chosen for the research assumption and the ground theory approach generates the gathering and analysis of the data. The process of case selection is pointed out. To be more precise, the Gioia methodology of data structure is deployed for this study. Therefore, it is described in the data analysis section.

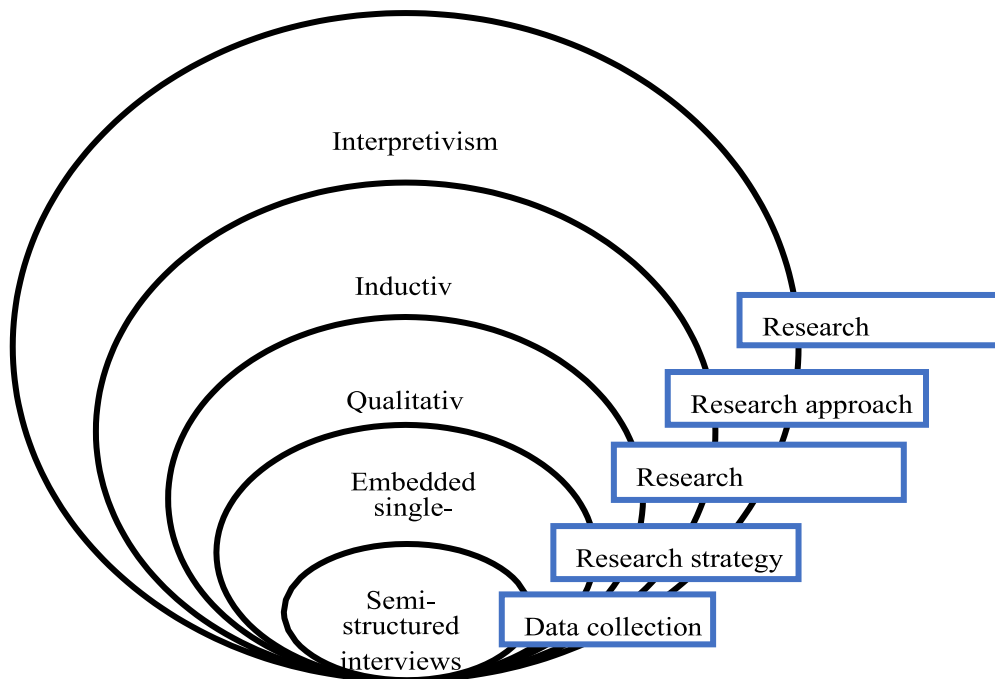


Figure 4 The research onion

Source: (Saunders et al., 2016, p.164)

### **3.1. Research philosophy**

Interpretivism has been selected for the philosophy of the research. It is worth noting that positivism and interpretivism generate the scope of research philosophies “Research philosophy is a framework that guides how research should be conducted based on ideas about reality and the nature of knowledge” (Collis and Hussey, 2014, p.43). It is evident from the fact that positivism provides genuinely objectivity but interpretivism tends to be on subjective notions. In interpretivism, “the reality is seen as highly subjective because it is shaped by our perceptions” (Collis and Hussey, 2014, p.45). The application of interpretivism lays emphasis on a solid understanding of the DE situation in Uzbekistan through investigating barriers for e-learners. Thus, it plays a key role in the comprehension of the study. Interpretivism assumption is used when a researcher opts to figure out a data with small size. Whereas positivism is the opposite of interpretivism which needs large-size research. “An interpretative philosophical approach requires a small sample size finding rather than a positivism philosophical approach which requires a large sample size relatively (p.50).” Besides the fact that “the philosophical approach of interpretivism appeared after the insufficiency of positivism for social researchers which could not satisfy the needs of social studies” (Collis and Hussey 2014, p.44).

### **3.2. Research approach**

Qualitative and inductive approaches have been deployed for this research. “Qualitative research is based on three paradigms and the main paradigms within qualitative research are positivist, interpretivism, and critical paradigms” (Punch, 1998). It is indisputable fact that research may be concerned with quantitative or qualitative logic. There are three various logics that follow up qualitative which are deduction, induction, and abduction.

A deductive approach relates to “developing a hypothesis based on existing theory and then designing a research strategy to test the hypothesis” (Wilson, 2010, p.7). Thus, a deductive approach inclines on the base of the theory which the fundamental theory plays a significant role as the source for research. One of the important criteria of this approach is to minimize the risk that the study will prove to be a failure. Moreover, the deductive method involves testing the hypothesis of the Author, in view of the received circumstances and options for the responses from the survey. In other words, the deductive approach makes it possible to turn a general

concept of research into a more specific result, by the means of testing the hypothesis and determining one of the three possible outcomes proposed by the Author.

With regard to the inductive approach, Goddard and Melville (2004) explain that it starts with the observations, and theories are proposed towards the end of the research process as a result of observations. Figure 2 below provides the development process of inductive research.

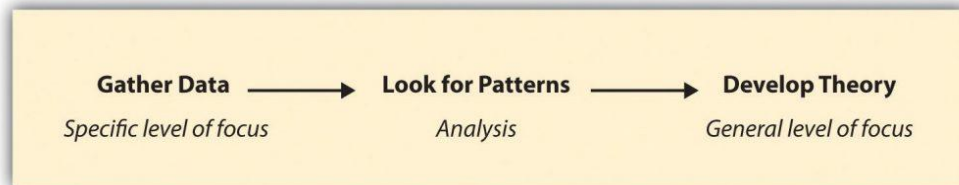


Figure 2. Inductive research

Source: (Saunders et al., 2012)

While also a third logic of abduction may come into the usage when building the research iteratively from the deductive and inductive approaches (Eriksson and Kovalainen 2016, p.24). It is followed by an inductive approach as it starts from findings to theoretical results. It is pivotal to recall that data collection was implemented before the theory development. In an abductive approach, the research process starts with ‘surprising facts’ or ‘puzzles’, and the research process is devoted to their explanation (Bryman and Bell, 2015, p.27). Admittedly, this approach mostly gets critics due to the fact that there is unclarity on the proper way of choosing theory for testing.

### 3.3. Research design

To begin with, Grounded Theory (GT) is “how the discovery of theory from data systematically obtained and analyzed in social research can be furthered” (Glaser and Strauss, 1967). However, Corbin and Strauss (1990), Charmaz (2006), and Gioia et al., (2013) also contributed to its development. Gioia et al., (2013) developed GT from the structured path and included the data structure for GT which is well-known with the Gioia methodology. The author chose the Gioia methodology for his research in order to formulate a general theory on the topic with help

of the Gioia data structure. The author explained the procedures of conducting the Gioia methodology in the data analysis section.

The purpose of this study is to analyse the challenges of distance education in higher education to identify the main problems of its development based on the Uzbekistan case and the research is based on empirical findings to provide a general theory. Thus, interpretivism and the inherent approaches of qualitative research and inductive analysis methods make the most appropriate approach for achieving the objectives of the research. It is pivotal to state “the systematization of the collection, coding and analysis of qualitative data for the generation of theory” (Glaser & Strauss, 1967).

Questionnaires can be termed both, quantitative and qualitative methods relying upon the idea of questions. Within the framework of this research, there is used a qualitative method in order to “analyse barriers to effective implementation of distance education in higher education institutions (HEIs)” which is a principal research question for this study. The aim of this questionnaire is to discover the most important and essential factors for barriers to distance learning by students. The author opted for the sub-research question “What factors do students limit to get high-quality distance education in HEI in the case of Uzbekistan?” and claimed to formulate empirical findings through conducting general theory building with help of GT based Gioia methodology. It is crucial that estimate the level of importance as well as to identify the highest limitations for students. During the following analysis, there are also will be presented basic information about the informants.

### **3.4. Case selection**

Uzbekistan plays a significant role in Central Asia as the population of the Republic is the largest in the region which is approximately 34 million people. Therefore, Uzbekistan is a relatively large player with its location and economy in Central Asia. However, the rapid development of Uzbekistan started in late 2016 when a new president was elected with the perspective of new reforms. The reforms are continuing in all aspects of the country. The reforms in education are not exceptional, and it is not the whole picture. There are other

justifications for the demand for the development of distance education in the country as well. It is evident from the fact the influx of Covid-19 provided a need for an online educational process considerably. Slow development of the ICT sector and network infrastructure after the getting the Independence created challenges for students in Uzbekistan. The number of Universities and Institutes has increased drastically and the vast majority of them are conducted conventional class education. The case study approach will help the proposed fact

Educational services need to be evolved in all sectors of the education system in Uzbekistan. According to the article “How online learning will change in Uzbekistan after quarantine”, the report said that “only 9 percent of applicants entered higher education institutions in 2017. As a result, approximately 27,000 students left to study at foreign educational institutions.”. There are a number of issues in the education system that has yet to be resolved, particularly in secondary special and higher education. The demand for educational services is enormous. This is because educational institutions with a growing population have limited capital and teaching resources. Besides the fact that the main universities are concentrated in Tashkent, citizens from remote regions rarely have the opportunity to study there. Another factor that is vitally important to consider is foreign universities in Uzbekistan. As they offer modern courses and programs that are too expensive for citizens to pursue in Uzbekistan. In the modern world, the capabilities of ICT in education, such as e-learning and distant education, have been widely used and are still being used to overcome such challenges. Therefore, the role of ICT, the description of HEIs in the country, and issues for DE are touched upon in the case study approach in the case of Uzbekistan.

### **3.5. Data collection method**

Data collection methods are important because how the information collected is used and what explanations it can generate are determined by the methodology and analytical approach applied by the researcher (Wright S, O'Brien BC, Nimmon L, Law M, Mylopoulos, 2016). The principal goal of the questionnaire is to acquire valuable data on what specific problems and limitations were raised for students in a given area. The majority of the questions relate to analysing how provided factors in terms of potential issues and barriers are comprehensible to touch upon in order to get information about students' scopes. Moreover, also worthy to state

that questionnaire is made by inclining on current government issues. According to the official website of distance education of Uzbekistan ([www.dist.edu.uz](http://www.dist.edu.uz)), there is a total of 417816 students who are studying in HEIs which are divided into 14 regions. The website illustrates that 112 Universities and Institutions are provided with distance learning platforms. However, the author would like to conduct a semi-structured interview with students who experienced the acquisition of knowledge through DE during the period of the Covid-19 pandemic. As the sudden situation was the general deployment of DE in HEIs and nowadays the vast number of students studying traditional methods of education due to the partial cessation of the pandemic. The questionnaire consists of 15 questions (Appendix 1) and 19 students (Appendix 2) were taken part. The interview was mainly applied through Telegram and the use of this App is highly utilized in Uzbekistan. However, the majority of respondents were generated by Uzbek University Telegram channels, and they are current students and already graduated. To take into account data collection principles, it is important to describe the process of the interview because it consists of the primary fundamental source of information for the research. Adams (2015) categorizes practical steps for conducting semi-structured interviews which include selecting and recruiting the respondents, drafting the questions and interview guide, techniques for this type of interviewing, and analysing the information gathered. Gioia et al., (2014) clarify that a semi-structured interview is used to reach both retrospective and current observations of the interviewee on the phenomenon.

### **3.6. Data analysis via Gioia-method**

Gioia et al., (2013) methodology consist of first-order categories, second-order themes and lastly aggregate dimensions. Figure 4 below demonstrates the data structure of the Gioia methodology with its illustrative connections with each section. The use of the Gioia method is worthwhile to correspond to a qualitative and inductive approach. “ A holistic approach to inductive concept development that also meets the standards for rigor” (Gioia et al. 2012, 1). The author sums up general quotations from participants in a paper and then the 1<sup>st</sup> order category is connected to the quotations. The general understanding of quotations is formed to figure out the 1<sup>st</sup> level category which leads to the 2<sup>nd</sup> order method. Finally, “the researcher reasons the aggregate dimension describing what is all about” (Gioia et al. 2012, p.6). The author opted Gioia method since e-learners are capable of expressing themselves and their

experiences. Besides, this method opens up the informant’s voice which comes up with new notions. The author spent lots of his time reading transcripts of interviews to provide the initial codes for the research which raises the credibility of the study as well.

Moreover, it is not the whole picture to mention as axial coding is similar to Second-order analysis due to the fact that the initial codes from empirical finding are classified as similarities and differences which is merged with similar categories. Thus, it serves for the reduction of coding categories. “The second-order analysis provides theoretical perception in nature, it is analyzed if the emerging concepts explain the phenomena under observation” (Gioia et al., 2013). In connection with aggregate dimensions, it is merged with Second themes relatively.

The author attempted to translate the quotes from Uzbek into the English language to embed the logic of the concept significantly. “When we have the full set of 1st-order terms and 2nd-order themes and aggregate dimensions, then we have the basis for building a data structure” (Gioia et al., 2013). Therefore, Figure 4 presents the sample data structure of the Gioia method to have an overview of the research process.

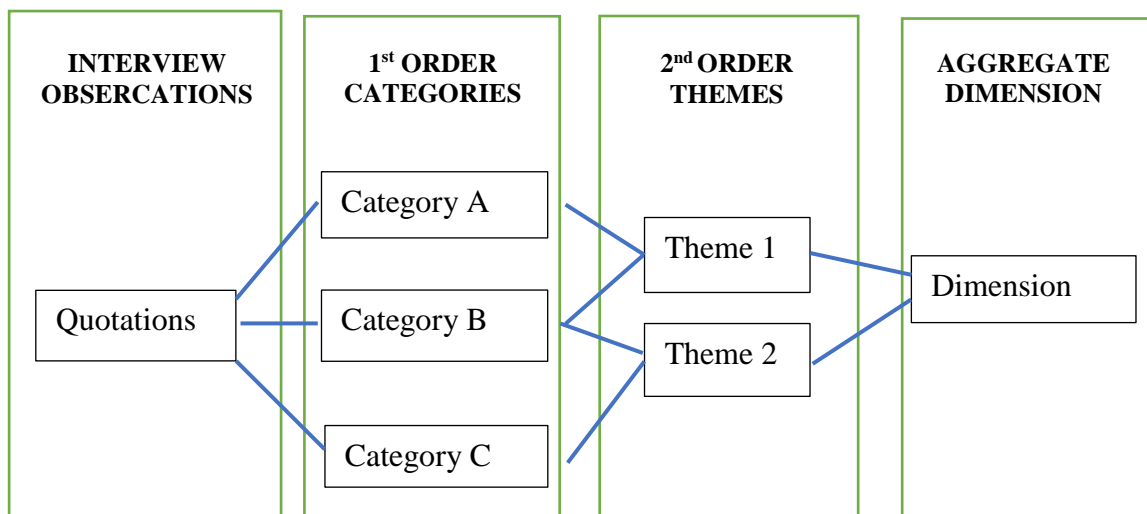


Figure 5.. Sample of data structure

Source: (Gioia et al. 2013)

## **4. INTERVIEW RESULTS**

This chapter presents the main findings and outcomes of this study based on semi-structured interviews and observations. The semi-structured interview was conducted with students in Uzbekistan to list barriers to DE that they have experienced. To analyze students' concerns on DE, the author divided the set of questions into three-parts which are namely demographic findings, students' experience and attitude toward distance learning, and lastly exploring the barriers to distance education for Uzbek students in HEIs. Finally, the empirically grounded theoretical framework on barriers to distance education is presented and discussed with help of Gioia data structure.

### **4.1. Demographic findings**

Both local and public universities or institutions were addressed in Uzbekistan. There are two private universities and 8 public universities and institutes namely Inha University in Tashkent and Webster University in Tashkent, University of World Economy and Diplomacy, Uzbek State University of World Languages, Ferghana Polytechnic Institute, Fergana State University, Tashkent University of Information Technology, Tashkent State Institute of Oriental Studies, Tashkent Institute of Finance, Tashkent Institute of Architecture and Civil Engineering. The students, who are studying for bachelor's degrees, were interviewed for this research and a total of 19 students participated in the semi-structured interview. Overall, 6 female and 13 male students participated in this research.

### **4.2. Students' experiences and attitudes toward distance learning**

Regarding the first question, the author asked about their experience with shifting to distance learning and students' first reaction to a sudden move to distance learning in their HEIs. To be more precise, the sudden global spread of a new strain of the Covid-19 has once again drawn the attention of the world community to the possibilities of distance learning. All educational institutions in Uzbekistan and abroad have transferred students to distance learning. These measures allowed not only to reduce the spread of coronavirus but also to preserve the



educational process. The rapid transition to distance learning affected all participants in the educational process. Firstly, the entire faculty of the university is forced to work with students online. Private universities have already been prepared for online learning before the start of the pandemic, as they were using distance learning technologies. A student at Webster University in Tashkent reflected that *'We switched to distance learning on March 16. In principle, nothing much has changed for us, because we have always worked on the World Classroom platform. In normal times, teachers uploaded assignments to this platform, and we sent those that were already completed.'* To highlight, another respondent from the University of World Economy and Diplomacy (UWED) said in the first reaction to the letter question as follows: *'after the detection of the coronavirus, we were told that the study would be remote. Graduate students started studying online a week and a half to two weeks after the start of quarantine. Junior students were a little earlier. We study on the moodle platform. For lectures, we also occasionally used Zoom.'* A student of Tashkent Institute of Finance cited that *'When online learning first started, some assignments that we had to hand in any way were already uploaded to the platform. The rest has already been uploaded.'* A student at the Uzbek State University of World Languages (UzGUWL) said that *'Distance learning began around March 25th. At first, we used Telegram, then we partially switched to the moodle platform. We are given a dry educational and methodical complex so that we digest it ourselves and then pass our homework and tests.'* To some extent, other participants had similar observations at the beginning stage of DE at their HEIs. They emphasized Telegram application that it played a crucial role in both communications with tutors and the use of educational resources from its channels relatively.

Concerning the question, which analyses students' notions and preferences in terms of distance learning or conventional learning. The quotes from students confirm that there are pivotal issues in DE. Albeit the majority of students preferred offline education rather than distance learning due to their perception in terms of having the opportunity for practical studies, live communication, etc. It is worthwhile to mention that DE cannot provide practical studies for some specific faculties. A Student of Fergana State University commented as follows: *'Offline education is comfortable for me because I can contact my fellow students face to face and it is easier to ask questions from each other about what you do not know about a particular subject.'* Most students are in favor of acquiring traditional classes. Since they believe that it is simpler

to comprehend topics than DE. A student of Ferghana Polytechnic Institute expressed his dissatisfaction to DE: *'...I understood that I prefer offline education as I was not satisfied with distance learning from my university'*. Another student at Tashkent Institute of Architecture and Civil Engineering provided a similar comment: *'I prefer traditional education since we can work on my studies a lot and a teacher can explain a topic considerably. I experienced distance education and it is hard to understand subjects virtually'*. However, some students supported DE that they figured out the number of advantages in their DE period like multitasking opportunities and saving time for other special subjects. A student at Tashkent State Institute of Oriental Studies said *'I prefer distance education because I can focus on specific subjects a lot rather than unnecessary subjects. Traditional education wastes my time with unnecessary subjects conducted in both online and offline education, but I felt more freedom in studying my specific subjects in online education than in offline education.'* A student of Tashkent Institute of Finance commented the following quote on the advantages of DE: *'...it is convenient for me to work and study at the same time.'* A student at Webster University said on preference regarding distance and traditional education: *'Some subjects are difficult to complete online. For example, I am studying Media Communication. We have a photography class where we take a camera, take pictures, and edit. Not everyone has a camera. Therefore it is difficult. There is still not enough academic atmosphere among the university, and teachers. This is an American university. At home, of course, it is also comfortable, but the situation at the university is different.'* Overall, two-thirds of participants disclosed that they prefer contacting other students and teachers.

It is interesting to note that several participants found advantages in studying DE. The best example that springs to the author's mind is the quote of a student from Inha University in Tashkent *'I'm more for distance education than not. I have the opportunity to independently distribute my time and study in my daily routine. In addition, the assimilation of the material is much easier and more interesting when I find answers to questions.* One participant from the University of World Economy and Diplomacy (UWED) cited that *'I think online education has its advantages. It can save you some time. But at the lectures, although we were not particularly interested, we could hear something out of the corner of our ear, at least perceive something for ourselves.'* The number of students who prefer traditional class education outwaited distance education supporters.

### 4.3. Exploring the barriers to distance education for Uzbek students in Higher Education Systems

#### Theme 1 – Tutorial issues:

Concerning the question about the quality of online teaching practices, most students confirmed that they had various issues with the tutorial aspect and the way how it was performed by teachers. A student at Fergana State University disclosed that *'We have nothing without writing. We even wrote some control notes in notebooks, then photographed them and sent them to the teacher'*. It is visible that a teacher was satisfied with photographed control works in order to make it a completed task for a student. Generally, the organization of conducting lectures should be taken into consideration as there are issues with checking a student's home tasks in HEIs. A student at the University of World Economy and Diplomacy voiced that *'I am sure that students do not even look at these materials, but just look at the questions, try to find answers on the Internet, pass faster and move on to other subjects. Because there are several deadlines per day.'* A student of Fergana State University asserted understanding for teachers: *'We send completed tasks via telegram or upload them to moodle. We are comfortable. It's just hard for some teachers. Sometimes teachers wrote to us late in the evening, and I understood that their schedules has shifted a lot. I felt a little sorry for them'*. Several students experienced overloaded tasks from their teachers. For instance, a student at Tashkent Institute of Finance said *'Lacks at least some lectures. Right now we are just being loaded with a lot of tasks. Teachers also do not have much time and desire to do this. They just download all the materials. Students can have 10 such subjects.'* A Student of Uzbek State University of World Languages commented the following: *'Online learning could continue. But only with a teacher who understands online education and can develop a normal curriculum for a convenient online platform.'* According to most students, teachers were not prepared for distance education as teachers wasted time figuring out how to solve educational platform issues. A Student at Webster University cited: *'Friends from national universities say that teachers skip classes, they use Telegram to study, and they are forced to write notes. Therefore, I think that Uzbekistan is not yet ready for online learning.'*

Difficulty in perceiving methodological recommendations, written recommendations, remarks, and methodological instructions were unclear to most students in the process of distance learning. A student at the University of World Economy and Diplomacy stated that *'I could*

*not understand some online presentations which were provided by a teacher.*' And among students, this circumstance caused a remark in favor of the traditional education format. Several students claimed that *'During a personal meeting, you can evaluate the presentation of information thanks to intonation and facial expressions. Immediately clarify the nuances, do not expect an answer for a long time, erroneously interpret it as a task or an answer.'* Students often pointed to a long time waiting for a response or verification of work from a teacher. Half of the students face the problem of adaptation due to the low degree of interactivity with the teacher during the period of distance learning. V A student at Uzbek State University of World Languages cited that *'In traditional learning, the number of tasks seems to be moderate. Even though seminars were held every day, the preparation for them was not as intense as it is now. Often, teachers evaluate a student by how the student presents the material, and not by its informativeness. In online learning, you have to devote more time to searching and analyzing information to turn in a decent job, because everything is handed over in writing and checked for plagiarism.'* Two-thirds of students pointed out that a writing task is a key component for delivering online tasks. For example, a student at Tashkent State Institute of Oriental Studies cited *'Lectures were held only on one subject. The rest was in writing.'* Several students claimed that they had issues with contacting their teacher. For instance, a student at Tashkent University of Information Technology stated inconvenience concerning contacting a teacher online: *'Academic supervisors can be contacted online. Younger executives use Telegram. With my manager, I can write off mainly through the mail. And each time calling him to look is also inconvenient. We could ask them our short questions after classes or during breaks and get good advice at the university.'*

## **Theme 2 - Internet access challenges:**

It is worthwhile to recall that most rural areas have issues with an Internet connection and some parts of big cities have issues with the speed of the Internet. That's why all the interviewees agreed that there is an issue with Internet speed and coverage. A student from Ferghana Polytechnic Institute (FarPI) said as follows: *I have issues with the Internet connection due to low signal in my rural area. Admittedly, lack of Internet access was a crucial barrier to my distance education process. As I was obliged to move to my hometown as I was studying for my bachelor's degree in Tashkent.* Moreover, some participants commented that they did not have issues with the coverage of the Internet but there were lagging issues and speed of the

Internet. Another student from Tashkent Institute of Architecture and Civil Engineering added that *'it is annoying when I wait for uploading a document on Moodle platform or reading educational material due to the slow speed of the Internet.'* Most students confirmed that some universities had to decrease the number of video lectures due to the issues with the Internet. A student of UWED stated that *there is only one subject where you need to write notes. In general, by the third year, this is almost not observed. We do not provide video lessons in subjects due to the lack of good Internet speed for many students.* It is a key point that a large portion of students was experiencing a poor Internet connection. Students, who live or study in a city, were getting a medium and high-quality Internet connection for distance education. A student at Tashkent University of Information Technology said *'One of the main reasons is the lack of normal Internet speed (mainly in the regions). The current situation should become an impetus not only for the modernization of education but also for our telecommunications system as a whole.'*

### **Theme 3 – e-Content issues:**

Concerning e-content issues, students had various problems such as fully understanding of study materials, a lack of interactive activities, and incorrectly formatted teaching materials. A student at Tashkent State Institute of Oriental Studies said that *'the difficulty is mainly in the assimilation of online materials. They are difficult to understand without explanations from the teacher'*. She added that students were obliged to turn to online sources like Google to get the essence of information relatively.

According to study material in the Uzbek language, most of the students stated that the majority of online teaching materials are Russian and English language. Besides the fact that active translation of electronic books, dictionaries, and applications is taking place nowadays. There are still issues for students who do not know Russian or English language. A student of Ferghana Polytechnic Institute commented the following: *'I study bachelor's degree in the sphere of construction, and it is fully conducted in the Uzbek language. Sometimes, I have been given Russian-supported study materials for which I do not know the language. I had to ask a teacher for assistance with translation'*. It is evident from the fact that the Russian language is widely used in Uzbekistan and most Uzbeks are capable of speaking both languages. Therefore, several students claimed that they are comfortable with mixed Uzbek and Russian online resources. Overall, it hinders students who comprehend only the Uzbek language and affects DE effectiveness.

#### **Theme 4 - Poor managing online classes by teachers:**

Regarding the issues encountered by the students, the interviewees assumed poor teacher's experience in terms of managing online classes. A student of the University of World Economy and Diplomacy cited that *'I remember that it was boring online educational environment due to the repetitive routine of online classes.'* A student of Ferghana Polytechnic Institute lamented: *'Teachers could provide various videos on a topic or creative way of conducting the online class. Unfortunately, most online lectures were theory-based presentations in PowerPoint'*. Two-thirds of students voiced about lack of confidence in delivering the course. Moreover, the atmosphere of distance learning differed profoundly from the conventional classroom environment as students were not participating actively in group discussions. A student at Tashkent Institute of Architecture and Civil Engineering cited that: *'...at the beginning of a lecture, a teacher delivered some tasks and explained instruction to us actively. Then, he interrupted the lecture for the next session.'* It was visible that the principal problem at this point is the lack of experience in delivering high-quality online lectures. Additionally, the problem is that in such a process, students have to read all the material independently. It, therefore, requires willpower, responsibility, and self-control. However, when taught remotely, there is no direct communication between teacher and student. Therefore, a student who is constantly studying in such a system may find it difficult to express his opinion freely among the majority. Inadequate internet speeds in remote areas and insufficient internet use skills of some students hamper the effectiveness of such an educational process.

#### **Theme 5 – Technical issues:**

By and large, students asserted several problems with technical aspects. A student at Fergana State University said technical issues: *'It happens that the platform hangs when all the students enter. Or tasks are loaded twice, and we do not understand what is happening. Or, for example, when we solve tests, you enter the correct answer "2" and the correct answer is not the number "2" but the word "two". Little things like this are annoying'*. Students noted that this e-learning system requires many improvements, it is still far from ideal, and it is not comfortable to use. The disadvantages were the lack of the ability to download a large volume and a discreet interface. Students indicated in their answers the use of non-specialized systems such as e-mail, the social network Telegram, Skype, instant messengers, calls, and SMS messages. But opinions about each of them were divided. Speaking about the attitude towards specialized systems, universities provided Moodle system but it was badly managed by both their

universities. They mostly use non-specialized ones: Telegram, Microsoft Teams, Zoom, Google Classroom, and WhatsApp. The priority remained Telegram, email, WhatsApp, and Zoom. A student of Ferghana Polytechnic Institute quoted *'We used mainly Telegram for communication with my fellow students and teachers.'* Specialized e-learning software systems make it possible to systematize and simplify the presentation of material, create online tests with automatic verification, and install an electronic assessment system. Not only facilitates the student's learning, but also provides him with more freedom. But there are also engineering students. Here we have a really hard time, we need to master computer graphics, but many do not have computers.

#### **Theme 6 – Students' inattentive behavior:**

For the final question, the author asked the participants about the readiness of Uzbekistan for distance education. Some students agreed that Uzbekistan is not yet ready for distance education because of the above-mentioned barriers. A Student at Webster University in Tashkent stated about the state of DE in Uzbekistan: *'Friends from national universities say that teachers skip classes, they use Telegram to study, they are forced to write notes. Therefore, I think that Uzbekistan is not yet ready for online learning.'* A student of University of World Economy and Diplomacy quoted *'In my opinion, the first steps have already been taken for the development of DE. Maybe in 5-10 years, but not now.'* Lack of contact with the teacher daily or weekly causes a weakening of motivation for learning, and students begin to study on their own according to students. Among the advantages of actual learning, a student of the University of World Economy and Diplomacy singled out the opportunity *'...no one is watching you, you can easily go online and find the information you need, which greatly demotivates you to prepare for exams. Therefore, I have a conflicting attitude towards this.'* Students are adapting to distance learning, of course, not without problems. The performance of some students falls, which depends on their desire to work independently. The lack of social contact makes itself a concern for e-learners, some students simply cannot understand what the teacher requires from them. It is difficult for half of the students to master the material without additional explanation. During distance learning, most of the students began to devote less time to study, due to the lack of desire, for a direct connection with the university, which indicates that some students cannot adapt to the virtual way of learning. Among the proposals, students put forward wishes to provide the necessary equipment for the hostel and stable access to the Internet. A student from Fergana State University cited *Based on my fellow students' experience, I can say*

*that distance learning is not suitable for everyone.* Students mentioned that they have experienced difficulties keeping their attention on both physical and digital aspects. A student of the University of World Economy and Diplomacy uttered his concerns: *'...it is hard to stay focused when watching video tutorials.'*

#### **Theme 7 – Scarcity of e-devices:**

The author asked about students' technological devices from participants. Two-thirds of students confirmed that they used mainly smartphones for distance education classes. Furthermore, several students stated that they possess laptops or computers which helped them to carry out online tasks successfully. However, some students asserted that the lack of technological devices among students provided issues for DE. It is reasonable to note that having smartphones is not a sufficient tool for an effective DE process. A student of Ferghana Polytechnic Institute added: *'But there are also engineering students. Here we have a really hard time, we need to master computer graphics, but many do not have computers.'* It is indisputable fact that laptops or computers play a crucial role in completing online tasks successfully. A student of Tashkent Institute of Finance said that *'...I did not have a computer and come up with obstacles in writing my research tasks'*. Another student of Inha University in Tashkent quoted *'I used my smartphone for distance education classes. I did not have issues with watching online videos or reading educational materials. However, I could not maintain writing my home tasks on time during the pandemic.'* Several students explained their situation with a lack of e-devices and how they overcome this challenge. Some students asked their friends, who have a computer, for help. Some stated that they addressed Internet café for uploading a document or writing home tasks.

#### **Theme 8 – Electricity:**

The minority of students recalled the inadequacy of electricity. A student of Tashkent State Institute of Oriental Studies students complained about frequent interruptions on electricity *'It seems to me that Uzbekistan is not yet ready for distance education. And I say this while in Tashkent. I have no problems with the network. But sometimes there are interruptions. In the regions, someone generally has no electricity for two days. Without even talking about it, it's just that the distance learning system itself, it seems to me, has not been worked out at all.'* Another student of Tashkent State Institute of Oriental Studies claimed his disappointment with poor electricity: *'I am fed up with sudden interruptions with electricity. I lived in a rural area, and it is a well-known issue in Uzbekistan which is mainly in rural areas of the Republic.'* Most



students touched upon the issue of frequent electricity shortages in rural areas and agreed that this issue is likely to be a barrier to implementing DE. In addition, students, who study in Tashkent, were familiar with issues on electricity in villages but they asserted that there were not any issues with electricity.

**Theme 9 - Cultural norms on student's life circumstances:**

The students felt difficulties to cope with cultural challenges. Especially, cultural norms impacted female students as Uzbek girls are mainly in charge of household work and get married at an early age. A student at Uzbek State University of World Languages lamented about cultural norms which provided difficulties for effective acquisition of online knowledge from her Institution: *'I usually have lots of housework, therefore, I did not have enough time to study online subjects fully. I prefer the traditional type of education that provides me with specific time to concentrate on my studies.* Another female student at Uzbek State University of World Languages said similar issues with DE: *'My family did not respect my studies through distance learning, and they did not provide me sufficient time to study. They said it was better to look after my child in this phenomenon'*. To cope with this cultural issue, female students studied for a limited time and mainly used smartphones for online educational classes. Thus, they anticipated to switching conventional education.

**Theme 10 - Insufficient conducive learning environment while studying at home:**

Several students uttered their concerns about the lack of cooperation from their families while studying DE at home. They faced challenges due to the noise in their homes and disruptions from their families. A student at Uzbek State University of World Languages quoted on the theme of lack of concentration: *'I felt myself uncomfortably during the online class because I have a big family and it was hard to find a quiet place'*. A student at the Tashkent Institute of Economics commented *'During the distance learning period, one of the main issues was my parents. Sometimes, they were asking me to look after my little brother instead of watching an educational video'*. Unfortunately to the author's concern, those online classes were disrupted by their families. To some extent, some said that some families were not supportive when it comes to education. However, it was also highlighted that most students were supported by their families in implementing effective distance learning. For example, a student of Fergana State University uttered *'I explained the situation to my family. They were happy that they can monitor my studies.'* A student of Tashkent State Institute of Oriental Studies expressed the

following position: *'The parents were very afraid of the coronavirus and forbade them to leave the house which is in a rural area but there is no Internet at home.'*

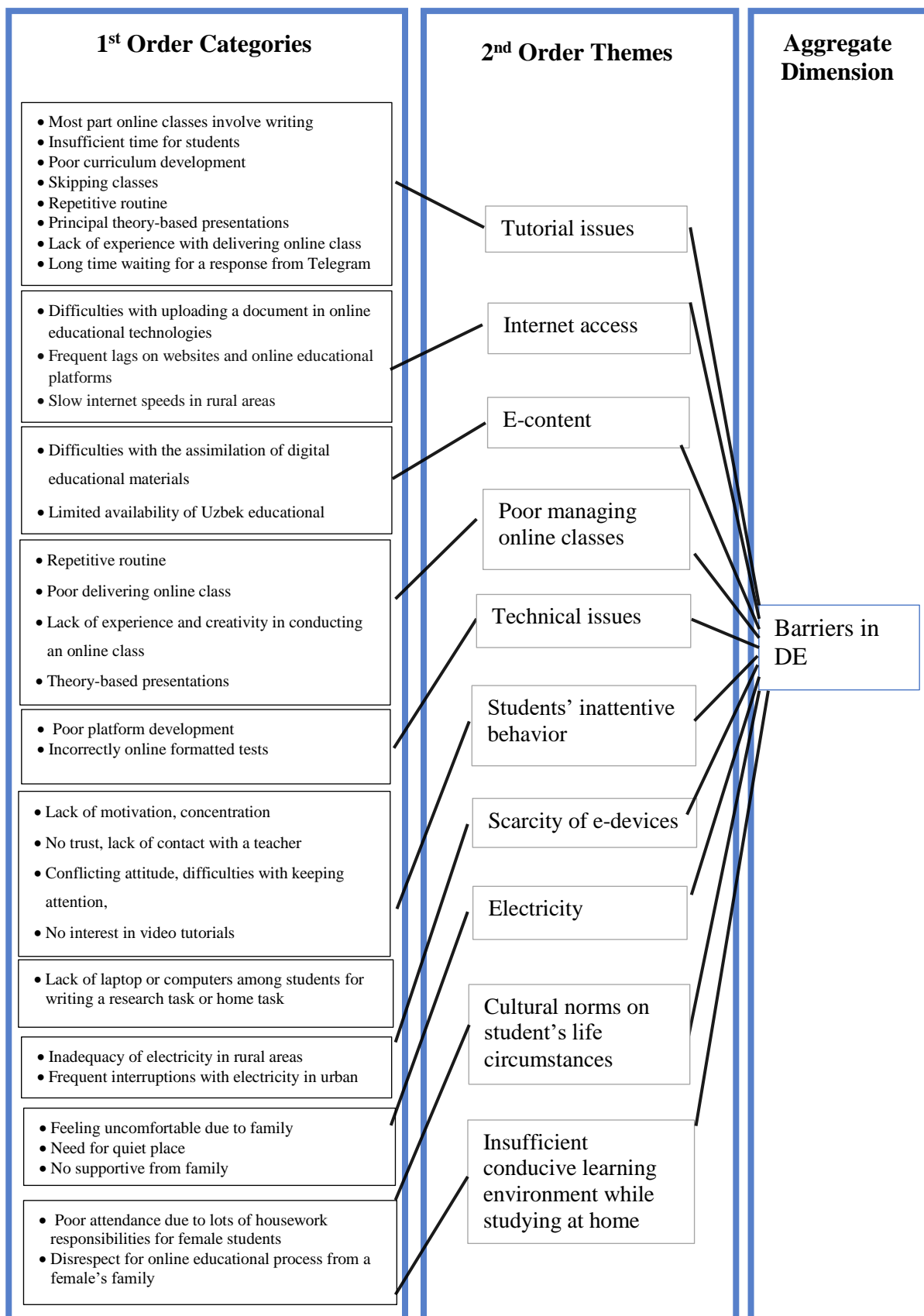


Figure 3. Data structure of the coding for barriers in distance education

Source: Framework adapted from

Figure 2 demonstrates the data structure of barriers that students encountered during the period of distance learning. Ten second-order themes have been generated from the interview observations. The author touches upon each second-order theme as it bases the grounded theory approach on the Gioia data analyzed. The author coded the quotations from participants the data through Gioia methodology (Appendix 3).

According to tutorial issues, it is interestingly the most cited and mentioned theme. The theme of internet access issues was added to the case approach study and participants recalled internet connectivity. Concerning the e-content theme, the author assumed the emergence of this scope after the analysis of DE in Uzbekistan. Poor managing online classes emerged in the data after careful coding of interview results such as repetitive routine, poor experience, and so on. Students' inattentive behavior came up with a lack of focus, interest, motivation, etc. Students mentioned a lack of e-devices and frequent interruptions on electricity. The effect of cultural norms in Uzbek families created mainly obstacles for female students. Eventually, the theme of an insufficient conducive learning environment while studying at home was identified as a challenge for students in Uzbekistan.

These ten second-order themes, namely, tutorial issues, Internet access, e-content, poor managing online classes, technical issues, electricity, cultural norms on student's life circumstances, and lastly insufficient conducive learning environment while studying at home. All of the mentioned themes contributed to aggregate dimension barriers in DE.

## 5. DISCUSSION

The chapter provides an analysis of the data from interview results and the theoretical part. The principal objective of the paper is to analyse the challenges of distance education in higher education to identify the main problems of its development based on the Uzbekistan case.

According to the interview findings, tutorial issues are a major challenge for students to get high-quality distance education in Uzbekistan. It involved the following factors: most parts of online classes involve writing, insufficient time for students, poor curriculum development, skipping classes, repetitive routine, principal theory-based presentations, lack of experience with delivering online classes, and longtime waiting for a response from Telegram. Two-thirds of students noted that online lectures were lacking variety and interest. The data opposes the theory that Universities are required a high level of planning, management control, and excellent communication if they want to be successful in DE (Schlosser,1994). Unfortunately, most students were unsatisfied with their universities due to the fact that high-quality distance education was not delivered successfully. Moreover, the knowledge of teachers was unsatisfactory in terms of conducting online classes and they felt less responsibility than in the traditional class environment.

Concerning Internet access issues, it was figured out as one of the principal challenges for students in Uzbekistan. This issue included the following factors: difficulties with uploading a document in online educational technologies, frequent lags on websites and online educational platforms, and slow internet speeds in rural areas. The data supports the theory that Niebuhr et, al. (2014), Dyrbye et, al. (2009), and Attardi and Rogers (2015) introduced a number of several issues with online classes, including problems with poor internet infrastructure in their theory. The speed of the Internet emphasizes the quality of DE in vast numbers. Therefore, most students will be demotivated for DE if robust internet connectivity is not guaranteed.

Regarding e-content issues, it involves such factors as difficulties with the assimilation of digital educational materials and limited availability of Uzbek educational resources. Ajay (2012) included the importance of study materials in his studies that emphasize the significance of this factor for e-learners. To the author's concern, it is a serious issue not only for e-learners

but also for conventional learners. The literature found that the major concentrations should be taken into the creation of educational content and the organization of its open usage virtually for DE (Hiltz and Turoff, 2005; Sife et al., 2007).

The issue of poor managing online classes included repetitive routine, poor delivering online classes, lack of experience and creativity in conducting an online class, and theory-based presentations. The data support the Gillet-Swan (2017) theory that a student might have several issues like inability or difficulty in peer interaction, particularly in presentations. The importance of delivering presentations virtually is comprehensible and complex theorized content via presentation provided difficulties for students in accordance with the results data.

The Technical issues include poor platform development and incorrectly online formatted tests with regard to the interview results. Students came across multiple system errors during the online classes. Therefore, they basically relied on Telegram channels to overcome these issues. Literature found that technical barriers are a key segment of DE for tackling in order to acquire high-quality online classes. For example, Tsai et, al. 2020 included technical barriers in their research following up on personal, logistical, social interaction, and financial barriers.

Students' inattentive behavior included lack of motivation, concentration, no trust, lack of contact with a teacher, conflicting attitude, difficulties with keeping attention, and no interest in video tutorials. Galusha (1998) provided several categories for both problems and barriers respectively. For example, the data supports the theory of Galusha (1998) on lack of experience and training, feedback and teacher contact, etc.

In terms of the scarcity of e-devices, the study found a lack of laptops or computers among students for writing a research task or home task. Compared with the literature review, Berge and Muilenberg (2000) coined out a lack of technology-enhanced classrooms, devices, or infrastructure as barrier for DE. The issue with the shortage of electricity took place mostly in rural areas and sometimes urban areas following the data. Some students explained their experiences how they overcome these obstacles.

Insufficient conducive learning environment while studying at home including factors like poor attendance due to lots of housework responsibilities for female students and disrespect for the

online educational process from a female’s family. Literature found that MacKeracher et al., (2006) added a general lack of support services at times and places suitable to adult learners.

Cultural norms on students’ life circumstances are feeling uncomfortable due to family, the need for a quiet place, and no support from family. The data support the theory in which Deggs (2011) included an issue that affects adult learners’ life circumstances as a barrier.

The author classifies distance education barriers inclining on the interview results to answer the research question of the paper. Situational, dispositional, epistemological, and technical barriers are figured out in the data in terms of Rezabek (1999); Garland (1993); Schilke (2001). To be more precise, Table 1 shows the data which is categorized into five categories as the following barriers:

Table 7. Description of DE barriers by interview results

<b>Barriers</b>	<b>Interview results’ issues</b>
Situational	insufficient conducive learning environment while studying at home; cultural norms on student’s life circumstances
Institutional	electricity
Epistemological	e-content; poor management of online classes; tutorial issues
Dispositional	students’ inattentive behaviour
Technical	e-devices; internet access issues, technical issues

Source: Adapted from (Rezabek, 1999; Garland, 1993; Schilke, 2001)

## 6. CONCLUSION

Both in the literature and the data collected for this study, the author found several barriers regarding distance education in the case of Uzbekistan. To conclude, situational barriers (such as insufficient conducive learning environment while studying at home and cultural norms on student's life circumstances), the institutional barrier (such as the inadequacy of electricity), epistemological barriers (such as e-content, poor management of online classes and tutorial issues) and technical barriers (e-devices, internet access issues, and technical issues) are affected to the effective implementation of DE in HEIs. The analysis of HEIs in the case of Uzbekistan showed that there was a reduction in the number of students in past years due to a limited number of admissions, the cease of part-time and evening education, expensive tuition fees, etc. A policy analysis of Uzbekistan on ICT depicted the need for new legal norms to secure the usage of advanced electronic educational technologies for the effective implementation of DE in Uzbekistan. Moreover, the Internet network made it difficult the introduction of communicate between teachers and students effectively.

By and large, the case study showed the challenges faced in HEIs of Uzbekistan during the period of the pandemic and post-pandemic. If the above-mentioned barriers are tackled, the state of distance education in HEIs will develop in Uzbekistan. It will result in an increased number of students having a chance to get higher qualifications.



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# APPENDICES

## Appendix 1. Questions Guide

### Demographic characteristics

1. Briefly introduce yourself- name, name of the university, major, and year in university?

### Students' experiences and attitudes toward distance education

1. You have witnessed the drastic shift the education sector has experienced since March 2020, when education institutions were obliged to move to distance learning. With a few words, how would you describe your experience with shifting to distance learning?
2. Do you perceive distance education as more difficult than traditional in-class learning? If yes, please briefly describe your experience.

### Exploring the barriers to distance education for Uzbek students in HEIs

3. How were your classes conducted when you started distance learning at your university?
4. Do curriculum, teaching materials, online courses, and resources meet your needs? Please describe your experience.
5. Are there any issues regarding the lack of study materials in the Uzbek language? If yes, in what areas.
6. Have you had issues with the Internet connection while studying in distance learning format from your Higher Education Institution (HEI)? If yes, please describe your experience with Internet access.
7. What issues are you facing with online teaching practices?
8. What is your opinion regarding the implementation process for online teaching strategies from your school administration?
9. How do you deal with a problem? Do the teachers respond to your problems timely? Are you satisfied with that?
10. Have you faced any difficulties in getting a distance learning course due to cultural pressure from family? If yes, briefly describe.
11. Were you able to elaborate wisely on your time during the distance learning period? If yes, describe. If not, please specify obstacles that you could not manage your time effectively
12. Have you faced the inadequacy of electricity in your area in the period of distance education? If yes, please describe your concerns.
13. Have you had all the necessary technological devices for distance learning (e.g., smartphone, laptop, etc.)? Please briefly describe your situation.
14. Are there any other factors that hinder your learning efficiency online?

### On the readiness of Uzbekistan for distance education

15. What measures need to be taken to improve students' performance in distance learning at your university or in Uzbekistan?

## Appendix 2. Demographic findings of students

N#	Gender	Universities/Institutes	Majors	Year in University
1	Male	University of World Economy and Diplomacy	International Relations	2018-2022
2	Female	University of World Economy and Diplomacy	International Law	2017-2021
3	Male	University of World Economy and Diplomacy	International Economics and Management	2018-2022
4	Male	Uzbek State University of World Languages (UzSWLU)	Department of pedagogy and psychology	2018-2022
5	Female	Uzbek State University of World Languages (UzSWLU)	The faculty of International Journalism	2020-2024
6	Female	Ferghana Polytechnic Institute (FarPI)	Management in Production	2018-2022
7	Male	Ferghana Polytechnic Institute (FarPI)	Light industry and textiles	2019-2023
8	Male	Fergana State University	Faculty of Foreign Languages	2020-2024
9	Male	Fergana State University	Faculty of English Language and Literature	2018-2022
10	Female	Tashkent University of Information Technology	Software engineering,	2019-2023
11	Male	Tashkent State Institute of Oriental Studies	Telecommunications technologies	2019-2023
12	Male	Tashkent Institute of Finance	Faculty of economics	2020-2024
13	Male	Tashkent Institute of Finance	Faculty of budget accounting and treasury	2018-2022
14	Female	Webster University in Tashkent	Bachelor of Science in Business Administration	2020-2024
15	Male	Inha University in Tashkent	The Department of Business and Logistics	2018-2022
16	Male	Inha University in Tashkent	The department of economics	2020-2024
17	Female	Tashkent Institute of Architecture and Civil Engineering	Architecture faculty	2020-2024
18	Male	Tashkent Institute of Architecture and Civil Engineering	Construction faculty	2018-2022
19	Male	Tashkent Institute of Architecture and Civil Engineering	Civil Engineering	2020-2024

### Appendix 3. Coding quotations via the Gioia data structure

Interview Observations	1 <sup>st</sup> Order Categories	2 <sup>nd</sup> Order Categories
<i>I have issues with the Internet connection due to the low signal in my rural area. Admittedly, lack of Internet access was a crucial barrier to my distance education process. As I was obliged to move to my hometown as I was studying for my bachelor's degree in Tashkent.</i>	Frequent lags on websites and online educational platforms	Internet access
<i>'it is annoying when I wait for uploading a document on Moodle platform or reading educational material due to the slow speed of the Internet.'</i>	Difficulties with uploading a document in online educational technologies	Internet access
<i>there is only one subject where you need to write notes. In general, by the third year, this is almost not observed. We do not provide video lessons in subjects due to the lack of good Internet speed for many students.</i>	Slow internet speeds in rural areas	Internet access
<i>'One of the main reasons is the lack of normal Internet speed (Mainly in the regions). The current situation should become an impetus not only for the modernization of education but also for our telecommunications system.'</i>	Slow internet speeds in rural areas	Internet access
<i>'It happens that the platform hangs when all the students enter. Or tasks are loaded twice, and we do not understand what is happening. Or, for example, when we solve tests, you enter the correct answer "2" and the correct answer is not the number "2" but the word "two". Little things like this are annoying.'</i>	Incorrectly online formatted tests	Technical issues
<i>'We used mainly Telegram for communication with my fellow students and teachers.'</i>	Poor platform development	Technical issues
<i>'I usually have lots of housework, therefore, I did not have enough time to study online subjects fully. I prefer the traditional type of education that provides me with specific time to concentrate on my studies.'</i>	Feeling uncomfortable due to family; Need for a quiet place	Cultural norms on student's life circumstances
<i>'My family did not respect my studies through distance learning, and they did not provide me sufficient time to study. They said it was better to look after my child in this phenomenon.'</i>	No supportive from family	Cultural norms on student's life circumstances
<i>'The difficulty is mainly in the assimilation of online materials. They are difficult to understand without explanations from the teacher.'</i>	Difficulties with the assimilation of digital educational materials	e-Content issues
<i>'I study bachelor's degree in the sphere of construction, and it is fully conducted in the Uzbek language. Sometimes, I have been given Russian-supported study materials for which I do not know the language. I had to ask a teacher for assistance with translation.'</i>	Limited availability of Uzbek educational	e-Content issues
<i>'We have nothing without writing. We even wrote some control notes in notebooks, then photographed them and sent them to the teacher.'</i>	Most part online classes involve writing	Tutorial issues
<i>'I am sure that students do not even look at these materials, but just look at the questions, try to find answers on the</i>	Poor curriculum development	Tutorial issues
<i>Internet, pass faster and move on to other subjects. Because there are several deadlines per day.'</i>	Insufficient time for students	Tutorial issues
<i>'We send completed tasks via telegram or upload them to Moodle. We are comfortable. Its just hard for some teachers. Sometimes teachers wrote to us late in the evening, and I understood that their schedules has shifted a lot. I felt a little sorry for them.'</i>	Insufficient time for students; Long time waiting for a response from Telegram	Tutorial issues
<i>'Lacks at least some lectures. Right now we are just being loaded with a lot of tasks. Teachers also do not have much time and desire to dot his. They just download all the materials. Students can have 10 such subjects.'</i>	Insufficient time for students	Tutorial issues
<i>'Online learning could continue. But only with a teacher who understands online education and can develop a normal curriculum for a convenient online platform.'</i>	Lack of experience with delivering online class	Tutorial issues
<i>'Friends from national universities say that teachers skip classes, they use Telegram to study, and they are forced to write notes. Therefore, I think that Uzbekistan is not yet ready for online learning.'</i>	Skipping classes	Tutorial issues
<i>'I could not understand some online presentations which were provided by a teacher.'</i>	Lack of experience with delivering online class	Tutorial issues
<i>'During a personal meeting, you can evaluate the presentation of information thanks</i>	Lack of experience with	Tutorial issues

<i>to intonation and facial expressions. Immediately clarify the nuances, do not expect an answer for a long time, erroneously interpret it as a task or an answer.'</i>	delivering online class	
<i>'In traditional learning, the number of tasks seems to be moderate. Even though seminars were held every day, the preparation for them was not as intense as it is now. Often, teachers evaluate a student by how the student presents the material, and not by its informativeness. In online learning, you have to devote more time to searching and analyzing information to turn in a decent job, because everything is handed over in writing and checked for plagiarism.'</i>	Principal theory-based presentations	Tutorial issues
<i>'Lectures were held only on one subject.'</i>	Skipping classes	Tutorial issues
<i>'Academic supervisors can be contacted online. Younger executives use Telegram. With my manager, I can write off mainly through the mail. And each time calling him to look is also inconvenient. We could ask them our short questions after classes or during breaks and get good advice at the university.'</i>	Long time waiting for a response from Telegram	Tutorial issues
<i>I remember that it was boring online educational environment due to the repetitive routine of online classes.</i>	Repetitive routine	Poor managing online classes by teachers
<i>Teachers could provide various videos on a topic or creative way of conducting the online class. Unfortunately, most online lectures were theory-based presentations in PowerPoint'</i>	Poor delivering online class, Theory-based presentations	Poor managing online classes by teachers
<i>'...at the beginning of a lecture, a teacher delivered some tasks and explained instruction to us actively. Then, he interrupted the lecture for the next session</i>	Lack of experience and creativity in conducting an online class	Poor managing online classes by teachers
<i>'It happens that the platform hangs when all the students enter. Or tasks are loaded twice, and we do not understand what is happening. Or, for example, when we solve tests, you enter the correct answer "2" and the correct answer is not the number "2" but the word "two". Little things like this are annoying.'</i>	Incorrectly online formatted tests	Technical issues
<i>We used mainly Telegram for communication with my fellow students and teachers.'</i>	Poor platform development	Technical issues
<i>Friends from national universities say that teachers skip classes, they use Telegram to study, they are forced to write notes. Therefore, I think that Uzbekistan is not yet ready for online learning.'</i>	lack of contact with a teacher	Students' inattentive behavior
<i>In my opinion, the first steps have already been taken for the development of DE. Maybe in 5-10 years, but not now.'</i>	No trust	Students' inattentive behavior
<i>'...no one is watching you; you can easily go online and find the information you need, which greatly demotivates you to prepare for exams. Therefore, I have a conflicting attitude towards this.</i>	Lack of motivation, concentration	Students' inattentive behavior
<i>Based on my fellow students' experience, I can say that distance learning is not suitable for everyone.'</i>	Conflicting attitude, No trust,	Students' inattentive behavior
<i>'...it is hard to stay focused when watching video tutorials.'</i>	No interest in video tutorials, difficulties with keeping attention,	Students' inattentive behavior
<i>'But there are also engineering students. Here we have a really hard time, we need to master computer graphics, but many do not have computers.'</i>	Lack of laptop or computers among students for writing a research task or home task	Scarcity of e-devices
<i>'...I did not have a computer and come up with obstacles in writing my research tasks'</i>	Lack of laptop or computers among students for writing a research task or home task	Scarcity of e-devices
<i>'I used my smartphone for distance education classes. I did not have issues with watching online videos or reading educational materials. However, I could not maintain writing my home tasks on time during the pandemic</i>	Lack of laptop or computers among students for writing a research task or home task	Scarcity of e-devices:
<i>It seems to me that Uzbekistan is not yet ready for distance education. And I say this while in Tashkent. I have no problems with the network. But sometimes there are interruptions. In the regions, someone generally has no electricity for two days. Without even talking about it, it's just that the distance learning system itself, it seems to me, has not been worked out at all.'</i>	Inadequacy of electricity in rural areas	Electricity
<i>'I am fed up with sudden interruptions with electricity. I lived in a rural area, and it is a well-known issue in Uzbekistan which is mainly in rural areas of the Republic.'</i>	Frequent interruptions with electricity in urban	Electricity

<i>'I usually have lots of housework, therefore, I did not have enough time to study online subjects fully. I prefer the traditional type of education that provides me with specific time to concentrate on my studies.'</i>	Feeling uncomfortable due to family, Need for quiet place	Cultural norms on student's life circumstances
<i>'My family did not respect my studies through distance learning, and they did not provide me sufficient time to study. They said it was better to look after my child in this phenomenon.'</i>	No supportive from family, Need for quiet place	Cultural norms on student's life circumstances
<i>'I felt myself uncomfortably during the online class because I have a big family and it was hard to find a quiet place'. A student at the Tashkent Institute of Economics commented 'During the distance learning period, one of the main issues was my parents. Sometimes, they were asking me to look after my little brother instead of watching an educational video'</i>	Poor attendance due to lots of housework responsibilities for female students, Disrespect for online educational process from a female's family	Insufficient conducive learning environment while studying at home
<i>I explained the situation to my family. They were happy that they can monitor my studies.'</i>		Insufficient conducive learning environment while studying at home
<i>'The parents were very afraid of the coronavirus and forbade them to leave the house which is in a rural area but there is no Internet at home.'</i>		Insufficient conducive learning environment while studying at home

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