

# Chapter 12

## Technological Shock in Digital Transformation of Higher Education in Bangladesh



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**Abstract** The outbreak of the novel coronavirus has acutely disrupted the higher education system in Bangladesh. Its erratic nature forced the government of Bangladesh to close all the educational institutions on March 18, 2020. A digital transformation in the education industry facilitated education during this prolonged lockdown. Undoubtedly, this dramatic change introduced both teachers and students to unexpected challenges. This study aimed to unveil the challenges the students and teachers faced and focus on their overall experience adapting to the digital transformation in higher education during COVID-19. This study employed the semistructured interview with open-ended questions using qualitative content analysis and thematic analysis. The interview was conducted with two focused groups, including 109 students and 49 teachers from seven private universities in Bangladesh. The result shows that most of the respondents mainly struggled with lack of technical preparation, unavailability of resources, poor infrastructure of the Internet, and additional costs associated with e-learning.

**Keywords** Digital transformation · Higher education institutions · Online learning · Technology shocks

### 1 Introduction

The era of the twenty-first century is well recognized for the continuous development in information and communication technology. This rapid change breaks the traditional approach by adapting modern technology to transform the structures with innovative strategies in almost every area of the digital age. This reorganization

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of the technologies, processes, and business models is known as digital transformation (Rof et al., 2020). It affects different sectors, such as businesses (Rogers, 2016) and industry (Akdil et al., 2018). Undoubtedly, education cannot remain insensitive to these developments and changes. Digital and Internet technologies have been frequently recognized as the most effective way to connect the students of the twenty-first century to learning and teaching (Howard & Mozejko, 2021). According to the study, there are two types of digital solutions in the classroom: *hardware-based* and *software-based* (Kirkwood, 2009). Hardware-based solutions include tablets, smartphones, laptops, computers, and interactive SMART boards to improve learning. Software-based solutions can promote student collaboration or speed up the learning process.

Moreover, learning management systems and online courses are also prominent phenomena in the education of the modern economy. Digital tools and approaches used in educational settings are developing every moment. Therefore, the digital transformation in education is inevitable because of the increasing technology in everyday life (Marks et al., 2020).

The sudden emergence of COVID-19 and its rapid worldwide spread, causing it to become a pandemic in months, has given countries, governments, and general people little time to understand and tackle it. Each sector has been affected by the nationwide shutdowns. The education sector has been hit hard. The sudden closure of all education institutions has left the education authorities, institutions, staff, faculty, and students unprepared to deal with the unique situation. Over time, everyone found ways to adapt to the problem, including digital transformation to minimize face-to-face contact and social gatherings. However, with this transformation comes the shock of using technology in our everyday lives. Therefore, to help us be better prepared to tackle such natural calamities in the future, numerous studies need to be conducted on every aspect of this broad issue. As such, we are conducting qualitative research on the technological shock of digital transformation in the higher education sector of Bangladesh.

In Bangladesh, the digital transformation in the education sector came into force essentially from March 2020. Thus, education changed from a traditional face-to-face learning system to online classes. However, this transformation was not easy. Remote education and work from home (WFH) were ineffective solutions during the first phase of COVID-19 in Bangladesh since these practices were not widely standard before COVID-19 hit the country. Therefore, the sudden implementation of online education and WFH introduced new challenges for students and teachers.

According to newspaper reports and press releases by the government, the first case of COVID-19 was confirmed on March 8, 2020. Then on March 16th, to prevent the spread of the virus, the education ministry ordered the shutdown of all education institutions until further notice. Over the month, all sectors were closed, including factories, and this continued until May 31st. From September 2020, all restrictions were lifted as COVID-19-related infections and deaths were low, and educational institutions remained shut. From February 2021, the vaccination program began. In March, the second wave engulfed the country, causing more lockdowns over the next few months of 2021, most restrictions were lifted, and most



educational institutions were conducting online classes (Better Work). According to the WHO, 1,588,807 infections and 28,090 coronavirus-related deaths have been reported since the pandemic began.

The onslaught of COVID-19, its effects on people's lives, the sudden restriction of physical movement, the subsequent adaptation, and digital transformation in many sectors call for significant research. As this is a relatively new phenomenon, available research and publications are not sufficient, and as a result, we feel there is a research gap in this area. This study aims to identify the factors that determine and influence digital transformation's technological shocks in Bangladesh's higher education. The specific objectives are as follows: to identify technological shocks, to identify the nature of technological shocks derived in Bangladesh during the COVID-19 pandemic, and to understand the digital transformation situation in Bangladesh's higher education sector.

This research work tries to provide insight into how faculty members (teachers) and learners (students) at the tertiary level of education in Bangladesh have prepared themselves in handling the pedagogical shift, what kind of experiences they have had while adapting themselves to the use of digital devices for accomplishing teaching and learning during COVID-19, what kind of challenges they have had to come across, and how various limitations have brought impact on their teaching and learning processes. Since effective digital transformation in education requires all the people involved in the process to understand and adapt and to design an education system that is still dominated by traditional understanding (Marks et al., 2020), the concerned authorities related to the higher education system in Bangladesh can initiate other effective policies based on this study to make the digitalization process more effective.

## **2 COVID-19 and Digital Transformation of Education in Bangladesh**

Digital transformation has occurred across all sectors since the fourth Industrial Revolution began. EDUCAUSE defines digital transformation as optimizing an institution's operations, strategic direction, and value proposition through collaborative culture, workforce, and technology shifts (Bogdandy et al., 2020).

Soon after the WHO (World Health Organization) declared COVID-19 a pandemic in March 2020, the government of Bangladesh immediately announced that all educational institutions in the country to be closed from March 17, 2020, till March 31, 2020, as a precautionary measure. However, the closure was repeatedly extended as the infection and death rate from COVID-19 increased alarmingly (Mamun, 2020). Many private universities began online classes after the University Grants Commission of Bangladesh (UGC) allowed them to do so. This sudden shift to a digital base called for significant changes in all aspects of education – class lectures, exams, communication tools, assessment methods, etc.



## ***2.1 Technological Shock of Digital Transformation***

Due to the COVID-19 pandemic, the rapid digital transformation is forcing higher education institutions to change their working and learning culture. The use of technology in education is relatively new in Bangladesh compared to developed countries. Therefore, the sudden and extensive digital leap we have had to take in our work, education, and everyday lives has led to technological shock. We use the word technological shock to refer to the unpreparedness of our education system and its stakeholders. Studies reveal several factors for this shock (Khatri, 2020) as follows:

## ***2.2 Lack of Infrastructure***

Bangladesh is a rising economy, and while it has progressed in many sectors, there is insufficient infrastructure to adopt digital transformation in all spheres of life, including the education sector. Four mobile operators and fiber-based Internet service providers (ISP) (Shamsuddin, 2018) primarily serve Internet consumers. The introduction of 4G has increased the nationwide backhaul transmission capacity requirement, but the current NTTN (National Telecom Transmission Network) operators are not equipped to manage this requirement. The basic telecom infrastructure needs to be strengthened by utilizing robust optical fiber transmission networks. One of the significant problems digital transformation faces is Internet connectivity consistency and the associated inflated cost.

## ***2.3 Lack of Resources***

At the user level, the socioeconomic status of end users determines their access to technical resources such as the Internet, laptops, smartphones, and other devices required for online education. Moreover, many families suffered a monetary crisis due to job loss or salary cuts, making it impossible for many students to continue their studies (Ramij & Sultana, 2020).

## ***2.4 Lack of Training and Skills***

According to research, many universities do not provide faculty members with sufficient technical resources and assistance to conduct successful online classes (Becker et al., 2021). Also, students are left on their own to learn how to use digital platforms and tools. It is a new area for everyone, and a lack of proper training leads to a lack of skills.



## 2.5 Psychological Barrier

Although the lives of today's youth are entwined with social media, smartphones, and Internet use, it does not automatically make it easy for them to adapt to online education. In a flash, their education has been transformed from traditional classroom practice to a remote, digitalized one, where they must master digital tools to participate in their education. Students face psychological barriers in doing online classes. According to the study, students feel that complex topics are challenging to discuss and are not used to self-learning. Also, introverts are hesitant to turn on their camera in class (Popova et al., 2020). For the faculty, psychological barriers include confusion about student response as immediate feedback is not always received and whether they are being listened to properly. For older faculty especially, there is fear of learning the new skills necessary to adapt.

## 3 Method

This is a qualitative study in the context of Bangladesh based on both primary and secondary data. The study period is covered from May 2020 to December 2021. All Bangladesh public and private university classes were conducted online during this time frame. To facilitate this, Bangladesh Research and Education Network (BdREN) offered its corporate license for Zoom, a videoconferencing platform free to faculties of all public and private universities, which overcame the limitations of meeting time duration and the number of participants.

Data were collected from seven (7) departments of Bangladesh's seven (7) private universities. At least two and a maximum of three departments from each university were covered. Out of these seven universities, two (2) are from the top rank, three (3) are from the mid-rank, and two (2) are from comparatively low-ranked universities as per the ratings of the various local agencies. Since most Bangladeshi universities do not qualify for international rankings (such as QS or THE), ratings of several local agencies such as [StudyBarta.com](http://StudyBarta.com) and UniRank were used while selecting universities as a sample. Data were collected from two categories of focus group discussions (FGDs): the learners (i.e., the students) and the faculties (i.e., the teachers).

Each FGD consisted of 6 or 08 or 10 students and 3 or 05 or 06 faculties; departments include Business Administration (BBA and MBA programs), Computer Science and Engineering (BSc honors), Electrical and Computer Science Engineering (BSc honors), Civil Engineering, Economics (BSS honors), English (BA honors), and Environmental Science and Management (BSc honors). In response to the respondents' requests, the names of universities, faculty members, and students have not been mentioned anywhere in this study.



Qualitative content analysis and thematic analysis were used to collect and present the data. In this study, the narrative discussion was used since it includes the analysis of contents from various sources, such as interviews of respondents and observations from the field. Semistructured interviews along with open-ended questions were applied for collecting data. Two sets of questions used to collect data from two separate focus groups have been attached in the [Appendix](#) of this study.

Online Zoom and face-to-face meetings were arranged to receive primary data from the respondents. Moreover, since all the four (4) authors are teaching at both undergraduate and graduate levels, it was an excellent opportunity to incorporate their observations into the study findings. Secondary data were collected from literature reviews like published books, journal articles, newspaper reports and articles, and online publications.

## 4 Findings

### 4.1 Demography of the Respondents (Tables 12.1 and 12.2)

**Table 12.1** Demography of focus groups (learners)

Category of university	Departments covered along with several participants						
	School of business/ Business administration	EEE	Environmental science and management	ECE/ CSE	English	Civil engineering	Economics
<i>Top-ranked university</i>							
University-1	6	8	–	–	–	–	–
University-2	10	–	6	–	–	–	–
<i>Mid-ranked university</i>							
University-1	10	–	–	10	6	–	–
University-2	8	–	–	–	–	–	8
University-3	8	–	–	6	–	–	–
<i>Lower-ranked university</i>							
University-1	10	–	–	–	7	–	–
University-2	–	–	–	–	–	6	–
Total no. of participants	= 52	= 8	= 6	=16	=13	= 6	= 8



**Table 12.2** Demography of focus groups (faculty members)

Category of university	Departments covered along with several participants						
	School of business/ Business administration	EEE	Environmental science and management	ECE/ CSE	English	Civil engineering	Economics
<i>Top-ranked university</i>							
University-1	5	3	–	–	–	–	–
University-2	3	–	3	–	–	–	–
<i>Mid-ranked university</i>							
University-1	4	–	–	4	2	–	–
University-2	3	–	–	–	–	–	2
University-3	03	–	–	02	–	–	–
<i>Lower-ranked university</i>							
University-1	4	–	–	–	5	–	–
University-2						6	
Total no. of participants	=22	= 3	= 3	= 6	= 7	= 6	= 2

## 4.2 Focus Group Findings

As mentioned in the Method section, seven different departments were covered from seven private universities in Bangladesh. Two various focus groups (i.e., students and faculty members) were interviewed from each university. Accordingly, information received based on FGDs is articulated under three major sections:

- (A) Findings from top-ranked universities
- (B) Findings from mid-ranked universities
- (C) Findings from comparatively lower-ranked universities

Each section consists of findings from two focus groups: the learners and the faculty members (Tables 12.3 and 12.4).

### 4.2.1 Focus Group: Student Cohort

- (i) Altogether, (30 + 56 + 23) 109 students from different universities (top-ranked, mid-ranked, and lower-ranked universities) were interviewed. Out of 109 students, 43%, 70%, and 37% of students correspondingly from three different categories (based on ranking) agreed that the directive to initiate online classes from May 2020 was a timely decision as they were insecure about their academic progress, while the rest 57%, 30%, and 63% from the respective categories complained about the decision. Most participants said that the decision was too sudden, and they did not get enough time to prepare themselves for an unusual experience. Some added that they struggled with the immediate



**Table 12.3** Major statements received from focus groups and the creation of key themes

Theme 1: Acknowledgement of pandemic	<p>We could assume in the mid of March 2020 that a decision on nationwide lockdown may arise. Therefore, we were mentally prepared to accept this decision and add to this as well. Finally, on march 08, 2020, Govt. of Bangladesh declared that one Covid-affected patient had been detected in the country (FG3, S10, top-ranked university)</p> <p>We were mentally prepared that at any moment, a decision may come out from the Govt. about a countrywide lockdown because we had been informed through global news that the number of Covid-affected patients was increasing in our neighboring countries. Therefore, we were at a high risk of COVID-19 during the early days of March 2020. After paying attention to the suggestions made by medical practitioners and social scientists, on March-18, 2020, Govt. enforced a nationwide lockdown (FG1, F5, top-ranked university)</p>
Theme 2: Uncertainty	<p>The closure of educational institutions and their continuation of it left me insecure about my academic progress (FG4, S2, top-ranked university)</p> <p>Our second midterm was supposed to start on 23rd March 2020, but it was postponed. As per the government decision about resting the physical classes, our university rescheduled the exam several times in the following 2 months (FG1, S9, mid-ranked university)</p> <p>After waiting for almost 2 months, when I got the instruction from the university to join online classes, I was clueless and did not know where to start (FG3, S1, low-ranked university)</p> <p>I returned to my hometown, leaving all my study materials in the hostel. Then came the announcement of moving towards online classes. I was utterly devastated, thinking about how I could bring all my study materials and start joining online courses as soon as possible (FG6, S6, mid-ranked university)</p> <p>Moreover, some groups comparatively were at ease with exploring online education. Being a tech lover, I was excited to experience the new learning method (FG2, S5, top-ranked university)</p> <p>Our university was halfway through the semester when the announcement of closure came. I was worried about accomplishing the courses' syllabus for the running semester (FG3, F1, top-ranked university)</p> <p>We were already stressing about our life and job security, and the following instruction to move towards online education added another shock for me. I did not know how to start (FG1, F2, mid-ranked university)</p> <p>Even after starting online classes, I was disturbed and insecure about my job and salary, as I received only 50% of my salary for several months (FG3, F4, low-ranked university)</p> <p>Moreover, some groups emphasized the positive side of the decision. The future of our country immensely rests on the students, and we cannot take risks with them. So, I think the government made a timely decision (FG1, F5, top-ranked university)</p>
Theme 3: Transformation into digitalization	<p>The transformation from offline mode to online mode was not an easy task at all. It was threatening and time-consuming since many did not have laptops, personal computers, or smartphones. Moreover, we were familiar with various online platforms until COVID-19 was hit over the country (FG1, S10, mid-ranked university)</p> <p>It took a short time for us to adapt to this digitalization. Since our organizations arranged training to the r us, and the respective offices' IT department was reasonably supportive, we did not face many difficulties in the transformation process (FG6, F3, mid-ranked university)</p>



Theme 4: Adaptation with advanced technology

Our teachers created messenger groups for courses to reduce the communication gap. We were guided to use a specific platform named “Zoom” our faculty members oriented us with the new venue in the first week, which made things easier. Besides, the class recordings were always available (FG1, S3, top-ranked university)

We were advised to use different platforms our teachers preferred, so adjusting (FG7, S1, mid-ranked university) was tough

Though I had a broadband connection at home, the supply was never guaranteed, so I always had to keep mobile data for backup (FG2, S4, mid-ranked university)

I stayed in a rural area where broadband service was not available, so the only option I had was to buy mobile data (FG3, S7, top-ranked university)

I could not attend classes in the first few weeks as I did not have android phones or computers (FG2, S7, low-ranked university)

The online theory classes were convincing. But despite the efforts of the teachers, quality degraded in mathematical courses (FG2, S9, mid-ranked university)

In the beginning, we had hurdles in lab classes as we did not have the required software; however, later, the IT department allowed us to connect the computers in the university lab via VPN (virtual private network) (FG2, S6, top-ranked university)

How can I learn the intense reactions in the chemistry lab without performing it! (FG4, S2, top-ranked university)

As we gave open-book exams, the questions used to be analytical. Understanding the questions and answering according to the teachers’ expectations within the specified time was extremely tough (FG1, S4, low-ranked university)

Once, while submitting the script in Google docs, I lost the data for some technical issues, which was traumatic (FG6, S6, mid-ranked university)

Right after the declaration to start online classes, a special committee was formed by the IT department, including the administrative body, to analyze available and easy-to-use online platforms that can be applied in teaching in Bangladesh. Finally, based on their study and the directions from the government through the University Grants Commission (UGC), the authority arranged a trial on the Zoom platform. They trained us by a step-by-step approach (FG3, F2, top-ranked university)

Our university arranged online training to educate us about digital learning platforms. However, I did not find it compelling enough (FG5, F1, mid-ranked university)

I have always been indulgent in technology and managed to have good Internet connections throughout the time (FG1, F3, top-ranked university)

To tackle such network supply uncertainty, I always ensured backup with mobile data (FG2, F4, low-ranked universities)

In terms of teaching descriptive courses, the online platform was quite fascinating. Lack of interruption from the class noise allowed us to teach fruitfully (FG4, F1, mid-ranked university)

I used different approaches such as presenting on a writing pad, using a whiteboard, etc. but it seemed none of these was good enough to teach mathematical courses (FG7, F1, mid-ranked university)

As I did not have any lab equipment, I only taught theories and showed tutorials on YouTube. Besides, the students did not have to attempt any practical in the exams, only gave written exams. And I find it inappropriate (FG4, F2, top-ranked university)



**Table 12.3** (continued)

Theme 5: Additional cost incurred	<p>Daily purchasing mobile data was expensive (FG6, S6, mid-ranked university)</p> <p>After losing my exam data due to load shedding, I bought a UPS the next day (FG, S2, top-ranked university)</p> <p>We had done many assignments during this period which slowed down my laptop. Hence, I had to pay for the servicing (FG5, S7, mid-ranked university)</p> <p>I had to buy an android phone to attend the online classes and exams (FG3, S5, low-ranked university)</p> <p>I belong to a lower-middle-class family where my father is the only earning person. In such a situation, asking for extra money to buy mobile data and other required materials was pathetic (FG3, S1, low-ranked university)</p>
Theme 6: Work-family conflict	<p>I purchased a good quality webcam and a real whiteboard to teach particularly mathematical courses (FG2, F3, mid-ranked university)</p> <p>My laptop was broken. I had to get it fixed to take online classes. Otherwise, I wouldn't have. In such a situation when the economy was already down, these additional costs were troublesome (FG1, F4, low-ranked university)</p> <p>I take mathematical courses, so I had invested heavily to purchase a good quality webcam, Wacom digital writing pad, and a whiteboard though these devices did not help much (FG2, F2, top-ranked university)</p> <p>We sometimes lived in a financial crisis since our parents' salaries were temporarily reduced, or some of them were sacked from their job during the pandemic. All of these put pressure on us to quit studying and start earning for the family (FG1, S10, low-ranked university)</p> <p>Often, we were stuck in online classes and work-from-home jobs. Our salaries were reduced temporarily, and our jobs were in vulnerable conditions. Sometimes, it took too long time from our personal lives, which occasionally negatively impacted our family lives (FG1, F10, low-ranked university)</p>
Theme 7: Adaptation with new normal	<p>New variants of COVID-19 are being discovered frequently. However, most of us have received two doses of Covid-vaccine. Nowadays, we are trying to cope with this "new Normal" age (FG3, S8, mid-ranked university)</p> <p>Since the Bangladesh Govt. does not want to go for another lockdown countrywide as it limits transactions and slows down the economy, we, too, are respectful towards this decision. We are trying to live following this new normal trend (FG1, F5, top-ranked university)</p>



**Table 12.4** Some crucial findings of the impact of the COVID-19 pandemic on different aspects of students' learning

Sl. no	Area of concern	Category of the university					
		<i>Top-ranked university</i>		<i>Mid-ranked university</i>		<i>Low-ranked university</i>	
		Agree	Disagree	Agree	Disagree	Agree	Disagree
01.	The timing of making decisions by the government regarding launching and carrying out online education was appropriate.	43%	57%	70%	30%	37%	63%
02.	Benefits online studies brought to them (in terms of academics and others) during COVID-19:						
	Time savings	73%	27%	80%	20%	87%	13%
	Free from traffic congestion	100%	00%	100%	00%	100%	00%
	The opportunity of creating more interaction with faculties	53%	47%	71%	29%	70%	30%
	Free from memory-based examinations	69%	31%	61%	39%	72%	28%
03.	Problems digital transformation brought to them:						
	Academic uncertainty	00%	100%	13%	87%	26%	74%
	Unavailability of required resources (Internet, mobile data, smartphone, laptop/desktop)	14%	86%	45%	55%	52%	48%
	Financial threats	12%	88%	20%	80%	65%	35%
	Additional costs incurred	100%	00%	100%	00%	100%	00%
04.	Online education should be continued even in this "new-normal" age	90%	10%	90%	10%	34%	66%

arrangements of required resources to join the online classes. Therefore, they stated that the government could have launched the online classes in the following semester, i.e., summer 2020.

- (ii) The respondents shared varied opinions regarding using digital platforms to connect with online classes. Of the 109 students, 23% were explicitly guided to use "Zoom," their universities instructed 15% to use "Google Classroom," and the remaining 62% of students used both platforms per their faculties' instruction. Initially, 22% of students had difficulty connecting and adapting to these platforms. Nevertheless, all the students confirmed that slowly but surely, they had learned and adopted these digital learning platforms by receiving continuous support from their teachers and the IT department of their respective universities.
- (iii) A mixed opinion was derived from the students regarding online education's effectiveness/feasibility/convenience in the curriculum of different courses. Of



**Table 12.5** Some crucial findings of the impact of the COVID-19 pandemic on the different aspects of teaching

Sl. no	Area of concern	Category of the university					
		Top-ranked university		Mid-ranked university		Low-ranked university	
		Agree	Disagree	Agree	Disagree	Agree	Disagree
01.	The timing of making decisions by the government regarding launching and carrying out online education was appropriate	82%	18%	80%	20%	90%	10%
02.	Benefits online studies brought to them (in terms of academics and others) during COVID-19:						
	Time savings	64%	36%	80%	20%	75%	25%
	Free from traffic congestion	100%	00%	100%	00%	100%	00%
	The opportunity of creating more interaction with students	65%	35%	20%	80%	30%	70%
	Free from memory-based examinations	73%	27%	40%	60%	60%	40%
03.	Problems digital transformation brought to them:						
	Low job security	60%	40%	55%	45%	60%	40%
	Financial threats	15%	85%	75%	25%	65%	35%
	Additional costs incurred	100%	00%	100%	00%	100%	00%
04.	Online education should be continued even in this “new-normal” age	86%	14%	100%	00%	80%	20%

the 109 students, 76% confirmed that online platforms are convenient and time-effective for learning theoretical approaches and attending academic exams. However, 82% of the 109 participants vehemently opposed and stated that online education is unsuitable for learning mathematical methods and practical lab activities (Table 12.5).

#### 4.2.2 Focus Group: Academic Staff Cohort

- (i) In total, (14 + 20 + 15) 49 faculty members from different universities (top-ranked, mid-ranked, and lower-ranked universities) were interviewed. Out of 49 faculties, 18%, 20%, and 10% of faculties, respectively, from three different categories (based on ranking) expressed disagreement about the timing of launching and continuing online classes from May 2020. Some of them believed that the government could have implemented this decision on the following semester, i.e., from summer 2020. Another group stated they had anticipated imposing a lockdown across the country. Therefore, they were mentally



- prepared to adapt to all sorts of digitalization in the academic arena. Consequently, they expected that launching and continuing online education from the government should have been implemented earlier. It could have been at the end of March 2020 or the beginning of April 2020 instead of May 2020.
- (ii) A mixed opinion was derived from the faculties regarding using digital platforms to conduct and carry out online education. Of the respondents, 51% used Zoom Meeting, especially the connection provided to them named BdREN. In contrast, the remaining 49% used “Google Classroom” or “Google Meet” platforms in conducting online classes and exams.
  - (iii) All the respondents expressed that adapting to these digital platforms took a short time. Furthermore, whenever they faced any sort of problems, they could contact the IT department of their university. Besides these, 41% of participants opined that their organizations arranged training for them at the beginning of digitalization on smoothly conducting classes using these digital platforms. The remaining 59% is split into two groups: one group expressed dissatisfaction with the arrangement of training by their employers, and another said that their organizations did not arrange any workshop on it at all.
  - (iv) Of the 49 faculties, 61% expressed that they were living in great uncertainty regarding the possibility of being affected by COVID-19, the reduction in job salary, or even being fired from their jobs. They added that the university authority should provide monthly incentives for arranging various physical facilities and logistics (like a laptop, smartphone, Internet connection, etc.) for at least the first 3/4 months of the pandemic.

### 4.3 *Thematic Analysis of the Study*

Based on the interview taken with the focused groups, the following factors have been derived that are responsible for a technological shock (Fig. 12.1).

#### 4.3.1 **Acknowledgment of the Pandemic**

The first COVID-19-affected patient in Bangladesh was identified and officially declared by the government on March 8, 2020 (Moni, 2020). Soon after, the number of COVID-19-affected patients increased alarmingly, causing medical practitioners and social scientists to urge the government to enforce a lockdown across the country. Consequently, the government announced that the country was facing high risks of a pandemic from COVID-19 and implemented a nationwide lockdown (Prothom Alo, 2021).



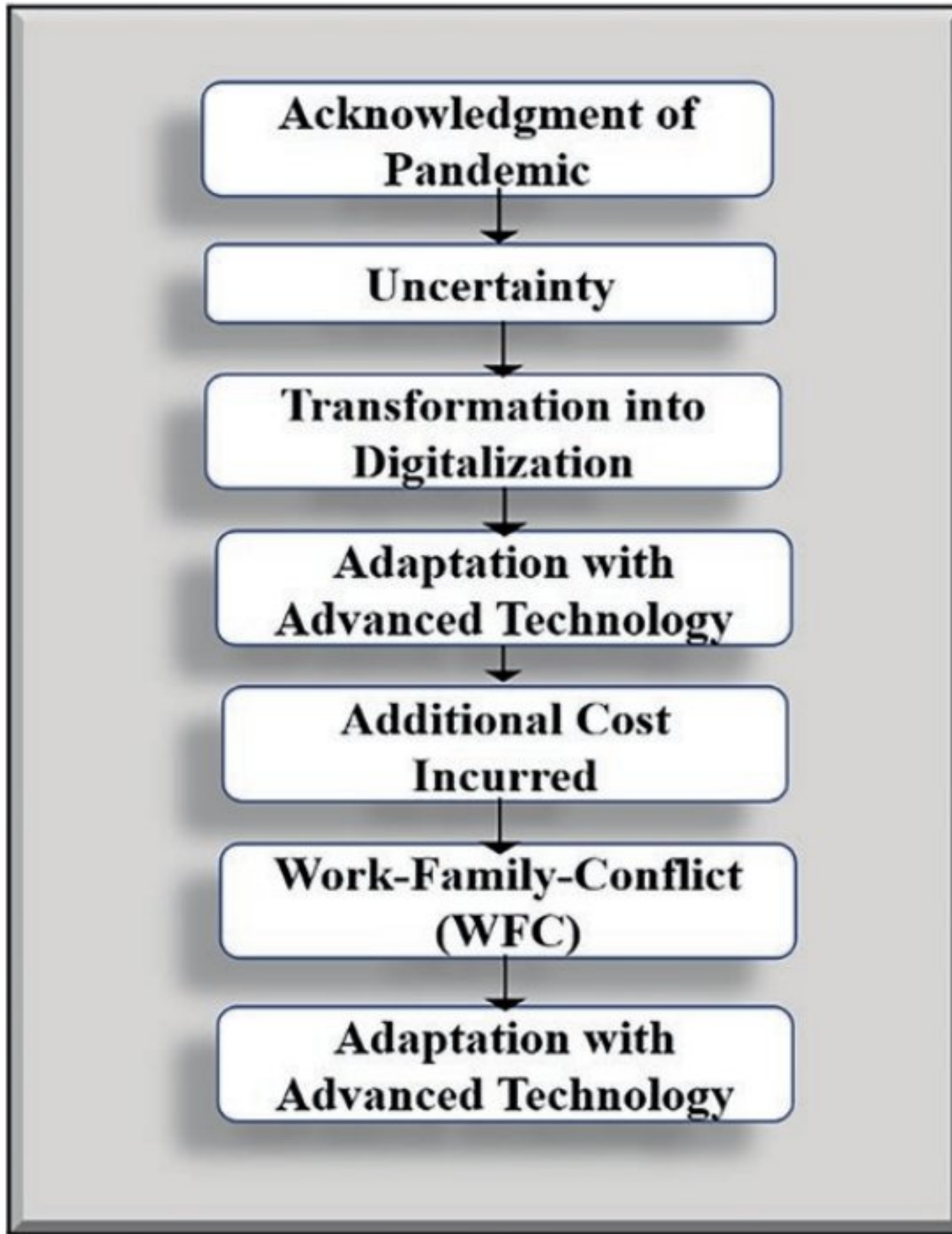


Fig. 12.1 Conceptual model

#### 4.3.2 Uncertainty

In the initial phase of the COVID-19 lockdown in Bangladesh, there was panic among the public for fear of the deadly virus and extreme uncertainty regarding job security. Before the lockdown, the educational institutions were suddenly closed on March 18, 2020 (The Daily Star, 2022) and remained closed until September 2021 (The Business Standard, 2021). At the first announcement of the closure, some universities were halfway through the semester or academic term. The entire higher education industry was unsure about the future and was left in a state of upheaval. Finally, in the middle of May, an instruction came from the UGC that private universities could take the initiatives to continue their classes and exams online from then onwards. Following this notice, many universities started to conduct virtual classes, but this was a monumental challenge for most instructors because they had to use different teaching methods and media they had never used. Initially, they were extremely nervous and lacked confidence in teaching online. Students were no exception either. It was a completely new experience to switch to online classes.



Consequently, both students and instructors were insecure and doubtful about the new way of learning.

### **4.3.3 Transformation into Digitalization**

In 2008, the Bangladesh government established “Digital Bangladesh.” In 2014, the government defined goals for upgrading the country’s status from developing to developed by 2050. The four (4) pillars of “Digital Bangladesh” were specified: Digital Government, Human Resource Development, IT Industry promotion, and Connecting Citizens (ICT Department, Bangladesh, 2019).

Although various public and private companies had begun adopting digitalization, the transformation in higher education in Bangladesh was minimal before COVID-19 hit. However, when in March 2020, the UGC declared that private universities could resume classes in online mode, this added an extra layer to the digitalization process countrywide (Dhaka Tribune, 2020).

### **4.3.4 Adaptation with Advanced Technology**

The sudden need to switch from the conventional learning method to online learning has left many people in higher academia in Bangladesh struggling to adapt. In the beginning, instructors and students suffered from a lack of awareness of educational technologies. However, many universities arranged online training on the usage of those advanced technologies to educate the instructors, who, in turn, helped students to adapt. Apart from this, the unavailability of essential resources, such as devices, access to the Internet, uninterrupted Internet connection, and high-speed network, created a constant crisis to conduct online classes smoothly. As a result, it took time to adapt to the massive changes, but now, they are in a better place than before.

### **4.3.5 Additional Cost Incurred**

The pandemic has hit the economy hard. It has led most people to experience a drop in income, and many have even lost their jobs. In such circumstances, another major setback for effectively conducting online classes in Bangladesh was the inability to afford the required resources. Teachers and students had to bear the additional cost of purchasing necessary gadgets, high-speed Internet, and mobile data to work and attend online courses. Students, who could not afford the burden of these extra expenditures, simply had no choice but to drop out of their study.



#### 4.3.6 Work-Family Conflict (WFC)

During the extensive lockdown from 2020 to 2021, faculty members of various private universities had to go through different levels of extra work pressure. In most of the cases, this work pressure was relatively high. The findings of this study show that the first two, three, or even four semesters that were run online during COVID-19 brought unlimited work pressure for many of the faculty members as no office hours were maintained. Moreover, many mid-ranked and comparatively low-ranked private universities became irregular in paying their faculties and staff; some adopted a temporarily reduced salary policy. These factors (unlimited work pressure, lack of job security, reduced salary) brought serious work-family conflict among many faculty members.

Moreover, our study shows that many students were uncertain about continuing their studies since their jobs or parents' jobs were under threat during the pandemic. Some students had to drop out of their ongoing classes, while many had joined work for their livelihood. All these created work-family conflicts in the students' lives too.

#### 4.3.7 Adaptation with the New Normal

Although COVID-19-related deaths and infections have reduced significantly in the country over the last couple of months, and citizens are being administered two doses of the COVID-19 vaccine, new cases are still being recorded daily. Moreover, new variants of COVID-19 (e.g., Delta, Omicron, etc.) are being discovered frequently (United Nations, 2021). Given the situation, scientists, medical practitioners, and other groups have predicted that the risk of COVID-19 will not be erased. Instead, people need to adapt to this (Abbacan-Tuguic, 2021). The Bangladesh government does not want to go for another lockdown countrywide since it limits transactions and slows down the economy. All of these indicate that citizens must adapt to this changing environment, denoted by the "New Normal" (Prothom Alo, 2021).

## 5 Conclusion

Although digitalization in higher education in Bangladesh has brought a suitable number of positive changes during the outbreak of COVID-19, its negative impacts are still soaring in the context of Bangladesh. Higher education is highly focused on the specialization of various disciplines; therefore, it encompasses practical classes, group discussions, solving real-life cases, field visits, lab tests, and so on. Replacement of these diverse aspects on a long-term basis cannot bring satisfactory results, as evident in this research work. Implementing online education is costly for a developing country like Bangladesh. Prolonged use of computers or smartphones is dangerous and is associated with significantly higher risks of heart disease, diabetes, obesity, cancer, depression, and muscle and joint problems (Mollah & Parvin,



2021). Moreover, in the name of online classes, or work-from-home settings, universities often keep faculties engaged in official work for unlimited time or on weekends. Therefore, policymakers in the education sector may consider these implications and develop strategies to address the problems.

## Appendix

*Our focused group discussion with the learner groups (i.e., students):*

1. Do you think the timing of making decisions by the government regarding launching and carrying out online education was appropriate? Why or why not? Please specify.
2. What are the modes/mediums that your teachers used in reaching you over online classes?
3. What benefits do online studies bring you (in terms of academics and others) during COVID-19? In terms of:
  - (a) Time savings
  - (b) Free from traffic congestion
  - (c) The opportunity of creating more interaction with faculties
  - (d) Free from memory-based examinations
  - (e) Others (if any)
4. What type of problems did digital transformation bring to you during COVID-19? In terms of:
  - (a) Academic uncertainty
  - (b) Free from traffic congestion
  - (c) Unavailability of required resources (Internet, mobile data, smartphone, laptop/desktop)
  - (d) Financial threats
  - (e) Additional costs incurred
5. Did you face any financial or nonfinancial threats in digital transformation during COVID-19?
6. Do you think online education should be continued even in this “new-normal” age? Why or why not? Please specify.

*Our focused group discussion with the faculty members (i.e., teachers):*

1. Do you think the timing of making decisions by the government regarding launching and carrying out online education was appropriate? Why or why not? Please specify.
2. What are the modes/mediums that you used in connecting with your students during COVID-19 to conduct online discussions and arrange online examinations?



3. What benefits do online studies bring you (in terms of academics and others) during COVID-19? In terms of:
  - (a) Time savings
  - (b) Free from traffic congestion
  - (c) The opportunity of creating more interaction with students
  - (d) Free from memory-based examinations
  - (e) Others (if any)
4. What type of problems does digital transformation bring you (in terms of academics and others) during COVID-19? In terms of:
  - (a) Low job security
  - (b) Financial threats
  - (c) Additional costs incurred
5. Did you face any financial or nonfinancial threats in digital transformation during COVID-19? For example:
  - (a) It took too much time from your personal life to adapt and carry out digital transformation.
  - (b) Your family may have asked you to quit the job.
  - (c) Others (if any).
6. Do you want online education should be continued even in this “new-normal” age? Why or why not? Please specify.

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