Paradigm shifting of education system during COVID-19 pandemic: A qualitative study on education components

Morshed Alam a, Md. Al-Mamun b, Md. Nayeem Hasan Pramanik c, Israt Jahan d, Md. Rony Khan e, Tasfia Tasnim Dishi f, Syeda Humaira Akter g, Yousra Mysha Jothi h, Tamanna Akther Shanta i, Md. Jamal Hossain i, *

a Institute of Education and Research, Jagannath University, Dhaka 1100, Bangladesh
b Department of Sociology, Bangabandhu Sheikh Mujibur Rahman Science and Technology University, Gopalganj 8100, Bangladesh
c Department of Economics, Palna University of Science and Technology, Palna 6600, Bangladesh
d Institute of Social Welfare and Research, University of Dhaka, Dhaka 1000, Bangladesh
e Department of Geography and Environment, Jahangirnagar University, Savar, Dhaka 1342, Bangladesh
f Institute of International Relations, Jahangirnagar University, Savar, Dhaka 1342, Bangladesh
g Institute of Education and Research, University of Dhaka, Dhaka 1000, Bangladesh
h Chittagong Medical College, Chattogram 4203, Bangladesh
i Department of Pharmacy, State University of Bangladesh, 77 Samajjid Road, Dhanmondi, Dhaka 1205, Bangladesh

ARTICLE INFO

Keywords:
Curriculum
Syllabus
Assessment
Education policy
Learning materials

ABSTRACT

The COVID-19 pandemic has had a far-reaching effect on the education system, leading to some changes in the conventional education system. Educational institutions are adopting alternative methods to adapt to the changed situation. The purpose of this study is to explore the changes that have taken place in the education system due to the pandemic situation. A qualitative phenomenological approach has been used to conduct the study. To get a complete picture of the shifting paradigm of the education system, two interview methods such as In-depth Interviews (IDI), Key Informant Interviews (KII) have been adopted. Interviews were taken from 15 respondents. A purposive sampling technique has been used to reach the target sample. A semi-structured questionnaire has been developed to collect necessary data. The findings of this study showed that COVID-19 pandemic has led to changes in various components of the education system. Curriculum, syllabus, assessment method, teaching method, learning method, etc., have changed in the education system. The elements of education are shifting from offline to online. The use of online-based learning materials is increasing. The curriculum has been made more flexible with a more compressed and shortened syllabus to suit the students learning under such unforeseen circumstances. Faculty should promote online study groups so that those groups can assist in providing additional support throughout specific courses. The education policy should be changed by the Bangladesh government to adapt to the changed situation.

1. Introduction

The COVID-19 outbreak had a detrimental impact on education institutions in advanced and developing countries, leading to long-term negative repercussions on education and broader financial inclusion implications (UNESCO, 2021). COVID-19 pandemic swiftly led to the closure of institutions and colleges worldwide with state directions to follow social distances, which could assist in compressing the disease curve and minimize all disease deaths (Hossain et al., 2021, Hossain et al., 2022a; Hossain et al., 2022b). Since around July 20, 2021, 31,453,440 students from 8 countries have been forced to remain at home due to the shutdown of their academic facility throughout all stages (UNESCO, 2021) and shifted to online exams and classes. COVID-19 was declared a public health emergency in China on January 26, 2020, and closed its educational institution (Hong, 2020). During the COVID-19 situation, many educational institutions switched from traditional face-to-face learning programs to emergency online learning programs to reduce disruptions in tertiary education. However, research revealed that students were uncomfortable and distressed by the online learning strategy (Nahar et al., 2022). They faced difficulties in switching to online...
lectures, adjusting to new online assessment methods and workloads, communicating with teachers, and dealing with numerous online education issues, such as a lack of electronic devices, no internet access, high internet costs, and so on (Owusu-Fordjour et al., 2020).

Bangladesh detected its first three COVID-19 patients on March 8, 2020 (Hossain, 2020), and shut educational institutions as a preventative step against the spread of the COVID-19 pandemic. Students had difficulties transitioning to virtual courses, adapting to new virtual evaluation techniques and tasks, interacting with instructors, and resolving many virtual learning problems such as a lack of electronic equipment, lack of internet connection, and high internet costs, among others (Owusu-Fordjour et al., 2020). From March 17, 2020, till the time of writing this article, all educational institutions in Bangladesh have remained closed for offline classes and exams (Dutta and Smita, 2020). However, few universities were open for a few days and allowed only to take exams. Few private universities initiated online classes from April 2020 (Khan et al., 2021). However, public Universities, colleges, schools started online classes many days later as public institutions are primarily middle-class families. It is tough for them to buy enough data for regular classes and afford a good smartphone or laptop. Bangladeshi consumers have one of the worst internet performances in 42 nations spanning Europe, Asia, Africa, the Middle East, South and Central America, and North America (Khan et al., 2021).

Online learning is a kind of education in which participants access their education system using personal laptops, desktops, or cellphones (Anastasiades et al., 2010). Students are not only getting technical benefits from online learning, but it is also helping them to develop their critical thinking (Meirbekov et al., 2022).

A forced transition on education system has been occurred in all over the world. Some studies confirmed that flexi-learning, e-learning, and blended-learning have become the standard and an alternative to face-to-face teaching and learning in higher education (Becker, 2017; Waghid and Waghid, 2016). Moving training online can provide the flexibility to teach and study anywhere and at any time, but the anticipated rate of this shift to online instruction is unprecedented and staggering (Hodges et al., 2020). Numerous comparative studies have been done to demonstrate whether face-to-face or traditional teaching methods are more effective than online or hybrid learning (González-Gómez et al., 2016; Lockman and Schirmer, 2020). Learners used mobile phones more frequently than laptops less for their learning (Shrestha et al., 2022). Reddy et al. (2020) stated that every learners need a wide range of abilities, competencies, and skills to cope with technological era. With the outbreak of the pandemic, the educational system has shifted from bricks to click classrooms. Several stakeholders, including government entities and private corporations, are enriching their online platforms, apps, and online courses as well as training their instructors to effectively deliver knowledge through these online platforms (Paposa and Paposa, 2022). There is a well-developed system in place in developed countries with advanced technological innovations to provide students with e-learning opportunities. On the other hand, developing countries encountered enormous challenges and barriers to providing technical and monetary assistance (Dhahri et al., 2020). Promoting online learning can be accomplished by partnering with educational and technical institutions (Dong et al., 2020).

After reviewing the literature, no research has yet been done about shifting of the education system during the COVID-19 period in Bangladesh context. This study intended to fill some of the gaps by addressing this research question “What changes have transpired in the educational system during the COVID-19 period in Bangladeshi education system?”. Therefore, this study explored and synthesized the impact of COVID-19 on paradigm-shifting on the Bangladeshi education system in terms of teaching method, curriculum, syllabus, learning method, assessments system, and so on. This study is critical in developing countries like Bangladesh because it investigated the new standard scenario of the education system. Bangladesh had an education policy in 2010, and no new education policy has been formulated for almost a decade. The results of this study will make a groundbreaking contribution to the development of new education policy.

2. Materials and method

2.1. Research design

A qualitative phenomenological approach has been used to understand how COVID-19 shifts the education system. A qualitative research method is appropriate for understanding phenomena from the participant’s perspective. Qualitative research focuses on how people interpret and comprehend their life experiences. Qualitative research also provides in-depth explanations of topics of interest (Forbes, 2015). The human experience is studied through participant reports in phenomenological research (Nieswiadomy and Bailey, 2018). So, we used Interpretative Phenomenological Analysis (IPA) to understand better how participants’ Thinking paradigm is shifting on education’ from their perspective. The questionnaire of the study was provided in the supplementary file for a better understanding of the study insights.

2.2. Study area

Due to some constraints, to collect the necessary data, the researcher has visited two universities located in Dhaka and one secondary school: Dhaka University, Jagannath University, Pogose Laboratory School, and College. These two public universities are in the center of capital of Bangladesh. Since these two universities have ‘Education and Research’ discipline; Therefore, these have been given priority in conducting interviews. This secondary school was chosen because it is a laboratory science school under the Institute of Education and Research (IER), Jagannath University. Before initiating the interview-based study, informed written consent was sought from each study participant. All the collected data were kept confidential. Besides, the guidelines and ethical protocols of the study were approved by the human ethics committee of the Institutional Ethical Review of the State University of Bangladesh (approval number: 2021-06-01/SUB/H-ERC/0011).

2.3. Sampling and sample size

To get a complete picture of paradigm shifting of the education system, two interview methods such as In-depth Interviews (IDI), Key Informant Interviews (KII) has been adopted. An in-depth interview can be a flexible and interactive technique for contextualizing participants’ opinions and experiences (Adams and Cox, 2008). In-depth interviewing is a qualitative data collection tools that entails conducting in-depth individual interviews with a small number of respondents to investigate their perspectives on a specific concept, program, or issue (Boyce and Neale, 2006). On the other hand, researchers only conduct interviews with key informants who have specialized expertise of a topic. The education system of Bangladeshi general education is consisting of three levels; Primary, Secondary and Higher Education. A total of 10 In-depth Interviews (IDI) has been conducted with secondary school students. Also, 5 Key Informant Interviews (KII) were conducted with university students. Primary school students are excluded from taking information because they are not old enough to provide information. A homogeneous purposive sampling technique has been used to reach the target sample. This sampling technique involves selecting similar individuals or groups of individuals with specialized knowledge or experience about a topic of interest (Creswell and Plano Clark, 2022).

2.4. Data collection and instruments

Semi-structured interviews can help us better comprehend the practical aspects of our research (Catterall, 2000). Besides that, a semi-structured interview is used to get additional particular information regarding the study question (Hillebrand and Berg, 2009). To begin, we
conducted three dummy field interviews to test the questionnaire’s validity. As a result, the researchers had to adjust the original interview scripts. It is common in qualitative research to alter interview criteria after the initial interview (Hecht et al., 2019). To assess the reliability of the questionnaires, a set of questionnaires was developed for pre-test purposes. A purposive sampling technique and open-ended questionnaires have been used in this study. As part of the permission process, participants were made aware that their participation was optional and confidential. The names of the participants would not be included in the survey results, and they all agreed orally. A letter of consent with the questionnaire was given them. The interview was recorded between 20 and 42 min on a phone or tablet. Due to apprehensions expressed by confident respondents, it was written. The interviews were meticulously transcribed and examined by other academics to verify correctness. Since the medium of instruction was in Bengali and participants felt comfort in Bengali, the interviews were conducted in Bangla. Saturation was achieved in the 12th interview and three interviews were conducted to confirm saturation. The data collection time frame was June 2021 to October 2021.

2.5. Quality assurance and data analyzing

The information obtained from the interview has been analyzed in a thematic manner. Thematic analysis is a method for systematically analyzing qualitative data in depth. The information has been transcribed first. After coding, some theme and sub-theme has been pointing out in accordance with research objective. The analysis of data was assisted using QSR International’s NVivo V.12.0. NVivo is an excellent tool for evaluating vast amounts of text data since it gives a more thorough examination and better data analysis (Devitt, 2003; Gibbs, 2004; Kumar and Singh, 2019). NVivo is an appropriate tool for coding, categorization, and theme design procedures (Auld et al., 2007). Instead of relying on pen and paper, researchers can utilize this program to conduct data management and analysis more efficiently. To improve the reliability and validity of the results, the transcripts were analyzed using NVivo 12 software and thematically coded, categorized, and structured to manage large amounts of data (Patton, 2002; Zamawe, 2015). After returning from the field, researchers meticulously organized and arranged all of the data gathered from various sources. Interview data was transcribed by field level assistant. Each interview data is recorded under a different name in separate folder of NVivo software. Then data was coded and categorized according to data type and features. Co-authors of the study confirmed the emerging themes and contents from line-by-line analyses of the transcripts. Lead author have supervised the entire work of data analysis starting from the preparation of question papers.

3. Results

3.1. Demographic profile of the respondents

Demographic data provides insights of respondent capacity to participate in interview. Demographic information is taken at the beginning of each interview. Table 1 demonstrated that two-fifths of the participants are boy and rest are girls. Age range is between 15 and 25. Interviews was taken from 10 students of secondary level and 5 students of honors level. All the students of Honors level are students of the Institute of Education and Research. All the students of the school are of higher secondary level.

| Category         | Variables | Frequency | Percentage |
|------------------|-----------|-----------|------------|
| Gender           | Male      | 9         | 60.0       |
|                   | Female    | 6         | 40.0       |
|                   | Total     | N – 15    | 100.0      |
| Education Status | Secondary | 10        | 67         |
|                   | Hons      | 5         | 33         |
|                   | Total     | N – 15    | 100.0      |
| Age              | 15–20     | 10        | 67         |
|                   | 20–25     | 5         | 33         |
|                   | Total     | N – 15    | 100.0      |

Source(s): Field survey, 2021 (Developed by authors).

3.2. Changes in teaching-learning method

Methods of teaching and learning are undergoing immense changes during this pandemic time. Teaching and learning are being conducted much differently than usual. Online classes are being conducted instead of delivering lectures in classrooms. Demonstration or screen presentation methods are being used to teach the students. Instead of books, copies, and hand notes; digital softcopies of teaching materials are being used. Besides, students’ attendance is not undertaken by calling out their names like before, and assignments are given as homework.

3.2.1. Demonstration method instead of lectures

Before the COVID-19 pandemic, teachers in traditional classroom settings used to deliver their content in lecture method. That kind of method is not participatory approach that ensure active participation, negotiation, and critical thinking. The students listened to the teachers’ lectures and made notes as a means of learning. Under the ‘new normal’ circumstances caused by the pandemic, the teachers have switched to the demonstrative teaching method. A KII respondent says the following regarding this:

“The teacher shares their screen with us in the class and shows different slides. In this way, we can understand the topics better. We are also shown several videos related to the topics in the subject of study as a result of which we can get a clear idea of whatever is being taught.”

However, there appear to be sudden changes following the transition of students to online education. Some students feel that the demonstration method is not appropriate in understanding class content. Teachers struggle to establish students’ attention by demonstrating the topic and criticizing established facts. Occasionally, the teacher uses a breakout room to facilitate online group discussions. However, it has several shortcomings. On the other hand, a number of students agreed that they did not understand class content and were unable to take class notes during class time. One respondent stated,

“I can’t concentrate in the online class and often get lost in understanding the content. In particular, it is difficult to understand all the formulas that teachers use in math class. Science classes are not engaging due to lack of opportunity of hand on learning”.

3.2.2. ICT based learning materials

Increasing use of information technology is being noticed in the education system during the ongoing pandemic. The pandemic’s serious global incidence compelled the majority of teachers to adopt virtual teaching, in which they were required to employ digital technologies to facilitate their students’ learning, often for the first time. With the help of information technology learning, is being conducted online. Regarding this, a respondent stated,

“We have to install the Zoom app to join classes and convert various documents using online tools as well. Teacher uploaded the documents at the end of the class. I had no idea how to download and use the documents. We are assigned to make assignments and submit it via online but many of us do not know the function”.

Another respondent stated his experience in this regard,

“There are many poems in English books. The teacher plays the audio version of poems. As a result, we learned with great pleasure and
could easily understand the meaning. I think, there is no substitute for
digital content in the classroom for better understanding”.

3.2.3. New form of homework

Under the current context, terms of giving homework to students
have been flexible to a great extent. In some cases, the teachers
courage students to engage in social welfare activities as a part of their
homework. Students are assigned to complete numerous short assign-
ments. Lessons have been restructured so that students can complete
them alone at home or remotely without their teacher’s live assistance.
As a result, the distinction between classwork and homework became
increasingly blurred.

One respondent shared a rational experience,

“At the beginning of the COVID-19 pandemic, the teacher gave us a
different kind of assignment. Our assigned work is to make everyone
in our family aware of Pandemic, encourage everyone to wear a mask
and make social distance”.

Another respondent stated, “Now we must take a photo of our
assignment and submit it as a word document. We need to submit our
assignment which is taken as exams to school on weekday”.

A respondent from university level mentioned that “There are now
extra assignments and home tasks, which adds a little more strain. To
recover, further classes and class tests are required. Students occasionally
experience stress as a result of these issues”.

3.3. Changes in curriculum and syllabus

The curriculum represents the overall plan and objective of educa-
tion. The whole planning and objectives of education are being newly
reshuffled and reorganized due to the impacts of COVID-19. Due to the
COVID-19 pandemic, the school’s closure resulted in a massive academic
loss for the students. To compensate for this, Ministry of Education (MoE)
of Bangladesh moderately changed the curriculum and reduced the syl-
labus. The government published revised syllabuses for the Secondary
School Certificate (SSC), Higher Secondary Certificate (HSC), and
equivalent examinations planned for 2021 this year. The curriculum has
been made more flexible with a more compressed and shortened syllabus
to suit the students learning under such unforeseen circumstances. Stu-
dents were mentally ahead as the syllabus was flexible in the stressful
moment of the pandemic period.

A respondent of Pogose Laboratory School says,

“We have been experienced a short syllabus-based assessment. For
example, only seven prose and seven poems have been kept on
‘Bengali 1st paper subject’. This has made it easier for us to sit on
examination but have been deprived of learning a lot of content”.

3.3.1. Developing skill-based learning

Many Universities are now teaching skill-based courses as a part of
their academic curriculum. The advent of digital education facilitated not
only skill development but also improved students to develop critical
reasoning abilities. Rather than relying just on textbooks, teachers can
lead students to online resources, where they can build research skills
and make social distance; hence the quality of education may
theoretically be improved. Due to drastic changes to isolation, there is a loss of social connection,
which results in an increase in poor health, depression, and social anx-

3.3.2. Shortening of syllabus

The students are having a hard time during the Covid pandemic. As the
opportunity to attend classes directly remains hampered, the students
cannot learn many chapters properly. Thus, the syllabus has also under-
gone specific changes. Only the most important chapters have been
included in the syllabus, while the chapters considered comparatively less
critical were left out. An informant has said the following on this matter,

“It has been said the chapters which are left out shall be recovered
through lessons given in the following standard. In this way, the gap
in learning is to be recovered. If one visits the website of the Educa-
tion Ministry, they will notice that every subject’s syllabus has been
arranged in such a way that it can be completed within 30 working
days. Priority has been given to those chapters taught between
January to March before the schools were closed.”

3.3.3. Co-curriculum activities

Co-curricular activities help students develop intellectually,
emotionally, socially, morally, and artistically. It promotes personal at-
tributes, including creativity, enthusiasm, and positive thinking. Participating in Debate, sports, essay competitions, photography,
dancing, art and craft, essay competitions, school magazine articles, and
recitations are just a few ways of co-curricular where students can ex-
press themselves.

Due to drastic changes to isolation, there is a loss of social connection,
which results in an increase in poor health, depression, and social anx-

3.4. Changes in learning environment

In developing countries such as Bangladesh, the online learning
environment is a considerably new and unusual approach. Online-based
education has opened up new possibilities in the learning environment.
However, it lacks traditional educational system aspects like discipline,
social connections; hence the quality of education may fluctuate. Due to the
low speed of the internet and the lack of smart devices, the number of
students has difficulty accessing online classes and communicating with
teachers and classmates during online classes. The students are unable to
attend direct classes with the teachers. Thus, they have to adapt to the
changing learning environment. Changes can be seen in the student-
teacher relationship. Diverse changes in peer learning and teamwork,
too, can be noticed.

3.4.1. Loss of attention and interaction

Students every now and then lost access to online classes due to
power outages and experienced difficulties communicating with teachers
and classmates. One of the respondents opined,
“Even though the teacher wants to have face-to-face contact, the majority of the time, students turn off the video, which demonstrates a degree of disrespect for the teacher. Again, because there is no one monitoring what students do during classes, communication becomes one-way unless a student inquires about a certain issue. Students pay little attention and are reluctant to attend class if attendance is not taken”.

All respondents have confessed to the fact that they cannot hold their concentration in online classes. They are faced with a multitude of internet and other connection problems. Students are struggling to attend classes in their home environments. Another respondent realized that,

“When we used to attend classes at the school, we could question the teachers directly if we had any doubts. The teacher, too, could alert a student if he or she was found to be inattentive in the class. In online classes, many students do not listen to the teacher’s lecture with much attention. The teacher also fails to assess whether the students can understand well the topics taught in class”.

Another participant also stated, “As internet connection is not up to mark, students from outside of the capital severely face this networking issue. Students can not listen properly as well as they cannot be connected uninterruptedly. Sometimes they miss the important notices, announcements”.

3.4.2. Diversity in peer learning

Peer learning plays a vital role in learning. Students can solve many problems among themselves through teamwork. Collaborative learning is a teaching and learning approach that entails groups of learners cooperating to solve a problem, complete a task, or create a product. The development of strong interactions with peers and the formation of social qualities are very important for all students. One of the students expresses his depression regarding this,

“Previously, it was delightful to complete academic tasks with everyone at the campus, but now we have to do the work sitting at home. We no longer conduct peer learning, not alone group activities in the online environment. As a result, we cannot share each other’s experiences while doing the work”.

3.4.3. Shifting on class duration

Traditionally, the duration of a class was 1.5 h at the university level, but with online classes, it’s difficult to stay on track if the duration exceeds half an hour. Lectures can be kept to a maximum of 15–20 min. For the rest of the class period, teachers can act as facilitators and engage their students in learning.

A respondent shared her experience,

“Our classes are held via Zoom and class time has been reduced. It saves time, effort, and energy while also allowing us to attend on time for class without resorting to the traffic jam excuse. Besides, the online classes are to be recorded and uploaded to the concerned department’s websites. Meanwhile, a copy of the class record has to be emailed to the students. As the duration of the class is less than before, the recording can be viewed easily”.

3.5. Changes in the assessment system

The closure of schools, colleges, and institutions disrupts global education, and many exams have been postponed or canceled. Many institutions and colleges are pushing out traditional examinations in favor of online evaluation tools.

All exams are held online according to some established laws set by the concerned authorities like- Some procedures are needed to be followed while taking an online exam. These include creative work, multiple-choice questions, exams (class test) to be held within a fixed and limited time, and viva. During such examinations, the students have to keep the camera and microphones of their devices (laptops, desktops, and smartphones) turned on. A respondent from secondary school stated,

“I tried to participate in an online exam but failed due to computer hanging. Though I had a speedy network service, I faced a problem with my device. As the test was based on multiple choice questions, there was very little time to answer. Could not submit on time due to device issues”.

3.5.1. Flexibility in evaluation

Due to the ongoing pandemic, the exams are being held in a very different way. As the students are unfamiliar with such exam procedures, the education administration has shown great flexibility in taking these exams. An informant says the following,

“The school administration has followed a policy of flexibility while conducting online exams. It is interesting to note that students have the opportunity to give open-book exams. If someone misses an exam, he or she can sit for that exam later on provided they give proper reasons for missing the tests”.

According to another KII, “It’s difficult for us to submit our script on time for exams due to various internet and technological challenges. Teachers, on the other hand, are patient and cooperative in this instance. Mistakes can be easily corrected as quick results and feedback are available”.

3.5.2. Auto pass system

Examinants for the Higher Secondary Certificate (HSC) and its comparable examinations were reviewed last year using results from earlier public examinations, such as the Junior School Certificate (JSC) and Secondary School Certificate (SSC). Recently the students at the primary and secondary levels have been evaluated through the completion of assignments.

One respondent expressed outrage at the approach,

“Higher Secondary Certificate (HSC) results have been made based on previous public examinations result which are not acceptable. A student has a bad result in the previous public exam but is expected to do well later. But because of this method, those who have had bad results in the past have had bad results in new system as well”.

3.5.3. Reinforcement for outstanding performance

To adapt students to the system and alleviate their anxiety, it is essential to sympathize and be empathic with their circumstances during a pandemic. According to a respondent,

“Students were contacted via the online platform and personal contact addressing all possible confusions and apprehensions regarding the new online semester, examinations, the ways to access it, use it, and learn through it”. To stay up with the outside world and continue academic activities, all faculty members should be equally active in communicating with students as advisers and supervisors.

3.5.4. Changes in question pattern

The question patterns have also been changed. Before the pandemic, teachers normally used traditional question types that were book-based and lower-order learning-based as remembering, understanding, and simply applying. But today, questions are being made of focusing on Bloom’s taxonomy’s higher-order learning like higher-level applying, analyzing, evaluating so that students cannot copy from any sources. One respondent shared her experienced,

“One of the questions in our first mid-exam was, how do you spend your time in quarantine? Such questions were completely unique to
us and we all tried to describe our own experiences. Since this is an analytical question, there was no opportunity to copy from anywhere else.”

4. Discussion

This study was conducted in Bangladesh to analyze and summarize the impact of COVID-19 on the educational system of Bangladesh. Upon respondent opinion, the study found that there have been paradigm shifts in the education system in Bangladesh educational system due to the COVID-19 Pandemic. It was quiet challenging to move from classroom to online in such a short period of time. Teachers required assistance to properly integrate technology into their teaching techniques and approaches to assist students in overcoming some of the challenges connected with this type of learning environment. As a result, a number of changes have been made in teaching methods and strategies utilizing an online classroom. Distance learning has evolved quite a bit from time management, teaching materials, group projects, homework, and evaluation to interaction with peers, teachers, co-workers, and teammates.

Bangladeshi educational system is based on the traditional face-to-face method of education (Uzaman et al., 2020; Rahman et al., 2021). The wake of spread of COVID-19 and the collapse of educational institutions indicate a fundamental shift in the online learning process (Mukhtar et al., 2020). Universities, colleges, and schools begin issuing circulars regarding closer & online classrooms, respectively. Various institutions continue to wait for the re-opening of educational bodies in April 2000, but the situation continues to deteriorate, and almost all educational organizations are unprepared to convert daily face-to-face classes to virtual setups (Dhawan, 2020; Sarif, 2020).

Bangladesh is one of the few countries where online learning is still a relatively new phenomenon Gopal et al. (2021). Furthermore, transfer from offline culture to online learning, which emphasized to develop technical skill mastery for students. COVID-19 pandemic systematically changes learning environments, curriculum, syllabus, diversity in peer learning, flexibility, assessment, and evaluation system. The current study found a significant change in the educational environment, such as using software for evaluation, quick results, etc. These are supported by earlier research (Rehman et al., 2021) which demonstrated that exams in Pakistan are now being taken via LMS software rather than the conventional method. In addition, our findings confirmed previous research indicating that students prefer e-exams because teachers provide grades and feedback more instantly, which may help students learn and comprehend curriculum content better than traditional paper exams (Gorgani and Shabani, 2021; Raman et al., 2021).

Our research uncovered a noticeable change in the educational setting. Online learning systems such as Zoom, Google meet, MLS, and SoloLearn have been installed by teachers and students to increase their academic exposure and knowledge. These are supported by prior research (Mishra et al., 2020; Sarif, 2020) shows that teachers and students are reaching out to each other easily through technology. Students can use their commuting time, idle time (e.g., while waiting in line), and additional fragmented time to learn via mobile learning (Eshchenbrenner and Nah, 2019; Sheng et al., 2010). According to the information obtained from the interview, the participants have indicated various changes in the education system; new learning models approaches of pedagogical modification, auto-pass evaluation, changes in question pattern etc. A participant suggested that content delivery should be broken into brainstorming questions to minimize monotony. This is also stated by Zayapraparasaraazan (2020), who promotes flexible learning, a learner-centered strategy that provides students with a variety of learning options to make learning outcomes relevant and engaging. In the wake of the pandemic, we learned that online education must be extended and sustained in the circumstances like COVID-19.

Online assessment alternatives that can be used in a pandemic crisis must consider the unique educational challenges mentioned in various earlier research (Bisht et al., 2020; Khalil et al., 2020). Online classes are the only way to go when it comes to e-learning. Findings from our analysis show that professors need to provide students with various learning options, including electronic recordings and printouts of lectures (outlines/bullet points). Some instructors provided accessible lecture handouts for further study, while others provided whole reference books (Online Student Survey, 2020; Mishra et al., 2020). Development countries’ educational managers, teachers, and policymakers face significant difficulties in turning the COVID-19 challenges into opportunities, such as developing efficient e-learning models that address the needs of higher education levels, including technical and specialist areas of educational programs (Farooq et al., 2020).

Our findings indicate that the majority of students see online class-rooms positively rather than negatively. They will also participate in all the online classes and encourage their friends to do so! (Online Student Survey, 2020). Similar findings have been seen in other research around the world. For example, Subedi et al. (2020) found that online classes take up much time, but anyone can participate at any time, saving time and reducing the danger of infection and disease transmission. Another study found that students enjoy the flexibility and convenience of online learning, save more time, and still have time for assignments (Khalil et al., 2020). According to this study, inadequate devices and internet-related problems, many students could not take the class-exams properly. The network system in rural areas is weaker than in urban areas. So, there is a pressing need to bridge the gap between the rich and poor, rural and urban, as students come from varied socioeconomic backgrounds and utilize the same instructional technique. Online teaching and learning are still in their infancy here, and pupils’ unique variances could lead to biased conclusions. Bangladeshi educational institutions resumed campus-based activities after a long 18-month shut-down in September 2021 (VOA, 2022). A newly modified education system is still in force. Besides taking classes on campus, teachers are also taking classes online via Zoom meetings. Dropout rate of students has increased significantly since the school re-opened (Express, 2022).

5. Limitations and policy implication

We must acknowledge that there are some limitations to this study. The study was done in qualitative manner. Therefore, generalization and evidence-based statistical findings was not possible. Information was taken from only three institutions in Dhaka city. If it was possible to get information from village education institutions, more appropriate scenario could have come. Interviews with relevant officials of the Ministry of Education, university teachers and NGOs dealing with education; will yield much more information However, further study can include large quantitative samples or mixed methods design. Large-scale research is needed on how to adapt to changing conditions in education sector. A new policy framework should be developed with the views of the teacher, student, family, community and experts. Non-formal education should be introduced along with formal education during the pandemic e.g. computer training, freelancing, education software training etc. Dropouts should be re-admitted to educational institutions and all facilities should be ensured. The government needs alternate strategies to overcome challenges in education through the outbreak of the pandemic situation.

6. Conclusion

COVID-19 has also gained control of the school system throughout our lives. It was a year and a half since the institutions closed down. However, the typical schooling system has evolved to online education. Students are increasingly providing lectures and tests online. The education paradigm has shifted from the traditional method to the technology method. Education must be given by focusing on the student strength rather than the teacher’s competency. Assessment system has also seen a touch of change. Peer learning, digital assessment, skill-based curriculum, selflearning; these ideas are becoming popular.
Day-to-day meetings and chit-chat have been replaced by long periods spent at home alone. This evolving perspective of schooling has influenced our everyday life. The central authorities must consider the severity of the problems and take action to correct the circumstance, which helps normalize things and helps improve the living experience. The system also has a significant problem delivering training and support due to students and teachers’ lack of professional knowledge. Applying social distancing and sanitation norms will massively boost institutional operational costs. In addition, the sudden move to online learning is difficult for countries and education authorities because of the lack of resources and the format planning that fits in with the new approach. The academic institutions find it challenging to maintain operating costs and retain pupils. The problem in this realm of education is that the government’s foremost priority in proper education was before and during the COVID-19 Pandemic.

Declarations

Author contribution statement

M. Alam et al. Heliyon 8 (2022) e11927

Bisht, R.K., Jasola, S., Bisht, I.P., 2020. Acceptability and Challenges of Online Higher Education in the Era of COVID-19: a Study of Students’ Perspective. Asian Education and Development Studies.

Boyce, C., Neale, P., 2006. Conducting In-Depth Interviews: A Guide for Designing and Conducting In-Depth Interviews for Evaluation Input.
female university students during COVID-19 pandemic: A cross-sectional study findings from Dhaka, Bangladesh. Heliyon 8 (10), e10890.

Nieswiadomy, R.M., Bailey, C., 2018. Foundations of Nursing Research, seventh ed. Pearson, New York.

Online Student Survey, 2020. Online Student survey Conducted to Explore Perceptions of Public University Students Towards Online Classes During COVID-19 Pandemic. Islamic University, Kushtia, Bangladesh. Available at: https://docs.google.com/forms/d/e/1FAIpQLSeNe480vdQ-jkJQpn6TQa05SQNQ8lw-rqHtcA8k7d1xcFp0I0A/viewform.

Owusu-Fordjour, C., Koomson, C.K., Hanson, D., 2020. The impact of COVID-19 on learning - the perspective of the GHANAian student. Eur. J.

Paposa, K.K., Paposa, S.S., 2022. From Brick to Click Classrooms: A Paradigm Shift during the Pandemic—Identifying Factors Influencing Service Quality and Learners’ Satisfaction in Click Classrooms. Management and Labour Studies, 0258042X211066234.

Patton, M.Q., 2002. Qualitative Research and Evaluation Methods, fourth ed. SAGE, Rahman, M.H.A., Uddin, M.S., Dey, A., 2021. Investigating the mediating role of online learning motivation in the COVID-19 pandemic situation in Bangladesh. J. Comput. Assist. Learn. 1–15.

Raman, R., Vachharajani, H., Nedungadi, P., 2021. Adoption of online proctored examinations by university students during COVID-19: innovation diffusion study. Educ. Inf. Technol. 26 (6), 7339–7358.

Reddy, P., Sharma, B., Chaudhary, K., 2020. Digital literacy: a review of literature. Int. J. Technoethics (IJT) 11 (2), 65–94.

Rehman, A., Anwar, U., Akhtar, S., 2021. Online examination system in the times of COVID-19: a case study of Pakistan. Res. Rev. Int. J. Multidiscipl. 6, 71–79.

Sarif, N., 2020. How Is India’s Education Sector Coping with the Pandemic? CRITICAL EDGE. https://criticaleges.com/2020/06/26/how-is-indias-education-sector-coping-with-the-pandemic/

Sheng, H., Sliau, K., Nah, F.F.-H., 2010. Understanding the values of mobile technology in education: a value-focused thinking approach. DATABASE for Adv. Inf. Syst. 41 (2), 25–44.

Shrestha, S., Haque, S., Dawadi, S., Giri, R.A., 2022. Preparations for and practices of online education during the Covid-19 pandemic: a study of Bangladesh and Nepal. Educ. Inf. Technol. 27 (1), 243–265.

Subedi, S., Nayaju, S., Subedi, S., Shah, S.K., Shah, J.M., 2020. Impact of E-learning during COVID-19 pandemic among nursing students and teachers of Nepal. Int. J. Sci. Healthc. Res. 5 (3), 68–76.

UNESCO, 2021. COVID-19 Educational Disruption and Response. UNESCO. https://en.unesco.org/news/covid-19-educational-disruption-and-response.

Uzzaman, M.N., Jackson, T., Uddin, A., Rowa-Dewar, N., Chisti, M.J., Habib, G.M., et al., 2020. Continuing professional education for general practitioners on chronic obstructive pulmonary disease: feasibility of a blended learning approach in Bangladesh. BMC Fam. Pract. 21 (1), 1–10.

VOA, 2022. Bangladesh Schools Reopen after 18-Month COVID Shutdown. VOA. https://www.voanews.com/a/6223216.html.

Waghid, Z., Waghid, F., 2016. Examining digital technology for (higher) education through action research and critical discourse analysis. S. Afr. J. High Educ. 30 (1), 265–284.

Zamawe, F.C., 2015. The implication of using NVivo software in qualitative data analysis: evidence-based reflections. Malawi Med. J. 27 (1), 13–15.

Zayapragassarazan, Z., 2020. COVID-19: strategies for online engagement of remote learners. F1000Research 9, 1–11.