Online Higher Education in Bangladesh during Covid-19: Its Challenges and Prospects

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ABSTRACT

Online higher education in Bangladesh has not gained expected popularity and a switch to it has always been seen as a challenge despite its potentials here. So, our research investigates the challenges in implementing online higher education and prospects for this for Bangladeshi universities. To do this we have explored the background and evolution of e-learning and online learning in Bangladeshi higher education and the potentials that it might offer in this area. This is a study which may also be called a systematic review. This study reviews research publications on the topic that were published during the last ten years. The research publications include fourteen newspaper articles, twenty two journal articles, four doctoral theses, four reports, three conference proceedings and nine websites. The study finds out that there are a number of problems in implementing online higher education such as, negative perception of teachers, parents and students about the online education, digital divide in the country. On the other hand, online or at least the blended education can be a good alternative to face-to-face higher education of Bangladesh that faces a number of constraints such as, crisis of seats and reputed higher education institutes, session backlog, cost of higher education in universities as well as the conducive factors such as, digitalization, digital literacy, widespread use of mobile phone and the internet. This study recommends that blended courses and programs may be offered in higher education of Bangladesh considering the prospects it offers to our higher education providers .

1. Introduction

Many governments recognized the significance of e-learning and so they developed national strategies to incorporate e-learning in education (Asgarkhani, 2004). In their consultation document "Towards a Unified e-learning Strategy" in July 2003, the UK Government outlined their strategic view of e-learning for the country and pointed out that there is a scope for revolutionizing learning and teaching through e-learning. To that direction, universities around the world are using online modes of teaching to 'increase their student intake, quality of education and image' (Asgarkhani, 2004).A recent article in The Chronicle of Higher Education states that online learning methods have become common in recent years in elite universities – including many Ivy League schools in the US. They have begun to more substantially use the devices and techniques of digital learning(Bangladesh struggling to keep up with demand for higher education, October 5, 2015). At present online education using VLEs is the culmination of the use of technology for teaching a greater number of people living at any place, at any time and at any age.

1.1 Distance and Online Education in Bangladesh

Though online education has become widely popular across the world, Bangladesh is still lagging behin other countries. There is a conspicuous absence of online/blended/e-learning in Bangladeshi universities in spite of immense prospects here. It is imperative that Bangladeshi universities gradually switch to online education where the integration of technology will be its booster. Now there is a rising trend internationally among teachers to design online course materials and universities are increasingly offering Massively Open Online Courses (MOOCS) and what is more, developing them as a way of raising the institutional image. But Bangladeshi universities are lagging behind in the spree (Sohail, 2018). As only a limited number of Bangladeshi young people can have education owing to limited seats and the inflexible timing system of traditional higher education, distance learning systems can be a solution to this problem. The rapid expansion of ICT in the country can open an avenue of hope for e-learning for the expansion of distance education(Al-Masum & Chowdhury, 2013) to cater to the

burgeoning demand for higher education among the Bangladeshi young population.

1.2 Distance Education by a Bangladeshi University

Though online education has not been in use in Bangladesh, the Distance education has been in practice since the 1990s. It is relevant to discuss the evolution of e-learning or distance learning in Bangladesh with emphasis on the contribution of Bangladesh Open University (BOU), the only provider of distance higher education and one of the world's biggest universities having above 500,000 students. Like National University, BOU was established in 1992 to facilitate higher education. Bangladesh Open University offers diploma, bachelor's, and master's programs, as well as non-formal programs through distance learning via 'audiocassettes, radio and TV broadcasts, and the internet'. BOU is planning to conduct all its courses online very soon. Being the only university to provide education in Bangladesh, the Open University plays an important role in reaching education to previously un accessed populations in rural areas (Trines, August 1, 2019).

Bangladesh Open University (BOU) was founded in 1992 by an Act promulgated in the Bangladesh National Parliament (Bangladesh Open University Act, Bangladesh Gazette, 1992). BIDE merged with it. BOU came under government budget later on. BOU's main objective is to "transform the country's vast human resources into an educated and trained work force by extending to them a wide range of academic programs both formal and non-formal by using different delivery technologies."(BangladeshGazette,1992,monthly/1992-01-04). BOU provides tertiary education and vocational training in areas, like agriculture, business, education, arts, science, and technology. The BOU has 12 regional resource centers (RRCs), 80 local centers (LCs), and more than 1000 teaching centers (TCs) across the country (Bangladesh Open University, 2004).

Present enrollment at BOU is more than half a million. This number is more than the total number of students of all other universities in the country. In 1992, the number of students admitted were only five thousand. UGC in a report revealed that BOU education is better than that of all other public universities in Bangladesh considering issues like, expenses per student, male-female student and teacher-students ratios, and earning from own source (Annual report, University Grants Commission [UGC], 2010, pp.15-16, 44, 130). Passing out rate of BOU is also satisfactory. The average pass rate of students in both the traditional public universities and BOU is also same (Annual report, University Grants Commission, 2010). BOU students come from variety of professions, from high-ranking government officials to lower-ranking workers, or unemployed young men and women or housewives. The number of students from village is more than the urban. Two major demerits of BOU are the use of inflexible media of e-learning and exorbitant delay in publishing results within the academic calendar.

From the discussion above, it can be seen that using technology to teach mass people through distance education has started in Bangladesh in an institutional way only 30 years ago through the establishment of Bangladesh Open University. But it has not reached the mass population and not been accepted by common people in good faith. No other universities either public or private has been authorized by the University Grants Commission of Bangladesh (UGC), the regulatory body of Higher education to offer any online course in Bangladesh. So, when neither the regulatory body of higher education, i.e., UGC nor the Ministry of Education of Bangladesh is supportive of online education, the negative perception among people about online education is sure to pervade.

The negative perception about full online education in Bangladesh accrues from a number of reasons, such as, no direct contact with teachers, low quality of education, cheating in the examinations, and so on. There are some challenges also in implementing online classes. They are the digital divide, lack of access to internet in the remote areas and devices to attend classes. On the other hand, the face-to-face education in Bangladeshi universities is also constrained by a number of practical problems, such as, crisis of seats in public universities, lack of classrooms and accommodation in students dormitories, high cost of face-to-face education, traffic jam in big cities and session backlog due to political unrest.

In the backdrop of the problems associated with face-to-face education in Bangladeshi public universities, online education which has already gained popularity across the world and is being offered in a limited way by Bangladesh Open University as an effective method of education, can be an effective solution to the Bangladeshi public universities.

Hence, our study will try to investigate the potentials of alternative mode of education for universities in view of the resource constraints in the face-to-face education such as, classroom space, teacher shortage and high tuition fees in private universities. So, we believe that our research will have a significant contribution to the higher education of Bangladesh by suggesting that more practice of hybrid education in Bangladeshi universities will open up the opportunity of continuous flow and more scope of higher education for the Bangladeshi youths.

1.3 Objectives of the Study

In developing countries like Bangladesh, the scope for higher education should not be limited to the affluent few because to develop the country the privilege of education should be open to all. It should not be confined to those only who can afford it only full time. Higher education should be open to all who want to pursue it. So, to make higher education accessible to those who are doing part time job and part time education, hybrid education may be a viable option. This study will have a positive impact on the higher education of Bangladesh by proposing hybrid education as a viable option of higher education to those people who would be otherwise incapable of pursuing it for their betterment.

1.4 Research Questions

After considering the challenges and problems of online higher education in general and studying the literature, it is necessary to identify the challenges and prospects of online higher education in Bangladesh in particular. The recent pandemic Covid-19 has necessitated the switch to online mode of education delivery in the higher education of Bangladesh. In the backdrop of this unexpected situation, the necessity of online education has been felt more than ever before in Bangladeshi education sector. Our research will address how online education can be a solution not only for pandemic period but also for higher education in general from a number of practical reasons. We know our public universities have been facing crisis of seats for the aspirant students for many years. On the basis of this scenario, the following research questions have been framed:

1. What are the challenges of online higher education in Bangladesh?

2. What are the prospects of online higher education in Bangladesh?

3. What can be an effective alternative mode of education for the Bangladeshi universities?

2. Literature Review

2.1 What is Online Education?

Online education is a form of education where students use their home computers through the internet. Often online course programs, which are conducted using digital technologies, are provided through the online learning platform of the host institution. To define simply, online education is digitally supported teaching-learning system that depends on the internet.(What is online education, 2021).In online education, students can attend classes through internet access. It can include audio, video, text, animations, virtual training environments and live chats with teachers. It is a rich learning environment which is much more flexible than a face-to-face classroom. If used to its full capability,

online education can be more effective than pure face-to-face teaching. It can be active, fun and customized to fit almost anyone's schedule (What is online education, 2021).

As a form of distance learning, this method facilitates different types of learners to 'experience connectivity, convenience and interaction'. It is a rather feedback-oriented mode of distance learning, and makes use of the internet to connect students with learning material, as well as teachers and sometimes other students. This scope for personal interaction is the outstanding advantage of this learning mode (What is online education, 2021). Different pacing patterns such as, instructor-led, self-directed or self-paced, are available in online learning. In conformity with the traditional classroom model, many online courses are instructor-led. Self-directed learning is the most flexible type of pacing. Here students work independently, direct their education and manage their own progress. Self-paced learning offers students to have flexibility regarding time and place of learning(indiaeducation.net).The present mode of online learning is advanced since learning can take place via the internet. Learning materials, video teaching through Skype, examinations administered and marked online by the teacher are the features of this mode of education. Learning can take place through digital devices like audio players and mobile phones. Online learning has come a long way to the current advanced model (Gogos, 2013).

2.2 Research on Online Education

There are a lot of research that highlight the efficacy of online education like the face-to-face one. Brown (2010) argued that social technology has increasingly ubiquitous access, ease of functionality, ease of use, and high flexibility, making them appealing as a learning tool to be adopted in higher education. Online learning through social technology has, therefore brought many positive impacts in education systems. They are- low cost of education (Hamid et al., 2015), more comfortable learning environment (Patti et al., 2017). It is flexible and convenient because students can study on their leisure time and work at their peak energy either at any time, daytime, or at night (Mustafa & Ibrahim, 2016), more concentration and interaction capability (Kuo et al., 2014), enables the advancement of careers for it allows students to take online courses as they work (Jordan, 2014), improvement of one's technical skills while trying to go through programs and learning management systems (LMS) (Broadbent & Poon, 2015). It allows students to share ideas, voice their issues, and grow diverse opinions freely (Mustafa & Ibrahim, 2016).

The asynchronous nature of online learning offers a learner-spaced and timed study, and the incorporation of multimedia resources enriches the learning environment with relevant course materials

which are hard to find in hard copy or which can be costly to buy in traditional learning (Torrisi-Steele & Drew, 2013). Another strength of online learning is its interactive nature, as found in the research conducted by Torrisi-Steele & Drew (2013). They argued that online learning facilitates free interaction between the teacher and the students; and among the students themselves. The study conducted by Rapchak (2018) also found online learning to be student-centered. Students can participate in any discussions freely at any time which develops their reflective and analytical ability, and that are hard to achieve in traditional education (Rapchak, 2018). According to the study conducted by Fox (2013), the use of interactive learning environments is supported by the literature of adult education. This is because it leads to critical thinking and self-direction among the students. Online learning offers creative teaching as put forward by Trudi and Rebecca (2017), which facilitate this mode of learning among adults. Strengths of online learning can be categorized into four areas. These are ease of access, flexibility, high interaction, and student engagement.

2.3 Motivation for Online Education

The social aspect of an online education increases motivation in adult learners, with Kim (2004, 2005, 2006, 2009) mentioning course interactivity as a strong factor of learner motivation in her studies of adults admitted in self-paced e-learning courses. During her research, Kim found two types of interaction between the learners and the teachers (including technical support staff) and interactions between the learner and the course, as responsible for increasing motivation through various engaging built-in features. Other strategies to enhance the social element of online classes to raise motivation in adults are group discussions, group or team work, and fostering "a supportive community of learners" (Bonk, 2002, p. 12). By giving timely feedback and through a visible and supportive presence, teachers can also play a role in the social aspects of a class and thus increase student motivation (Bonk, 2002; Kim, 2006, 2009).

Kim (Kim, 2009) investigated factors that impacted the motivation of adult students doing self-paced e-learning courses in both academic and workplace environments. Based on both qualitative and quantitative research methods, Kim found a "lack of motivation as the significant reason for learner attrition in online learning environments" (2005, p. 132). In other studies (Chyung et al., 1998, 1999) Chyung and her co-researchers explored the impact of motivation on student retention in an online Master's degree program having high rates of student dropout. To remove this problem, techniques from Keller's (1987c) ARCS model were used to raise interest in courses in the curriculum. As a result, the dropout percentage in the Master's program got down from 44% to 22% within only three semesters (Chyung et al., 1998).

The development and maintenance of a motivating online learning environment can be a challenging task for both teachers and course designers (Huett et al., 2006). Huett et al. (2006) note that high motivation is a requisite for the student-centered nature of the online education. Kim (2005) mentions poor levels of interaction as a problem in the online learning environment. On the other hand, others (Glore, 2010; Johnson, 2012) have discovered that instructional strategies appropriate for students in the face-to-face classroom do not always motivate the online students in the same level.

2.4 Challenges of Online Education in General

While online learning offers a variety of benefits to learners and to institutions of higher education, there are several challenges such as, course development costs, student dropout rates, and teacher training (Radford & Weko, 2011), initial and ongoing expenses that are connected with online learning, including the cost of technology and the use of technological resources(Casement, 2013). Other costs may be employee costs and may range from the need to hire and train online instructional designers and instructors, as well as costs associated with support staff personnel for the courses (Casement, 2013). Insufficient training for teachers in online teaching might lead to ineffective instruction in the online environment (Rashid & Rashid, 2012). Concern with quality of online courses is also a burning issue (Irvin et al., 2012).

2.5 Challenges of Online Education Faced by Learners

Though online learning education is enabling greater access to students and flexibility in the learning environment, it is not necessarily the appropriate choice for all students in a college or university setting (Eom & Ashill, 2016). Online academic success is influenced by specific characteristics demonstrated by learners, including academic skills they bring to the course, technological proficiency, and the ability to work required of in online settings (James et al., 2016). This may happen owing to factors such as lack of student academic skills, online course quality, the instructor's useful feedback to the student, and learner commitments outside of the college environment (Ryan et al., 2016). Online courses require students to employ many developed non-academic skills such as time-management skills, staying organized, and seeking for help when needed. So, a substantial number of students perform less in many online courses than in face-to-face courses (Jaggars, 2014). A study of online courses found 45% drop out rate of online students in some colleges and universities whereas it

was only 11% of in-person students due to the lack of support on the part of the institution (Ryan et al., 2016).

2.6 Recent Studies Comparing Learning Outcomes between Online and Face-to-face Learning

Online teaching produces the same academic success as face-to-face one, according to a study published during the recent global shift to online learning. A paper published in Science Advances compared the learning outcomes and satisfaction of students either taught fully online and blended learning or via face-to-face in two STEM courses at three universities in Russia (Mckie, April 8, 2020).

The results, found that students taught fully online got the highest in their average scores in tests taken throughout the course. Those taught fully online scored, on average, 7.2 percentage points higher than the fully face- to- face and blended mode of learning. The STEM courses were offered by Open Edu and established by eight universities to offer university courses online, while the course content, study materials and assessment were same for all students. (Mckie, April 8, 2020).

The authors in this study investigated three distinct student outcomes: their average test score, their summative exam grade and the findings of a student satisfaction survey. The results in a nutshell indicated that the final test results of 325 students in the research were almost similar throughout the three teaching modes. Though the fully online students narrated lower levels of satisfaction from their courses, students doing the blended and in-person modes reported similar or even higher levels of satisfaction (Mckie, April 8, 2020). "This is the strongest evidence to date that an average college student can learn just as much from a course online as on campus or with blended learning," according to Rene Kizilcec, assistant professor of information science at Cornell University and a co-author on the study (cited in Mckie, April 8, 2020). According to the paper, online education or blended learning make significant cost cuts: blended learning downsized the cost each student by 15 to 19 per cent, depending on the course, and online instruction cut the per-student cost down by 79 to 81 per cent, depending on the course (Mckie, April 8, 2020).

We shall now discuss the challenges of online higher education and the prospects it would offer to the higher education institutions of Bangladesh in particular. This section has been written on the basis of some academic articles and non-scholarly articles, reports and columns of the national and international newspapers. Further, Khalid, Jahan and Sobhan(2009) conducted a study on the e-preparedness of a private university students of Bangladesh. They found difference in the internet accessibility and e-

preparedness across disciplines, socio-economic and previous academic background of the students. The engineering students and English medium school background students were found to be more ready for and comfortable with e-learning mode in the study. Jony, Rahman and Islam (2017)show how a wiki-based (one of the ICT tools) reflection method following a regular existing face-to-face classroom activities develop deeper thinking levels of students in higher education. They show that this method could be used as a blended learning model to promote reflective and critical thinking.

Though there are many studies which have studied the challenges of distance and online education in Bangladesh, the volume of research that investigates their potentials in universities of Bangladesh is scanty. Hence, our research will add a new dimension to the research in this area and suggest the prospects for online higher education in Bangladesh.

3. Method

This systematic review is on the research publications which consist of fourteen newspaper articles, twenty two journal articles, four doctoral theses, four reports, three conference proceedings and nine websites. The selection of studies for systematic reviews is made on the basis of relevance and acceptability (Robey & Dalebout, 1998).

These data selected through advance internet search by using [databases like Google Scholar repository; particularly SCOPUS, Web of Science, and JSTOR and Proquest…] for relevant literature by inserting the proper keywords i.e., online education; online higher education; online higher education in Bangladesh; higher education during Covid-19.These data selected through advanced internet search by using [databases…] for relevant literature by inserting the proper keywords i.e., online education; online higher education; online higher education in Bangladesh; higher education during Covid-19;distance education in Bangladesh and e-learning in Bangladesh. We included those articles for review which mainly dealt with online higher education and distance education and their challenges and prospects. The other inclusion criteria were the acceptability of the review papers. The acceptability also depended on the quality of the research paper. Papers published in peer-reviewed journals were selected for review. Moreover, articles that were mostly written during the last 10 years were reviewed.

Newspaper articles from the leading English newspaper of Bangladesh and abroad were also included for review. There were a total of 66 titles that were relevant and fulfilled the selection criteria. All duplicates were omitted once the search was completed. Ultimately, 42 research titles were finalized that met the study's objectives. The data was analyzed by reading the abstract (first for scanning

purposes) as well as the entire article (for final study). To be specific, we reviewed fourteen newspaper articles, twenty two journal articles, four doctoral theses, four reports, three conference proceedings and nine websites. Finally we analyzed the information selected to address the research topic. The review results were summarized so as to answer our research questions and objectives. Finally the findings are presented and organized according to the main themes, challenges of online higher education and the prospects of online higher education and sub themes associated with the two themes.

4. Findings

The challenges of the online education will be discussed first with reference to a number of academic articles and very recent newspaper reports and findings and then the its prospects will be discussed taking a number of facilitating factors into consideration.

4.1 Major Problems of Distance or Online Education- Bangladeshi Scenario

4.1.1. Position of Bangladeshi Universities regarding Online Education

The condition of online education in Bangladesh can be gauged from the role of other public universities. After two months to the Covid-19 lockdown by the first week of June, 2020, only three public universities out of 45 told the Education Minister that they were conducting classes online (Abdullah, June 5, 2020). There is a strong résistance among public university teachers and authorities to switch to online teaching, let alone full online education during the pandemic. The negative perception about online education is reflected in the long-standing allergy and chronic lack of preparation by Bangladeshi universities in offering any online programs. Though many Bangladeshi universities, especially some of the bigger private ones use several learning management platforms to replace traditional classroom based pedagogy, those facilities are inadequate. Their activities are confined to just uploading lecture, videos and submitting assignments. But except a few ones, the performance of other private universities adopting this online platform during normal time is very insignificant. Even one of the two key providers of higher education, the National University, which controls and monitors the public and private colleges of the country having approximately 1.8 million students does not have any fully online degree programs at this time (Sohail, 2018, January 26).

Four million tertiary students in Bangladesh in over 5,000 institutions including public and private universities, affiliated colleges, and professional institutions are in shutdown for a long time(Ahmed, April 28, 2020). The 46 public universities, with an enrolment of some 600,000 students, have not offered online or other forms of distance education, with the exceptions of Shahjalal University of Science and Technology (SUST) in Sylhet and Bangabandhu Digital University (Mohiuddin, April 23, 2020). Most universities and colleges are also not equipped with the hardware and internet connection to offer lessons online (Ahmed, April 28, 2020). Universities especially the private ones had to conduct instruction through online mode. But there was a total disastrous failure on the part of the public universities in switching to the online mode owing to the absence of institutional preparedness as well as any national strategy to tackle this crisis by the UGC and the Ministry of Education (Mortuza, March 21, 2020).

4.1.2. University Grants Commission's Role

The role of University Grants Commission of Bangladesh is debatable in this case. UGC lacks the determination and consistency of decision as to the implementation of online teaching during the corona pandemic. On March 23, the University Grants Commission (UGC) had requested all universities to start teaching online for Corona pandemic. However, contradicting its earlier standpoint of switching to complete online education, the UGC later on ordered private universities to stop all assessment and admission activities until further notification. Moreover, the commission has deemed the practice of online education and admission as being "unethical" because currently many families would not be able to bear the cost of the admission and for many students to take online examinations would be difficult (Tasneem, 2020, May 01).

4.1.3. Technological Divide

Although the shift to virtual classes has been smooth for most universities in the developed countries with basic technological infrastructure in place to this end, it has stood out to be a daunting task in our country where there is no previous experience in teaching online. A huge number of students from economically backward families are without access to a smart device or internet connection. As a result, this could also make the already existing inequalities in access to education more wide (Tasneem, 2020, May 01).

Ikba and Shama (2020) conducted a survey among 83 university professors and 695 students from the private and public university. The survey shows that less than one-third have a computer, and slightly more than 1% of the students had neither a computer nor a smart phone, without which any online class is impossible for them. 34% indicated that they have access to mobile data only, while 63% indicated that they have access to broadband. 78% of the students responded that they consider the price of data to be too high, and a staggering 92% would like to have cheaper data and desired government intervention

(Ikbal, & Shama, 2020). From among the teachers, 60% indicated that their university at present does not have sufficient technical support for successful online classes.

4.1.4. People's Perceptions regarding Online Education

The perception of teachers and students regarding the usefulness of online education during Covid-19 is also not positive. A survey conducted by a private organization named Biotech shows that only 23 percent students want to attend online classes. Again 82 percent students think that online classes are not as effective as face-to-face classes. Many teachers while interviewed said that it is possible to take online classes in subjects like, business and humanities but difficult to take classes in Science and Engineering (Sharifuzzaman & Ahmed, June 14, 2020). So, we see that teachers and students, let alone, common people have negative perceptions about online education.

4.2 Prospects for Online Higher Education in Bangladesh

After investigating the challenges of online higher education, it is necessary to explore the prospects of it in Bangladeshi tertiary education sector. Against the challenges, a good number of opportunities are there to gradually switch to online higher education. A ground for online higher education has already been prepared by a number of facilitating factors in the socio-economic and technological arenas prevailing in Bangladesh.

The acceptability of online education has already been established through a number of factors. The pandemic Covid-19 has made all feel the importance of online education as a temporary solution. Most of the private universities have switched to online education within a week or two of the onset of lockdown owing to Corona pandemic. A number of public universities have also switched to this mode of education. The role of a public university named Bangabandhu Digital University (BDU) can be discussed here regarding the practice of online education in Bangladeshi higher education. In order to develop online education to its fullest, this specialized university has also established the country's first Institute for Online and Distance Learning (IODL) (Noor, 6 May, 2020). It started its academic activities from March 2019. Of late, a SWOT analysis has been conducted by the university. The study shows that around 90 percent of the students attended classes online regularly during pandemic (Noor, May 6, 2020).The university's customized and well facilitated Learning Management System, Virtual Machine (VM) for all students and faculties will help to save the students from session jam (Noor, 6 May, 2020).The success of BDU can be an eye opener for others. There is a huge scope for online education in Bangladeshi higher

education scenario considering the current development of digital literacy and facilities too.

4.2.1. Digitalization Movement of the Government

Bangladesh is currently connected to the information super-highway through submarine cables, which will add a new spin in the expansion of Internet and other electronic communications. The fact of more than 20 million mobile phone users throughout the country reflects the real phenomenon of quick acceptance of modern ICT by the people. But the full potential of the ICT infrastructure is yet to be exploited by the Bangladeshi higher education institutions. It is expected that the current improvement of the ICT infrastructure of Bangladesh should be utilized to promote e-learning for distance education at the tertiary level in Bangladesh. This is in accordance with the vision of "Digital Bangladesh" of Bangladesh Government by 2021 to create a knowledge-based society that realizes the power of e-learning for all the people in the country (Al-Masum & Chowdhury, 2013).Recently the private mobile phone operators have also reduced the price of internet data and started offering various cheap internet packages that has helped the students in doing classes online with cheaper data.

4.2.2. Online Education by the Private Universities

The preparedness of the private universities in Bangladesh except a few in conducting online education was not satisfactory during the first few months into Covid19- imposed lockdown starting from March 18, 2020. However, a few leading private universities have limited activities in delivery of education online through LMS since 2014/2015 which was not seen in the case of public universities. Initially, the faculty members used the platform as a supplementary support to teaching and not as an alternative to classroom or face-to-face classes (Genilo & Rahman, June 16, 2020). Most of the private universities have switched to online education with their limited resources. So, there are examples of efforts on the part of most private universities in Bangladesh to go for online mode within the ½ months of the Covid- 19 lockdown. That signals a positive sign of acceptability of online education by the students of these private universities of Bangladesh.

4.2.3. Crisis of Seats in Public Higher Education Institutions

Seats in Bangladesh's best public universities are so scarce that approximately 95 percent of higher-secondary graduates cannot find place in these institutions; 17 applicants contested for one seat in these universities in 2015 (Trines, August 1, 2019). About 95 percent students having Higher Secondary Certificate (HSC) and equivalent certificates in the year 2015 were not able to get admitted into 32 public universities for seat crisis. On an average, a little more

than 17 admission-seekers had to compete for one seat in the 32 universities, excluding the National University and the Bangladesh Open University. To cite the University Grants Commission (UGC) estimate, 37 public universities including National University and Bangladesh Open University had 521,184 seats in 2015-2016 academic year. In addition to that, there are 83 private universities having around 3,00000 seats (Rashid, 2015).

This huge increase in number of students cannot be accommodated by the existing number of higher education institutions (Akhtaruzzaman, July17, 2020). Online programs allow people who might not normally be able to get a degree to attend a renowned institution probably due to their financial condition or a limited amount of seats or due to lack of infrastructure of the university. That demand may be partially fulfilled by the online mode and at least blended mode of education. As only a few Bangladeshi young people can have education owing to limited seats, distance and open learning systems can be a solution to this problem (AL-Masum & Chowdhury, 2013).

4.2.4. Session Backlog and the Need for Online Education

Session jam in Bangladeshi public universities resulting from political unrest and delay in results publication is a crucial problem. Students of the public universities with session jam need seven or eight years to do their four-year graduation program. According to the University Grants Commission, session jams are acute in Comilla University, Rajshahi University, Jahangirnagar University, Islami University and National University(Wadud, August14,2013). The financial consequences of session jam are huge. Sarkar and Hossain's (2016) empirical study shows that for session jam a huge amount of additional money is wasted both by the parents and the government for a student to complete graduation and post graduation. Their statistics shows that for session jam per student additional cost was highest (BDT 230,801) in engineering universities, followed by agricultural universities (BDT 211,846), general universities (BDT 209,794), and science & technology universities (BDT 179,293). To show in percentage, general universities consumed 25.77 percent, agricultural universities 13.86 percent, engineering universities 23.84 percent, and science & technology universities 21.68 percent additional cost due to session jam (Sarkar & Hossain, 2016). Online education will ease this problem of session backlog in public universities of Bangladesh

4.2.5. Traffic Jam in Big Cities

The city-dwellers of Bangladesh are encumbered with regular menace of traffic jam. Around 5.00 million working hours are being wasted every day for traffic jam that incurs an average financial loss of

TAKA 370 billion every year. MCCI & CMILT (2010) revealed that traffic jam was liable for the loss of people's 8.15 million working hours, 40 per cent of it are business hours. Again, another study of Dhaka Transport Coordination Board (DTCB) found that against the speed capacity of 40 kilometers per hour (kph), motorized vehicles can move in the city up to average 5 kph (Chakraborty, 2016). This creates a mental pressure on the city commuters, leading to diseases, creating impatience, combative mind, frustration, mental unrest and affects work efficiency and enthusiasm(Ahmed, April 06, 2018).As a deterrent to reduce the congestion, it is essential to arrest the flow of people to the Dhaka City. So, if people get employment, health and education facility at their own area, the movement of people to Dhaka will dramatically reduce (Chakraborty, 2016).

4.2.6. Education and Job Simultaneously

The comparatively cheaper cost of online education can also be a motivator for the financially constrained people of Bangladesh who aspire for higher education. In Bangladesh many young people are pursuing higher education while being employed. That is, a huge number of them are pursuing both job and education. For them online education can be a lucrative alternative in their pursuit of higher education keeping their jobs intact

4.2.7. Reduction in Dropout at Tertiary level

Though the dropout rate at primary and secondary education has been slightly reduced by the initiative of Bangladesh Government, at tertiary level the rate is alarming (Naeema, 2012, cited in Hossain, 2016). The dropout rate at primary level is around 50 percent (Satyarthi, 2009, cited in Hossain, 2016). Up to graduation total dropout rate is more than 90 percent (Boyle et. al, 2002). The case of Institute of Business Administration (IBA) of University of Dhaka, as the pioneer of Master of Business Administration program is a good example. It admits 200 students each batch but out of them only about 125 students passed out in 2013, with a dropout rate of 37.5% (Islam & Pavel, 2014). Online education will help to reduce the dropout rate in these universities because it will remove a lot of impediments that block students' continuation of education.

5. Discussion

5.1 Challenges of Online Higher Education in Bangladesh

First the challenges of online education will be discussed in the perspectives of the previous findings of this study.

5.1.1. Public and Private Universities during the Pandemic

Our study finds that many Bangladeshi universities, especially some of the bigger private

ones use several learning management platforms to replace the traditional classroom-based pedagogy, but the facilities are not sufficient. The public ones especially the key providers of higher education, the National University having approximately 1.8 million students has no fully online degree programs at this time with the exception of Shahjalal University of Science and Technology (SUST) in Sylhet and Bangabandhu Digital University (Sohail, 2018, January 26). Except these two universities, 46 public universities, with an enrolment of some 600,000 students, have not offered online or other forms of distance education (Mohiuddin, April 23, 2020). Most universities and colleges have no logistic and internet connection to offer lessons online (Ahmed, April 28, 2020). There is the absence of institutional preparedness as well as any national strategy to tackle this crisis by the UGC and the Ministry of Education (Mortuza, March 21, 2020).It can be inferred that most public universities lagged behind in conducting online instruction and assessment which led to 18 month long session backlog in these universities. But the private universities switched to the online education within a couple of weeks into the lockdown in April, 2020.

5.1.2. UGC and the Excuse of Digital Divide

The indecision or delayed decision of the UGC regarding the start of online education and assessment during the first couple of months of Covid-19 imposed lockdown in Bangladesh has given the students and teachers of public universities a wrong perception about the importance and efficacy of the online education. At a critical time like this, want of consensus and communication between the private universities and the UGC has indicated that our education system is lacking a clear way ahead that is crucial to lead students towards the right destination (Tasneem, 2020, May 01). UGC attributes their indecision regarding online education to the technological and digital divide of the country. Our study shows that the digital divide is more conspicuous in the rural areas than in the urban areas. The synchronous online classes are hard to be conducted and attended to in the rural areas. That is why, over 78% of the professors in a study mentioned by us indicated that they were willing to use free video solutions such as, Facebook Live or WhatsApp to deliver their classes. Faculty opinion also shows the digital divide. 73 percent teachers in a study thought students do not have sufficient technological resources to participate in online courses (Ikbal & Shama, 2020).

So, this issue is a strong impediment to online education for Bangladeshi universities. But in contrast to it, the fact of more than 20 million mobile phone users throughout the country reflects the real phenomenon of quick acceptance of modern ICT by the people. Unfortunately the full potential of the ICT infrastructure could not be exploited by the Bangladeshi higher education institutions. Recently the private mobile phone operators have also reduced the price of internet data and started offering various cheap internet packages that has helped the students in doing classes online with cheaper data. This fact illustrates a potential picture for online higher education in Bangladesh.

5.1.3. Preparation for Emergency

Online education is an alternative to face-to-face education during natural calamities which helps to survive the emergency. But our findings indicate that we, in Bangladesh, do not have any emergency plan for education. The existing Bangladesh Emergency Response Plan 2014 and SOD only mention about 'flood, cyclones or earthquakes'. But, the Covid-19 has made the nation helpless and confused about the alternative mode of face-to-face education. Long-term social distancing, has necessitated migrating to the online teaching platform as an inevitable step (Mortuza, March 21, 2020). Though our findings indicate that the UGC has been indecisive about online education during the first couple of months, it is, however, assuring that the Ministry of Education and the UGC have recently formulated a strategic plan for the blended education. It can be regarded as a stepping stone for the online education in future. Online education is expected to help to reduce dropout rate in universities during the natural contingency and pandemic.

5.2 Prospects of Online Higher Education in Bangladesh

The prospects of the online higher education will be discussed in the light of the findings of this study.

5.2.1. Resource Issues in the Face–to- face Higher Education

The fact that the crisis of seats in Bangladeshi public universities is a constant problem has been implied by a number of statistics in our studies too. The current face-to-face education in the public universities cannot remove this problem in the face of limited resources and capacities such as, classroom, teacher and financial shortages. But the problems in public universities can be removed to a large extent through online programs. That demand may be partially fulfilled by the online mode and blended mode of education as mentioned by us. The claim can be supported by previous research as well. As only a few Bangladeshi young people can have education owing to limited seats and inflexible timing system of traditional higher education, distance and open learning systems can be a solution to this problem(Al-Masum & Chowdhury, 2013). It will ultimately incur low cost of education because less facilities will be required in offering online education.

5.2.2. Traffic Jam in Big Cities

The traffic jam in Bangladeshi big cities creates mental and physical pressure on the city commuters and affects work efficiency and enthusiasm (Ahmed, April 06, 2018). Our study indicates that online education is expected to contribute to the easing of traffic jam in big cities. The flow of people to Dhaka and other big cities can be stopped through online education because people do not need to move to Dhaka (Chakraborty, 2016).

5.2.3. Education and Job Simultaneously

It can be assumed that online or blended education will open up the opportunities of higher education to a huge number of aspiring Bangladeshi young people by not jeopardizing their studies while keeping their job. It will fulfill their dream of higher education keeping their income and employment intact. It will also reduce dropout rate in higher education because it is flexible. This view is supported by Mustafa and Ibrahim (2016) and (Jordan, 2014) who say that online education is flexible and convenient because students can study in their leisure time and work at their peak energy either at any time, daytime, or at night (Mustafa & Ibrahim, 2016), enables the advancement of careers for it allows students to take online courses as they work (Jordan, 2014).

5.2.4. Reduction in Dropout Rate at Tertiary Education

The university dropout is now an important issue in many countries, including Bangladesh since it is the wastage of taxpayers' money. Research mentions the reasons for students dropping as three types: social, economic and educational. A student can drop out due to financial difficulties or family related or personal problems (Hasan, 2017). Our study indicates that the dropout rate in tertiary education will be reduced substantially through the online mode of education because online education will offer more flexibility, reduce the fees and other costs of education and less mobility outside of home for education.

5.2.5. People's Perception about Online Education

We mentioned a survey conducted by a private organization named Biotech which shows that only 23 percent students want to attend online classes. Again 82 percent students think that online classes are not as effective as face-to-face classes. Many teachers also opine that it is possible to take online classes in subjects like, business and humanities but difficult to take classes in Science and Engineering (Sharifuzzaman & Ahmed, June 14, 2020).The negative perception of the Bangladeshi teachers and students regarding the quality of online education might accrue from a number of perceptions and facts such as, the scope of cheating in the examination, low quality teaching method and the lack of teacher-student interaction. But the studies done outside Bangladesh indicate the positive opinion of teachers and students about the online education. For example, the study conducted by Rapchak (2018) also found online learning to be student-centered. Students can participate in any discussions freely at any time which develops their reflective and analytical ability, and that are hard to achieve in traditional education (Rapchak, 2018). According to the study conducted by Fox (2013), the use of interactive learning environments is supported by the literature of adult education. This is because it leads to critical thinking and self-direction among the students.

Online learning offers creative teaching as put forward by Trudi and Rebecca (2017), which facilitate this mode of learning among adults. It indicates that people's perception about online education abroad is positive. However, the fact that there also is a gradual change of people's opinion about online education to the positive is also noticeable in Bangladesh. The gradually increasing participation of private university students in online classes is indicative of its rising popularity. All private universities except a few switched to the online mode within a couple of weeks in to the Covid -19 lockdown in March 2020.

To sum up, the challenges of online higher education are no doubt huge in a developing country like Bangladesh. The challenges are both academic and financial and resource related. But the opportunities that online education can offer to the Bangladeshi universities in terms of more student intake, easing of session jam, reduction of tuition fees and other costs, scope for job and education to a huge number of financially disadvantaged youths, absence of student loan system are more enormous than the challenges to be encountered. Our research also indicates that a facilitating atmosphere also exists in the country in terms of digital development, more access of people to device and widespread digital literacy among the young people of our country to expedite the quick switch to partial online/ hybrid education in the university programs.

So, blended course can partially compensate the problem of digital divide. But barring the device and internet issue, cost of online education will be lower than the face-to-face education. If universities or government provides device and internet to students at subsidized price, it will not be a serious problem. The internet connectivity through the private mobile phone operators is almost available in all areas of the country except a very few remote areas. What is important is that the tuition fees of blended course will be lower than the face-to-face education because the institutions will have to spend and invest much less for infrastructure and teachers in the blended method. So, tuition fees will go down and then students who are self-financed and do part time job will be able to pursue higher studies.

Blended course will also increase the intake of public universities. Teachers can utilize this time for

research, innovation, industry engagement whereas students can do research, study at home or part-time work or tuition work in case of financial problem. Every year more than one million students pass the Higher Secondary Certificate Examinations, but it is difficult to raise the physical infrastructure overnight. So, blended approach provides a lot of flexibilities to the students and teachers whereas universities may significantly increase student intakes.

6. Conclusion

The problems and challenges of online education in a developing country like Bangladesh are many. The challenges that have been discussed here are related with perceptions, quality of education, digital divide, inequitable access to devices and internet. But the opportunities it will create such as, low cost of higher education, reduction in session backlog, continuity of education, flexibility and most importantly access of higher education to all, are much more beneficial for the higher education and hence, deserve more attention from the policy makers. The ground for online higher education has already been prepared by a number of conducive factors and measures such as, digitalization of Bangladesh, initiative by the Government to accept the 4th Industrial Revolution and most importantly, the easy access of people to internet and smart gadgets as mentioned here. It is assumed that the benefits of online higher education will much outweigh the challenges and problems in its implementation. The issues of quality of education, online assessment type, curriculum redesign and teacher training can be addressed through expert opinions and proper planning. So, considering the challenges and weaknesses of online education and the problems of face-to-face education, majority of students in this study opine that blended learning can be an effective alternative to both the face-to-face and full online modes of education for the Bangladeshi universities though there is concern about the digital divide in our country for successful implementation of blended education. In the blended course, there are the benefits of flexibility, enhanced learning through teacher feedback and self-exploration and most importantly, interaction during the face-to-face classes of the course. Through the blended learning the door of access to higher education will be open to all, irrespective of age, gender and financial status. The image and status of our universities will also improve in course of time given other issues of quality of higher education are also properly addressed.

7. Recommendations

There might be concerns about the quality of online education to be offered by some universities. But there are ways to address the problems. Online assessment system might be another issue. The major challenge regarding online program by universities

might be the issue of plagiarism and cheating in the examinations. So, the current testing system needs to be changed. Pen and paper- based testing system will not be suitable for the proposed online programs. In this connection, the pertinent question might be 'does the present testing that relies completely on rote-learning really assess the originality and creativity of the students'? So, instead of pen and paper based exam, the submission of coursework and other creative ways of online assessment can be a viable solution to this problem. Universities must use Plagiarism Checker software to check cheating in the course works submitted by students. Even if the pen and paper-based testing is to remain, it may be held at the institutions in the presence of teachers. Teacher training should also be arranged for the easy and smooth transition to the online education. University teachers should be trained in the modern use of technology and the Leaning Management System of the universities must be modernized to facilitate the online mode of education.

It is time the UGC and the Ministry of Education came forward with a timely decision about online education. The negative perception of the people as well as the policy-makers must go away. The introduction of online education might pose a number of challenges which can be solved. We can seek support and advice from other countries where online higher education is a very popular and common medium of education. If the UGC and the Ministry of Education are skeptical about the quality of online education, they can be selective in giving permission to the degree providers. A number of courses in each program can be offered online and in blended format side by side the face-to-face to cut down pressure on the universities, teachers and students. Regarding the lack of digital device and internet access, it can be said that government should provide laptop or smart phone and internet facilities to the students at subsidized price. Furthermore, the long-standing Covid-19 has necessitated the switch to total online classes by the universities of Bangladesh. It is true that private universities have been conducting online classes in large scale except a few and the public universities except a few have been lagging behind in delivery of education and examination during this pandemic. However, the University Grants Commission of Bangladesh has formulated policy and strategy to offer blended method in higher education in the backdrop of the pandemic and other socio-economic realities of the country. Regarding research in this area it can be said that this research being a purely review paper did not take the opinions of all the stakeholders of this level of education and was not based on the primary data. So, we hope that further quantitative and qualitative research will be conducted by the Bangladeshi researchers taking the students', teachers' and policy-makers' viewpoints in consideration.

The research is significant for the fact that it has not only investigated the challenges currently being faced by the Bangladeshi higher education institutions in offering online program but also has indicated the opportunities that the online and blended higher education will provide to the universities. The policy-makers might get some insights into the real challenges and the prospects the online and blended education would offer to the burgeoning and critically resource-constrained public universities of Bangladesh. It can also be a policy paper for the Higher Education Ministry and the UGC Bangladesh

8. Acknowledgment

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