

## Effects of Covid-19 on Tertiary Education Sector in Bangladesh

Mushfek-Ul-Alam Chowdhury\*  
Aynul Islam\*\*

### Abstract

*The paper discusses the effects of the recent pandemic on the 'Tertiary Education Sector in Bangladesh'. The researcher follows a systematic review of the literature that the other authors provide. Both qualitative and quantitative data are gathered for the study. The research framework has divided these effects into some common categories. These categories are Psychological effect, Institutional effect, Pedagogical effect, Socio-economic effect, Labour market effect, Migratory effect on students participating in international higher education, and Academic effect in terms of time value. The level of the research is inductive; that is, a tentative hypothesis is derived from observing theories and quantitative data provided by different authors based on systematic review, contrast and comparison. Finally, the hypothesis states if these effects of the pandemic can be categorised in the mentioned order or not. All the data which is used in the paper is secondary data. In the final part of the paper, the researchers identify the common effects identified from different reviews and prescribe a set of recommendations to overcome the negative impacts. The researcher intends to continue to work on the current categorisation of the effects by conducting primary research and a meta-analysis of the secondary data soon.*

**Keywords** Psychological · Institutional · Migratory · Socio-economic · Structural · Labour market · Pedagogical · E-learning · Digital literacy · Academic · Time value · Opportunity cost

\* M. Phil Research Fellow, Bangladesh University of Professionals (BUP), Dhaka.

\*\* Professor, Department of Economics, Jagannath University, Dhaka.  
E-mail: aynulku@gmail.com

## **1. Introduction**

The recent pandemic caused severe economic damage at the national and global levels. Since the first case was detected on 31<sup>st</sup> December at Wuhan in China, the rampant never left ultimately, and the odds were not beaten all at once. The effect of these widely spread diseases eroded many parts of human lives gradually and daily. The economy was not the only part of these ongoing damages. The education sector also suffered a considerable loss. According to Ela, Sohel, Shovo, Khan, Jahan, Hossain and Islam (2021), the Bangladeshi government confirmed this deadly pandemic on 26th March 2020. The academic life of the tertiary graduates started taking a severe blow. Based on Ibid (2021), the educational institutes were already closed a week earlier. However, the mass spread of the virus among individual citizens evoked an intense panic at almost every campus. Due to the growing fear, educational institutes inevitably became a part of an extended lockdown. According to the author of the current research the whole tertiary education sector was affected on the following dimensions: Psychological barriers (mental breakdown among the students), institutional damage (a dip in enrolment leading to organisational loss), economic sufferings and hardship (death, loss of income and occupation among many low and middle class family causing future financial constraints in funding higher education), daunting collapse in the labour market (negative structural changes within the firms, high job turnover, sudden shift to digital format of doing business and unexpected migration from urban to rural areas led to endless sufferings for many graduates in seeking employment), immense loss to students of the local communities who are studying abroad (Session loss and financial burdens) and finally, unprecedented situation among the teachers (as almost all of them experienced a tedious task of adjusting their pedagogical method to a phenomenal digital layout). The author's primary purpose in writing the current paper is to conduct a systematic literature review on these dimensions and build a solid foundation for a deep empirical analysis of the above issues. However, even though the current research is vastly qualitative, few numerical data are also added to support the literary evidence. The authors found that almost every researcher focuses on the psychological and pedagogical effects. The current paper will prioritise economic effects as one of the primary objectives of this investigation. However, all of the above effects are discussed sequentially, and brief literature is provided in each section to support the author's analysis of the supporting documents.

## **2. Background of the Study**

Corona pandemic shifted the basic academic structure of the tertiary education sector to a digital platform that led to many difficulties such as lack of availability or access to electronic devices for students from low or low-middle class families, slow speed, high cost and limited internet access, technical difficulties for lack of user expertise and mental exhaustion (Dutta and Smita, 2020). Evidence from

Mahmud, Dasgupta, Gupta, Hassan, Kazi and Kabir (2021) support this above view. Mamun, Hosen, Hasan, Jubayar, Rahman, Maliha, Sarker, Kabir, Jyoti, Kaggwa and Sikder (2021), the pandemic left many students mentally shackled. Ibid (2021) also believes that it led to strange suicide and psychological breakdown events. Shahriar, Arafat, Sultana, Akter, Khan, Nur and Khan (2021), who emphasised the psychological stagnation among private university students, clearly supports this view. Reviewing the above literature, the authors may confirm the pandemic's adverse psychological effects on the tertiary students. However, some authors have focused on some unconventional issues rather than exploring the traditional effects. Kabir, Nasrullah, Hasan and Ahmed conducted a profound study on the upbringing solution of e-learning and its mass implication as a pedagogical tool revolutionised due to the pandemic. These authors focused on a brief empirical study on the independent predictors of e-learning efficiencies and readiness among sample students who went through the unexpected time of the pandemic lockdown.

Evidence from Mahmud, Dasgupta, Gupta, Hassan, Kazi and Kabir (2021); Muller, Goh, Lim and Gao (2020) raised questions about the same issues. Evaluating this literature, the authors have a solid reason to believe there were both positive and negative effects of pedagogical modifications as the whole education system was transformed into a digital platform. Khan (2020) identified the labour market's tragic struggles due to offsetting many organisations' operational cost effects. As a part of his study, he mentioned the possible mistreatment of fresh graduates in the job market.

Evidence from Tabassum, Jahan and Khan (2021) and ADB (2020) investigations on job postings support this notion. The authors firmly believe that one of the significant effects of this pandemic concerning the tertiary education sector was ongoing negative scenarios for graduate employment in the labour market.

Bhattacharya, Khan, Tabassum and Altaf (2021) reinforced these issues in their paper. World Bank (2021) provided brief evidence on enrolment constraints among university students due to the pandemic. Even though this document only indicates the lack of interest as education buyers, the author has reasonable grounds to suspect that the negative socio-economic impacts of the pandemic are on the horizon.

Shahriar, Arafat, Sultana, Akter, Khan, Nur and Khan (2021) added in their research about social implications due to the transformation of education that focused on the unaffordability of many to adjust to the new digital format based on monetary and technical terms. However, it did not mention anything specifically about the economic hardships of the households that may cast doubt over the fate of many fresh candidates because of financial inability to meet the required expenditure. According to the researchers, it may happen as many people lost their jobs and income from personal business and countless family heads died from the diseases.

Evidence from Emon, Islam and Alif (2020) on parental incapability to access the transformed method of education; further conclusive remarks on the limited living standard of the household heads from the same authors partially support the future prediction of the authors on socio-economic disasters as education may remain more expensive than ever before for a more extended period.

Uddin (2020) believes that the pandemic's effect is long due even after it is gone. Many families will hardly survive, especially from the low or middle-income group and based on the estimates of 'The Household Income Expenditure Survey (HIES)', students from these groups have a higher possibility of experiencing a post-pandemic life lying below the poverty line, which strongly supports the prediction of the researchers. Due to the pandemic, more than 45.0 per cent of such students' families might fall below the poverty line.

Emon, Islam and Alif (2020) discussed the institutional effects in their study during the pandemic. Ibid (2020) mentioned institutes which were literary shutdown.

Shama and Ikbal (n.d.) additionally talked about the lack of required infrastructural facilities for many institutes. Reviewing the above evidence, the authors conclude that institutional effects were visible in many parts of the country.

Finally, Ela, Sohel, Shovo, Khan, Jahan, Hossain and Islam (2021) discussed the academic uncertainties not only in future professional and learning terms but also provided detailed evidence on how the pandemic had a significant negative impact on almost 1.3 billion learners from different level of education sectors which mentioned about 185 universities around the world. It was noticeable that very few local authors highlighted the ongoing financial and academic loss of the major Bangladeshi tertiary student community living abroad to pursue higher degrees. Xiong, Mock, Ke and Cheung (2020) mentioned how the recent pandemic endangered the future of higher education at the global level. The authors believe movement restrictions and changes in visa policy are also a crucial part of these adverse effects. Evidence from Kercher and Placha (2020) supports the above views. Accordingly, the authors added this dimension to the current study.

### **3. Research Problem, Question, and Purpose**

'The recent coronavirus pandemic affected Bangladesh's tertiary education sector in the following dimensions: Psychological, institutional, and socio-economic. It also led to many other problems such as graduate employment in the labour market, migratory effects for students living abroad, pedagogical implications and academic uncertainty in periodical and other senses.' Research Question: What are the common effects of the recent pandemic on the 'Tertiary education sector in Bangladesh'?

### **Purpose of the Study**

**General purpose:** To explore the adverse effects of the pandemic on tertiary education in the following dimensions: Psychological effect, pedagogical effect, socio-economic effect, migratory effect, and academic as well as institutional effects.

**Specific purpose:** To explore the dynamics of socio-economic struggles considering future tertiary enrolments for students from low and middle-income families.

### **4. Methodology**

**Research design/method:** The research will deploy a mixed analysis method (quantitative and qualitative). It will be a 'Descriptive' type of research that involves 'systematic review'. Descriptive research describes the characteristics of the targeted variables under study as it is more concerned with the question 'what' rather than 'why' or 'how' (Gall, Gall, & Borg, 2007 cited via Nassaji, 2015). The data may be qualitative in such research, but it is often analysed quantitatively. Systematic reviews are a design that aims to identify all previous or current research that focused on one particular problem, dealing with one specific issue (Nightingale, 2009). Ibid (2009) gives a balanced but neutral summary of the literature, which can be analysed using qualitative and quantitative techniques.

**Type of study:** Prospective University graduates who are exposed to the risk of the recent pandemic.

**Type of participants:** All tertiary level students

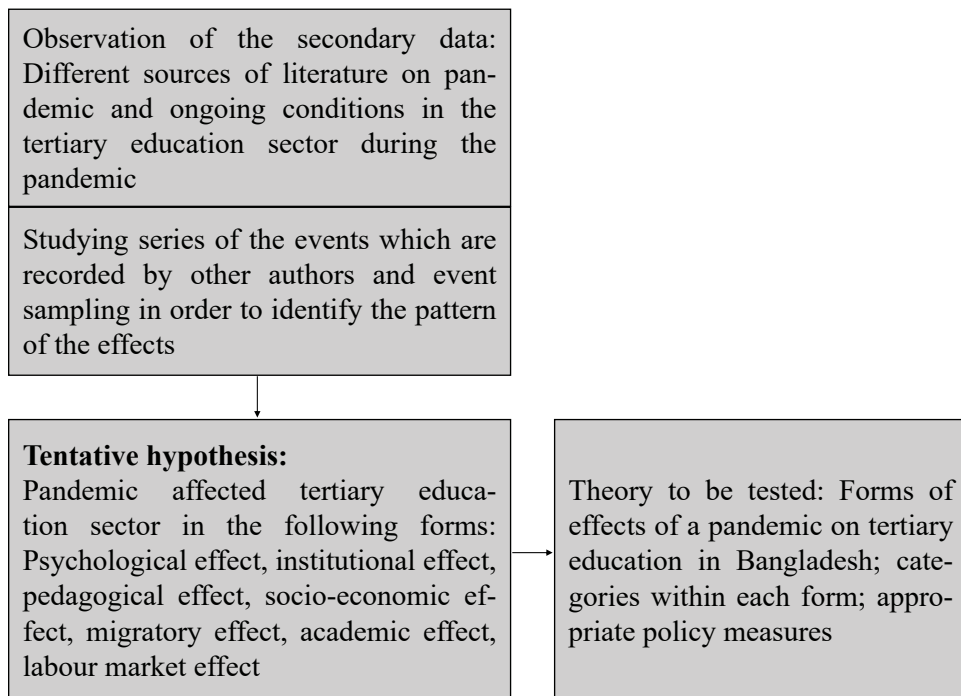
**Type of interventions:** No intervention with natural settings of the data to study things or objects or participants as they are

**Comparison:** Views and opinions of different researchers

**Outcome measures:** Risk factors associated with the pandemic for 'tertiary level education system.' Exclusion criteria are primary, secondary, or post-secondary education sectors (Nightingale, 2009).

**Sampling:** Event sampling focuses on a selected aspect of behaviour to reveal the nature of repetition of that same behaviour in analysing information from a series of events (Cambridge university press, n.d.)

Research level: Inductive level research with logical reasoning that derives the following:



(Burney and Saleem, 2008)

## Data Procedure

Data collection: Secondary data will be used to collect information on actual population characteristics (Ibid, 2018).

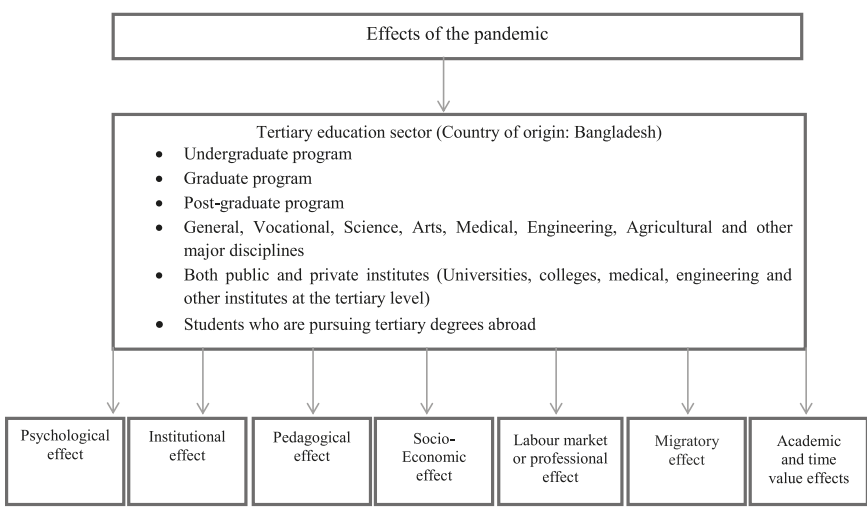
Techniques of data collection: Qualitative review, Quantitative review

Limitation: Absence of primary data.

Expected relationship: Effects of the pandemic on psychological state, pedagogical method, socio-economic condition, institutions, migratory students and the academic level.

Academic significance: The authors hope to positively contribute to ‘theories’ from the context of the recent pandemic and its negative aspects on Bangladeshi tertiary education sectors to design constructive policies.

Conceptual Framework



4. Literature Review

Recent cases include Mamun, Mamun, Hosen, Hasan, Rahman, Jubayar, Maliha, Abdullah, Sarker, Kabir, Jyoti, Kggwa and Sikder (2021) pandemic led to enormous health-related problems for people in South Asia, and the effect was magnified among the Bangladeshi people. Ibid (2021) focused mostly on the young adults in Bangladesh, and the researchers presume a major subgroup of this population consists of tertiary-level students. Ibid (2021) mentioned the following problems: anxiety, frustration, depression, stress, hopelessness, panic, fear, sleep problems, etc. According to the findings of Ibid (2021), all of these symptoms caused a tendency to commit suicide for many of them. Ibid (2021) also added that the psychological fear of life is a prime factor for developing suicidal tendencies due to the prolonged lockdown and social distancing. Some authors mentioned psychological stress arising from the transformation of the learning system, such as online classes. AlAteeq, Aljhani and AlEsa (2020) found in their studies that there was an outbreak of negative emotions like nervousness and stress burden among the students, and some of them felt they were losing control over many important things in life while attending the virtual classroom. Considering all this evidence, the author has a firm reason to believe that the recent pandemic caused psychological breakdown among the students, even for relatively mature and attending tertiary institutes. Findings from Hossain, Ahmed, Rahman, Sanam, Emran and Mitra (2021) suggest the pandemic put a big question mark on human welfare because of mental health problems, especially among the university students. Findings from the same authors indicate depression and anxiety disorders

as common symptoms for the tertiary level students, which supports the earlier literature provided by Mamun, Mamun, Hosen, Hasan, Rahman, Jubayar, and Maliha, Abdullah, Sarker, Kabir, Jyoti, Kggwa and Sikder (2021). Evidence from Islam, Sujan, Tasnim, Sikder, Potenza and Os (2020) reinforces the same idea and emphasise physical problems as a consequence of mental disruptions such as eating or sleeping disorder and potentially addictive behaviours. Findings from Ahmed, Rahman, Bhounik and Siddiqua (2021); Barua (n.d.); Mohiuddin, Miah and Akter (2021), Liang, Kang, Zhang and Zeng (2021); Alam, Ali, Banik, Yasmin and Salma (2021); Islam, Barna, Raihan, Khan, Hossain (2020) also support with the above view. Therefore, the researchers identified the psychological effect as one of the major barriers created by the corona pandemic in the tertiary education sector. Shahriar, Arafat, Sultana, Akter, Khan, Nur and Khan (2021) believe that the tertiary education sector is largely harmed due to the pandemic because of personal and collective institutional effects. Findings from these authors (Ibid, 2021) suggest that lack of technological infrastructure, a limited number of digital devices, and lack of monetary funds support the digital platform on a collective basis for many institutions and on the other hand, the absence of tech literacy caused enormous problems at the individual level for both teachers and students. According to Shahriar, Arafat, Sultana, Akter, Khan, Nur and Khan (2021), the latter is to some extent related to the first factor (psychological panic and stressing) as mentioned earlier in the current paper. According to Begum, Hossain, Alam, Islam, Lemon, and Omar (2020), public universities in Bangladesh mostly depend on government funds. However, the supply of logistics and infrastructural facilities was not enough to conduct the entire teaching on a digital platform. Begum, Hossain, Alam, Islam, Lemon, and Omar (2020) also added other institutional problems such as accessibility, availability, quality of internet and shortage of devices producing a lower service satisfaction (Mazumder, 2014 cited via Ibid, 2020). However, ibid (2020) also suggested no definite estimation of this structural problem in the public institutes. Findings from Kamol (2020) suggest that the number of private university enrolments declined significantly; therefore, it negatively impacted the teachers' and other staff's administrative salaries. Kamol (2020) mentions that even giving tuition waivers was not enough to maintain the operational level expenditure. Based on the above evidence, the authors concluded that the pandemic had widespread negative institutional effects in the tertiary education sector. Aziz, Uzzal and Aziz (2020) believe that a huge amount of government investment from the pre-pandemic period was wasted due to unexpected closure and a prolonged lockdown. These authors also prescribe resuming university admission entrance exams in small batches by analysing the ongoing infection rate with flexible tools to overcome these negative institutional effects (Ibid, 2020). By analysing all this evidence, the authors may confirm the negative institutional effects on the tertiary education sector because of the pandemic. Finally, Dey, Khan and Hakim (2021) provided brief evidence on how



much institutional loss was incurred to different categories of universities – National, public, private and open universities, for example. Ibid (2021) made a separate estimation for each category, and the projected loss seems huge when converted to US dollars. These documents support the author's view and the other literature emphasising institutional loss. However, once institutional loss is referred to, one must consider the proportion incurred due to the change in the pedagogical method (transforming the whole system to a digital platform based on e-learning). The authors define this as a pedagogical method because Hoque (n.d.) describes any principle, ideas or beliefs about the nature of learning or teaching translated into reality in the classrooms as pedagogy. Ibid (n.d.) believes it is both the teaching strategy and the teaching approach designed to pursue long-term goals in the academic context. According to the Department of Higher Education in India (n.d.), different teaching techniques and skills are known as pedagogy, which supports the earlier definition of Hoque (n.d.). Accordingly, the researchers believe the effect of the digital transformation in the tertiary education learning system can be defined as pedagogical change as one may attempt to identify the effects of these changes relating to the present and future of higher education. The researchers find no categorical definition of e-learning as a pedagogical method, but Barbour (2005) came up with the idea that e-learning involves students and the learning process to be assimilative, which requires them to converge with the given process and tools, besides teachers are also a part of this assimilation process who also play the roles of converging. In contrast, diverging has the least role to play. However, accommodating may depend on other learners (Ibid, 2005). Thus, Ibid (2005) categorised e-learning as a 'pedagogical method' as 'Experiential learning' based on 'Kolb's theory. Some other authors defined it as 'cognitive learning' of pedagogy; however, there are no particular references. Based on the above theories, the authors may confirm that 'E-learning' may be well suited to fit the pedagogical model of 'experiential learning. Authors like Siadaty and Taghiyareh (2008) defined the pedagogy of e-learning simply as 'web-based education'. Kabir, Nasrullah, Hasan and Ahmed (2021) suggest that e-learning and level of readiness are deeply connected, and the effect of this connection is significant to take under consideration. Lack of resources and inaccessibility leading to structural or institutional problems are not the only dimensions of e-learning implications. This evidence directly suggests that readiness among the students to adapt to this process is a huge factor. Mahmud, Dasgupta, Gupta, Hasan and Kabir (2021) added their findings of the teachers' poor quality of online presentation and lack of student concentration as major problems of this recent pedagogical approach. Ibid (2021) further defined the 'lack of easiness' of the teachers and length of online classes as an additional source of constraints. Kusmaryono, Jupriyanto and Kusumaningsih (2021), who defined this recent approach as 'distance learning', find that management of the e-learning is difficult due to a lack of understanding of the instructional objectives. Thus, the quality of distance learning based on a digital

platform can get extremely poor. Reviewing all this evidence, the authors finally concluded that the whole and collective transformation of the education system had some clear adverse pedagogical effects because of the pandemic. Kusmaryono, Jupriyanto and Kusumaningsih (2021) believe that e-learning can be more accessible than traditional teaching methods if proper resources are available. Müller, Goh, Lim and Gao (2021) believe that both opportunities and challenges are inherent in the e-learning system, which supports the opinions of the previous authors about the recent pedagogical transformation. According to these authors, creating effective social, emotional and cognitive interaction and meeting the need of the diverse type of students simultaneously are the most difficult parts of this process. In contrast, increased flexibility due to the scope of independent learning is the biggest opportunity (Ibid, 2021). Findings from Kusmaryono, Jupriyanto and Kusumaningsih (2021) support the above evidence. Challenges seem to arise more when instructors are less converging to the system. Farhana, Tanni, Shabnam and Chowdhury (2021) find that a lack of expertise and proficiencies in assessing the learners is a major obstacle for the teachers. Dhawan (2020) identified the lack of instructional goals from the institutions as a major barrier that supports the earlier authors' view. Keeton (2004), cited via Dhawan (2020), mention that educators must make the highest level of effort in terms of time and delivery to make effective strategies to design the most proper instructions, such as asking for feedback to broaden the course contents online. Ibid (2020) further mentioned digital ranges of devices and understanding the varieties in their implication to increase the effectiveness (digital divide) and an increased cost of digital education as added components of the current challenge. Ibid (2020) firmly believe that the technical competencies of online educators are more crucial than anything within the current context of the pedagogical change. Literature from Baltaci-Goktalay and Ocak (2006) on faculty adaption with online technology in higher education supports the above view. Sidiropoulos, Bousiou and Demiray (2010); Lounaskopri, Vainio and Demiray (2010), while discussing the practice of e-learning, emphasised heavily the requirements of adult training and inclusion of initiatives in national education strategy to develop new skills on such learning practices like e-monitoring, e-working and online pedagogical research methods. All this evidence indicates that teachers need to adapt to a much-upgraded version of the teaching system that requires sound knowledge, training on digital literacies and practices outside the professional hours to become an expert in the e-learning system. Kituyi and Tusubira (2013) suggest reinforcing the 'integration theory of e-learning' to provide a blend of e-learning and face-to-face interaction. Even though all this evidence strongly suggests that e-learning is not complete without many criteria, within the current context of the research, which is 'the pandemic situation', re-examining these above issues is mandatory. Shahriar, Arafat, Sultana, Akter, Khan, Nur and Khan (2021) believe that digital education helps promote teachers' skills to a new level and increases cognitive abilities such as complex thought processes

among the students. These authors found another added benefit of the new pedagogical approach, which is the creation of the platform for ‘knowledge sharing’; however, these authors also agree that quality online education services may differ for different institutions because of the feasibility of resources. Emon, Alif and Islam (2020) mention that outdated internet service drastically affects public and private universities, especially in rural areas. In addition to the above, these authors also focused on the affordability of university students who accommodate themselves in rural areas to maintain a high-speed broadband service. Al-amin, Jubayar, Dev and Hasan (2021) find limited access to online devices and electricity as the major source of constraints for the newly transformed teaching system. All this evidence indicates a link between institutional or structural problems and the change in pedagogical approach more than teaching skills. However, Dey, Khan and Hakim (2021) propose in their research that online training for teachers, such as utilising central video streaming, free downloading options and creating an effective interactive learning environment, should be the priorities. This evidence finds beneficial opinions from Sidiropoulos, Bousiou and Demiray (2010); Lounaskopri, Vainio and Demiray (2010). Although Begum, Hossain, Alam, Islam, Lemon, and Omar (2021) believe professionally, the need for graduates to attend training centres will be minimised because of this new system. Considering the whole scenario, the authors may agree that the pandemic’s pedagogical effects on tertiary education include both positive and negative dimensions. Evidence from Miah, Kabir and Sultana (2020) on the study of teachers’ behavioural orientation strongly supports the above view. Ibid (2020) further claim about possible biased perception on the diffusion of technology orientation in terms of teaching staff’s demographic factors leading to weakening the effects of e-learning. Ibid (2020) explored the teaching faculties’ associated emotions, feelings and general perceptions of ‘e-learning’. This evidence indicates the importance of the ‘effects’ due to changes in the pedagogical method in tertiary level education, which can also be non-cognitive from the educator’s perspective.

World Bank (2020) attempts to study the pandemic’s economic impacts on education financing. Ibid (2020) believe the education sector will depend heavily on the fiscal effect on the national governments due to the pandemic crisis. Ibid (2020) also believe that many countries will face difficulty managing their education budget for the next several years. But what about Bangladesh? Dey, Khan and Hakim (2021), who attempted to estimate an institutional loss by categorising the universities, clearly mentioned that only a planned finance system from the government could help overcome this loss. Thus, the authors developed an interest in seeing the socio-economic impact at individual levels rather than considering the whole macroeconomic perspective. Emon, Alif and Islam (2020) mention the socio-economic status of the mass population in terms of their access to technology and the financial abilities of the household heads. According to these authors, because many citizens in Bangladesh still live below the poverty line,

it is often infeasible for them to afford expensive devices for online education (Ibid, 2020). The authors also added a teacher's odd economic situation to access expensive online tools as a significant factor (Ibid, 2020). Uddin (2020) provided detailed evidence on the 'socio-economic' impact on the tertiary education sector and found that a negative economic consequence may be on the horizon. South Asian Economic Modelling cited via Ibid (2020) found that families of the future graduates who live below the poverty line may lead to sufferings in funding the university education. Emon, Alif and Islam (2020) repeatedly focused on the issue of family income and the need for temporary student grants and scholarships. Ibid (2020) specially mentioned this need for students from families experiencing job loss. All this evidence strongly suggests that the pandemic's socio-economic impact on tertiary students is important within the current context and an issue that needs to be considered once this deadly pandemic is over. The authors firmly believe the need to focus on this issue can be categorised into several levels: loss of occupation, income loss for self-employed family heads or untimely death of a family member due to the pandemic condition. Uddin (2020) further suggests that many teachers may be switching off their current profession due to income constraints in the post-pandemic period, supporting the author's views. Finally, Ibid (2020) strongly believe that the future socio-economic impacts arising from Covid-19 will certainly have long-term consequences in terms of lifetime income and productivity of the current age-cohort among the graduates from low-income families except in situations which involve government intervention. Next, the researchers focused on the effects of the pandemic on the labour market condition as graduate employment is largely the outcome of almost every education system. Khan (2020) believes that as an outcome of covid-19, many firms need to reduce their operational expenditure and so eliminate many job positions, especially in the presence of a newly transformed digital platform, without the physical presence and a new 'working from home' culture will lead to unemployment among many new graduates as this number may certainly go up in the next several years. Ibid (2020) also adds that fresh graduates who only recently completed their degrees will find it extremely difficult to compete in the job market. After reviewing such evidence, the author firmly believes this may happen due to the presence of old and experienced candidates in the job market who are already well-trained in the newly assigned job roles. One may call it the shift in 'skills dimension and technology' effect on the labour market even though it depends on the type and nature of the industry (Johns and Johns, 2007). Ibid (2020) discussed, in brief, the changes which took place within job nature & contexts causing a gradual professional shift among the fresh graduates; however, the same authors also argue that this newly defined professional environment could be an alternative opportunity to generate increased digital earning for both individuals and firms in the labour market who suggested self-employment as a more feasible option than attending a formal job shortly. After critically examining such evidence, the researchers conclude that the impact

on the labour market for the graduates due to the recent pandemic looks definitive. However, the effect may vary for individuals due to their level of digital skills, literacy, selection of occupations and existing labour market conditions. Akter (2020) believes one may see this impact in formal and informal labour sectors as she categorises the possible affected job sectors: RMG, Banking and Insurance, and Transportation and tourism. As a result, the authors do not doubt that many of these mentioned job sectors will certainly affect formal graduate employment. Tabassum, Jahan and Ahmed (2021) believe that the long-term effect of this recent pandemic will mostly arise in highly skilled professions compared to non-essential informal jobs, which once again supports the researcher's idea that graduate employment will be under huge negative impact. Mahmud, Chowdhury, Adib, Nasrullah, Bashar and Akram (2021), as a partial view of a thorough investigation on 'tertiary graduates and employment at national college levels' conducted by the Bangladesh Institute of Development Studies, provided firm evidence that both graduates with self-employment and graduates with full time or part-time degrees who are looking for formal salaried employment will be facing enormous challenges in the labour market due to this recent outbreak of covid-19. Evidence from Ibid (2021) reinforces the ideas of the authors.

Findings of Mannan, Chowdhury and Farhana reveal that the pandemic forced many national governments to impose restrictions on travel, work and immigrant visas (2020). Therefore, the researchers are willing to identify the negative impact on migratory students as most Bangladeshi students pursue higher education abroad every year. Xiong, Mok, Ke & Cheung (2020) reveal that the above problem might be related to socio-economic conditions as one may see a rise in social and economic inequalities across the globe and as a result, some countries struggle to maintain the current platform of international learning due to a possible economic disparity. Ibid (2020) also discovers that the rate of enrolment of international students in the host countries has significantly declined, which strongly indicates the lack of migration among the home country students to obtain tertiary degrees in different countries. Now the remaining question: How severe is the impact on the Bangladeshi students as home country residents in international higher education? Ela, Shohel, Shovo, Khan, Jahan, Hossain and Islam (2021) believe that the shutting down of the administrative and academic institutes certainly affected the learning process of billions around the globe; however, it did not mention anything specifically about the increased financial burden on the families in home countries due to prolonged academic sessions in the host countries including living and food expenditure. Xiong, Mok, Ke & Cheung (2020) added many raised questions about the value of future higher education on the international platform. Most of them cancelled their plans to study abroad, and the authors defined the effect on student mobility in international higher education. No specific literature was found in this regard from the Bangladeshi context. Ibid (2020) explained these adverse effects in terms of the pull and push theory of international education

(Lee, 1966 cited via Xiong, Mok, Ke & Cheung, 2020) as push factors are those which force the home country students to go abroad to avoid adverse economic and academic conditions and pull factors motivate one because of the positive aspects which are inherent in host country investment on international students. Although none of the local authors provides any specific literature on this issue from the perspective of Bangladeshi students, the researchers, however strongly believe that one might see a revolutionary change in these factors due to the recent pandemic as it will undoubtedly reshape the perception and views on life among many future graduates. Finally, the authors want to focus on the academic effects on the tertiary graduates regarding time value in the labour market. According to Latchanna and Hussein (2007), one decides to obtain higher education as the time that is sacrificed for spending hours in the classroom instead of the labour market, which is treated as the 'opportunity cost of higher education' must not be greater than the return they are hoping to get from the labour market with a higher level of skills in the future. This estimation also depends on the time value of hours and money (Ibid, 2007). Evidence from (Johns and Johns, 2007) supports this above view.

One may conclude that as time is extended due to academic gaps, the possibility of a future return is greater than the opportunity cost. Ela, Shohel, Shovo, Khan, Jahan Hossain and Islam (2021) added the 'study gap' problem even though these authors were literary discussing the adverse psychological effects arising from the gaps and future uncertainties are associated with it. Ibid (2020) believe that the current situation of the pandemic has left many graduates undecided on whether to continue with their academic life or drop out of higher education. Dutta and Smita (2020) found that assessment and educational disruptions were an added component of this problem. Mahmud, Kabir and Dasgupta (2021) define the above situation as the 'education gap' and claim that the effect is solely upon the university graduates. Aziz, Uzzal and Aziz (2020) emphasised restoring the level of university entrance admission tests. They found a strong relevance between the rate of infection, lockdown period and timely conduction of admission tests in the tertiary sector with best practices. It indicates the pandemic's negative impact on 'academic/study gaps' in terms of a future return to higher education while one considers the 'time value' of education.

After critically evaluating all of the literary evidence, the researchers may confirm the following effects of the pandemic on 'tertiary education' in Bangladesh: Psychological effect, Pedagogical effect, Institutional or structural effect, Labour market or graduate employment effect, Socio-economic effect, Migratory effect and Academic effects.



## 5. Quantitative review

Mamun, Hosen, Hasan, Rahman, Jubayar, Maliha, Abdullah, Sarker, Kabir, Jyoti, Kaggwa and Sikder (2021) found that almost 8.2% of the young adults were found to have suicidal thoughts during the pandemic. Additionally, 7.40% had tried to seek ideas to commit suicide, 0.10% had a plan to commit suicide, and 0.70% attempted to kill themselves (Ibid, 2021). Among the other psychological effects, the authors found drug addiction, broken physical condition due to higher anxiety and stress, fear of suffering the infection, and depression from social distancing. All these factors seemed statistically associated with a tendency to commit suicide. Studies from Zhenga, Siddik, and Masukujjaman (2021) on attitude and psychological effects of the tertiary graduates revealed that awareness about the covid-19 infection was noticed because of the social media (60.80%) posts. The same study also revealed that another 23.86% of the respondents were informed through online blogs or forums, whereas news channels, friends and relatives informed others (7.39%). Based on these findings, 80% of these respondents (university students) experienced extreme fear, and the rest remained patient. Research from Begum, Hossain, Alam, Islam, Lemon and Omar (2020) included 1092 students from 15 public universities, and according to their findings, 64% had a psychological breakdown. This evidence suggests that the pandemic has had a clear negative psychological effect on the tertiary graduates. Ibid (2020) also found the following: About half of the respondents (542 - 49.6%) were heavily bothered due to increased e-learning costs, (461 - 42.2%) were in a panic as they were located near COVID-19 patients, (805 - 73.7%) experienced loss of income, (367 - 75.2%) lost part-time jobs and (688 - 63%) had financial crises (Ibid, 2020). Additionally, (827 - 75.7 %) faced problems due to limited internet access and (526 - 48.2%) had problems with device accessibility to attend online classes, also (519 - 47.5%) failed to bear the internet cost. Finally, Ibid (2020) also found a significant time reduction in terms of study hours from  $(3.67 \pm 2.17)$  to  $(1.23 \pm 1.34)$  hours, and career planning (853 - 78.2%) were affected by indecision and delayed response. This evidence strongly suggests the pedagogical, socio-economic, labour market, and negative effects arising at the personal level due to academic gaps. Data from Islam, Barna, Raihan, Khan and Hossain (2020) suggest that out of the total sample, 392 (82.4%) students were experiencing mild to severe depressive symptoms, and 389 (87.7%) students were caught by mild to severe anxiety symptoms; An online survey findings indicate that during April 2020, out of a total of 3,122 Bangladeshi university students who are aged from 18 to 29 years (59.5% males; 40.5% female) there was a widespread symptom of depression, anxiety and stress: 76.1%, 71.5% and 70.1% mild symptoms, 62.9%, 63.6% and 58.6% moderate symptoms, 35.2%, 40.3%, and 37.7% severe symptoms and 19.7%, 27.5% and 16.5% very severe symptoms (Islam, Hossain, Tasnim, Sikder, Potenza and Os, 2020). According to Shama and Ikbali (n.d.), as university type is taken into consideration, it is seen that approximately 36% of private university students are

concerned about study gaps. In contrast, among public university students, approximately 47% are worried about the study gap, and over 78% have indicated that they consider current internet connectivity prices too high for online education. This evidence strongly suggests psychological, socio-economic, pedagogical, and academic effects supporting the previous findings. Additionally, Khan, Bashir, Basu and Uddin (2021) found that most (87.3%) of the teachers did not receive any training on online teaching. Ibid (2021) also identified that 12.7% of the teachers at the university level received some form of training, including self-initiated and institutional training during the pandemic, which once again supports the authors' view on limitations imposed by the authors on the pedagogical change due to the pandemic. Further, based on the same findings, nearly two-thirds (65.2%) had no prior online teaching experience (Ibid, 2021). Similar findings also reveal that 63.8% of the students had no prior experience remotely attending classes (Ibid, 2021). Thus, all these data are consistent with the earlier literature on negative effects on teachers and students who had little or no exposure to the newly transformed teaching and learning method. Based on the findings of Khan (2020), Abul Barkat, current President of the BEA, referred to the downward mobility of some 59.5 million households into lower/different socio-economic strata during this pandemic. Further, Ibid (2020) describe that 25.5 million people are now living in extreme poverty who were economically better off before the pandemic. It gave a significant rise in national poverty to 35 per cent in 2020 from 24.3 per cent in 2016 because of income loss, death of family members or loss of occupations during the pandemic (CPD cited via Ibid, 2020). According to Uddin (2020), even though the BEA president believes that the "very rich" class that is estimated at around 17 million, will not be affected but among all classes or categories of people, there will be a massive job loss involving the highest job losses in the following sectors: service, agriculture, and industry (Ibid, 2020). This negatively affects tertiary degree holders seeking employment in the job market. According to ADB (2020) number of job postings dropped sharply from the third week of March 2020 - just one week after the first cases of COVID-19 were traced, and a nationwide lockdown was imposed. ADB (2020) also confirmed that when the figures for job postings are compared to the last year (December 2019), the number of new job postings was approximately the same at the beginning of 2020 (January). However, it significantly declined by 10%–17% as the year proceeded (during February). Once the covid-19 infection was identified in Bangladesh, the figures for job postings experienced a sharp fall (during the first and second weeks of March, followed by the ending week in the same month) as the number of job postings was down from 59% to 24% during this time. These data strongly support the earlier views of the authors on the negative effects on graduate employment and seem consistent with the literary findings provided by the other authors. Based on the findings of Uddin (2020), e-learning had a huge negative implication as only 5.0 per cent of the households (among those who were surveyed in the rural areas) do



not have a mobile phone with multiple facilities such as zoom, video conferencing or other applications for students in these families to attend online classes, having computer/tablet was another major obstacle: 62 per cent among the surveyed households do not have access to the broadband or other reliable internet services at home. Based on the latest HIES findings cited via Ibid (2020), around 12.70 per cent of the poor or low-income households do not have a single mobile phone with multiple facilities. These support the views of the researchers about the negative effects in terms of pedagogical change and structural as well as socio-economic dimensions. According to Mohiuddin, Miah and Akter (2021), a survey that was conducted on families with university graduates found - that 43% of respondents have strongly faced pressure to pay house rent, followed by 65.9% due to unemployment, 55.6% of the students lost their part-time job, and 46.7% experienced economic hardship in paying their educational expenses. Further, they were constrained by the rising supply cost of food (48.9% agreed and 36.3% strongly agreed), 34.8% agreed on the increasing threat of losing the job of the family's main earner, and 37% agreed on the growing educational cost on tuition fee or semester fee or internet fees. All this evidence strongly indicates the negative effects of the pandemic on the socio-economic domain.

Based on Dey, Khan and Hakim (2021), per day institutional costs and students' individual higher education costs during a pandemic are USD 2.90 m and USD 5.82 m, respectively. Summing up these two costs, the total economic cost due to the pandemic became USD 8.72 m per day, including private, public, national, and open universities. These costs are higher than before when e-learning was non-existent (Ibid, 2021). Findings from World Bank (2021) suggest that the profitability of all these institutions has sharply declined during the pandemic due to a sharp fall in graduate enrollment. As per individual institutional data: the Association of Private Universities of Bangladesh data indicates that enrolment in this summer semester at the beginning of 2020 - for private universities fell by up to 88 per cent compared to the summer semester of the previous year before the pandemic. Ibid (2021) also indicated individual institutional estimations, which suggest: The number of enrolments at BGMEA University of Fashion and Technology dropped by 88 per cent (Ibid, 2021). It had 623 students in the summer of 2018, 741 in 2019 and just 82 in the last summer (Ibid, 2021). At the same time, Prime University's enrolment dipped by 77 per cent as only 76 students enrolled in the most recent summer semester, while the figure was 332 in the summer of the previous year before the pandemic (Ibid, 2021).

Further, Daffodil University enrolment fell to 1,088 students in the current summer semester, while the number was 1,760 last summer (Ibid, 2021). Precisely if one goes back to the data which is provided by Khan, Dey and Hakim (2021), it ultimately makes sense that out of the USD 8.72 million spent per day total cost of higher education – during the pandemic: per day institutional loss was USD 2.90 million and per day student loss was USD 5.82 million (Khan, Dey and Hakim,

2021). These data strongly suggest that the institutional effect due to the pandemic has been largely negative, and they occurred in the form of sharp economic loss. Finally, regarding the migratory students, the prolonged closing had a significant impact not only on the academic life of about 1.3 billion learners from schools, colleges, and universities in 185 countries (United Nations Educational Scientific and Cultural Organization, 2020a, 2020b, 2020c cited via Ela, Shohel, Shovo, Khan, Jahan, Hossain, Islam, 2021) around the world but it also affected their status of student visas and travel for education purpose. Based on Kercher and Plasa's (2020) findings, who conducted a study on international students in Germany, almost two-thirds (65%) of the universities around the globe reported that students cancelled their plans to stay abroad for educational purposes during the 2020 summer semester. Also, more than a third of the universities (29%) report cancellation of welcoming events (Ibid, 2020). Considering student mobility, the decrease of international students due to the pandemic will negatively impact overseas higher education institutions, especially in financial terms (Marginson, 2020a; Tesar, 2020 cited via Xiong, Ke Mok and Cheung, 2020). For example, UK universities would face an approximately £2.5 billion loss in tuition income from international students in the new academic year (Ibid, 2020). These data are consistent with the authors' earlier views on adverse migratory effects on international tertiary students in terms of student mobility, academic fees and residential access.

## 6. Findings from the Review

Based on the results, it was revealed that the following psychological effects took place –

- Anxiety
- Fear
- Stress and depression (low, mild, severe)
- Suicidal tendencies

These effects took place for different reasons:

- The implication of the new learning method
- Uncertainty of academic and professional career
- Risk of being infected
- The economic burden to adjust with increased expenses
- Social distancing and isolation.

Further following institutional effects were observed:

- Monetary loss for educational institutions due to the reduced number of enrolments
- Increased operational expenditures leading to job loss of many teachers and staff
- Structural limitations, especially in rural areas, to adapt the new teaching method (lack of infrastructural facilities to set up or deliver the broadband service)

- Heavy reliance on government funding
- Lack of device accessibility and poor quality (e.g. internet speed)
- Cancellation of semesters, academic programs and entrance exams.

Following pedagogical effects were found:

- Change in the teaching method and implication of e-learning
- Little or no training to adjust to the new pedagogical method
- Stress (psychological effects) seems to be associated with pedagogical effects due to changing class hours
- Lack of instructional objective
- Lack of digital literacy both for teachers and students
- Increased operational expenditures related to the new e-learning implication (as institutional effects and pedagogical effects also seem to be associated with each other)
- Difficulties in assessment and monitoring of teachers
- Difficulties in communicating with students.

Following socio-economic effects were identified:

- Reduced income and increased expenditure leading a fall in living standards for graduate families relying on formal jobs
- Reduced income and increased expenditure leading a fall in living standards for graduate families relying on self-employment (small business owners or entrepreneurship)
- Job loss (Part-time/full-time) for students (current and old graduates) themselves
- The death of the household head or a primary earning member of the family leads to possible funding constraints for future graduate prospects
- Downward mobility within the social class for many graduate families
- Lack of affordability to access the tools of e-learning for graduate families who live in rural areas (as socio-economic effects and pedagogical effects seem to be associated within this current context)
- Loss of interest in higher education
- Increased poverty among the graduates with low-middle income families.

Following labour market effects were noticed by the authors:

- Obstacles in seeking employment for fresh graduates
- Change in skill requirements for jobs based on digital platform
- Reduced number of supply of vacancies/elimination of job positions in high-skilled industries
- Reduced number of job posting
- Changing nature of work environment (working from home).

Following migratory effects were found for students pursuing tertiary degrees abroad:

- Lack of student mobility due to cancellation of the plan to study abroad
- Cancellation of semesters, academic programs, welcoming events and

other activities by the institutions

- Increased living expenditure for international students
- Imposed restriction on travel for international students
- Imposed restriction on visas for international students.

The author observed the following academic effects:

- Study gaps or academic delays and uncertainty of institutional re-opening lead to the possibility of a higher opportunity cost for periods which are spent on education compared to the relatively possible lower future return from the labour market
- Discouragement for students to continue higher education (possibility of dropout or discontinuation)
- Obsolete knowledge from previous learning.

## 7. Answer to the Research Question

Tentative Hypothesis—

Conventional: Covid-19 pandemic effects on the tertiary education sector of Bangladesh cannot be categorised in the following forms: Psychological status of individual graduates, Institutional structures, Pedagogical methods, Socio-economic class, Labour market conditions, Mobility of international students, Loss in academic levels in terms of the time value of education.

Alternative: Covid-19 pandemic effects on the tertiary education sector of Bangladesh can be categorised in the following forms: Psychological status of individual graduates, Institutional structures, Pedagogical methods, Socio-economic class, Labour market conditions, Mobility of international students, Loss in academic levels in terms of the time value of education.

## 8. Recommendations

The authors believe the study is incomplete without primary research because there can be a far difference between theoretical implications and reality. However, whatever the reality is, it is an emergency to take remedial measures as soon as possible to overcome the seriously damaging effects impacting the tertiary education sector. Ela, Shohel, Shovo, Khan, Jahan, Hossain and Islam (2021); Dutta and Smita (2020); Mahmud, Kabir and Dasgupta (2021); Kusmaryono, Jupriyanto and Kusumaningsih (2020); Mamun, Mamun, Hosen, Hasan, Rahman, Jubayar, Maliha, Abdullah, Sarker, Kabir, Jyoti, Kaggwa and Sikder (2021); Müller, Goh, Lim and Gao (2021) and many other authors who worked on the same issue strongly agree with the researchers and prescribed policy measures at different level on different dimensions of the topic. According to the researchers -

The government should set up a counselling department in almost every university to consult with the graduates to overcome their psychological fear, anxiety, stress or depression. Families, relatives and friends of the graduates

should be advised to encourage the students to attend the counselling. Mamun, Mamun, Hosen, Hasan, Rahman, Jubayar, Maliha, Abdullah, Sarker, Kabir, Jyoti, Kaggwa and Sikder (2021) suggest taking mental health initiatives at all level for the graduates throughout the country that supports the view of the authors.

It is necessary to re-evaluate the implication of e-learning on several spectrums: Cost, Convenience of the clients from all income classes, Accessibility for all institutions from both urban and rural perspectives, Infrastructure, Device and other digital literacy, Training on instructional objectives, Attempts to reduce mental stress arising from e-learning teaching environment and Subsidising feasible distance learning program for private institutions. Evidence from UNICEF (2021) on the case study that was conducted on the whole education process of Bangladesh during the pandemic also suggests evaluating distance learning as an alternative tool to the physical form of education that should be used not only at the tertiary level but also at the primary and secondary level of education. Evidence from Brac (2020) suggests taking special care of the rural madrasa students or students with disabilities equally to adapt to the new teaching process. Müller, Goh, Lim and Gao (2021) prescribe mixing physical interaction with the e-learning process, whereas Kusmaryono, Jupriyanto, and Kusumaningsih (2021) suggest recording lesson presentation sessions and class discussions and then sharing them with the students who are unable to join the live session to make e-learning process more effective. However, none of these authors provides any guide on the implications of e-learning training. Finally, Dhawan (2020) mentioned that IT infrastructure development is a prior condition to continue with the e-learning process, and it is similar to the researcher's recommendation. Although Baltaci-Goktalay and Ocak (2006) contributed to the field of e-learning before this pandemic began, they improvised the ideas of full adoption of the faculty members and educators to educators make the e-learning process successful. Ibid (2006) believe organised vision, proper planning, and mass-level financing are required to launch e-learning initiatives at a more significant level. The concerns of the educators and faculty members should be acknowledged to support them in delivering effective teaching.

Additionally, Miah, Kabir and Sultana (2020) focused on the behavioural orientation of the educators, whereas Dhawan (2020) emphasised the need for digital literacy. All this evidence strongly supports the author's suggestion to implement an entire course of training programs on e-learning for both educators and learners. Finally, Dey, Hakim and Khan (2021) suggested initiating online training for the teachers, forming a central video-streaming channel including a free downloading option, ensuring free internet connection and an environment for teachers and students that fully supports the policy measures that the current authors recommend. The researchers also believe that maintaining an optimum class size for e-learning sessions is equally effective as physical classes. Evidence from Dey, Hakim and Khan (2021) also supports this view.

Government must provide equal benefits and access to funds for private and public universities to overcome the institutional effects. Suggestions from the World

Bank (2020), which emphasise financing based on effectiveness and utilising scarce resources to improve the quality of weak institutions, make complete sense and duly support the researchers' idea. Dey, Khan and Hakim (2021) prescribed planned finance to help the students, teachers, and educationists, and Ibid (2021) also reinforced the role of government in Bangladesh in reducing the educational loss.

Providing easy access to bank loans to graduates with families in financial trouble due to loss of income, occupation, formal jobs, or prior death of any earning family members could be a great solution to the problem of downward socio-economic mobility because of this deadly pandemic. Evidence from Begum, Alam, Hossain and Islam (2020) supports this view of the authors, who believe both public universities and government should provide financial subsidies to students who are in an adverse financial situation due to the pandemic. At the same time, it is necessary to provide learning tools and other digital kits (devices such as laptops, mobile phones with multiple applications such as zoom, what is the app, video conferencing, messengers) free of cost to students from families with less affordability, especially those who live in rural areas and do not have to access to high-speed internet to promote equal access to e-learning.

The academic gap is a serious problem and causes a higher dropout rate. To reduce absenteeism and lack of participation in the new learning process, universities must ensure at least one weekly physical meeting between the teachers and the students. At the same time, universities can re-start their mandatory physical programs such as admission tests and course orientation at small units to inspect the daily infection rates by adopting the required safety protocols. It will also help minimise the impact of confusion and uncertainty among the students. There must be a threshold level of attendance from both participants and organisers. Evidence from Aziz, Uzzal and Aziz (2020) supports this view.

Universities should design 'Digital career planning' related courses, counselling policies to promote a digital career, and training programs to enhance the digital literacies and skills among the fresh graduates. The government should also invest additional funds in training and vocational courses alongside regular education to improve the level of digital skills among the young graduates to compete in the labour market.

Finally, there should be initiatives from the government through different formal and informal channels located in foreign countries to comfort the home-bound students and take necessary actions to remove any obstacles in fluent mobility of education/living expenditure-related funds or visa restrictions. Students may consider alternate destinations instead of regular choices with more flexible international education policies during the crunch time.

The researchers wish to collect primary data to soon test these effects' categorisation.

### ***Bibliography***

- Advocacy for Social Change (ASC), Brac. "A rapid assessment Impact of COVID-19 on Education in Bangladesh". BRAC Education Programme (BEP) (2020).
- Akter, Sonia. "Covid-19 and Bangladesh: Threat of unemployment in the economy". North American Academic Research 3.8 (2020): 79-104.
- Alam, Khairul, Muhammad, et al. "Assessing the mental health condition of home-confined university-level students of Bangladesh due to the COVID-19 pandemic." *Journal of Public Health: From Theory to Practice* (2021).
- Al-Amin, Md, et al. "Status of tertiary level online class in Bangladesh: students' response on preparedness, participation and classroom activities." *heliyon* 7.1, E05943 (2021).
- Al-Ateeq, Deemah A., Sumayah AlEesa., & Dalal Aljhani. "Perceived stress among students in virtual classrooms during the COVID-19 outbreak in KSA." *Journal of Taibah University Medical Sciences* 15.5 (2020): 398-403.
- Ali, Mohammad, Khaled, S. M. Hossain., & Tania Ahmed. "Effectiveness of E-learning for university students: evidence from Bangladesh." *Asian Journal of Empirical Research* 8.10 (2018): 352-360.
- Aziz, Shakila, Kazi, Md. Mohsin., & Saqiba Aziz. "COVID-19 and university admission exams: A Bangladesh perspective." *Journal of Public Health Research* 9.s(1):2017 (2020): 75-83.
- Baltaci-Goktalay, Sehnaz Mehmet., & Akif Ocak. "Faculty Adoption of Online Technology in Higher Education." *The Turkish Online Journal of Educational Technology* 5 Article V.4 (2006).
- Bank, World. "The Covid19 Pandemic: Shocks to Education and Policy Responses." (2020).
- . "The Impact of the Covid-19 on Education Financing." (2020).
- Barbour, K., Michael. "Learning Styles: A Focus upon E-Learning Practices and Pedagogy and their Implications for Designing E-Learning for Secondary School Students." *ResearchGate* ISSN 1823-1144 (2005).
- Barua, Anika. "The impact of COVID-19 Pandemic: Education sector of Bangladesh". (n.d.).
- Begum, Farhana, et al. "Combating the impact of COVID- 19 on Public University Students through Subsidised Online Class: Evidence from Bangladesh." *Journal of Education and Practice* 11.27 (2020).
- Burney, Aqil, S., M., & Saleem Hussain. "Inductive and Deductive Research Approach ." Lecture delivered on 06-03-2008 at Auditorium of Faculty of Arts and Science, University of Karachi, Karachi, Pakistan (n.d.).
- Demiray, Ugur, et al. "Cases on Challenges facing E-Learning and National Development: Institutional Studies and Practices." *E-Learning Practices* Vol:11 1 (n.d.).



- Dey, Sajib, Gias, Uddin, Md. Khan., & Mahbubul, Md. Hakim. "Relevance to the introduction of eLearning on Higher Education of Bangladesh: An experience from the educational cost of COVID-19". Preprints.social science 2021050565 (doi: 10.20944/preprints202105.0565.v1) (n.d.).
- Dhawan, Shivangi. "Online Learning: A Panacea in the Time of COVID-19 Crisis". *Journal of Educational Technology Systems* 49.1 (2020): 5-22.
- Education, Mahatma Gandhi National Council of Rural. "Pedagogic Techniques & Teaching and Learning Methods." Department of Higher Education, India (n.d.).
- Ela, Zaman, Mahfuza, et al. "Prolonged lockdown and academic uncertainties in Bangladesh: A qualitative investigation during the COVID-19 pandemic." *Heliyon* 7.2 (2021).
- Emon, Haque, Khairul, Efta, Shahanul, M Islam., & Rahman, Ashrafur Alif. "Impact of COVID-19 on the Institutional Education System and its Associated Students in Bangladesh." *Asian Journal of Education and Social Studies* 11.2 (2020): 34-46.
- Emon, Haque, Khairul, Efta Rahman, Ashrafur Islam., & Shahanul, M. Alif. "Impact of COVID-19 on the Institutional Education System and its Associated Students in Bangladesh." *Asian Journal of Education and Social Studies* 11, Article no.AJESS.61036.2 (2020): 34-46.
- Farhana, Zeba., & Sanjida, Akter Tanni. "Secondary Education During Lockdown Situation Due to Covid-19 Pandemic in Bangladesh: Teachers' Response on Online Classes." *Journal of Education and Practice* 11.20 (n.d.).
- Hayashi, Ryotaro., & Matsuda Norihiko. "COVID-19 Impact on Job Postings: Real-Time Assessment Using Bangladesh and Sri Lanka Online Job Portals." ADB No.135 (2020).
- Hoque, Enamul. Md. "Teaching Approaches, Methods, and Techniques." (n.d.).
- Hossain, Jamal, Md., et al. "Impact of online education on fear of academic delay and psychological distress among university students following one year of COVID-19 outbreak in Bangladesh." *Heliyon* 7.6, E07388 (2021).
- Islam, Akhtarul, Md., Dey, Sutapa Barna., Alam, Nafiul., & Md. Khan. "Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh: A web-based cross-sectional survey." *Plos One* 15.8: e0238162. (n.d.).
- Islam, Saiful, Md., et al. "Psychological responses during the COVID-19 outbreak among university students in Bangladesh." *Plos One* 15.12: e0245083 (2020).
- Kercher, Jan., & Plasa, Tim. "COVID-19 and the impact on international student mobility in Germany." DAAD working paper (2020).
- Khan, Rubina; Basu, Lal, Bijoy; Bashir, Ahnmed; Uddin, Elias, Md." *The Electronic Journal for English as a Second Language* 25.1 (2021).
- Khan, Abid, Hasan, et al. "The impact of COVID-19 pandemic on mental health & wellbeing among home-quarantined Bangladeshi students: A cross-sectional pilot study." *Journal of Affective Disorders* 277.2020 (n.d.): 121-128.



- sKhan, Rahman., & Mahfuzur Md. "Covid-19's Impact on Fresh Graduate's Job Market in Bangladesh: An Observational Study." *Journal of Business and Management Studies (JBMS)* 1.2 (2020): 40-48.
- Kituyi, Geoffrey., & Tusubira, Irene. "A framework for the integration of e-learning in higher education institutions in developing countries." *International Journal of Education and Development using Information and Communication Technology* 9.2 (2013): 19-36.
- Kusmaryono, Imam.,Widya Jupriyanto., & Kusumaningsih. "A Systematic Literature Review on the Effectiveness of Distance Learning: Problems, Opportunities, Challenges, and Predictions." *International Journal of Education* 14.1 (2021): pp. 62-69.
- Lee, S., Everett. "A Theory of Migration." *Demography* 3.1 (1966): 44-57.
- Mahmud, Asif, Rafia, Kazi Kabir., & Aditya Dasgupta. "Current Status about Covid-19 Impacts on Online Education System: A Review in Bangladesh." *researchgate* (2021).
- Mamun, Mohammed A, et al. "Suicidality in Bangladeshi Young Adults During the COVID-19 Pandemic: The Role of Behavioral Factors, COVID-19 Risk and Fear, and Mental Health Problems." *Risk Management and Healthcare Policy* 14.4051 (2021): 4051-4061.
- Mannan, Abdul., Kazi, Faruq., Omar Chowdhury.,Mursheda, Khandakar., & Farhana. "The COVID-19 Pandemic Impacts on Manpower Export: An Econometric Analysis of Survival Strategies of Recruiting Agencies in Bangladesh." *The Cost and Management* 48.03 (2020).
- Miah, Shamim., A. S. M., Rasel., Md. Kabir., & Sarmin Sultana. "E-Learning in Bangladesh: A Study of Teacher's Behavioral Orientation and Affective Alignment in the Post-New Normal". *Contemporary Research in Education and English Language Teaching* 2.1 (2020): 16-35.
- Minhaj Mahmud, Tahreen Tahrima Chowdhury, Ahmed Adib, Ziauddin M. Nasrullah, Md. Taimoor Ibn Bashir., & Raisul Akram. "Tracer Study on Graduates of Tertiary-Level Colleges." (2021).
- Mohiuddin, Anira, Kader, Abdul, Md. Miah., & Mahmuda Akter. "Impact of the COVID-19 among University Students in Bangladesh: An Analysis." *AIJR Preprints* 1.306 (2021).
- Müller, Andre., Matthias Charlene., & Gao, Xiaoli Goh. "COVID-19 Emergency eLearning and Beyond: Experiences and Perspectives of University Educators." *Education Sciences (MDPI)* 11.1 (2021): 19.
- Nassaji, Hossein. "Qualitative and descriptive research: Data type versus data analysis." *Language Teaching Research* 19.2 (2015): 129-132.
- Nightingale, Alison. "A guide to systematic literature reviews." 27.9 (2009): 381-384. Press, Cambridge University. "Direct Observation ". (n. d.).
- Rahman, Tashmina., & Sharma, Uttam. "A Simulation of Covid-19: School Closure Impact on Student Learning in Bangladesh." (2021).

- Shahriar, Bin, Huq, Shamsul, et al. "The transformation of education during the corona pandemic: Exploring the perspective of the private university students in Bangladesh." *Asian Association of Open Universities Journal* 16.2 (n.d.): 161-176.
- Shama, Shafia., & Javed Iqbal. "A feasibility study of online classes in Bangladesh to counteract potential study gaps caused by COVID-19 related lockdowns." (n.d.).
- Shyam Sundar Sarkar, Pranta Das, Mohammad Mahbubur Rahman., & M S Zobaer. "Perceptions of Public University Students towards Online Classes During COVID-19 Pandemic in Bangladesh." (2021).
- Sushmita Dutta., & Marzia Khatun Smita. "The Impact of COVID-19 Pandemic on Tertiary Education in Bangladesh: Students' Perspectives". *Scientific Research Publishing* 8.9 (2020): 53-68.
- Tabassum, Asma, Shakil, Md. Ahmed and Nusrat Jahan. "Challenges and Prospects of Youth Employment in the Post-COVID Scenario". *Brac Institute of Governance and Development* (2021).
- UNICEF. "Bangladesh Case Study: Situation Analysis on the Effects of and Responses to Covid- 19 on the Education Sector in Asia." (2021).
- Xiong, Weiyan, et al. "Impact of COVID-19 Pandemic on International Higher Education and Student Mobility: Student Perspectives from Mainland China and Hong Kong." *ResearchGate* (2020).
- Zheng, Guang-Wen, Mohammad Masukujjaman and Abu Bakkar Siddik. "Attitudes and Effects of the COVID-19 Pandemic on University Students in Bangladesh." *Revista Argentina de Clinica Psicologica* 29.05 (2020): 1836-1847.