

Hybrid Learning in Bangladeshi Higher Education: Does Adaptation Matter during COVID-19?

Anas Al Masud^{*}
Sabrina Hussain^{**}
Meherin Ahmed Roza^{***}

Abstract

After eighteen months of maintaining precautions due to COVID-19, universities began to open with the guidance from the Ministry of Education (MoE) and the University Grants Commission (UGC). The study endeavored to examine the adaptability of Hybrid learning in Bangladeshi higher education during COVID-19. The study followed mixed method to accomplish the study where data were collected through questionnaire survey, semi-structured interview, and content analysis of various literatures. The findings of the study show that university authorities have focused on the physical setting of the classroom and the conventional education system instead of focusing on learning. Additionally, resources were invested in e-learning during the pandemic were shut down after universities opened. The study reveals that due to the absence of adequate spaces for maintaining social distances, students and teachers are hardly able to maintain social distancing in the campus. Moreover, administrative authorities are unable to force students to maintain precautions and have lack of realization of the use of online resources adjoining available offline courses. Furthermore, the study suggests that adopting a hybrid learning mechanism will be effective if universities can set a strong institutional framework for managing all the e-resources properly. In addition, the adaptation of strong institutional framework will be beneficial for improving quality in education in post COVID context.

Key words: Hybrid Learning, Higher Education, Adaptation, COVID-19, Bangladesh.

^{*} MSS, 2nd Semester, Department of Public Administration, Bangladesh University of Professionals (BUP), email: 18161004@student.bup.edu.bd

^{**} MSS, 2nd Semester, Department of Public Administration, Bangladesh University of Professionals (BUP), email: 18161034@student.bup.edu.bd

^{***} BSS, 8th Semester, 4th Year, Department of Public Administration, Bangladesh University of Professionals (BUP), email: 19161006@student.bup.edu.bd

Introduction

'Hybrid learning' concept refers to a setting of both face-to-face and online education where typically a substantial proportion (30%-79%) of course content will be delivered online integrated with a reduced number of in-class meetings (Allen and Seaman, 2016). This form of education does not replace the traditional face-to-face setting but it creates a combination of both for more effective learning spaces (Singh et al., 2021). The use of computers and the internet in higher education has increased significantly in recent years as a result of the growth of information and communication technology. Thus, a worldwide trend has emerged in higher education (Buzzetto-More and Guy, 2006). E-learning is gaining wide acceptance as many universities have implemented online courses, and many others are experimenting with them (Rosbottom, 2001). A variety of variables, such as the availability and adoption of new technology, a changing student body, a greater emphasis on lifelong learning in society, and rising educational requirements for professional licensure and career progression, all contribute to the popularity of online learning (Miller and King, 2003).

Additionally, the ability of internet-based education to promote learning by increasing student ownership of their education and creating a more personalized environment to meet their varied needs and learning preferences has contributed to the field's explosive expansion (Howland et al., 2003). Hybrid learning provides an evolutionary approach to online learning by giving some of the learning in the traditional classroom style, allowing students to continue to use the familiar classroom structure. It is critical to provide proper orientation to pupils regarding this new learning method (Garnham, 2002). As the COVID-19 pandemic has pushed educational institutions to closure and move towards an online-based education, the whole world has adapted different forms of online platforms for conducting online classes, note scanning and sharing, thus overall education. Bangladesh did the same after the first case of Covid-19 patient being detected on March 8, 2020 (Islam et al., 2020).

The Government of Bangladesh (GoB) imposed closure of all educational institutions considering the risks of the pandemic and the University Grants Commission (UGC) allowed all the public and private universities to take online classes (Alamgir, 2020). But now, as the country is gradually reopening all of its educational institutions, the dubiety of shifting completely to the traditional form of education or adapting to hybrid learning is growing. This study therefore focuses on examining the adaptability of Hybrid learning in Bangladesh higher education after Covid-19.

Statement of the problem

Before pandemic the education system in Bangladesh followed the traditional method of learning. There are more than 50 public universities and 100 private universities in Bangladesh that followed the conventional methods of learning including face-to-face classes and offline exams (Saha et al., 2021). Covid-19 has significant impact on education system especially the higher education across the world including Bangladesh. During the Pandemic period, higher education followed the e-learning platforms for conducting classes and education to cope up with the situation. For a long time, Bangladesh has faced a foreseen situation under which higher education sector from both private and public started accepting the transition and shifted to online teaching learning on a full-time basis (Ravi et al., 2021). Initially the government and university authorities arranged training, seminars and several sessions on the online learning tools and its usage (Nurovic and Poturak, 2021). However, after becoming the situation comparatively under control, the universities has gone back to its traditional learning method leaving behind the e-learning method fully. Currently, higher educational institutions are providing fully offline education despite having the capacity to use online educational tools along with the traditional method. Moreover, in many cases university authorities are facing difficulties in maintaining the COVID-19 protocols and social distancing (Anwar et al., 2020). Furthermore, in the worldwide after getting the technology enhanced education system accepted, higher education in Bangladesh is facing constraints due to inefficiency, network problem issues and change resistance mindsets (Chowdhury and Behak, 2022). Ethical ground is also become a matter of concern that originated contention regarding adaptation of online learning method apart from the offline teaching learning (Chowdhury and Hossain, 2022).

Literature Review

Hybrid Learning in Bangladesh

The education system of the whole world faced a great crisis with the spread of coronavirus and most governments instructed educational institutions to discontinue offering regular classes and convert to online setting instead (Daniel, 2020). Bangladesh adapted online education for the same reason and initially the system had undergone challenging circumstances in adapting the newly introduced system as the FY21 allocation of budget did not sufficiently cover the required expenditure (Uddin, 2020). Majority of the teachers involved in this process are motivated to continue the use of online resources even after the pandemic. But there are some who might shift to traditional resources and not use online resources anymore (Shrestha, 2021). In order to help

Bangladesh advance in the global higher education arena, the UGC developed the blended learning policy on February 27, 2022, combining online and onsite teaching techniques. Experts were involved in this development. The adoption of blended learning in higher education was mandated by the Bangladesh University Grants Commission (UGC) in order to adapt to new challenges and improve the teaching style in universities (UGC, 2021).

COVID 19 & Higher Education in Bangladesh

Kabir (2021) assessed e-learning readiness among university students in Bangladesh. They attempted to find independent predictors of e-learning readiness, and the result of their study showed that perceived stress score and readiness score are opposite to each other. According to the results from their work, there were many issues behind the lower mean score of e-learning readiness, for example, factors such as age, gender, devices used, preference of students, eye sight problems, and so on.

Shohel (2021) studied the teaching and learning of Bangladeshi public and private higher education institutions during the Covid-19 lockdown. This study highlighted both teachers' and students' perspectives regarding students' future preparedness in case the landscape of higher education changes fully and becomes a technology enhanced one.

Sarkar (2021) explored perceptions of the public university students towards online classes during Covid-19 pandemic in Bangladesh. The findings indicated that the majority of students had trouble participating in online classrooms and had trouble properly communicating with their friends. As a result, they encountered difficulties while attending online classes, and the majority of students preferred traditional learning methods to virtual classrooms and found it difficult to comprehend the material of virtual lectures. The survey also looked into how uncomfortable most students felt taking lessons online. Even so, they made the choice to stay enrolled in online classes to finish their education in light of the current pandemic circumstances. Additionally, the survey found that urban students have a higher level of positive appreciation than rural students and that female students had a better opinion of online classes than male students. Moreover, desktop or laptop users had more favorable attitudes about online learning than mobile users. Additionally, consumers of broadband and WiFi had higher favorable opinions than users of mobile networks.

Dutta and Smita (2020) utilized a qualitative research approach to examine the impact of the COVID-19 epidemic on higher education in Bangladesh from the viewpoints of the students. Fifty college students participated in their semi-structured interviews. Data analysis was done using thematic analysis. This study revealed a number of previously

unheard-of disturbances in students' learning, a decline in motivation and study time, and other physical, mental, and financial issues related to academic pursuits. The study's results about online education, such as the lack of electronic gadgets, restricted internet access, high cost, slow speed, and challenges in using online platforms, also offered helpful insights into the state of online tertiary education in Bangladesh during Covid-19.

Al-amin et al., (2021) conducted a study where the majority of tertiary level students had taken online classes from cities, but they had been dissatisfied with the way those lessons were graded and had trouble understanding technical topics. However, many respondents believed that blended learning will benefit slow learners, foster digital literacy, and reduce the number of hours spent in traditional classes even though overall learning would improve.

Ullah, Biswas and Miah (2022) focused on institutional support as it was critical during the time of Covid-19 online education to address the huge academic gap that had emerged for the absence of physical academic practice. The goal of their study was examining institutional support for online learning in Bangladesh during the COVID-19 pandemic. The results of the study show that while some universities in Bangladesh have offered mediocre support for ongoing online education, others have only recently begun offering online courses. Numerous issues have been identified, including a lack of software specifically designed for doing online academic tasks, a lack of mentoring, training, and grooming, slow internet connectivity, a shortage of smartphones, excessive internet package costs, and more.

Hybrid Learning Adaptation in Higher Education in Bangladesh

On March 26, 2020, all Higher Education Institutions (HEI) in Bangladesh were shut down completely, which forced all relevant parties—including the Ministry of Education, school administrators, parents, and other groups—to switch to online learning. Teachers and students have faced a variety of difficulties as a result of the HEIs in Bangladesh having very little, and in some cases no, experience performing teaching and learning entirely online (Khan and Abdou, 2021). The considerably increasing reliance on online/digital technologies to deliver courses and programs is one result of the pandemic crisis for higher education. Critics claim that education delivered through online technology expanded the ‘diploma disease’ crisis and this may jeopardize the profitability of producing HE graduates. It has been hypothesized that this can lead to serious long-term issues from which a person may never fully recover. Comparing pre-pandemic students to their post-pandemic peers, pre-pandemic students

performed poorly academically. On the other hand, pre-pandemic graduates scored better in terms of ability and practical aspects of work preparedness (Alam 2021). A new norm for effective learning at the tertiary level may be the combination of traditional and online learning. However, researchers and educators need to develop a broadly applicable policy framework to ensure the success of this system. In addition to providing loans or subsidies to students so they can purchase the devices they need for their education. The government should ensure that there are 4G/5G network facilities available in every corner of the nation. A better teaching-learning environment can be achieved by providing both teachers and students with the proper training. If hybrid learning is considered, it will also benefit both teachers and students (Al-amin et al., 2021)

Research Methodology

Study Design and Research Approach

The study endeavours to follow to mixed approach to accomplish the task. The study followed the survey method under the mixed approach for descriptive analysis. While applying a mixed approach, the study used both open-ended and close-ended questions, nominal and a five-point Likert scale for the online survey. For getting a clear scenario, the study has chosen both teachers and students from both public and private university geographically located in both rural and urban areas in Bangladesh.

Research Method

The study conducted social survey among students for acquainting the students' perspective and on the contrary, in depth interview has been conducted for perceiving the perspective of teachers.

Study Area and Sampling

The study followed purposive sampling where it has chosen the students and teachers from private and public universities among which 300 respondents were students and other 100 respondents were teachers. The students were taken for online survey with open-ended and close-ended questions and the teachers were taken for in semi structured interview. Both the online survey and in-depth interview were conducted.

Data Collection and Data Analysis Techniques

The study has been conducted by collecting data from both primary and secondary sources where the primary data has been collected from both teachers and the students and secondary data has been collected from different books, journals, newspaper and peer reviewed articles. Further, the study used Microsoft Office 365 for analysing data and the collected data analysed through following mean technique.

Ethical Consideration of the Study

In the study, the validity and reliability has been conducted to assess how adequately the study has been conveyed. From designing the study, specifying the respondents to writing up to the results under qualitative approach data were checked through cross-verification by taking reviews from academicians and experts from the subject matter and by using different sources.

Results and Findings

Socio-demographic results of study

The study comprised of both qualitative and quantitative data covering the perspective from complementary sides; the teachers and the students- defining whether hybrid learning matters or not. In the In-depth-Interview the participants ranged from 25 to 69 years with a mean age of 47 and approximately (55%) were male and (45%) were female. In the social survey- the results covered the responses by the students. The sample comprised of 250 responses ranged in between 19 to 25 years with a mean age of 22.37. Responses (47.2%) found in the survey were male and (52.8%) rest were female. (88%) of the responders came of the urban area whereas, only a (12%) covered the rural area. Most of the responders (81.1%) in the survey were the students at different public universities whereas, (18.9%) came of the private ones.

Responses by academicians on the availability of resources

Queries	Categories	Percentage (%)	Cumulative Percentage (%)
Availability of learning management system in perspective university	Yes	100%	100%
If Yes, Specify	Google Classroom	33.33%	33.33%
	LMS	41.67%	74.99%
	bux	25%	100%
Availability of online assessment platform (formative & summative)	Yes	99%	99%
	No Idea	1%	100%
E-learning embedded in classroom activities	Yes	67%	67%
	No Comment	33%	100%

Through several Semi-Structured-Interview sessions availability of university learning management system was found in common all times. Dedicated LMS- Learning Management System tracked at the frequent used platform whereas, they also tend to use the Google classroom.

Hybrid Learning in Bangladeshi Higher Education

However, those interview sessions also discovered about a rise in the usage of bux among the private universities mostly. In most cases, university authorities were also advocated as prepared for the 21st century challenges in the higher education sector. In almost every case the respondents responded positively against the query about availability of online assessment platform. Though a total of 33% participants were refrained from participating the session about E-learning embedded activities; a high percentage (67%) of responders responded positively. A positive thrust indeed.

COVID 19 Higher Education in Bangladesh

In the in-depth interview sessions, several academic researchers and experts were asked against structured questionnaires to learn about their perception on hybrid education. Basically, hybrid learning is where students learn through a mix of in person and online activities. A participant in the interview session told that,

Well, during disaster or pandemic like Corona, it's (Hybrid Learning) much useful. It helps to adjust teaching styles based on the current situation like taking the extra or rescheduled class or any review class online if there is any road blockades or transport problem. Students also can enjoy the flexibility and research at their own pace, benefits of both online pedagogy and traditional academic life indeed.

However, another respondent claimed in reverse that,

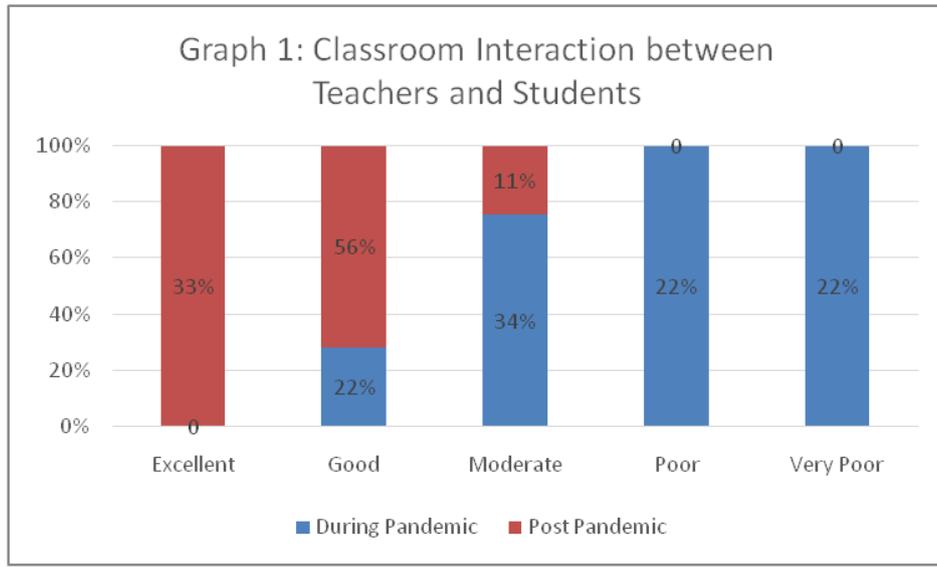
Hybrid learning is not applicable at all. In the context of Bangladesh, there's no positive pedagogical aspects. It reduces traffic jam, but it has nothing to do with quality education.

However, upon questioning the participants about their preference for university students during COVID-19. A percentage of almost 89% responded positively in favor of the hybrid learning method. Mostly responses were noted covering with the logic of health restrictions and lockdown protocols. Whereas rest 11% respond negatively with a logic of the contextual, poor internet network connectivity and socio-economic backdrop of Bangladesh.

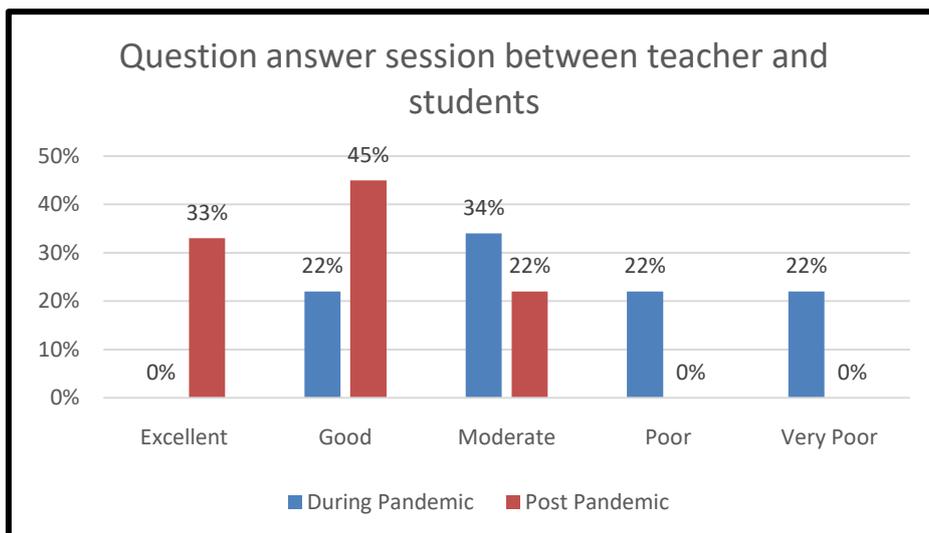
Analyzing the Post pandemic Higher Education in Bangladesh

Ranges of classroom interaction between teachers and students have been traced from the experiences of the responders of the in-depth interview session. 33% faculties agreed that the traditional in person learning method provides excellent opportunity for the interaction which remained null in the pandemic. However, the responders also observed that only a 34% supported moderate ranged interaction was accessible in pandemic. 22% faculties responded that good interaction was ever level between

students and teachers during the pandemic which they think 56% in post pandemic traditional methods. Rest 44% faculty combinedly ranked the pandemic interaction in a percentage of 22% each in the poor and very poor category.



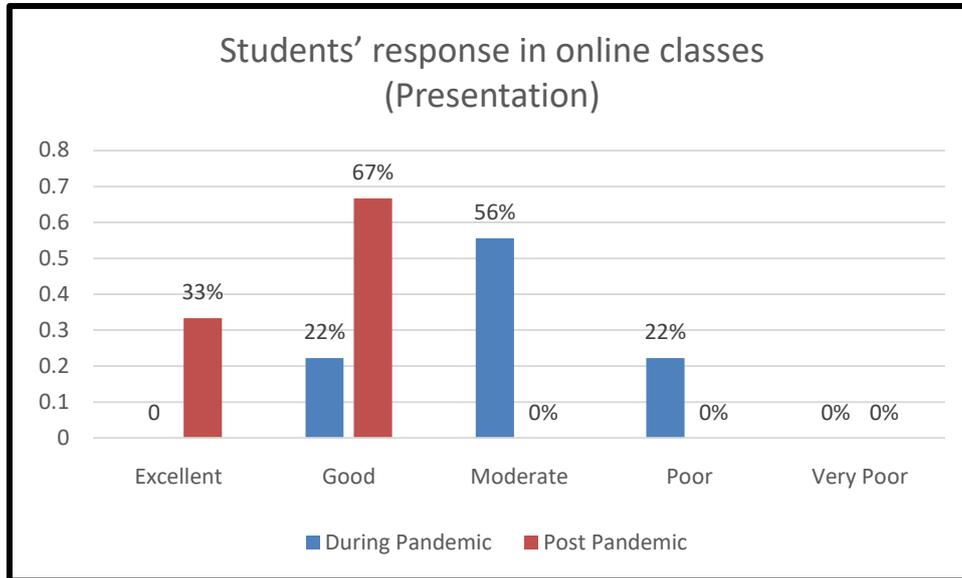
A high range of (45%) faculties responded that, “Good” question answer session standard is met during the post pandemic where it was half of the traditional one -just a 22% in the online bound e-learning platforms. Other responses also dedicate about the struggling rates of Student teacher interactions performed at the question answer sessions. Quite as much as good standard, a (44%) responses have been tracked in the IDI sessions representing poor and very poor range of 22% each.



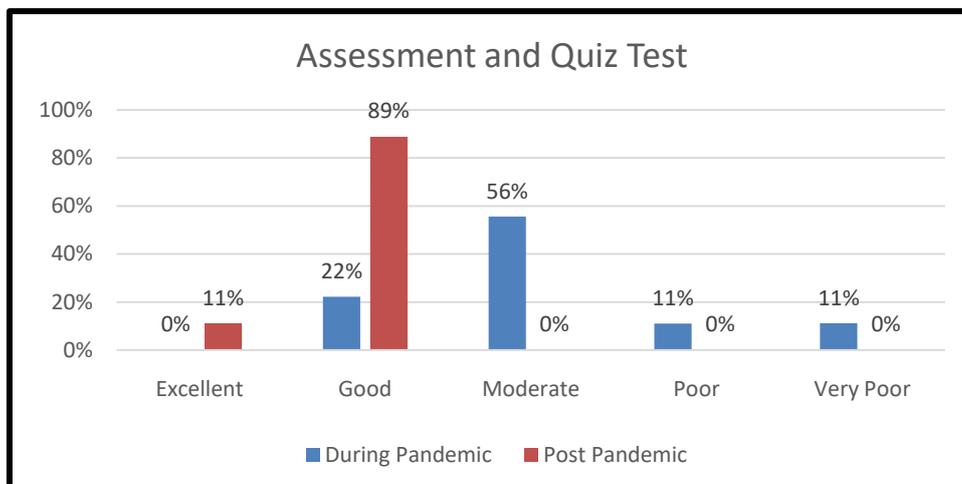
The semi-structured interview sessions dedicated that excellent presentation by the students was acutely absent during the pandemic session, which in general satisfies 33% faculties. The range of good category presentation also fall by almost 3 times- from 67% in the

Hybrid Learning in Bangladeshi Higher Education

traditional to 22% only. Professors (56%) also said that students mostly participated in the moderate category during pandemic and (22%) responses reported those presentations as poor category indeed. These responses direct the fall of presentation skills among the university students for sure.

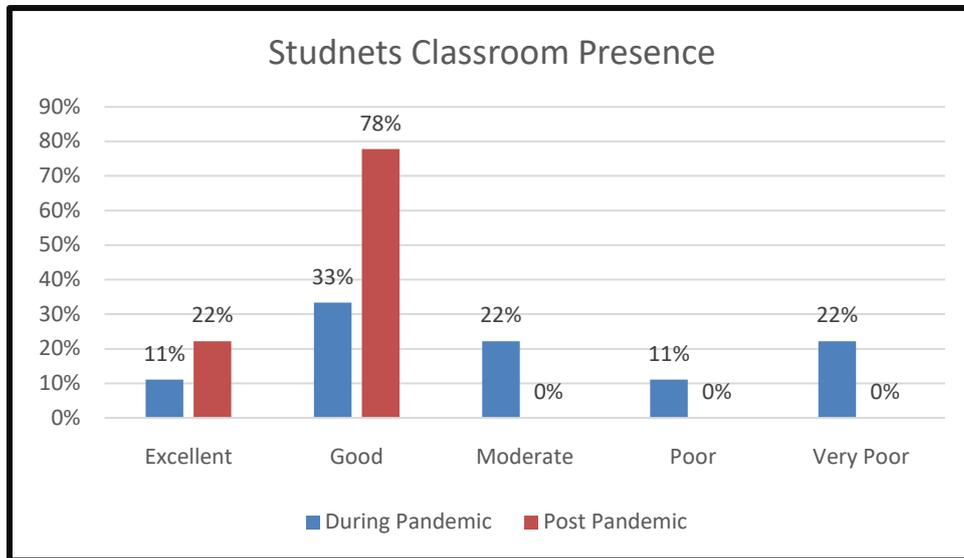


Ranges of classroom response between teachers and students in the category of "Assessment and Quiz test" has been traced from the experiences of the responders of the in-depth interview session too. 89% faculties agreed that the traditional in person learning method provides excellent opportunity for response in the tests too, thus- it remained just 22% in the pandemic- 4times less than that of post pandemic/traditional method. However, the responders (56%) also observed that only a moderate ranged performance prevailed during pandemic. Combined rest 22% faculties though grouped the test performance of the students in the poor and very poor category.

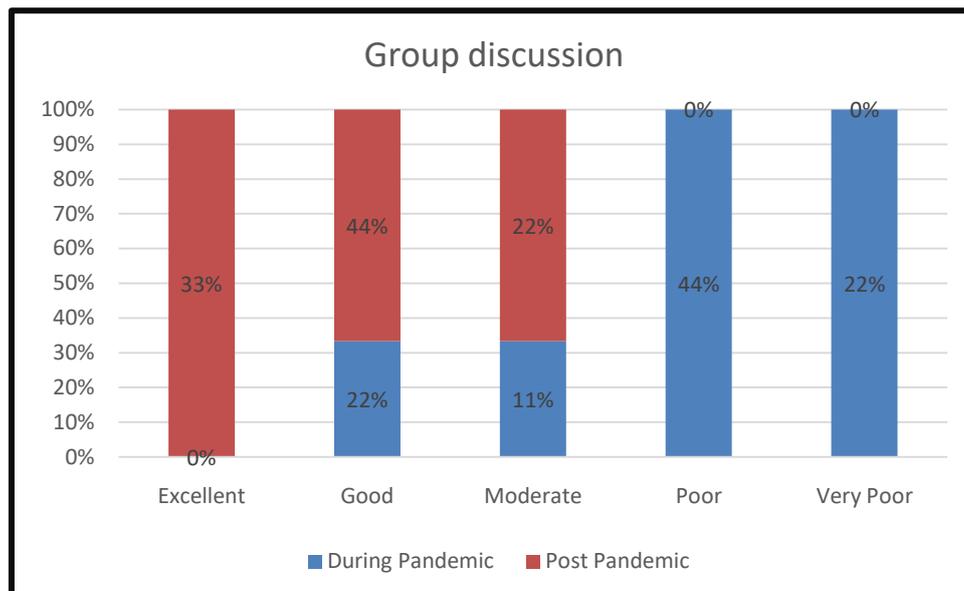


A high range of (78%) faculties responded that, "Good" standard met in the classroom presence range during the past pandemic whereas only a half (33%) faculties agreed that student's presence in the online classes

were of good category. However, 11% faculties assure about excellent presence of student in the online classes where in general it remains 22% in general. Jointly 33% faculties (11% & 22%) reported that, classroom presence dropped alarmingly in between the poor and very poor category distinctively.



The semi-structured- interview sessions dedicated that excellent performance was demonstrated in Group discussions before the respondents (33%) that remained null in the pandemic context. Only (22%) faculties experienced “Good” discussion which is still half (44%) than that of traditional scenario. Majority of the respondents experienced poor & very poor group discussion by the students- that dedicates that, quality fell all just when the medium turned into the online from the traditional one.



In terms of rating the students’ responses the mean of the variable scores indicated insightful evidence. The mean in classroom interaction was 2.56 but in offline education the mean was 4.22 which refers that the

Hybrid Learning in Bangladeshi Higher Education

classroom interaction during online classes had decreased. In case of question answer session, the mean score in online classes was 2.56 but in offline it was 4.22 as the face-to-face set-up of offline classes influence the students to raise question and interact more often with their teachers. In terms of presentation the mean was 3 in online and 4.33 in offline. The mean of online classroom presence was 3 and offline classroom presence was 4.11. This score indicates that due to technological barriers like internet issues and device issues the attendance rate was poor in online classes. In case of assessment and quiz test the mean was also more in offline classes which was 4.11 than online 2.89. Moreover, in group discussion, the online mean was 2.33 and offline was 4.11 indicating that the physical presence encourages discussions. Therefore, it is evident that in case of all the variables, the mean result happens to be greater in post pandemic classes of traditional in person method compared to the online classes.

Indicator determining the effectiveness of 'hybrid learning

Indicators	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Cumulative Percentage
Hybrid learning helps to improve university curriculum development	11%	22%	11%	22%	34%	100%
You are satisfied with the e-learning platforms (Zoom, Google Classroom, Google meet etc.)	-	45%	33%	-	22%	100%
University website is updated with information needed for both students and faculties	-	33%	56%	-	11%	100%
Students prefer online learning apart from the offline classes	-	22%	45%	22%	11%	100%
Students can enjoy distance learning during their casual leave.	-	34%	22%	22%	22%	100%
Online exams can be effective when there is very limited time available.	-	11%	45%	22%	22%	100%

Post pandemic responses to hybrid method in Bangladesh

Upon the query about knowledge on hybrid learning among these students, the survey presented that about 83.2% students already had idea about the hybrid learning; however, the rest 16.8% were still unaware about what the hybrid learning method is. In a question for searching the source of this knowledge about hybrid learning, university administration has been found as the most influential one. Internet also made quite same impact; however- learnings from academic journals, reports, or friends-family- peers been tracked at bottom.

Queries	Categories	Frequency	Percentage (%)	Cumulative Percent
Knowledge about Hybrid-Learning among students	Yes	208	83.2%	83.2%
	No exact idea	42	16.8%	100%
If yes, how did they get to know about 'Hybrid learning'?	University Administration.	103	41.2%	41.2%
	Internet	100	40.0%	81.2%
	Peers	12	4.8%	86.0%
	Academic journals or, reports	17	6.8%	92.8%
	Friends & Family	18	7.2%	100.0%

There's a mixed perception among students. Some perceive it to be better than exclusively in person education or, Flexible- Safest, Cost Effective; could be a solution over-Helping to alleviate the Teacher Shortage & ensuring a Better Caregiver Involvement with dealing transportation issues in this COVID-19 pandemic contexts. The students also opined in the survey responses about- Individualized support for each student where they have access to helpful online materials anywhere at any time. Possibilities to extract benefit from all the comforts of digital materials were claimed by them as well. Students also mentioned about their perceptions about joining research or internship besides academic activities as well.

Others responded as Mixing up could be a total harassment, they don't feel good at all with the online alone. Hybrid learning remains confusing for certain while they preferred single medium should be prescribed

Hybrid Learning in Bangladeshi Higher Education

strongly as they are still not known to it. Electronic illiteracy in term of computer/technology got revealed in some responses where an additional training scheme is needed. The most innovative response correlated the rate of internet user in Bangladesh to be used against the dropout rate of our country. A Student responded that,

Rate of internet user & the dropout rate of our country are growing dramatically were engaging the mostly presented users of Internet (youth) through Hybrid learning could make sense – “effective” in Bangladesh context.

Queries	Typologies	Frequency	Percentage (%)	Cumulative Percentage (%)
Preferred form of education by the students during pandemic	Online	117	46.8%	46.8%
	Offline	42	16.8%	63.6%
	Both /Hybrid	91	36.4%	100%
Availability of learning management system	Yes	223	89.2%	89.2%
	No	27	10.8%	100%
If yes, specify	LMS	135	54.0	54.0
	Moodle	14	5.6	59.6
	Edmodo	8	3.2	62.8
	CANVAS	16	6.4	69.2
	Bux	19	7.6	76.8
	Google Classroom	58	23.2	100.0

Analyzing post COVID 19 University level education in Bangladesh 46.8% students preferred online medium with 16.8% and 36.4% at offline and Hybrid prospectively. A sum of 83.2% can be drawn in favor of E-medium of instruction at once. The Study also found that, 87.1% students know about presence of learning management system in Perspective University where 10.4% respondents declined the notion. LMS is being used at top ratio (53.8%) in Bangladesh with 5.6% at module, 3.2% at Edmodo, 6.4% at CANVAS. A 7.6% of users found using Bux as well. Apart from these 23.3% users mainly public universities use Google classroom.

Criteria	Online (Mean)	Offline (Mean)	Variance (Mean)
Classroom interaction	3.48	4.28	-0.8
Question answer session Performance	3.40	4.16	-0.76

Presentation performance	3.70	4.25	-0.55
Classroom presence	3.74	4.09	-0.35
Group discussion	3.36	4.34	-0.98
Assessment and Quiz Test Performance	3.76	4.39	-0.63

Classroom interaction covered a mean score of 4.28 which is in between Good and excellent range, acceptable one. A reduction occurred to 3.48 in the online response. In the Question answer session offline covered a 4.16 mean which reduced up to 3.40 with the attendance reduction. Side by side presentation mean score dropped from 4.25 at offline to 3.70 at online. Lack device support and connectivity issues deterred the classroom presence ration as well. From 4.09- Above good range to moderate stage (3.74). Which affected Group discussion, Assessment and Quiz Test as well. Group discussion mean deterred to 3.36 at online from 4.34 belonging to Good Stage in offline schedules whereas, Assessment and quiz experienced a decline of (0.63) and became 3.76 from 4.39. In all 6 parameters there is a shift towards decline is seen at large affecting the perceptions of students indeed. 83.2% of respondents showed about having the online assessment platform (formative summative) in post COVID-19 time with a 7.2% declining notion. 10.4 refrained from making comments at all. Where 58.2% respondents added the presence of -learning embedded in their classroom activities. Still a 15.3% declined the position. 26.5% of students are not known to such facilities at all.

Criteria	Mean Score	Scale
Hybrid learning helps to improve university curriculum development	4.04	1=Very Poor 2=poor 3=Moderate 4=Good 5= Excellent
You are satisfied with the e-learning platforms (Zoom, Google Classroom, Google meet etc.)	3.76	
University website is updated with information needed for both students and faculties	4.01	
Students prefer online learning apart from the offline classes	3.43	
Student can enjoy distance learning during their casual leave.	3.70	
Online exams can be effective when there is very limited time available.	3.64	

In respect of the effectiveness of ‘hybrid learning students responded as such- Hybrid learning helps to improve university curriculum development (mean score of 4.04) which remains in between agree and strongly agree session which seems to be positive. A moderate score of 3.76 is seen in respect of their satisfaction with the e-learning platforms (Zoom, Google Classroom, Google meet etc.). An agreed mean of 4.01 is seen upon update university website with this concern. Moderately (3.43) students preferred online learning apart from the offline classes while 3.70 score claimed about the prospects of student and their distance learning concern during the casual leave owing to locked down by COVID pandemic. A 3.64 score found concerning the affectivity and online exams in respect of tight academic schedule.

Challenges of higher education in the COVID 19 context

After the query about challenges faced by the respondents in the context of ‘hybrid learning’ in Bangladesh higher education; A respondent replied that,

“It is a new concept and thus, they might have problems in adapting it. We must be clear about what segments of pedagogy are to be covered virtually and which are to be executed in face-to-face platform. The academic guideline and enough research are absent in our context.”

Another response recorded as,

“Challenges are many. We can have hybrid, when extremely necessary. Otherwise, physical classes maintaining health restrictions should continue. For exams, online system is a disaster! Uneven internet connection, different socio-economical background, highly charged mobile data package, and lack of technological know-how of many. It is also extremely difficult to stop cheating in the examination. Taking practical classes online is ridiculous. Hybrid learning is impractical. Either fully online or in-class learning is preferable”.

Another respondent replied in the most practical direction as,

I am not an exponent of hybrid teaching for any course. But we can run some courses online but not a hybrid form of teaching for a course. For online courses internet connectivity is a big problem, insufficient internet bandwidth, digital divide between regions of Bangladesh. More importantly proctoring against adopting unfair means in online exams is a big problem.

Finding the challenges of ‘hybrid learning’ on the following indicators like- Academicians are not used to the ‘Hybrid-learning’ method, Systematic complexity of the ‘Hybrid-learning’, Lack of training, High

cost. A rank of challenges can be drawn as such- Lack of Training (4.01)> Systematic complexity of the ‘Hybrid-learning (3.86) and Academicians are not used to the ‘Hybrid-learning’ method (3.86) > High cost (3.83)> other issues (3.62).

Indicators	Mean Score	Scale
Academicians are not used to the ‘Hybrid-learning’ method	3.86	1=Very Poor
Systematic complexity of the ‘Hybrid-learning’	3.86	2=poor
Lack of training	4.01	3=Moderate
High cost	3.83	4=Good
Others (Specify)	3.62	5= Excellent

For more data variety representation in the study, an open-ended question was attached with the questionnaire to get know about the perception of students regarding the obsolete online education tools (e.g., zoom, Google meet) at present after the continuation of physical classes in the post pandemic.

Studies clearly portrayed that - The E-education tools are hardly used after continuation of offline classes. Though university authorities have adapted the online platforms earlier and got used to those as well; however, the tools are not being used anymore. Responses recorded as- “Exhausting”, “obstacle with network problems”, “chances of using unethical means during exams”, “interaction gaps”; students in general positioned that-

Online learning is obviously preferable during pandemic time, but it won’t be an alternate solution to offline at all. Lack of interaction in between teachers and learners making the way of learning harder to get, tougher to understand

Lack of orientation into the usage of e-learning mechanisms got portrayed in a response of a student. He said that-

I completed my post-graduation on online platform from the university. The initial stages were very difficult, and it reflected the lack of training and willingness of both the students and faculties in teaching modules online. These platforms are best for short meetings not long class lectures. Authorities should device new ways to reach students who are yet to start physical class

Online found to be good but not enough beating the essence of offline classes. Only learning through online tools sometimes were tiresome and complicated for us due to inadequate arrangement of electronic tools or electricity problem. Sometimes students used got panicked before submitting papers or, some failed to submit on time sometimes due to technical complexities as well.

Side by side students expressed their views about- tools should not be eliminated at present. Prospects of adopting both systems side by side as the entire medium of instruction already have the idea of the necessity of online system. With the directed capability with online resources there should be an ensured usage of such. Convenient usage, interaction with teachers round the clock, maintaining bio-safety parameters also got expressed in students' perceptions. Another response has been recoded as-

These tools just save us from a year loss during the pandemic and kept us connected with our friends and teachers. I could listen to class recordings whenever I needed. But now that option is off for me as our physical classes has started again. Online education tools can still be used, in this traffic congested Dhaka

Students expressed impartial perception regarding the obsolete online education tools after the physical classes as- still in some cases such as group study, meeting for clubs, some class tests are ongoing in the online platform. As Students are becoming more technologically advanced, these educational tools helped students to initiate online group studies as well after the continuation of physical classes to clear up the doubts/making group works. Lessened the distance supported the communication earlier.

Discussion

The overall findings from this study about the adaptability of hybrid learning in Bangladesh, it can be compared with the 'Lewin's 3 step model of Change'. Whereas- though Bangladesh started from a set organizational culture of teaching through the traditional in person method and then the country passed almost 2 years of its journey with the inclusion of several e-learning platforms into the higher education sector in the country. Inclusion of technologies and orientation of e-learning platforms dedicated the changing stage; once we assumed that, perhaps the online learning method will continue or, a mixed method comprising both online and traditional in person/ offline method will be initiated. But, here in Bangladesh- just after the withdrawal of COVID restrictions both predictions were turned wrong, and the education sector turned 180 degree of its course and moved back to traditional method of teaching completely. Now, the query starts, as if- Does hybrid learning matters or not?

The study took responses from both teachers and students to get oriented with a dual-channel environment with accurate data and responses. However, in both cases- the results came out as if contradictory to themselves in contexts indeed. Our study from the In-depth-Interview sessions with the academicians, experts, and faculty members; it revealed that- (44.4%) teachers proposed Hybrid learning as to be their preference for university students during COVID-19 pandemic. Thus, it builds comparatively higher ratio for Hybrid learning account. Whereas (33.3% responses recorded in favor of Online) & (22.22% responses recorded in favor of offline media). The reasons came after their logics to the adaptation with the hybrid method included as-

Health Restrictions in this pandemic COVID situation where online instruction prevents physical proximity or contact, which was necessary during a pandemic. The locked-down bounded less vehicles availability could be a problem for the students especially.

In the contrary, another response respondent in the Interview responded as,

To me, not every unit or subject need physical presence so these can be done through online. On the other hand, some handsome unit needs to be completed physically. Moreover, physical distancing and keeping everyone safe is also should be a concern

Concerning issues for Practical classes was found claimed by other faculty members as well. A responder responded the questionnaire opposing the idea of adapting the Hybrid learning said that-

Slow speed of internet or internet service not available throughout the country. Digital divide ranked acute. We must need to find a solution to it before going for Hybrid one.

Faculty members are hardly positive in the case of adopting Hybrid learning in the long run. They have showed proven logics of lessened criterions of students' response to class. In each variable; including the- (Classroom interaction, Question answer session Performance, Presentation performance, Classroom presence, Group discussion & Assessment and Quiz Test Performance) an average of (0.68). Thus, the responses built after a decline of half than that of traditional method.

In response to the queries about the effectiveness of 'hybrid learning' the responses from the teachers on different indicators are discussed as follows:

A moderate number of teachers responded in the favor of stating that hybrid learning helps to improve university curriculum development as

the mean for this indicator is 2.55. Majority of the teachers were satisfied with the e-learning platforms (Zoom, Google Classroom, Google meet etc.) as the mean scored 3 for this indicator. The mean score 3.11 spoke evidence for stating that most of the university websites were quite updated with information needed for both students and faculties. But not many teachers feel that the students do not prefer online learning apart from the offline classes as the mean for this indicator is 2.77. A moderate number of teachers also support that students Student can enjoy distance learning during their casual leave and online exams can be effective when there is very limited time available as the mean results for each of these indicators are subsequently 2.66 and 2.44.

While the teachers identified and mentioned challenges like- “varied socio-economical background, highly charged mobile data package, uneven network throughout the country, lack of knowledge regarding technology, digital divide between regions of Bangladesh- as the primal pushback in case of adapting hybrid learning or even online method for longer periods. There is a strong chances of beneficiary groupings where the benefits will be consumed unequal.

The students joined this journey of assessing the adaptability of hybrid learning method in the context of Bangladesh. With the pace of technological orientation and motives for advancing digitally, the students cordially accepted the concept of online method at major. However, students staying at rural areas claimed against the issues of internet network coverage or even the access to devices in several socio-economical context. In this mix-matched spectrum, traces been found in the literatures containing primal information from the contemporary societies. Mishra (2020) elucidated that-“In this contemporary era of Information and Communication Technology (ICT); It became mandatory to keep pace with the online method of learning along with the offline one” which applicable for universities or uneven the students too.

In the study of Mishra (2020), practices of hybrid learning method in the universities found to be a quite popular one whereas in context of the higher education sector in Bangladesh, the concerns for adaptability itself facing challenges one after one. Some common debates been tracked down in the issues of adapting hybrid learning with an approach by the online ones. It has been found that-

Though several electronic learning tools are known to both teachers and students, however both have lack of adequate knowledge regarding technology and its usage. Again, resistance to change exist among the teachers and students regarding new methods of teaching learning. The socio-economic condition of the students is not same, and many students manage their own cost as well as their families. For this reason, it

becomes a burden for them to arrange additional financial cost for buying highly charged data package. During online classes many students only join to the classes, however, do not concentrate and interact with class lectures. Expensive adaptation, complex maintenance, and initiation against adopting unfair means in online exams owing to a technological generation gap in Bangladesh. The academic guideline for e-learning teaching method and enough research are absent in context of Bangladesh. Continuous online classes may have negative impacts on health like headache, earache, and back pain etc.

In this transitional setting of adapting Hybrid education, the first two stages of change process could be seen after initiation of Online methods and usage in the education sector for almost 2 years; however, the final stage directing the change remained as organizational culture found absent, which means we, at the higher education sector in Bangladesh are stuck in between the online method and traditional method. Against the query for adopting hybrid learning- people (Students & Teachers) are confusing it with the fully online one. However, the university authority is also found reluctant to initiate the change process even though they invested a lot for the e-education platforms in the covid days. A more rational, logical opinion is expected with asking more research and study into the subject matter of this study for better estimating whether hybrid learning method will be viable in case of Bangladesh or not.

Conclusion

The study has concerned about the education system and the adaptability of hybrid learning in the higher education after the emergence of COVID-19. The education system has been following the traditional method of teaching learning in which conventional face to face teaching is being used in almost all the higher education of public and private universities. After the emergence of the contagious affliction COVID-19, the government provided the declaration to close the educational institutions and there raised an uncertain situation with devastated consequences due to pandemic (Hossain et al., 2021). As days were passing through complexities, the government along with the Ministry of Education (MoE) took the decision to adopt the online learning methods of teaching especially in higher education sector (Khan and Abdou, 2021). The overall findings showed that due to insufficient internet bandwidth and digital divide between regions of Bangladesh, both teachers and students faced challenges in online classes as well as in examinations. Moreover, there existed lack of technological efficiency, lack of adequate interaction among teachers and the students and emergence of health issues such as headache, earache and back pain due to continuous online classes. In addition, due to the economic condition, many students felt challenges in

bearing the cost of highly charged data packages. Apart from that the university authorities facing difficulties in regulating students appropriately regarding maintenance of social distancing, precautions, and COVID-19 protocols. Furthermore, there is a lack of realization of the importance of the compatibility of both offline and e-learning method together in the era of technological advancement. The study was conducted during the COVID-19 pandemic period. Reaching to the teachers and the students for the collection of data were quite challenging. All the data were collected online. Therefore, the study lacks direct data collection and communication. There was limited time for conducting the study. Furthermore, the study has been conducted on self-funding. The Findings of the study confirmed that a strong institutional framework is needed to minimize the existing challenges, ensure the pre-eminent use of available online resources, and indemnify maintenance of COVID-19 protocols.

The study has acclaimed several recommendations through which the efficiency of hybrid learning method can be enhanced in developing countries like Bangladesh who have emphasized on hybrid learning recently. The university authorities must clear about what segments of pedagogy are to be covered virtual classes and which are to be executed in face-to-face interactive classes. Availability of proper network, adequate technological devices, and technological knowledge of both students and teachers should be enhanced and ensured. The category of classes should be divided into two- interactive and lecture-based classes through so that students can interact with teachers properly. Moreover, the exams and assignments can be taken in both summative and formative way. Balance between online and offline classes should be ensured so that neither of the method can be monotonous for teachers and students and the health problems are minimized. Notwithstanding, the university administration should provide adequate guidelines and adequate research should be conducted by academicians to enrich the adaptability of hybrid learning method.

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