

Preference and Feasibility of Online Classes among Bangladeshi Students during COVID-19 Pandemic

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ABSTRACT

The purpose of this study was to gain bits of knowledge about university students' feasibility regarding online classes in Bangladesh during COVID-19 pandemic. A total of 542 students were surveyed by adopting purposive sampling to identify their perceptions towards online classes. Result shows, though 71% (385) of total students participated in online classes but in response to asking their level of agreement on taking online classes, only one third (33%) of the students agree with taking online classes. The study also found 87% of the total students faced different problems during classes including poor net connectivity (85%), lacking logistics (42%). Correlation analysis and hierarchical multiple regression were conducted to identify and confirm the association of socio-demographic variables and the kind of problem faced during online classes with students' preference of online classes. A significant relationship exists between student's preference of online classes with the lack of logistic support they had and poor net connectivity ($p < 0.01$). This study's findings can guide policymakers to take proper initiatives such as ensuring strong network facility, providing low cost internet facilities to students and therefore can help students to continue online classes which will ultimately boost the education system of Bangladesh even and afterwards.

Keywords: Online classes, Student perceptions, Feasibility, University students; Bangladesh, COVID-19 pandemic.

Mathematics Subject Classification: 97K80

1. Introduction

The COVID-19 pandemic is an ongoing global epidemic of coronavirus disease 2019, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was first spotted in Wuhan, China, in December 2019 (Zhu et al., 2020) and has become a major global health concern. The World Health Organization declared the outbreak as pandemic on 11 March (Cucinotta & Vanelli, 2020).

In addition to the economy, the development of a country depends upon the education system of a country (Yeasmin & Salma, 2020). While the COVID-19 is having the worst effect on the education

sector. The disease began to spread from China and its transmission gradually accelerated in Bangladesh, India, and throughout the world (Shanmugam, 2020). Inevitably, during that time, schools and universities around the world began to close gradually to prevent its spread. All universities have shut down their doors and students have returned home to their parents and together self-quarantined (UNESCO, 2020). On March 16, the government of Bangladesh decided to keep all the educational institutions closed from March 16 to 31, aiming to control the spread of deadly coronavirus. Later, the Education Ministry extended the time of the closure and all educational institutions across the country might remain closed if the coronavirus situation does not improve (Dhaka Tribune, 2020).

With implementations of social distancing, all face to face classes were suspended due to the ongoing COVID 19 pandemics (Ferrel, 2020). Most of the universities around the world are taking online classes to make the best use of their time as students stay at home during the ongoing coronavirus epidemic (Bao, 2020). In the current situation, the decision to take online classes is undoubtedly a landmark decision. Demuyakor (2020) suggests that the implementation of online learning programs was a very great idea. Through online classes, countries around the world are trying to reduce losses of students due to the ongoing epidemic.

It is the first time in Bangladesh, the trend of online classes has been widely introduced. But, considering the current technology system in Bangladesh, the implementation of online classes is a challenge. Because, not all students have the technical support to attend online classes. In particular, most of the students studying in the country's public universities are from the middle-lower class and rural areas but broadband internet connections are rarely available in rural areas. Besides, most of the students use mobile internet but the quality of mobile operators and their networks and internet services in Bangladesh is not as good as developed countries. Because of this, some of the students who moved to their village or hometowns could not attend the classes due to lack of internet connection as well as lack of devices.

This circumstance encouraged us to conduct a study on university students with a view to understanding their readiness and feasibilities for online classes. In this study, the perception of students towards online classes during this pandemic are addressed and an attempt is made to analyze it. The study also aims to show the relationship between Bangladeshi student's preference of online classes and the problems they encountered during classes.

2. Materials and Methods

2.1 Study Type

This is descriptive cross-sectional survey research.

2.2 Study Design and Participants

The survey was conducted for the determination of the feasibility of online classes among University Level Students (66% males and 34% females) in Bangladesh during this pandemic from October 5,

2020 to October 10, 2020 through an online survey. The survey was conducted on 542 students from different disciplines of different universities in Bangladesh.

2.3 Data collection form

The questionnaire had two sections considering the participation in online classes. Only those who attend online classes by choosing Yes option could move forward to the second section. Most of the questions had two options (Yes/No), and also had some open-ended questions to know the students' opinion. The data was collected through an online questionnaire (Google Form) from university level students.

The first section consisting of Socio-demographic characteristics of the students: age; gender; faculty of the students; university type; and student's current place of residence, spending time during pandemic, preference of online classes, opinion about online classes using 5 Likert Scale (0= strongly disagree, 1=disagree, 2=Neither agree nor disagree, 3=agree, 4=strongly agree).

The second section consists of pattern of online classes, percentage of attending classes, kinds of device and software uses, type of internet uses, expenditure on internet, concentration in classes, problem faced to participate in online classes, teacher's cooperation, participate in online exam, quality of online exam and an open ended question for it.

2.4 Procedure

A purposive sampling technique was adopted for selecting the sample from our target population. Thereby, the questionnaires were administered to students belonging to different Universities. Prior to the survey, students were informed about the purpose of the research and assured about the confidentiality of their feedback. The form starts up with two options (Yes/No) agreement questions; however, a couple of students declined to complete the questionnaire by selecting No option and were allowed to drop out. For the purpose of the survey, a self-administered questionnaire was utilized.

2.5 Statistical analysis

Data analysis was conducted using IBM SPSS (Statistical package for social science) for window Version 22.0. Descriptive statistics was conducted to exemplify the basic information of students and other selected characteristics. Zero order Pearson correlation method was used to assess the relationship between student's preference of online classes and the problems they faced during classes. Hierarchical multiple regression was applied to determine the contribution of each socio-demographic variable and the kind of problem they faced during classes in explaining the variance of their preference toward online classes. The level of significance was set at $p < 0.01$.

3. RESULTS

3.1 Basic Information and characteristics of students

A total of 542 students had participated in the survey. **Table 1** demonstrated university student's socio-demographic information. Out of 542 students, 357 (65.7%) were male and 186 (34.3%) were female. Almost half of the students (49.5%) were aged 18 to 21, 46% of them were aged 22 to 25. On the other hand, a small proportion (0.6%) of the students were above 28 years of age. A major chunk (70%) of the students participated in study were from private university. Besides 53.6% students were now in rural areas or outside towns. It is concerning that only 43% had enough study materials with them. Out of 542 students, 53% students prefer online classes during this pandemic situation while face to face classes quit impossible to take. A majority of the students (71%) participated in the online classes from different universities.

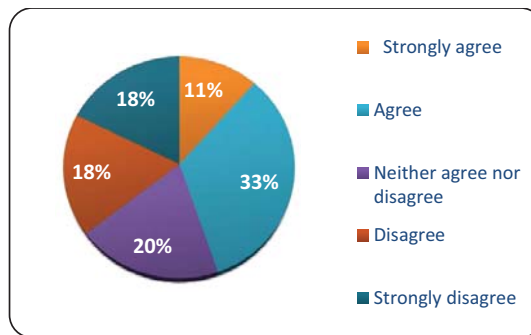


Figure 1: Student's level of agreement to take online classes in each institution

Figure 1 displayed student's level of agreement to take online classes from each of the institutions. Where in response to asking their level agreement on taking online classes, one in ten (11%) of the students strongly agreed to take online classes, one third (33%) of the students agreed with taking online classes by different universities, 20% of them give neutral opinion i.e. neither agreed nor disagreed where only 18% of the student strongly disagreed to take online classes.

Information regarding online classes who participated in online classes were demonstrated in **Table 2**. Three hundred and eighty-five students participated in online classes were assessed for further study. While 65% of the respondents were male and 35% were female. From table 2, it is concerning that the attendance rate in online classes above 80% is only 37%. According to the survey, the majority of the students (78%) think that the pattern of offline and online classes are not the same. One third of the students (77.3%) were used mobile phones, 14% of the students were used laptop to join online classes. The percentage of using zoom software is pretty higher (65%) than the other software where 62% of them were using mobile internet since Wi-Fi (38%) is not much available in rural areas. Almost half of the students (57%) had spent 500 to 100 Taka monthly for internet purposes. A noteworthy of the student (94%) had not received any financial help. It is concerning that 87% of the students faced

different problems during classes among them 85% had faced poor net connectivity problems, 42% had lacking logistics (laptop, Wi-Fi, books) and 92% faced net buffering also. Almost one third (32%) of the students reported that they couldn't not able to give full concentration during classes. 64% of the students reported that the exam quality was maintained by the universities where 36% of them thought exam quality didn't maintain through online processes.

Table 1: Socio demographic information of University students			
Variable	Categories	Frequency	Percentage
Age	18-21	268	49.4
	22-25	248	45.7
	25-28	24	4.4
	Above 28	3	.6
Gender	Male	357	65.7
	Female	186	34.3
Type of university	Public	141	26.0
	Private	380	70.0
	National	22	4.1
Living area	Urban	252	46.4
	Rural	291	53.6
Have enough study material with them	Yes	233	42.9
	No	310	57.1
Do you prefer online classes?	Yes	287	52.9
	No	256	47.1
Online classes must be taken	Strongly agree	63	11.6
	Agree	180	33.1
	Neither agree nor disagree	107	19.7
	Disagree	97	17.9
	Strongly disagree	96	17.7
Have participate in online classes	Yes	385	70.9
	No	158	29.1

Table 2: Information from the students who participated in Online classes

Variable	Categories	Frequency	Percentage
Attendance rate	Below 40%	64	16.6
	40%- 60%	83	21.6
	60%- 80%	97	25.2
	Above 80%	141	36.6
Is face to face and online class equivalent?	Yes	86	22.3
	No	299	77.7
Device used	Mobile	298	77.4
	Laptop	55	14.4
	PC	26	6.8
	Tablet	6	1.6
Software uses	Zoom	251	65.2
	Google classroom	49	12.7
	Google meet	42	10.9
	Facebook live	21	5.5
	Module	22	5.7
Type of internet use	WiFi	146	37.9
	Mobile data	239	62.1
Internet monthly cost	Below 500	53	13.8
	500 to 1000	220	57.1
	Above 1000	112	29.1
Received any institutional aid	Yes	21	5.5
	No	364	94.5
Faced problem to continue classes	Yes	326	84.7
	no	59	15.3
Types of problem faced	Poor net connectivity	328	85.2
	Lack of logistic	163	42.3
Net buffering	Yes	355	92.2
	No	30	7.8
Provide enough study materials by teachers	Yes	268	69.6
	No	117	30.4
Full concentration on classes	Yes	123	31.9
	No	262	68.1
Exam quality maintain	Yes	245	63.6
	No	140	36.4

Figure 2 displayed the percentage of the types of problem student faced to join online classes. We observed that 85% students faced poor net connectivity to join online classes and 42% students faced logistic problems.

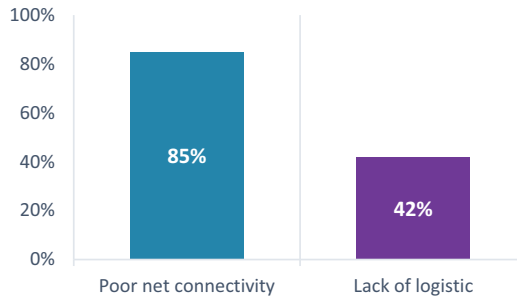


Figure 2: Types of problem faced to join online classes

3.2 Correlation analyses

The correlation matrix in **Table 3** represents the association between statistically significant variables. We observed that there is a significant positive correlation between student's preference of online classes and the lack of logistics they had with ($r=0.187$, $p<0.01$). Poor net connectivity also showed a significant positive correlation with students' perception toward online classes with ($r=0.172$, $p<0.01$). Besides, a significant positive correlation between their preferences and the financial help they get for online classes was observed ($r=0.107$, $p<0.05$).

Table 3: Correlation matrix between student's preference of online classes and the problems they faced during classes				
Preference	1			
Lack of logistic	.187**	1		
Poor net connectivity	.172**	-.235**	1	
Get financial aids	.107*	-.003	-.004	1
** $p<0.01$, * $p<0.05$				

3.3 Multivariate regression analyses

The results from hierarchical multiple linear regression analysis in two steps were showed in **Table 4**. Using adjusted R^2 , the contribution of each socio-demographic variable and the kind of problem they

faced during classes in explaining the variation of their preference toward online classes were evaluated.

In the first phase, socio-demographic variables were applied in the model. The result found that they were statistically significant at 1% level of significance where individually age, level of agreement to join online classes and the amount of aid they get from their institutions were statistically significant with $p < 0.01$. Socio-demographic variables have explained 25.6% of the variance of preference toward Online classes (Adj. $R^2 = 0.256$, $F = 23.074$, $p < 0.01$).

In the second phase, the components of the kind of problem they have faced during online classes were applied in the model. The results found that they were statistically significant ($p < 0.01$). These components explained 12.2% of the variance of preference toward Online classes (Adj. $R^2 = 0.122$, $F = 17.58$, $p < 0.01$).

Table 4: Hierarchical multiple regression of student's preference toward online classes

Step	Variables	Beta	S.E	P value	Changed R^2	Adjusted R^2	F	P value
1	Demographic variables				.268	.256	23.074	.000**
	Age	-.093	.038	.015*				
	Gender	.003	.048	.956				
	University types	-.006	.056	.907				
	Level of agreement	.189	.018	.000**				
	Cost	.017	.034	.614				
	Aid	.263	.095	.006				
2	Faced problems				.140	.122	17.58	.000**
	Lack of logistic	.233	.049	.000				
	Poor net connectivity	.308	.068	.000				

* $P < 0.05$, ** $P < 0.01$, Total: $F = 24.08$, $p < 0.01$, $R^2 = 0.408$, Adj. $R^2 = 0.378$

4. DISCUSSION AND CONCLUSION

Covid-19 pandemic made a tremendous bearing on education systems over the globe. Around the world schools, colleges, and universities have been closed to anticipate the transmission of the infection since maintaining a strategic distance from community gathering and the support of social-distance is vital to anticipate the spread of the disease (The business standard 2020a). The effects of the coronavirus and corresponding preventive measures have upended the life of students.

An online questionnaire-based survey has been performed to assess the feasibility of online classes among students. A major chunk of the students was from rural areas, most of them were males and aged between 18 to 21 (**Table 1**). The majority of them do not have enough study materials with them using only mobile devices, even though almost 71% of students participate in online classes and 37% of the student's attendance rate was above 80 percent, only a few of them (6%) received institutional aid (**Table 2**). They also faced concentration breaks due to poor net connectivity. Although they are out of different facilities, the majority of them prefer online classes and 33% agreed that online classes should be taken by all universities (**Table 1**) (**Figure 1**). The correlation matrix lead us to conclude that there exist positive association between student's preference of online classes and the problems they faced during online classes (**Table 3**). Multiple hierarchical regression in two step conclude that age, level of agreement, aid, poor net connectivity, and lack of logistics were statistically significant ($p < 0.01$) and associated with students' preference for online classes (**Table 4**).

The result of the research designated that University student's perception regarding online classes was associated with the age of the students. Due to COVID-19 for those who have left the cities and went back to their villages, to join online classes is indeed more difficult. Since all the educational institutions were closed by the government those who resided in the hall, were left for home with uncertainty. The study found a majority of the students joined online classes (71%). The University of Grand Commission estimates that a total of sixty-three universities, seven public universities, and fifty-five private universities, are now providing online class facilities to students and the attendance rate of students in online classes is 70% (Dhaka Tribune, 2020). If students do not have the means to access logistics such as a laptop/tablet or a smartphone, then they are stuck (Filius et al., 2019). In this study, 43% faced logistic shortage (books, laptop, etc.) (Table 2). The source said that though many students use laptops or desktop, these days as they are staying at home, they prefer to use smartphones to access online classes (Alam, 2020). In our study, most of the students (77.4%) used mobile phones to access online classes. In Bangladesh, many students do not have access to a consistent internet connection or an individual computer, both of which are required for online classes (The business standard 2020b). The study discovered that internet connectivity was very poor for students leaving the residence of various universities in Bangladesh i.e. 92% of students faced net buffering. That is why only 22 % of students think online and face to face classes are the same (Table 2). Students did not perceive online and face-to-face classes to be equivalent (Platt, 2014). Students' satisfaction levels with online learning were also comparable to previous studies (Scagnoli, 2019). According to Jaques and Salman (2007) adapting to an online platform can be a challenge for both teachers and students.

In spite of a number of challenges there is no doubt that conducting online classes is a great initiative taken by the government to reduce the loss of academic activities of the students. It is recommended for policymakers and universities to advocate enough and appropriate actions to continue online classes with a view to be reachable, strong network facility, device provide and low-cost internet through students throughout and after the COVID-19 situation. Despite a few impediments experienced by students in case of learning online, the incredible news is that no doubt conducting online classes could

be a praiseworthy initiative taken by the present government to minimize the loss of students' academic activities.

5. LIMITATIONS

The study has its limitations and biases including short time to develop the tool, questionnaire only available online and only in English, limited time the survey was open for the participants. Moreover, it was impossible to conduct face to face interaction with participants. The study was performed on some of the universities. It limits our ability to generalize from this study. Secondly, a large scale survey is needed that would guarantee a fair representation of the target population of all university students.

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CONFLICT OF INTEREST

We declare that there have no known conflicts of interest or personal relationships that could have appeared to influence the work reported in this paper.

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