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A Study on Online Teaching for the Higher Secondary Level Students in Bangladesh: Prospects and Challenges

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Abstract

This study examines the possibilities and challenges of online teaching for higher secondary level students in Bangladesh. It investigates the availability of devices for online classes, the financial status of parents, the availability of Internet facilities, and attitudes toward online classes. Data was collected through a survey method from class XI & XII students in six government colleges across three different divisions of the country, with a total of 350 participants. Data analysis was conducted using common percentages. The findings reveal that most of the student's parents (about 80%) face financial challenges, resulting in inadequate access to computers/laptops/smartphones/tabs for online classes. Issues such as lack of uninterrupted power supply, limited internet coverage, high cost of internet packages with short durations, call drops, and slow internet speeds were identified as problems for online classes. The study suggests that making online lectures more engaging, increasing monitoring, improving power supply, providing free or improved internet services, or offering financial aid to students could help make online education more acceptable and a viable alternative to face-to-face learning for higher secondary level students in Bangladesh. The study also recommends the availability of student-friendly internet data packages.

Keywords: Bangladesh, Higher Secondary level, Online Teaching, Problems, Students' Perception.

Introduction

Online teaching is a method of disseminating information through academic-based communication technology in the field of education, allowing interaction between teachers and students. It is a relatively new form of education system where students can attend classes,

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ask questions, and be evaluated by their teachers using certain devices and the internet, all from the comfort of their homes, without physically going to an educational institution (Olugbenga, 2020). Online learning methods are already widely adopted in developed countries, but due to the recent outbreak of the Covid-19 epidemic, it has been introduced as a way of learning in developing countries since 2020 (Olugbenga, 2019). While there are practical challenges associated with the online education system (Bose, 2003), this approach creates an alternative educational platform to the conventional academic system (Ellis, 2009). The Covid-19 pandemic has posed a threat to the education system in Bangladesh and around the world, with schools, colleges, and universities being forced to suspend traditional teaching activities for more than fifteen months. The government has announced the avoidance of face-to-face classes, and schools have banned gatherings to prevent the spread of the virus through person-to-person contact. Lockdowns have been imposed by the Bangladesh government, resulting in an urgent need for a sustainable alternative to traditional methods of education. Online teaching has emerged as an alternative way, providing opportunities for distance learning for students and teachers, unaffected by campus closures due to shutdowns, strikes, or epidemic situations such as the Covid-19 pandemic. It is estimated that around 300 million students worldwide have faced disruptions in their school activities due to the Covid-19 epidemic (UNESCO, 2020), posing a threat to the education process. As a developing country, Bangladesh faces challenges in implementing online teaching, including technical limitations, poor internet facilities, low bandwidth, poor socio-economic status, lack of knowledge, and financial capacity of parents (Islam, 2006). The development of online education in Bangladesh is closely related to the availability and development of Internet facilities, computers, and smartphones. Mathrani et al. (2021) highlighted that online education and student skills are critical factors in the successful implementation of this new education system. Therefore, implementing online education in a developing country like Bangladesh may pose challenges in ensuring satisfactory progress for students and creating an alternative platform for transitioning from face-to-face learning. This study aims to delve deeper into the implementation of online education and explore a wide range of opportunities for higher secondary students in Bangladesh, as well as identify ways to mitigate challenges.

Statement of the Problem

The year 2020 witnessed the sudden emergence of a global pandemic, COVID-19, which also impacted Bangladesh, leading to the shutdown of schools to prevent the spread of the virus among students. In response, the government of Bangladesh initiated online teaching as an alternative approach for Higher Secondary level students. However, the successful implementation of online education requires certain prerequisites, such as communication devices with internet facilities (Deli &Allo, 2020). High-speed internet is essential for live video classes, but access to it may be limited, allowing only general internet browsing or social media use. Additionally, a user-friendly, low-cost, and easily accessible teaching platform is required. While there are several options available in Bangladesh, such as Google Classroom, Zoom, Messenger, Moodle, etc., teachers and students may require training to effectively utilize these platforms (Das, 2021). Furthermore, the availability of Internet and technology resources may vary among households in Bangladesh, with limited access to computers and

smartphones (BANBEIS, 2019). Therefore, this study aims to investigate the prospects and challenges of online teaching for Higher Secondary level students in Bangladesh, considering the availability of resources, implementation barriers, and potential benefits of online education in the context of a developing country.

Rationale of the Study

The concept of online live classes or online uploaded classes is relatively new in the higher secondary level academic education system in Bangladesh. With many students and their parents having access to the Internet, Wi-Fi, computers, and smartphones, online education is becoming an increasingly important part of teaching and learning. However, there are also many students and parents who lack access to these resources (Pathan, 2005), making the implementation of online education challenging.

It is essential to examine the implications of these changes in the traditional education system and evaluate if they are meaningful for the overall education system in Bangladesh. Additionally, understanding the advantages and disadvantages of online teaching platforms in the context of Bangladesh is crucial.

This study aims to provide insights into the prospects and challenges of online teaching for higher secondary level students in Bangladesh. By comprehensively understanding the advantages and disadvantages of online education, this research will help colleges and educational institutions develop effective strategies to provide online lessons more efficiently, ensuring a continuous learning journey for students.

The findings of this study will contribute to the existing literature on online education in Bangladesh and provide valuable insights for policymakers, educators, and other stakeholders. By addressing the challenges and identifying the prospects of online teaching, this research will inform decision-making processes and help improve the quality and accessibility of education for higher secondary level students in Bangladesh.

Objectives of the Study

The objectives of this study are as follows:

i) To understand the perception and perspectives of Higher Secondary level students towards online teaching.

ii) To explore the prospects of online teaching at the Higher Secondary level in Bangladesh.

iii) To identify and examine the challenges faced in implementing online teaching at the Higher Secondary level in Bangladesh.

iv) To explore potential strategies and ways to mitigate the challenges and ensure the continuity of online teaching at the Higher Secondary level in Bangladesh.

By achieving these objectives, this study aims to provide a comprehensive understanding of the prospects and challenges of online teaching for Higher Secondary level students in

Bangladesh and to provide recommendations for improving the effectiveness and sustainability of online education in the country.

Limitations of the Study

The study has several limitations, including the following:

1. Limited sample size: The study was conducted in only six colleges located in the Rangpur, Khulna, and Noakhali districts, which may not fully represent the diverse range of colleges in Bangladesh. Different types of colleges, such as city colleges, village colleges, and specialized colleges, were not included in the study due to resource and time constraints.
2. Generalizability: Due to the limited sample size and geographical scope, the findings of the study may not be generalizable to all colleges in Bangladesh.
3. Scope of education: The research only focused on the general education line and did not cover religious or madrasa and technical education, which are important aspects of education in Bangladesh. This may limit the applicability of the findings to these specific areas.
4. Lack of comprehensive data: Due to the limitations in time and resources, the data collection may not have covered all relevant aspects of online teaching at the higher secondary level in Bangladesh, potentially limiting the depth and breadth of the study findings.

It is important to consider these limitations when interpreting the results of the study and drawing conclusions from them.

Literature Review

Literature review is an essential part of research work, involving the study of books, articles, magazines, and other relevant sources related to a particular problem or area of research. The objective of a literature review is to gain a comprehensive understanding of current research and develop relevant arguments related to a specific theme or area of study, resulting in contemporary knowledge presented in a written report. A literature review helps to build our understanding of current research problems.

Online teaching has gained widespread acceptance, particularly in developed countries. However, its implementation has posed challenges in many developing countries, including Bangladesh, which faces limitations in access to Internet technologies (Bose, 2003). The outbreak of COVID-19 in 2020 disrupted the education system, leading to temporary lockdowns and closures of educational institutions, prompting the need for alternative teaching platforms. Online teaching platforms and various apps are now being considered to continue academic activities during this pandemic situation.

Pathan (2005) noted that online teaching could be an effective alternative platform for delivering quality education to all learners during unexpected college closures. Angelino et al.

(2007) and Oye et al. (2011) also mentioned that online learning is not limited to training and instruction but can also be used for teaching. Different technologies have been used for online learning, with the initial use of computers and the Internet to support classroom instructional methods. Over time, personal computers became more accessible, leading to the initiation and application of online teaching in some private universities in Bangladesh.

However, online education also has both beneficial and harmful impacts on students. Coman et al. (2020) mentioned that online education platforms are convenient for students due to their cost-effectiveness and reliance on technology. Many studies show the positive aspects of online learning, such as the ease and comfort of learning from home, the availability of combined course materials, and flexibility (Fedynich, 2014a). On the other hand, Kumar (2010) identified some disadvantages of online learning, including limited interaction with students and teachers, high cost of internet and other devices, and concerns about the effectiveness of assessments. Poor internet access and disruptions to mobile networks, especially in remote areas, as well as a lack of knowledge about computers and the Internet, also negatively impact the implementation of online education (Jordan et al., 2021; Fedynich, 2014).

Crawford et al. (2020) conducted an analysis of the state of higher education in developing and developed countries and found that developing countries often have differences in their approach to higher education during the pandemic. Some universities keep their campuses open, while others remain closed with no online teaching activity, and some continue online teaching to avoid semester gaps. On the other hand, most developed countries, such as Germany, Italy, Australia, Ireland, UK, and USA, have closed their campuses but shifted to online learning, aiming to avoid semester loss for their students.

Nassuora (2013) mentioned that many learners have positive attitudes towards online learning at the university level, as it has a positive effect on their student life and self-confidence, leading to the development of expertise in information and communication technology (ICT) and e-learning (Liaw & Huang, 2011).

In the context of Bangladesh, the teaching resources are limited, and the teacher-student ratio is not standardized, making online teaching a potential alternative platform for delivering lectures during unexpected circumstances of educational institution closures. However, previous studies have primarily focused on online-based higher education and the advantages and disadvantages of online classes under normal conditions, with little research on online-based higher secondary education in Bangladesh. Therefore, this research aims to fill this research gap by exploring expert opinions and students' opinions about online education, establishing the relationship between online teaching and learning outcomes of college students, examining the impact of online teaching on college students, and reviewing the main research findings related to this research topic. The findings of this study will help shed light on the prospects and challenges of online education for higher secondary level students in Bangladesh and establish the rationale for conducting this research.

Methodology of the Study

Sampling

The study employed a descriptive design and the population consisted of students from six Higher Secondary colleges located in the Districts of Rangpur, Faridpur, and Noakhali, under the Rangpur, Dhaka, and Chittagong Divisions in Bangladesh. Purposive sampling was used to select the six colleges, which included Rangpur Govt. College, Rangpur; Begum Rokeya Govt. College, Rangpur; Govt. Ainuddin College, Faridpur; Govt. Sarada Sundari Mohila College, Faridpur; Noakhali Govt. College, Noakhali; and Noakhali Govt. Mohila College, Noakhali.

Data was collected from students belonging to all three groups, namely Science, Humanities, and Business Studies, at the six selected colleges. Due to the current movement restrictions and social distancing measures in place due to the COVID-19 pandemic, an online questionnaire survey was conducted to collect data from the respondents. Students were contacted through their common *Facebook* groups and individual Email IDs. A reminder was sent to the respondents after one week to ensure data collection.

Sample Size

The study used the following formula to determine the sample size, as per the guidelines from http://www.surveysystem.com/sample-size-formula.htm:

$SS=[Z^2p(1-p)]/C^2$

Where:

Z = Z value (e.g. 1.96 for 95% confidence level)

p = percentage picking a choice, expressed as decimal (.5 used for sample size needed)

c = confidence interval, expressed as decimal (e.g., .04 = ±4)

Based on the total number of higher secondary students in the six colleges for data collection, which was 6350 (Rangpur Govt. College, Rangpur- 1200; Begum Rokeya Govt. College, Rangpur-450; Govt. Ainuddin College, Faridpur-850; Govt. Sarda SundaryMohila College, Faridpur-1450; Noakhali Govt. College, Noakhali-900; Noakhali Govt. Mohila College, Noakhali-1500), the sample size was determined to be 349 (Rangpur Govt. College, Rangpur-70; Begum Rokeya Govt. College, Rangpur-50; Govt. Ainuddin College, Faridpur-65; Govt. Sarda SundaryMohila College, Faridpur-50; Noakhali Govt. College, Noakhali-74; Noakhali Govt. Mohila College, Noakhali-40) using the above-mentioned sample size formula.

Tools of Data Collection

The following five tools were used for data collection in this study:

i) Document Analysis Technique: This involves analyzing relevant documents such as reports, policies, curriculum documents, and other written materials to gather data and information related to the research topic.

ii) Questionnaire for Students: A structured questionnaire was used to collect data from students using a five-point Likert scale (5=Strongly agree, 4=Agree, 3=Neutral,

2=Disagree, and 1=Strongly disagree). The questionnaire aimed to assess students' perceptions about online classes. The internal consistency and reliability of the data set were measured using Cronbach's Alpha Reliability Test, following the method outlined by Hair, Black, Babin, and Anderson (2006) and Islam and Himel (2018).

iii) Focus Group Discussion (FGD) with teachers: Focus group discussions were conducted with teachers to gather qualitative data. This involved a group of teachers engaging in a structured discussion on the research topic, moderated by the researcher. The aim was to collect in-depth insights and opinions from teachers regarding online classes.

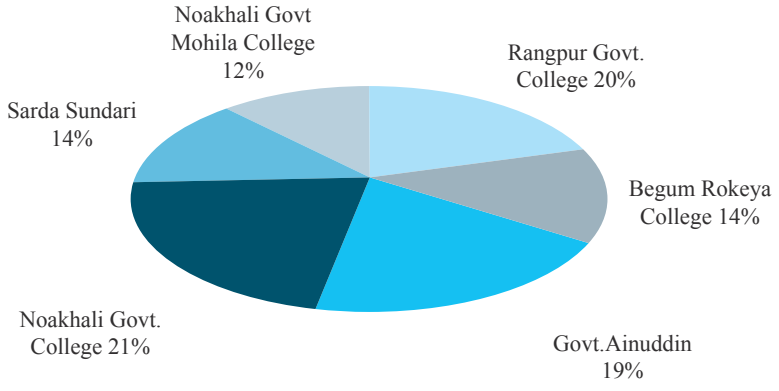
iv) Informal Dialogue (ID) with parents/guardians: Informal dialogues were conducted with parents or guardians of students to gather qualitative data. These informal conversations provided an opportunity to gather parents' perspectives on their children's experiences with online classes, their concerns, and suggestions.

v) Key Informants Interview (KII) with educational experts: Key informant interviews were conducted with educational experts who have relevant knowledge and expertise in the research area. These interviews aimed to gather expert opinions, insights, and suggestions related to online classes.

These tools were used to collect a combination of quantitative and qualitative data to gain a comprehensive understanding of the research topic from multiple perspectives.

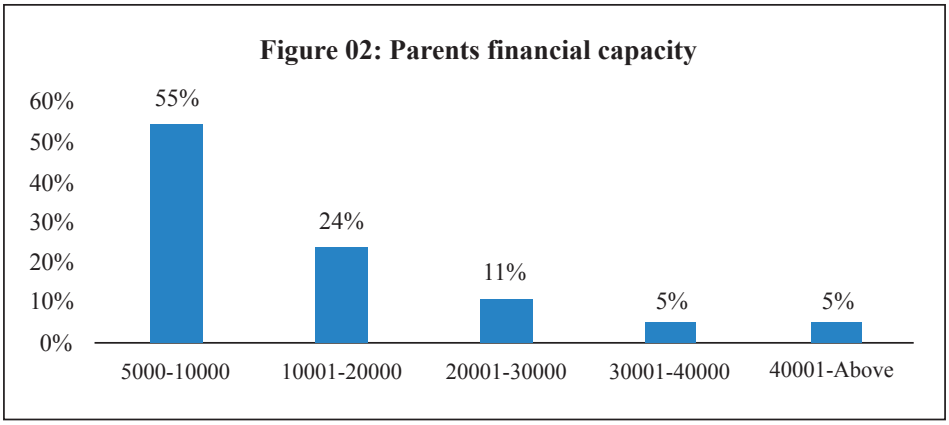
Data analysis and results

Figure 01: Respondent selected from different colleges



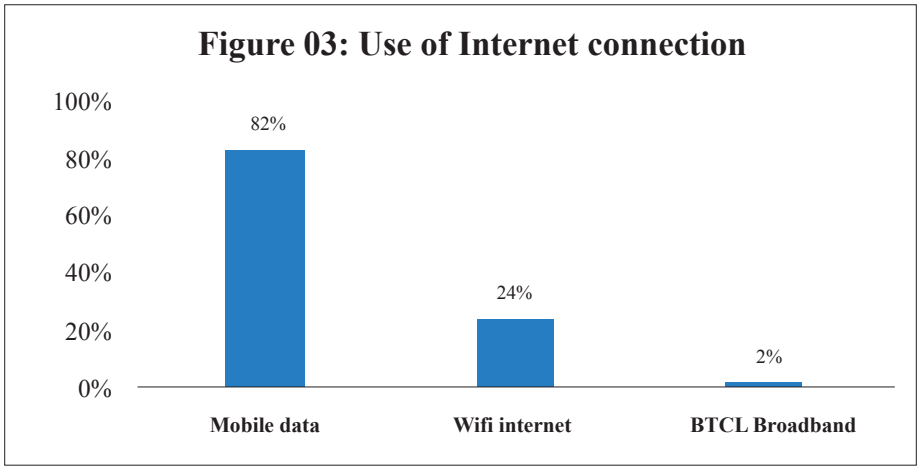
Source: Field survey

The study randomly sampled 350 students from six different colleges. Figure 01 shows the distribution of students among the colleges as follows: 20% (70) from Rangpur Govt. College, 14% (50) from Begum Rokeya College, 19% (65) from Govt. Ainuddin College, 21% (75) from Noakhali Govt. College, 14% (50) from Sarda Sundari College, and 12% (40) from Noakhali Govt. Mohila College.



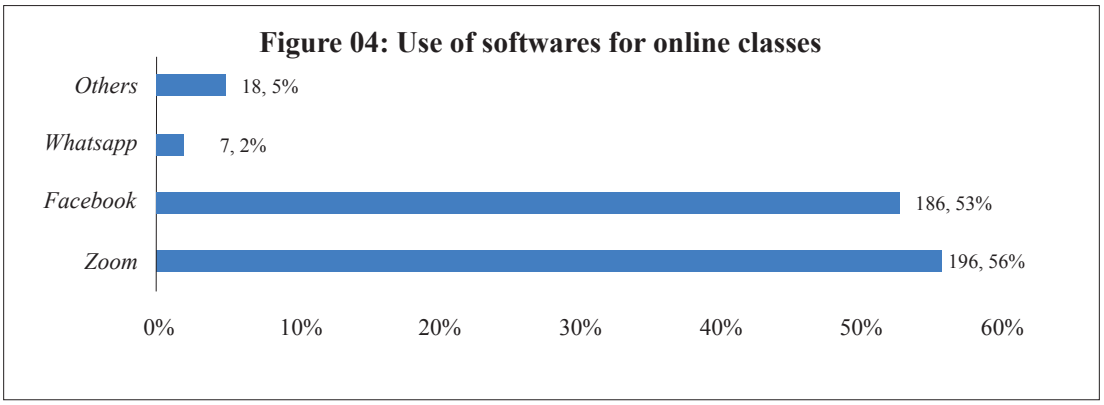
Source: Field survey

Figure 02 displays the financial capacity of the parents of the sampled students. The statistics indicate that the majority of the student's parents had a monthly income of Tk. 5000-Tk.10000, accounting for 55% of the sample. Additionally, 24% had an income of Tk.10001-Tk.20000, 11% had an income of Tk.20001-Tk.30000, and only 5% had an income of Tk.40000 or more. These findings suggest that a significant proportion of parents may not have strong financial stability. Furthermore, the results imply a potential relationship between online classes and parental financial ability.



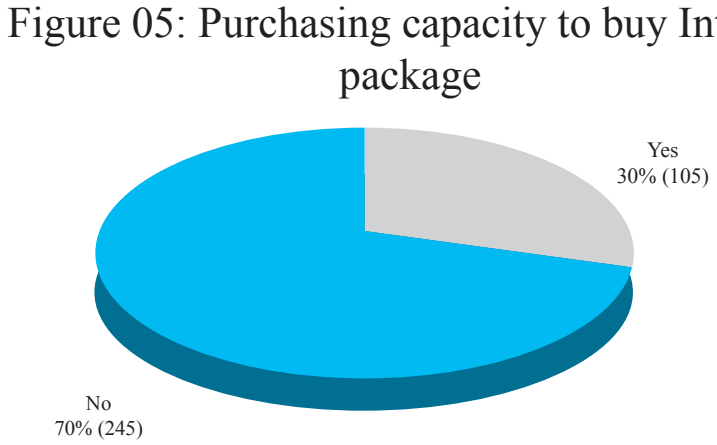
Source: Field survey

Figure 03 presents the findings that most of the sampled students (82%) utilized mobile data for online classes, while 24% used Wi-Fi Internet, and only 2% relied on BTCL broadband internet connection. The findings of previous studies indicate that mobile data is the most used option for online classes among students, despite limitations with different mobile data packages not being suitable for students. The study respondents also noted that BTCL broadband internet speed is good, but due to the limited availability of infrastructures, students do not have access to this internet connection facility.



Source: Field survey

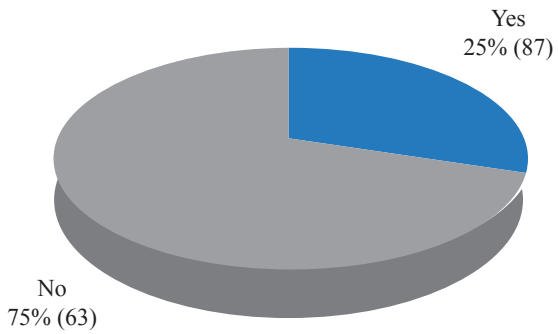
Figure 04 presents the findings on the use of software for online classes. The survey revealed that 56% of sampled students used *Zoom*, 53% used *Facebook*, 2% used *WhatsApp*, and 5% used other software for online classes. Previous studies have also shown that *Zoom* and *Facebook* are the most commonly used softwares for online classes among students, despite limitations with different mobile data packages not being suitable for these two softwares. Respondents to the survey also noted that due to poor internet connection and unsuitable online class schedules, students often do not fully utilize the complete internet package.



Source: Field survey

Figure 05 presents the purchasing power of an internet package. The survey revealed that 70% of respondents could not afford an internet package, while 30% responded affirmatively. The study also found a positive correlation between parental income (as shown in Fig. 02) and internet package purchase (as shown in Fig. 05).

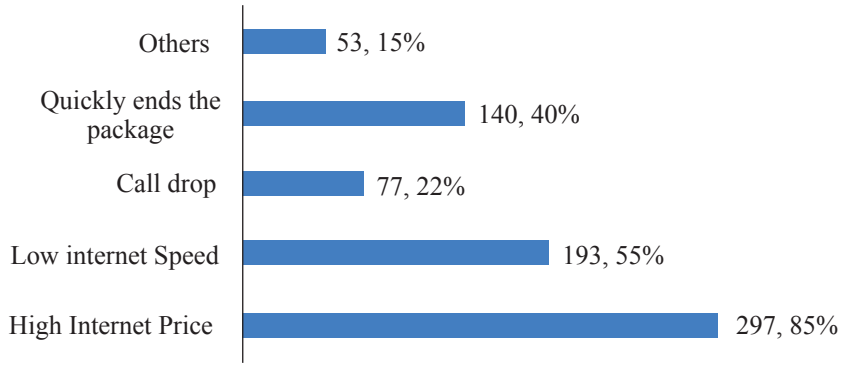
Figure 06: Internet packages are convenient for students



Source: Field survey

Figure 06 above illustrates the advantages of Internet packages for online classes. Only 25% of students responded positively, stating that internet packages are convenient, while the majority of students (75%) expressed that internet packages are not convenient due to perceived lack of adjustment between the price and duration of the packages.

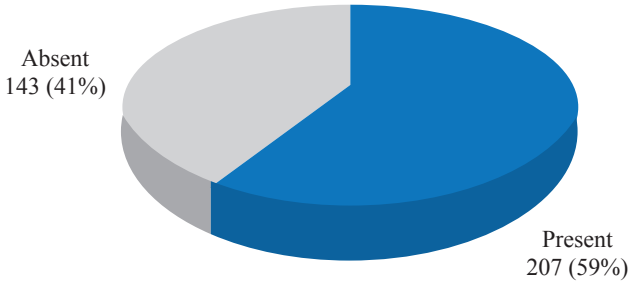
Figure 07: Disadvantages of internet packages



Source: Field survey

Respondents to this survey identified several problems or difficulties with internet packages. As shown in Figure 07, out of 350 students, 297 (85%) identified high internet costs as the main disadvantage. Internet speed was identified as a problem by 55% of students, while 40% of students reported that the duration of internet packages was an issue. Additionally, 22% of students stated that dropping calls during online classes while using internet packages was a problem.

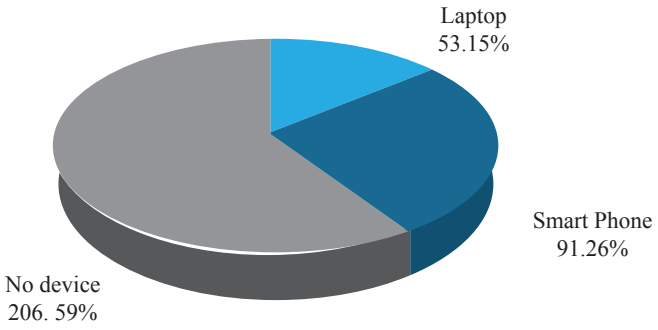
Figure 08: Available seamless room at home



Source: Field survey

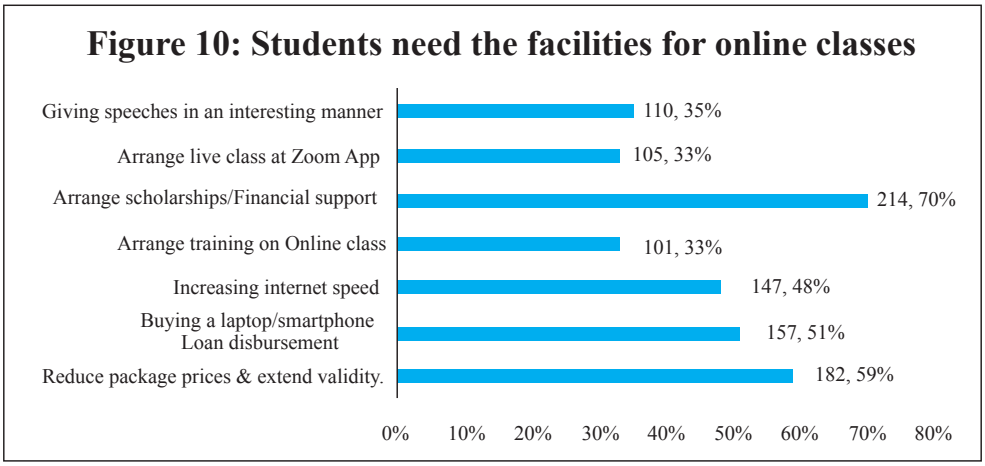
In Figure 08, it is evident that 59% of the respondents reported having a seamless room for online classes, while 41% stated that they do not have a suitable place. Previous surveys have revealed that a significant portion of students do not have uninterrupted room for online classes, which can impact the effectiveness of their learning experience. Ensuring all students have access to a suitable and uninterrupted space for online classes is crucial for facilitating effective remote education.

Figure 09: Use of own device



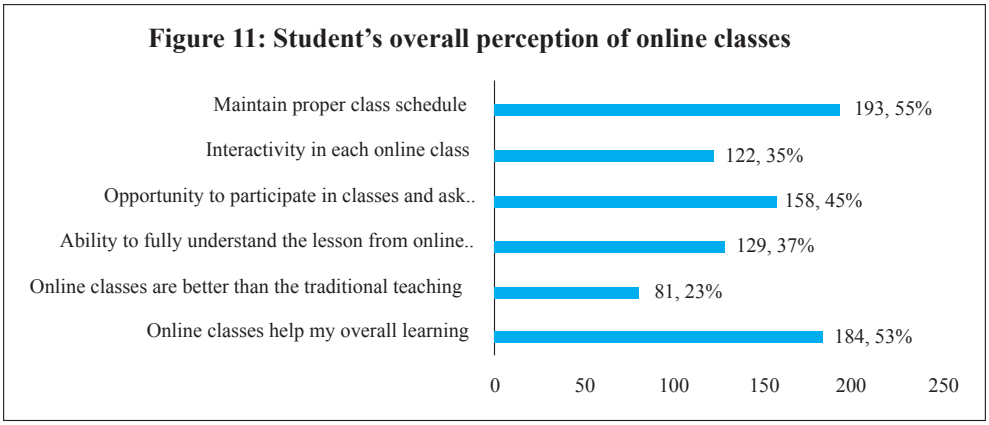
Source: Field survey

Figure 09 illustrates the usage of different devices for online classes. The survey revealed that 59% of students do not have their own devices, 26% use a smartphone, and 15% use a laptop. Additionally, 59% of students reported using other devices, such as those belonging to their parents. It was also noted that students who use other devices for online classes may not have consistent access to all classes. Therefore, it is essential for authorities to take the necessary steps to ensure that all students have access to suitable devices for online classes, to facilitate effective remote learning.



Source: Field survey

Figure 10 presents the perceptions of students regarding various factors essential for effective online classes. The survey findings indicate that 70% of students believe that financial support is crucial, as many students' parents may not be financially well-off. Additionally, 59% of students express concerns about the cost and duration of internet packages, highlighting the need for affordable and extended internet access. Moreover, 51% of respondents feel that having their own device is essential for online classes, as it enhances concentration and motivation. Furthermore, 48% of students emphasize the importance of internet speed for effective online classes. Additionally, 33% of students believe that online education requires formal and informal training, as well as more live classes, as it is reliant on an online system executed through computers. These findings highlight the significance of financial support, affordable internet packages, suitable devices, and adequate training in ensuring successful online learning experiences for students.

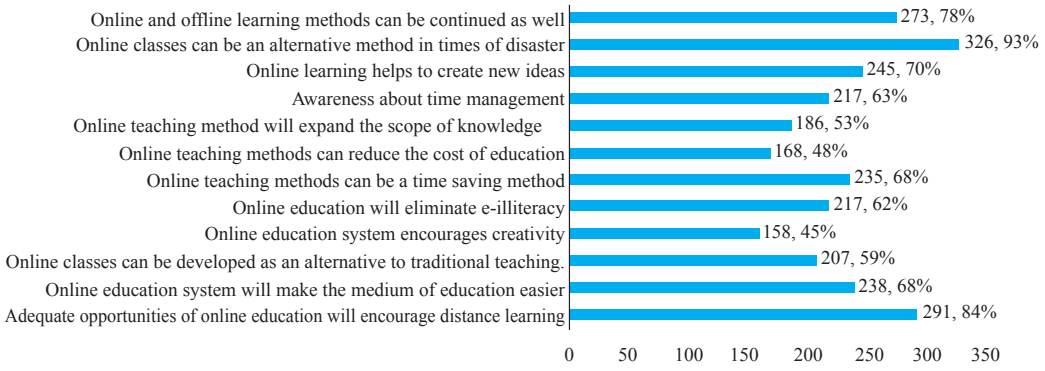


Source: Field survey

Figure 11 illustrates the perspectives of students on various aspects of online learning. The findings reveal that 53% of students express positive sentiments, indicating that online

learning enhances their overall learning process. Additionally, 55% of students believe that online classes enable better maintenance of class schedules compared to traditional classes, which may be disrupted due to natural disasters or other situations. Furthermore, 23% of students express a preference for online classes as they provide flexibility to learn from home when the college is closed and avoid face-to-face interactions. Moreover, 37% of students feel that online learning stimulates their creativity, as it utilizes computers and the internet to enhance their knowledge and creativity. Additionally, 45% of students believe that online classes create opportunities for participation and question-asking. Moreover, 35% of students express that online learning enhances interactivity among peers, allowing them to share information through chat boxes and access various study materials easily. These findings reflect the positive impact of online learning on students' learning experiences, including flexibility, creativity, participation, and interactivity.

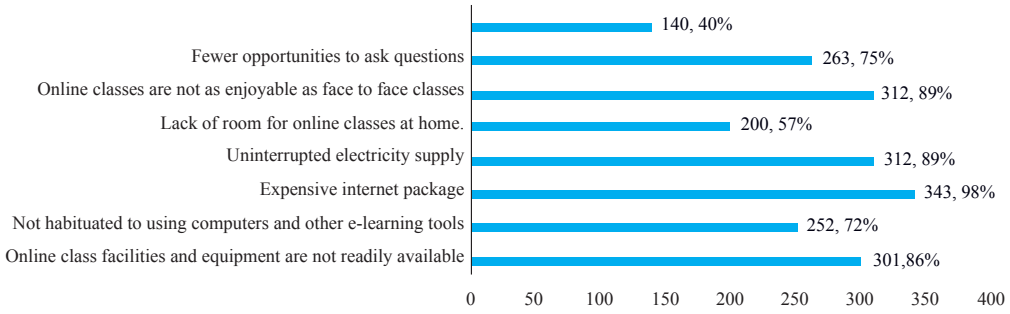
Figure 12: Prospects of online education



Source: Field survey

In today's era, there are various methods of teaching available, including online classes which can be taken from the comfort of home or any suitable location. With the widespread availability of Internet facilities in most households, online classes have become an effective and essential mode of education, particularly during times of epidemics like Covid-19. The online education system has gained prominence not only in villages but also in cities across the country. Students and learners can join online education programs from anywhere, at any time, both within the country and abroad. According to the survey results, 93% of students believe that online education is the best alternative during natural disasters. Additionally, 84% of respondents express the opinion that providing adequate opportunities for online education will encourage distance learning. Furthermore, 78% of respondents believe that educational institutions should continue with a mix of online and offline teaching methods to cope with unexpected situations such as *hartals* or natural disasters. Moreover, 70% of students feel that online classes foster creativity by providing opportunities to access diverse educational resources, enhance communication skills, and facilitate group study. Additionally, 68% of students believe that online teaching is a convenient and time-saving method, especially during unexpected situations when educational institutions can continue using this approach.

Figure 13: Challenges of online teaching



Source: Field survey

Despite the potential benefits of online teaching in our country, field surveys have identified various challenges. According to a study by BRAC (2020), only 44.10% of primary and secondary level students are participating in online classes, while 55.90% are not. The participation rates are even lower for Madrasa students (32.40%) and Bangla medium students (45.90%). In rural and urban areas, only 39.80% and 55.80% of students can participate in online classes, respectively. The study also found that 45.50% of girls and 42.70% of boys generally participate in online classes.

Additionally, Figure 13 reveals that students face several barriers to online learning. For instance, 98% of students surveyed reported that internet packages are expensive, and 89% felt that online classes are not as enjoyable as face-to-face classes. Furthermore, 86% of respondents stated that they are not familiar with online classes, and 75% reported that there are no class interaction facilities available. Many students also lack proper devices to attend online classes (72%), are not accustomed to online classes, and do not have adequate space for online learning (57%). Only 55.3% of surveyed students had a suitable device for online classes. Poor internet network and low speed also discourage students from attending online classes, particularly outside the capital Dhaka (Al-Amin et al., 2021).

Findings

The findings of the study can be summarized as follows:

1. Financial constraints among parents were identified as a major challenge for online classes, with most parents unable to afford the cost of internet packages (Fig. 2).
2. Students predominantly used mobile data for online classes, but different mobile data packages were found to be unsuitable for their needs. Respondents also reported that the quality of BTCL broadband internet, although good, was limited by a lack of available infrastructure (Fig. 3).
3. The study found that most students used *Zoom* and *Facebook* for online classes but faced difficulties with using these platforms due to issues with mobile data packages (Fig. 4).

4. The study revealed a positive relationship between parental income and the purchase of internet packages, with about 80% of parents having a monthly income of Tk.5000~20000 (Fig. 2). Additionally, 82% of students used mobile data as their internet package (Fig. 3), and 70% of students were unable to afford to buy an internet package (Fig. 5).
5. Students identified high package prices (85% of respondents), low internet speed (55% of respondents), and limited package duration (40% of respondents) as the main challenges of using internet packages for online classes. Dropped calls during online classes were also reported as a problem (Fig. 7).
6. A significant portion of students (41% of respondents, Fig. 8) did not have a separate room for online classes.
7. Many students (70% of respondents, Fig. 2) considered financial support to be essential for effective online classes, as a large portion of parents were not financially well off. The study found that 59% of students did not own a device and used their parents' or siblings' devices, which could affect their ability to attend online classes regularly and on time (Fig. 9).
8. 59% of respondents (Fig. 10) expressed the opinion that reducing the cost of internet packages, increasing their validity, and improving internet speed were essential for effective online classes. Additionally, 70% of respondents felt that financial support or scholarships were necessary to purchase devices or internet packages, and 55% believed that an education loan would enable them to purchase necessary materials and attend online classes effectively.
9. 53% of students (Fig. 11) felt that online classes accelerated the overall learning process, increased interest, and inspiration, and made them more resilient in the competitive world. Half of the students believed that maintaining a proper schedule was possible in online classes, unlike physical classes which could be affected by natural disasters and other situations.
10. The study revealed that 93% of students considered online teaching to be the best alternative during natural disasters (Fig. 12). Additionally, 84% of respondents believed that adequate opportunities for online teaching would encourage distance learning, and 78% felt that online and offline methods for a college education could continue during unforeseen circumstances like strikes and natural disasters. 68% of students believed that online teaching was a simple method that saved time, and money, and made education easier. 70% of students felt that online classes helped in generating new ideas, such as gathering knowledge and improving communication skills through group study.
11. The study found that 98% of students considered internet packages to be expensive, 89% felt that online classes were not as enjoyable as traditional classes, and 86% felt that they were not well acquainted with online classes. Additionally, 75% of students

believed that online classes lacked interactivity, 72% did not have appropriate devices to attend online classes, and 57% felt that they did not have a suitable place for online classes (Fig. 13).

Recommendations

Based on the survey results and conclusions, the following recommendations are proposed to improve online teaching methods:

1. Government funding: The government, as the proprietor of educational institutions, should provide adequate funding to enable the establishment of e-learning facilities for teachers. This includes setting up a live class recording room with an internet connection and standby power-generating set. The cost of purchasing and constructing this studio should be considered in the budget allocation, estimated to be around Tk.7 to 8.5 lack.
2. Uninterrupted power supply and ICT equipment: Ensuring uninterrupted power supply and procuring necessary ICT equipment, such as computers/laptops, for the use of students and teachers is crucial. This will enable teachers to create lecture materials and notes, and students to access online classes without disruptions.
3. Teacher training: Lecturers should be trained in appropriate skills for e-learning. This includes training on how to effectively use online platforms, create engaging content, and facilitate online discussions and assessments. Providing teachers with the necessary skills and resources will enhance their ability to deliver quality online education.
4. Affordable internet packages: Telecom operators have introduced `Unlimited' and `Without Expired' internet data packs, but these often come with limitations such as daily data usage limits and expiration dates. These packages can be expensive for students, limiting their access to online classes. The government can negotiate with internet and mobile operators to establish student-friendly agreements that ensure affordable and reliable internet packages for online classes.
5. Collaboration with stakeholders: Collaboration between the government, educational institutions, and other stakeholders such as internet and mobile operators is crucial for improving online learning opportunities. Partnerships and agreements can be established to ensure sustainable and affordable access to online education for all students.
6. Regular monitoring and evaluation: Regular monitoring and evaluation of online teaching methods, including feedback from students and teachers, can help identify areas for improvement and ensure continuous enhancement of online learning experiences. This can involve regular assessments of the quality of online classes, feedback collection from students and teachers, and making necessary adjustments based on the feedback received.

In summary, these recommendations focus on providing adequate funding, ensuring uninterrupted power supply and ICT equipment, teacher training, affordable internet packages, collaboration with stakeholders, and regular monitoring and evaluation to improve online teaching methods and create dynamic learning opportunities for students through online education. Implementation of these recommendations can contribute to enhancing the quality and accessibility of online education in Bangladesh.

Recommended frame for student-friendly internet package

Based on the findings of the study, the following recommendations are proposed for a student-friendly internet package:

1. Increased data allowance: Internet providers should increase the amount of data (MB) provided in their Internet packages to make them more usable for students. Taking into consideration the average data consumption of students during online classes (4.5 to 5 GB per week), a monthly data allowance of 18-20 GB should be considered to meet the needs of students.
2. Reduced package price: To make internet packages more affordable for students, the package prices should be reduced. This can be achieved by offering special discounted rates for students or providing subsidized internet packages specifically designed for educational purposes.
3. Extended validity period: The validity period of internet packages should be extended to 365 days to ensure that students have continuous access to online classes throughout the year. This will prevent disruptions in internet access and ensure that students can avail themselves of the benefits of the package for an extended period.
4. Flexible recharge options: Recharge options should be flexible, allowing students to recharge their internet packages in one, two, three, or monthly installments based on their convenience. This will provide flexibility for students in managing their internet usage and budget.
5. Carry-over of unused balance: Unused mobile balance should be carried over to the next recharge, allowing students to maximize the benefits of their internet package. This will prevent the wastage of unused balances and provide better value for money for students.
6. Extension of stipend scheme: The scope of the higher secondary stipend scheme can be extended to cover the cost of internet packages for students. This will provide financial support to students in accessing online education and ensure that they have uninterrupted internet access for their educational needs.

Table No. 01: Proposed students-friendly data package

Data package (GB)	Price (Tk.)	Package duration (days/unlimited days)
120 GB	1500.00	365 days
60 GB	800.00	Recharge every six months, but unused data will be added to the next recharge (package duration 365 days).
40 GB	550.00	Recharge every four months, but unused data will be added to the next recharge (package duration 365 days).
20 GB	150.00	Recharge monthly, but unused data will be added to the next recharge (package duration 365 days).

By implementing these recommendations, internet providers can offer student-friendly internet packages that are affordable, flexible, and meet the data needs of students, ensuring continuous access to online education throughout the year. This will contribute to creating a conducive environment for online learning and enable students to fully participate in online classes without the barrier of internet affordability and accessibility.

That's great to hear! The fact that the internet provider `Robi' has recently offered 30 GB of data for students at Tk. 220 for 30 days aligns closely with the recommended data volume and price suggested by the study5.

Conclusion

This investigation utilized an independent survey to assess the impact of online learning among HSC-level students from 6 colleges in 3 Divisions. Most students strongly agreed that they have acquired basic skills, such as using Microsoft Word, Excel, and PowerPoint, through online learning. Research also revealed that online learning methods inspire students and make them more enthusiastic about their learning. The convenience and adaptability of the online medium were recognized as positive aspects of online learning. Additionally, online learning was found to promote creative attitudes, generate new ideas for learning, and stimulate creativity.

The online education system provides expanded learning opportunities for students and serves as an effective means to conduct educational activities during unexpected shutdowns. The goal of online classes is to bring learning to the students, removing barriers created by location, closure of educational institutions, epidemics, and other factors. However, in a developing country like Bangladesh, there are challenges in making online education accessible to all. The sudden shift to online education due to the impact of Covid-19 has revealed that

many parents have low financial capacity, resulting in most students lacking the ability to afford classroom equipment such as laptops, computers, smartphones, and broadband internet. Furthermore, internet service providers have overcharged their packages and reduced their validity, making them unsuitable for students.

Despite these challenges, the online learning environment has the potential to overcome limitations of space and time, providing opportunities for inclusive education. Efforts are needed to address the financial constraints and access to devices and internet, and to improve the quality of online learning experiences in Bangladesh. Scholarships, education loans, and measures to reduce the cost of internet packages and increase their validity can contribute to making online education more accessible and effective for all students. Overall, online learning has the potential to remove class barriers and expand educational opportunities, but further actions are required to address the challenges and ensure equitable access to online education in developing countries like Bangladesh.

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