

Impact of Internet Connectivity on Education System in Bangladesh during Covid-19

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ABSTRACT

In Bangladesh, the era of using internet had begun in 4 June, 1996. People started using an internet for their personal use but the use of an internet on educational purposes is increasing day by day. In Bangladesh, the outbreak of COVID19 had begun middle march of 2020. All over the Bangladesh, the educational institute had stopped since March of 2020. To mobilize the education system, most of the education institute started using internet day by day. Internet was even used, before pandemic in higher education system but not in school, college. But during pandemic, the use of internet has increased a lot in the field of education as well as job sector. In our paper, we tried to show the present state of internet on education. To do this, we made a survey containing 260 people from different universities, medical colleges, schools, colleges and job sectors. In this paper, we tried to convey student's outlook towards online class. The impacts and challenges which showed in our paper will be a vital suggestions for government, policymakers, technical developers and educational authorities.

Keywords -Internet, COVID-19, Online Education, An impact of COVID-19, Distance learn.

Date of Submission: Feb 02, 2022

Date of Acceptance: Feb 14, 2022

I. INTRODUCTION

On educational sector, usage of the internet increasing day by day. Bangladesh took an initiative for National ICT policy-2009 to make the country digitalized in the year 2021. About 87.7% people used internet before pandemic and 7.5% people rarely used internet. The number of internet users was raised in 47.61 million, in January 2021. By 7.7 million (+19%) the number of internet users in Bangladesh is expanded in between 2020 and 2021. The number of mobile users is 165.8 million in January 2021. Between January 2020 and January 2021, the number of mobile connections in Bangladesh is increased by 1.7 million (+1.1%). The COVID-19 has affected the education system all over the world. Because of this circumstances, most of the nations had closed their instructive educate to diminish the extension of this infection which gotten to be the cause of numerous challenges. In Bangladesh, the scenario is not different. All over the Bangladesh, the educational institute had stopped since March of 2020. To mobilize the education system, most of the education institute started using internet day by day. Most of the educational institute had started their online classes through online platform like zoom, Google meet, Google class-room, YouTube, Facebook, etc.

II. LITERATURE REVIEW

The eruption of COVID-19 widespread brings the educational institution into online teaching. Understudies

have numerous insufficient aptitudes and ace arrange to cluster the desire of online education. This research initiated many impact and challenges of online class which are point outed by many educator. A study by Katerina Kedraka [1] has appeared the impacts of the COVID-19 pandemic on college's instructional method which measured by student's encounters and contemplations. EftaKhairulHaqueEmon [2] has showed the impact of COVID-19 pandemic on the education system and its possible outcomes. A study on medical students of Bangladesh, by EftaKhairulHaqueEmon [3] has showed student's views on Online Education. University admission test is becoming unreliable due to COVID-19 said by Shakila Aziz [4]. University student's faces many problems during online classes [5]. Problems of online education at public universities in Bangladesh is showed by Rubina Khan [6]. Sayem Ahmed [7]has evaluate the strategies to manage the COVID-19 Pandemic in the Education Sector. A study by Farhana Begum [9] has found the impact of COVID- 19 on Public University Students. Md. Rayhanul Islam [9] addresses the challenges in online class. A paper by Mohammad Monirujjaman Khan [10] has showed the Education system in Bangladesh during COVID-19. MdMostafizur Rahman [11] has discovered the responses among university students. The study gap caused by COVID-19 has showed by ShafiaShama [12]. HananAldowah [13] has found the challenges on online classes. Benefits, problems and prospect of Online Higher Education is presented by Md.

Awal Hossain Mollah [14]. Sushmita Dutta[15]has written a paper on the impact of COVID-19 on tertiary education.

III. METHODOLOGY AND SYSTEM PROCESS

This is an online based survey study of the education institution in Bangladesh. Our online survey conducted from 9th June to 18th June, 2021. About 260 people responds in our survey. In our survey from below 10 to more than 30 years old people participated. Participants are mainly from school level, college level, medical college, public university, private university, teachers and service holder. Our survey contains many questions like characteristics of students (Age, Gender, Residence, and Institution), students’ preparation for online classes (device, electricity, and internet connection), student’s problem during online classes (poor network, electricity, disconnection, device problem) and their perspective on online classes. We create a “google form” for our survey which was sent to the respondent through what’s app, Facebook messenger, email. We assure our participant that their valuable information will be confidential. After reading this, they gave their answer to our survey form. A total 260 participants send their complete information regarding the survey. We show the percentage of their information. This study focuses on the impact and challenges of the internet on online education during COVID-19.

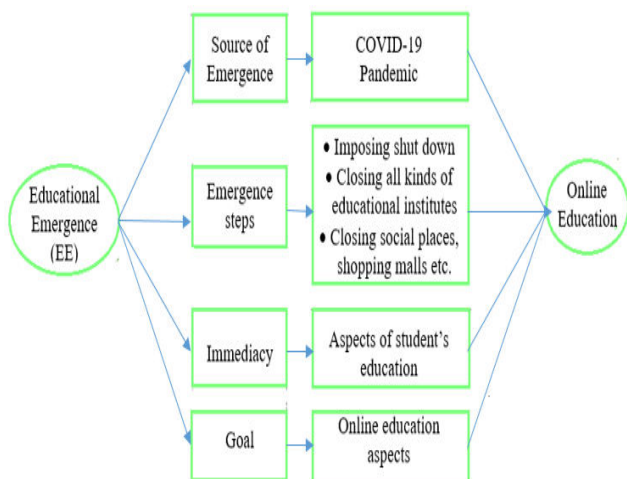


Fig. 1. System Model

3.1. DATA COLLECTION

We collect data for our survey from below 10 years to more than 30 years old, included primary level to higher level students, as well as teachers and job holders via google form. We asked many questions in our survey. These questions are: Age, Gender, Residence during COVID-19, Wi-Fi/Data pack, Used the internet before, The internet speed, The internet cost, Used device, Shared device with family, Occupation, Involvement in online class, Platform used for online classes, Problem faced during online class, opinion on online class, How much time do you spend for using the internet? We ensured our participants that their valuable information will be secured so they respond without any fear on our survey (total respondent 260).

Table-1: Survey Questions

Factors	Responds (%)	Not respond (%)
Age	260 (100%)	0 (0%)
Gender	260 (100%)	0 (0%)
Residence during COVID-19	259 (98.996%)	1 (1.004%)
WIFI/Data pack	260 (100%)	0 (0%)
Used the internet before COVID-19	260 (100%)	0 (0%)
Internet speed in local area	259 (98.996%)	1 (1.004%)
Internet cost per month	260 (100%)	0(0%)
Which device do you use?	260 (100%)	0(0%)
Sharing device with your family	260 (100%)	0(0%)
Occupation	260 (100%)	0(0%)
Involved in online class	250 (98.96%)	10 (1.04%)
Platform used for online class	241 (98.921%)	19(1.079%)
Problem faced during online class	239 (98.912%)	21 (1.088%)
Opinion on online class	241 (98.921%)	19 (1.079%)
Time spend for using internet per day	250 (98.96%)	10(1.04%)

IV. RESULT

4.1. CHARACTERISTICS OF PARTICIPANT

Population of Bangladesh in January 2021 is 165.5 million. Population was increased by 1.6 million (+1%) between January 2020 and January 2021. Among of the respondents, one (0.4%) participants were aged below 10 years old, 21 (8.1%) participants were aged between 10-16 years old, 26 (10%) participants were aged between 17-19 years old, 185 (71.2%) participants were aged 20-25 years old, 24 (9.2%) participants were aged 25-30 years old, 3 (1.2%) participants were aged more than 30 years old. On the other hand, about 134 (51.5%) participants of respondent are male and 126 (48.5%) participants are female. And Among these respondents, 132 (51%) participants are from urban areas and 63 (24.3%) participants are from Semi-Urban areas and lastly 64 (24.7%) participants are from rural areas. Poor internet speed in urban area is 5.8%, in rural is 9.27%. Average internet speed in an urban area is 34.36%, in a rural area is

14.67%. Strong internet speed in an urban is 10.04%, but unfortunately there is no strong internet speed in a rural area.

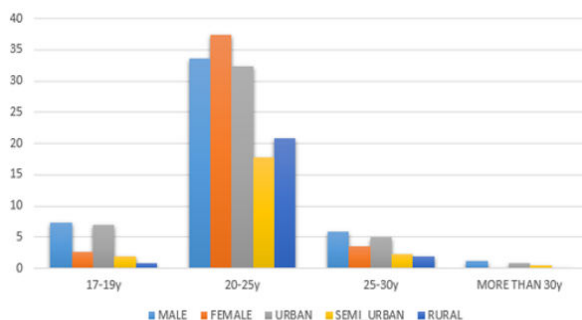


Fig.2. GENDER_AGE_RESIDENCE

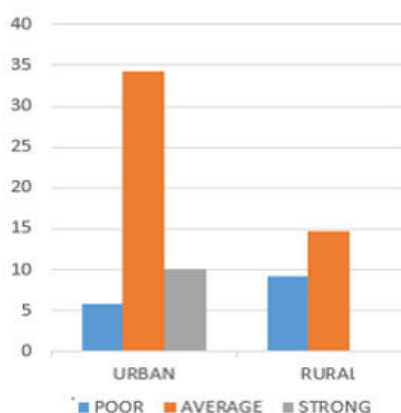


Fig.3. RESIDENCE_INTERNET SPEED

4.2. INTERNET USER BEFORE COVID-19 AND FREQUENCY OF USING THE INTERNET DURING COVID-19

According to a survey in January 2021, in Bangladesh, there are 47.61 million people use internet. The number of internet users is increased by 7.7 million (+19%) between January 2020 and January 2021. Number of Internet users stood 28.8% in January 2021. 228 (87.7%) participant people used internet before COVID-19, 19 (7.3%) participant used rarely, 13 (5%) participant did not use internet before COVID-19. The frequency of using internet by students during Covid-19 is increasing day by day. About 35 (13.9%) participants of respondents spent 1-3 hours' time, 84 (33.5%) participants spent 3-5 hours, 67 (26.7%) participants spent 6-8 hours and 65 (25.9%) participants spent more than 8 hours by using internet.

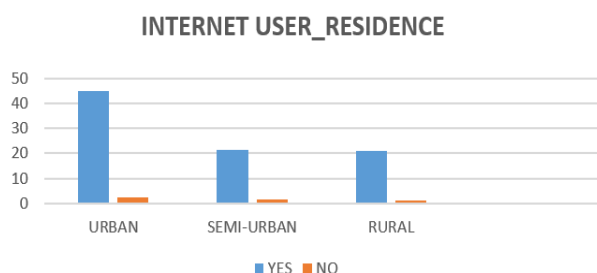


Fig.4. INTERNET USER_RESIDENCE

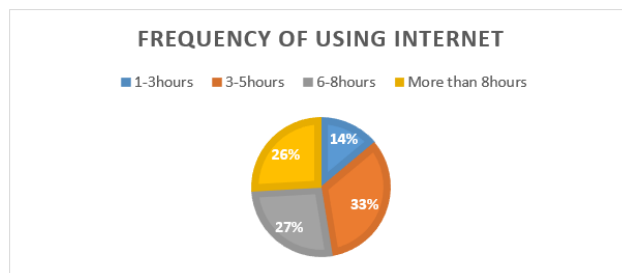


Fig.5. FREQUENCY OF USING INTERNET

4.3. INSTITUTIONS OF PARTICIPANTS

From our survey, 231 (92%) participant involve in online classes and 20 (8%) participant do not involve in online classes. The majority of respondents around 164 (62.8%) participants are from public university, 27 (10.3%) participants are from private university, 8 (3.1%) participants are from medical college, 10 (3.8%) participants are from job sector, 1 (0.4%) participant is teacher, 1 (0.4%) participant is from national university, 34 (13%) participants are from school and 16 (6.1%) participants are from college.

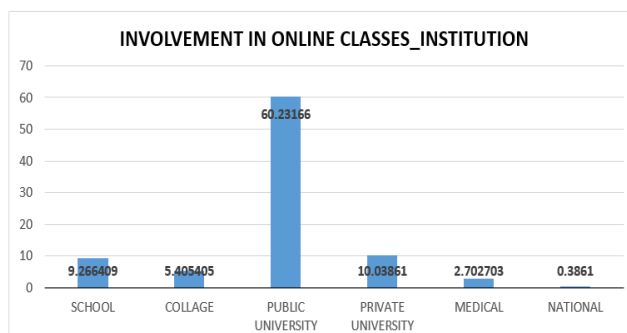


Fig.6. ONLINE CLASS_INSTITUTION

4.4. STUDENT'S PREPARATION FOR ONLINE CLASSES

For doing online class students must have a separate room, having electricity at their home, having internet connectivity. About 113 (43.3%) participants of respondent have separate room and 148 (56.7%) participants do not have separate room. 250 (97%) participants of respondent have electricity at their resident and 7 (3%) participants do not have electricity. 74% have internet speed at their home and 36% do not have internet speed. To be prepared for the online classes, students must have a device like (mobile phone, desktop, laptop, I-phone, and Tablet). 242 (92.7%) participants uses android, 22 (8.4%) participants uses I-phone, 89 (34.1%) participants uses laptop, 31 (11.9%) participants uses PC, and 9 (3.4%) participants uses Tablet. For online classes respondents use many platforms like Facebook, Zoom, Google Meet, and Messenger. Most of the respondent uses zoom app for online learning. About 208 (86%) participants of the respondent uses zoom app, 118 (48.8%) participants uses Meet, 41 (16.9%) participants uses Facebook, 24 (9.9%) participants uses YouTube and 4% uses other platform for online classes.

Table-2: Students preparation-1

Variable	Yes	No	Rare
Used internet before COVID-19	228 (87.7%)	13 (5%)	19 (7.3%)
Involved in online class	231 (92%)	20 (8%)	----
Personal device	112 (43.3%)	148 (56.7%)	----
Electricity	250 (97%)	7 (3%)	----

Table-3: Students preparation-2

Variables	Responds	Percentage
Device		
Android	242	92.70%
I-Phone	22	8.40%
Laptop	89	34.10%
PC	31	11.90%
Tablet	9	3.40%
Internet Speed		
Poor	56	21.60%
Strong	33	12.70%
Average	170	65.60%
Wi-Fi User	157	60.40%
Mobile Data	103	39.60%
Platform		
Zoom	208	86%
Meet	118	48.80%
Facebook	41	16.90%
YouTube	24	9.90%
Microsoft team	8	3.30%
Others	13	2.40%

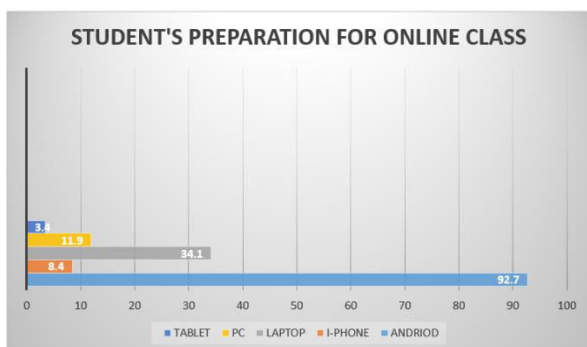


Fig.7. PREPARATIONS

4.5. PROBLEMS DURING ONLINE CLASSES

Main problem is the electricity problem. About 93 (38.8%) participants respondent faces electricity problem, 156 (65%) participants have slow internet, 98 (40.8%) participants faces disconnection problem, 49 (20.4%) participants have device problem and 1% faces other problems like surrounding noise during online classes.

Table 5: Student's problem

Factors	Yes	No
Electricity problem	93(38.8%)	147(61.2%)
Slow internet	156(65%)	84(35%)
Disconnection	98(40.8%)	142(59.2%)
Device problem	49(20.4%)	191(79.6%)
Other problems	8(3.2%)	232(96.8%)

4.6. PERSPECTIVE ABOUT ONLINE CLASSES

From our respondents, 107 (44%) participants said that offline classes is better, 9 (4%) participants said online classes is better, 50 (21%) participants said they cannot pay attention during online classes, 37 (15%) participants said they do not enjoy online classes, 39 (16%) participants said that sometimes they enjoy online classes.

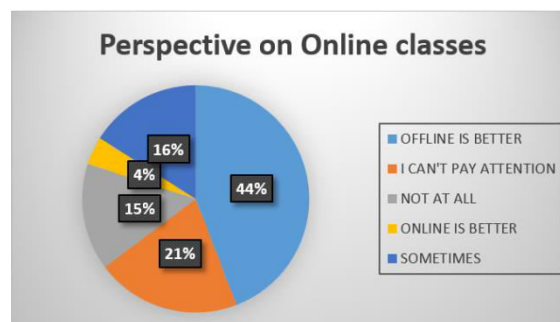


Fig.8. PERSPECTIVES

4.7. CHALLENGES OF ONLINE CLASSES

Before COVID-19 pandemic situation, percentage of student's studies was 40% which is reduced by 10% during COVID-19.

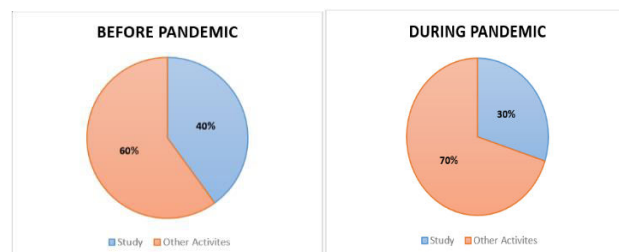


Fig.9. BEFORE PANDEMIC AND AFTER PANDEMIC

4.8. IMPACT OF COVID-19 ON TEACHERS

Teachers faces many challenges during pandemic. They lost their job, got less payment or did not get payment etc [25].

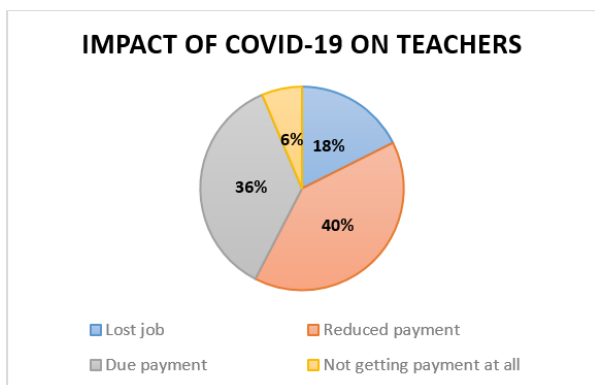


Fig.10. IMPACT ON TEACHERS

4.9. IMPACT ON GRADE

Some students think that their mark deteriorated due to online classes and some said that their grade remains consistence.

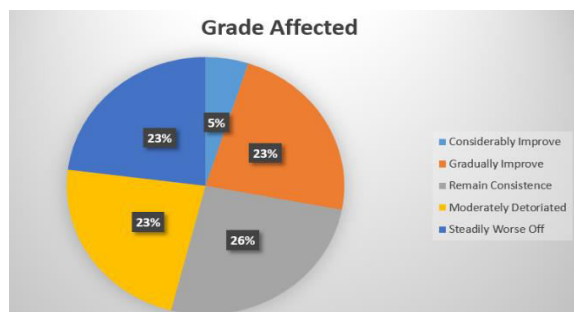


Fig.11. IMPACT ON GRADE

4.10. STUDENT'S SATISFACTION ON EDUCATION

A great portion of our survey shows dissatisfaction on education system. 1% participants of our survey said they are satisfied on our education [24].

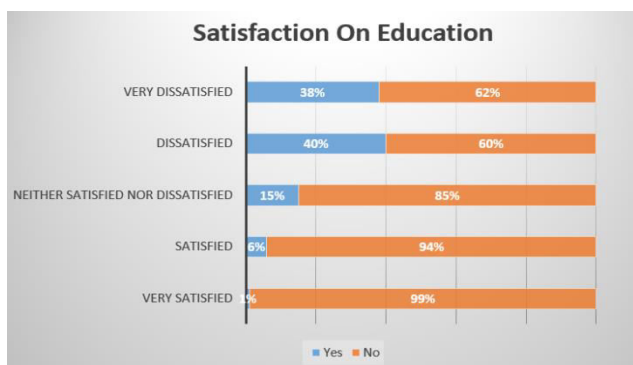


Fig.12. STUDENTS SATISFACTION

4.11. EXPERIMENTAL RESULT

We are physically unable to conduct instructional activities since the COVID-19 virus has spread to

practically every country on the planet. By preserving a physical distance, we chose the online education system as a substitute for physical educational activities. So we wanted to see how enthusiastic people are about taking online programs and most importantly the internet connectivity during online class. That is why we conducted a survey. According to our survey, there are various issues with the online educational system, such as inadequate internet, gadget shortages, electrical issues, and student attention issues. Only a small percentage of people claim to enjoy online classes.

Table 5: Experimental Result

Factors	YES	NO
Attend online class	250 (98.96%)	10 (1.04%)
Internet Connectivity	Poor 56(21.60%)	Average 170(65.70%)
Problem faced during online class	239 (98.912%)	21 (1.088%)

V. CONCLUSION

The use of internet in the education system of Bangladesh is increasing day by day. The main focus of our paper is to focus the impact of using internet on education during COVID-19 in Bangladesh from primary level to higher level. The use of internet is already prevalent in Bangladeshi higher education system. Students at private universities were involved in educational activities through their websites which kept them Government university students where they do not have an easy access to the Internet. Government university students where they do not have easy access to the Internet connected to study with the help of the internet. During pandemic period, through online education the main education system is in dynamic phase. In urban areas, internet connection has average speed so the students of an urban areas can easily involve in online class. But the internet speed in a rural area is so poor even some of area there is no internet coverage. As a results the students of the rural areas cannot attend class continuously. Devices problem is one of the most important issue for their online class. About 56.1% have to share their device with their family members due to financial condition. As they suffer from various problems 20.9% students cannot pay their attention, 15.4% students do not enjoy online class, 15.4% students can find interest sometimes, and 44.4% thought offline class is better than online class. To avoid this problem we should assure a strong internet coverage all over the country as well as we have to solve the device problem by giving the students personal device or other things.

5.1 LIMITATIONS

Our survey conduct in only a small portion of students from school, college, medical and service holder. This paper did not explain other factors such as student's financial need, student's social-physiological condition during COVID-19 that might affect online classes. This

study does not show how to solve education problem due to internet connectivity and how students will handle the situation.

REFERENCES

- [1] Kedraka, Katerina, and Christos Kaltsidis. "EFFECTS OF THE COVID-19 PANDEMIC ON UNIVERSITY PEDAGOGY: STUDENTS' EXPERIENCES AND CONSIDERATIONS." *European Journal of Education Studies* 7.8 (2020).
- [2] Emon, EftaKhairulHaque, Ashrafur Rahman Alif, and M. Shahanul Islam. "Impact of COVID-19 on the institutional education system and its associated students in Bangladesh." *Asian Journal of Education and Social Studies* 11.2 (2020): 34-46.
- [3] Khanom, Mehrunnissa, et al. "How were the online classes in undergraduate medical teaching during COVID Pandemic? Students' views of a non-Government medical college in Bangladesh." *Bangladesh Journal of Medical Education* 11.2 (2020): 3-13.
- [4] Aziz, Shakila, KaziMdMohsinUzzal, and Saqiba Aziz. "COVID-19 and university admission exams: A Bangladesh perspective." *Journal of Public Health Research* 9.Suppl 1 (2020).
- [5] Hossain, MdTanvir, et al. "Challenges of online education/distance learning for university students during the COVID-19 pandemic: An observation from Bangladesh." (2021).
- [6] Khan, Rubina, et al. "Online Instruction during COVID-19 at Public Universities in Bangladesh: Teacher and Student Voices." *TESL-EJ* 25.1 (2021): n1.
- [7] Rahman, MdMostafizur, et al. "COVID-19 responses among university students of Bangladesh: Assessment of status and individual view toward COVID-19." *Journal of Human Behavior in the Social Environment* 31.1-4 (2021): 512-531.
- [8] Begum, D. F., et al. "Combating the impact of COVID-19 on Public University Students through Subsidized Online Class: Evidence from Bangladesh." *Journal of Education and Practice* 141 (2020).
- [9] Islam, Rayhanul, et al. "Assessing the challenges in online class during the coronavirus (COVID-19) pandemic in Bangladesh." *Academy of Strategic Management Journal* 19 (2020): 1-8.
- [10] Khan, Mohammad Monirujjaman, SM Tahsinur Rahman, and SabikTawsifAnjum Islam. "Online education system in Bangladesh during COVID-19 pandemic." *Creative Education* 12.2 (2021): 441-452.
- [11] Rahman, MdMostafizur, et al. "COVID-19 responses among general people of Bangladesh: Status and individual view toward COVID-19 during lockdown period." *Cogent Psychology* 8.1 (2021): 1860186.
- [12] Shama, Shafia, and JavedIqbal. "EDUCATION DURING A PANDEMIC: A feasibility study of online classes in Bangladesh to counteract potential study gaps caused by COVID-19 related lockdowns." (2020).
- [13] Aldowah, Hanan, Hosam Al-Samarraie, and Samar Ghazal. "How course, contextual, and technological challenges are associated with instructors' individual challenges to successfully implement e-learning: a developing country perspective." *IEEE Access* 7 (2019): 48792-48806.
- [14] World Health Organization. "Key messages and actions for COVID-19 prevention and control in schools." (2020).
- [15] Dutta, Sushmita, and MarziaKhatanSmita. "The impact of COVID-19 pandemic on tertiary education in Bangladesh: students' perspectives." *Open Journal of Social Sciences* 8.09 (2020): 53.
- [16] Bender, Lisa. "Key messages and actions for COVID-19 prevention and control in schools." *Education UNICEF NYHQ* (2020).
- [17] MimmaTabassum, Seefat E Mannan, MdIftakharParvej, Firoz Ahmed. (2021). Online Education during COVID-19 in Bangladesh: University Teachers' Perspective
- [18] Adnan, Muhammad, and Kainat Anwar. "Online Learning amid the COVID-19 Pandemic: Students' Perspectives." *Online Submission* 2.1 (2020): 45-51.
- [19] Al-Amin, Md, et al. "Status of tertiary level online class in Bangladesh: students' response on preparedness, participation and classroom activities." *Helijon* 7.1 (2021): e05943.
- [20] Alam, Alaul. "Challenges and possibilities of online education during Covid-19." (2020).
- [21] Mahdy, Mohamed AA. "The impact of COVID-19 pandemic on the academic performance of veterinary medical students." *Frontiers in veterinary science* 7 (2020): 732.
- [22] Sarkar, ShyamSundar, et al. "Perceptions of public university students towards online classes during COVID-19 pandemic in Bangladesh." *Frontiers in Education*. Vol. 6. Frontiers, 2021.
- [23] Ramij, Md, and Afrin Sultana. "Preparedness of online classes in developing countries amid COVID-19 Outbreak: A Perspective from Bangladesh." *Afrin, Preparedness of Online Classes in Developing Countries amid COVID-19 Outbreak: A Perspective from Bangladesh (June 29, 2020)* (2020).
- [24] Amir, Shamaila. "Research in use of information & communication technologies (ICT) for developing listening comprehension competency in foreign/second languages: A Review of Selected Tools." *International Journal of Social Sciences & Humanities* 3.1 (2018): 44-53.
- [25] DeyMondal, Sukarna, and Dipendranath Ghosh. "AN INTEGRATED APPROACH OF MULTI-CRITERIA GROUP DECISION MAKING TECHNIQUES TO EVALUATE THE OVERALL PERFORMANCE OF TEACHERS." *International Journal of Advanced Research in Computer Science* 7.5 (2016).