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Abstract

The purpose of this study is to explore the learners' perception on online learning in the midst of COVID-19 pandemic. This research applied quantitative method. The subject of this research is the students of private universities in Bangladesh. Two hundred and sixty students completed 29 Likert-type items survey on ICT Infrastructure, Equivalence, Engagement, Assessment, and Future of on-line classes ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), Data was analyzed through SPSS version 20 and several statistical test has been done. The study found that Higher Education Institutions' (HEIs) ICT infrastructure is highly supportive and maintaining effective communication with teachers, students and parents, however very less students found on-line classes are equivalent in Quality, Engagement and assessment in comparison to face to face classes. Moreover many participants are found to be disengaged due to the fear, anxiety and stress caused by COVID-19. Learning from home is also disruptive due to complex home environment. Overall, participants strongly believe that on campus study is irreplaceable for better learning, engagement, assessment and interaction. Yet, most of the students expect the mix-method or blended teaching learning facilities as a new normal in education sector after the pandemic.

Keywords: E-learning, HEIs, ICT Infrastructure, Equivalence, Engagement, Assessment, on-line classes.

1. Introduction

Against the milieu of the COVID-19 outbreak several strategies are being initiated by the administrations of different countries and Higher Education Institutions (HEIs) across the world to continue teaching learning. However, teaching pedagogy, the work load and responsibilities of teachers and students, the teaching-learning environment, and the inferences for education equity are ambiguous, complex and divergent (Zhang, Wang, Yang, & Wang, 2020). Extensive nationwide efforts to use technology in emergency remote teaching (ERT), distance learning and online education during the COVID-19 pandemic are emergent and surfacing quickly. Literature highlights certain deficiencies such as the poor online teaching infrastructure, the unpreparedness of teachers, Students less Engagement, Equivalence , Reliability of Assessment and Exam, and so forth (Murgatrotd, 2020).

To manage the problems, Huang, Liu, Tlili, Yang, & Wang, (2020) proposes that governments and education institutions need to further stimulate the structure of the educational information, equipping instructors and students with standardized home-based teaching learning equipment, conduct online teacher training and support academic research into online education.

According to UNESCO (2020), over 100 countries including Bangladesh have implemented nationwide closures, impacting over half of the world's student population. In Bangladesh, education of about fifty million students from the primary level to the higher secondary level and around 4.4 million students in universities are affected by the pandemic. Fortunately, unlike any time in the past, education is being continued through the digital shift in Bangladesh (UNESCO,2020). In response to a surge in school and university closures, Education Board ,University Grant Commission(UGC) along with the government step up the emergency response and share strategies to minimize learning disruption. A good number of private and public universities have been taking online classes through different digital platforms such as Microsoft Teams, Google Classroom, Hangouts, Google MEET and Zoom.

However, like students all over the world, students in Bangladesh are facing trauma, moral injury, and a collective anticipatory grief during COVID-19 (Berinato, 2020). Uncertainty and the fear of death is breaking the sense of safety and generating a real anxiety, depression and prolonged grief (Scott berinato,2020). In this context, though educators suddenly thrust into emergency remote teaching (ERT), it is profoundly different from traditional online courses where content is already developed and can be just as effective as face-to-face instruction(Robert M. Branch and Tonia A. Dousay,2015).Emergency Remote Teaching (ERT) follows 'Pandemic pedagogy'(Milman,2020), therefore careful design process is absent in most cases in these emergency shifts (Hodges, Moore, Lockee, Trust, & Bond, 2020).Moreover, Online learning carries a stigma of being lower quality than face-to-face learning, despite research showing otherwise. These hurried moves online by so many institutions at once could seal the perception of online learning as a weak option, when in truth nobody making the transition to online teaching under these circumstances will truly be designing to take full advantage of the affordances and possibilities of the online format. (Hodges, Moore, Lockee, Trust, & Bond, 2020).

2. Aim of the Study

This study aims to explore how teaching and learning can still continue during such unprecedented times. Subsequently the study was directed by the research question: What is the perception of students regarding online teaching learning during COVID-19 pandemic in Bangladesh?

3. Theoretical Framework

3.1 ICT Infrastructure

These new settings and environments are different and significantly diverse from each other, which has intensely changed the pattern of student's engagement and learning (Xie, Heddy, & Vongkulluksn, 2019). Effective online teaching depends on well-designed content, encouraging interaction between the teachers and learners, ready and sufficiently-supported instructors; online community of learning; and speedy technological advancement. As a result, an on-going discussion of effective approaches

will be stimulated to enhance universities success in shifting to teach online (Sun and Chen ,2016)

The World Bank is aware that some education organizations, though the most high performing, may not be sufficiently equipped to conduct online teaching for all learners at such a wider scale. Technological advancement often outstrips decision maker's ability to continue in view of the cost and infrastructure support (World Bank, 2020b). It must be firmly recognized that to deliver effective online and blended learning ICT infrastructure should be well established. It is beyond question that the ICT integration as an instructional method in academic curriculum has accelerated at a rapid rate. Consequently HEIs have started using different applications such as Moodle and educational Blogs as an enhancement of existing pedagogy and methods (Becker, 2000; Ruzgar ,2005). Moreover, Laird and Kuh (2001) in their study found that majority of students have natural responses to the technology related things. Therefore, shifting online is not seen as a big change for many universities and students in the world. Subsequently, in recent years, an increasing interest in the emergence of ICT used multimedia-enhanced content to enhance the quality of teaching and learning have been observed (CoSN, 2020; Smith & Judd, 2020; UNESCO, 2020; World Bank, 2020b).

3.2 Equivalence:

Students usually perceive online learning to be considerably more flexible than face-to-face learning (Schwartzman, 2007). Students enroll as online classes are efficienct, convenient, and flexible (Leasure, Davis, & Thievon, 2000, Horspool & Yang, 2010, Richards & Ridley, 1997, Roblyer, 1999).However, students who lack self-motivation and inclined to procrastinate may have a negative impact on online performance or completion (Deimann & Bastiaens, 2010). Excessive flexibility may also be associated with lesser interaction with teachers and peers (Shedletsky & Aitken, 2001). learners perceive face to face courses to be more interactive as face-to-face classes was associated with the amount one valued collaboration and interaction with the teacher and other students (Roblyer,1999). Similarly, Bejerano (2008) also criticized lost opportunities for interaction in online courses. Students tend to rank face-to-face courses as offering the greatest number of opportunities for immediate feedback. (Faux & Black-Hughes, 2000; Leasure et al., 2000). When comparing online and face-to-face course delivery, there is a lack of consistency in results. Some researchers found online classes result in greater knowledge gained (e.g.,

Koory, 2003); others found face-to-face mode have better results (e.g., Cryan et al., 2007); and few other studies have observed no significant differences between the two (e.g., Clark & Jones, 2001; Hollerbach & Mims, 2007; Johnson et al., 2000)

3.3 Student Engagement

Banna, Lin, Stewart, and Fialkowski (2015) found that engagement is the key solution to the issues of learner isolation, dropout, retention, and graduation rate in online learning ; if content played a central focus in the past, engagement plays a significant role in stimulating online learning today. Yet, Student engagement is a multifaceted and complex construct (Ben-Eliyahu, Moore, Dorph, & Schunn, 2018). If students are intrinsically motivated they invest in learning, attend classes, and participate in study activities (Bakker etal., 2007). Motivation is an antecedent to engagement and a force that energizes behavior (Lim, 2004; Reeve, 2012; Reschly & Christenson, 2012).

Nevertheless, COVID-19 has caused several psychological impacts, including increased anxiety, negative psychological problems (Fardin, 2020). Unfortunately Anxiety or worry can lead to a lack of motivation and personal fulfillment (Beilock & Willingham, 2014; Supporting Minds, 2013; Wigfield & Eccles, 2000).Though digital technology has become a central aspect of on-line education, (Barak, 2018; Henderson, Selwyn, & Aston, 2017; Selwyn, 2016), there is, however, no guarantee of active student engagement as a result of using technology (Kirkwood, 2009 and Bernard at el ,2011).

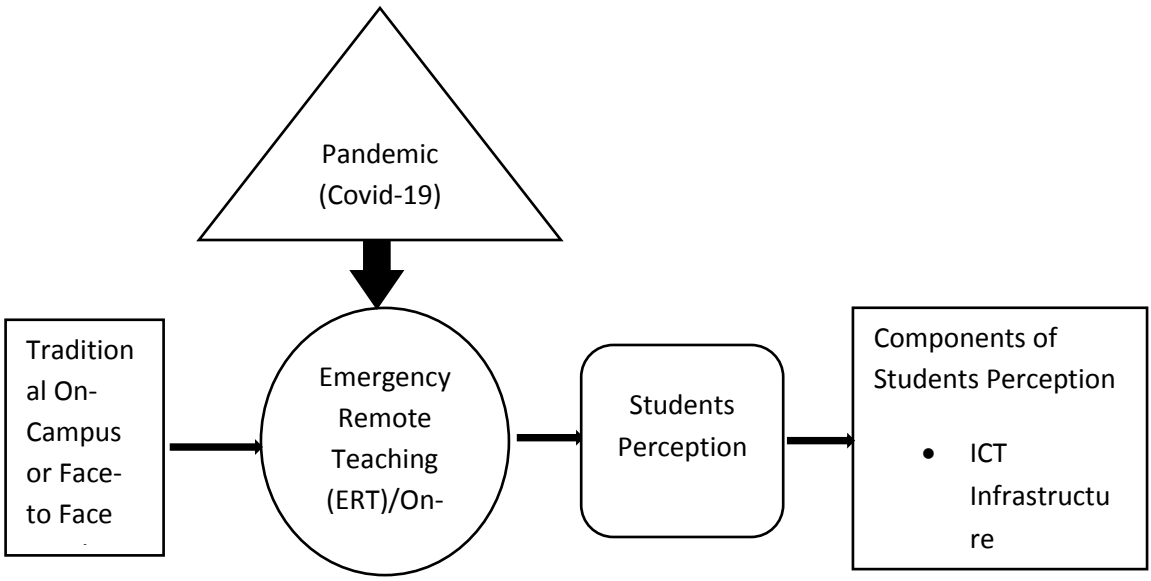

Figure 1: Framework on major factors of On-line Teaching developed by the researchers of this study

3.4 On-line Assessment

One key question associated with e-learning concerns whether students assessment in the online mode fair (Fonolahi et al., 2014). Possible threat to validity of on-line assessment or exam is unreliability of the technologies used to implement it (Hewson, Charlton, & Brosnan, 2007; Warburton, 2009). Other factors, which might also pose a threat to the validity and reliability of online assessment methods, are modality effects (online versus offline) and students' computer-related behaviour, such as technology anxiety , which may affect their performance in computerized testing environments (Beckers, Rikers, & Schmidt, 2006; Hewson et al., 2007; JISC, 2007; Meyer et al., 2016; Powell, 2013). modality effects happens as performance on an equivalent test or assessment is influenced by the mode, online or offline, in which the test is taken. Investigations of modality effects in a course-based assessment context have been lacking, in comparison to non course-based contexts (Fonolahi et al., 2014; Hewson, 2012)

3.5 Future of E-learning:

The most vital characteristics of e-learning is that it centers on the learners (Holmes and Gardner 2006). It is quite clear that students are deeply aware of the changes brought over by the digital technologies. Popovici and Mironov (2014). They prefer mixed mode and web supplemented courses rather than a web dependent course or fully online courses (Eldeeb 2014). A large number of students believe that on- line learning is an innovative idea and must be encouraged, however, few concerns such as the fear of employers' discrimination for studying on-line (Mamattah,2016).

About the advantages of on-line mode, Mislinawati and Nurmasyitah (2018) shows that the students believe on-line module to be useful in improved understanding, sense of independence, self-discipline, motivation to learn, and interactions with peers and with the instructors.

Nevertheless learners certainly have their own perception of online learning in the midst of pandemic this COVID-19 and students in Bangladesh are not exceptional. Therefore, understanding student's perception is important and can be used as an input for teachers and higher education institutions (HEIs) in conducting this online learning process during any emergency situation like COVID-19.

Thus, the purpose of this study is to investigate the learners' perception on Online Learning in the midst of a COVID-19 pandemic. This study will specifically explore students' perception by using five factors such as ICT Infrastructure, Equivalence, Engagement, Assessment, and future of on-line learning.

4. Materials and Methods

This study used quantitative data. A validated online survey instrument was used to collect data. The sample consisted of 260 students at nine universities across Bangladesh, Researchers requested assistance of faculty members who have been teaching in online undergraduate and graduate programs to invite enrolled students via electronic mailing lists to participate in the study. These universities were selected because they are front-liners in conducting On-line classes during the pandemic. Over 80% of them were enrolled in undergraduate program. Other students identified them as Masters and MBA students. Participants reported they had completed 5 to 10 courses for 24

weeks. The instrument was developed by the researchers after conducting an extensive literature review on most common factors that influence online Teaching Learning in higher education. Likert-type items were developed based on five factors (Moore, 1993): ICT Infrastructure, Equivalence, Students Engagement, Assessment and future of online method. The original instrument included a total of 45 questions: 39 Likert items, one open-ended questions, and five demographic questions. The final version of the instrument included 32 total questions: 29 Likert-type items ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), one open-ended questions, and three demographic questions. The demographic questions included age and gender, current student status. Data was analyzed through SPSS version 20 and several statistical test has been done.

Students usually perceive online learning to be considerably more flexible than face-to-face learning (Schwartzman, 2007). Students enroll as online classes are efficienct, convenient, and flexible (Leasure, Davis, & Thievon, 2000, Horspool & Yang, 2010, Richards & Ridley, 1997, Roblyer, 1999).However, students who lack self-motivation and inclined to procrastinate may have a negative impact on online performance or completion (Deimann & Bastiaens, 2010). Excessive flexibility may also be associated with lesser interaction with teachers and peers (Shedletsky & Aitken, 2001). learners perceive face to face courses to be more interactive as face-to-face classes was associated with the amount one valued collaboration and interaction with the teacher and other students (Roblyer,1999). Similarly, Bejerano (2008) also criticized lost opportunities for interaction in online courses. Students tend to rank face-to-face courses as offering the greatest number of opportunities for immediate feedback. (Faux & Black-Hughes, 2000; Leasure et al., 2000). When comparing online and face-to-face course delivery, there is a lack of consistency in results. Some researchers found online classes result in greater knowledge gained (e.g., Koory, 2003); others found face-to-face mode have better results (e.g., Cryan et al., 2007); and few other studies have observed no significant differences between the two (e.g., Clark & Jones, 2001; Hollerbach & Mims, 2007; Johnson et al., 2000)

5. Results and Discussions

In general, most of the students feel that they were isolated and got frustrated for being far away from the campus and friends, but on-line classes helped them to be virtually connected with the flow. It also saved their academic loss.

On the ICT structure subscale, over 65% respondents agreed with the item 3, 4 & 5. Around 50% of the respondents rated disagree with item 2 & 6.

ICT Infrastructure of Universities

	I am happy that my university has taken initiative to stop any study loss on-time through E-learning	On-line method is Accessible, equal & disable friendly	My university has been providing all technical support for on-line Classes	My university is maintaining effective communication through email, website, e-learning with students, teachers, parents	On-line Class is more cost saving	Adequate Training about On-line Teaching learning was given to Students and Faculty	Device cost is heavy
Mean	3.23	2.84	3.28	3.38	3.31	2.32	3.15
Std. Deviation	1.128	.987	1.225	1.198	1.488	1.022	1.296

Scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree)

Table 1: Means and Standard deviations for items on the ICT Structure Subscale

The majority of Participants which is more than 80% strongly agreed item 6 that face to face interaction gives more opportunities for learning. This item had not only the highest mean score (*M= 4.18 ; SD= 1.11*) on this subscale (Table 2) but also the only mean score above 4.0. 70% respondents agreed with the item 1 and item 3. Out of this, 73% agreed that face to face classes are more effective and 70% said that online and face to face classes are similar.

Equivalence

	On-line classess are similar to face to face classess	On-line classes are more Convenient and Flexible than face to face Classes	I can interact better in face to face classess	I learn more in on-line classess	I learn more in Face to face classess
Mean	3.54	2.32	3.63	2.08	4.18
Std. Deviation	1.048	1.047	.967	1.192	1.114

Note:Scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree)

Table 2: Means and Standard deviations for items on the Equivalence subscale

The majority of the respondents which is 70%, agreed with the item 5 which has the highest mean score in the table. More than 60% agreed with the item 1 and 4.

Students Engagement

	Teachers are more cooperative so that we get involved more	Teachers use multiple engagement strategies	connection with teachers and friends through on-line mode helping me to be mentally fit and cope with social distancing	I can not participate on-line class properly due to household responsibilities	Due to fear of COVID-19 I can not concentrate on on-line clasees	This initiative of on-line classes is helping me to cope with anxiety and mental health problems
Mean	3.06	2.84	2.68	3.09	3.52	2.80
Std. Deviation	1.091	1.084	1.011	1.179	1.137	1.135

Note: Scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree)
Table 3: Means and Standard deviations for items on the Engagement subscale

Majority of the participants which is 50% are neutral about the online assessment. Nearly 45% also agreed that item 2, teachers are well trained on online assessment. Item 1 *(M=1.80)* item 3*(Mean= 1.81)* and 5 *(M=1.70)* have been disagreed by respondents which are just above 30%.

Assessment in Online Class

	On-line Assessment is fair, easy to understand	Teachers are well trained on online Assessment	assessment or exam should be strictly maintained during panemic	The quality of assessment is equivalent to on-campus assessment	On-line Assessment is Reliabile and grading nd rating consistency
Mean	1.80	2.40	1.81	1.70	2.55
Std. Deviation	1.076	1.307	1.118	1.126	1.040

Note:Scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree)

Table 4: Means and Standard deviations for items on the Assessment subscale

80% of the respondents termed item 1 as strongly agree which has the highest mean score (*M= 4.01; SD=.825)* in the table 5 also compare to other items. Item 2 has been rated agree by 70% of the respondents. All the items on this subscale has a mean score above 3 or above.

Future of On-line Classes

	I prefer on-campus study only	On-line class during pandemic has created an opportunity for future crisis	Online based curriculumn should be developed in future	Blended or combination of Face to face and on-line class is better	I prefer university to have a mixed method of on-line class and on-campus class

Mean	4.01	3.61	3.38	3.24	3.35
Std. Deviation	.824	1.145	1.161	1.164	1.210

Note: Scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree)

Table 5: Means and Standard deviations for items on the Future of online subscale

In this study, quantitative findings show that students agreed that university is providing all kinds of required support for holding online classes, maintaining effective communication through various means of communication with teachers, students and parents, this study is supported by the similar study done by Sun and Chen in 2016.

However, Participants strongly agree that face to face interaction gives them the better opportunities to learn more compare to distant learning. Even, interactions are more effective while attending on campus. This findings of this study are consistent with findings of Faux & Black-Hughes, 2000; Leasure et al., 2000 as according to them students tend to rank face-to-face courses as offering the greatest number of opportunities for immediate feedback. It is also consistent with Bejerano (2008) who also warns lost opportunities for interaction in online courses. Very less students think that On-line classes are more Convenient and Flexible than face to face Classes which is inconsistent with the findings by Schwartzman, 2007 that Students usually perceive online learning to be considerably more flexible than face-to-face learning.

Due to the fear of COVID- 19, most participants are unable to concentrate properly. This can be explained by the psychological pressure that they have been going through during this phase of time. In addition, house responsibilities also worked as a barred towards concentration. As people are confined in their houses, more responsibilities they have to perform while staying at home .This finding has the similarity with the study done by Bakker etal., 2007 and Fardin in 2020 who emphasized that COVID-19 has caused several psychological impacts, including increased anxiety, negative psychological problems for students. This may explain why most of the students rated on-line classes this item low. Kirkwood (2009) and Bernard at

el (2011) state that . there is no guarantee of active student engagement as a result of using technology.

As most of the academic institutions are conducting online classes teachers are becoming more efficient in assessing the performances of students. However, very less student are happy with the reliability of online assessment and grading. Most of the students are doubtful about the the quality of assessment as they do not think it is equivalent to on-campus assessment.This finding is the opposite of the findings proposed by Koory, (2003). Koory found online classes result in greater knowledge gained and interaction. However Cryan et al., 2007 found that face-to-face mode have better results which is consistent with this current study.

At the end, the study shows that participants strongly believe that on campus study is irreplaceable by any forms of teaching. Majority of the respondents would love to study on campus for better learning. Another group reflects their thought that crisis time has led the option for new techniques of teaching and learning so that learning never stops. Few want the blending of both on and off-campus learning facilities. This finding is consistent with that of other researchers. For example, in his study Eldeeb (2014) found that student prefer mixed mode or blended learning .However this study is inconsistent with prior findings. Other author such as Mamattah (2016) point out that majority of the students think only e-learning is an innovative idea and must be encouraged.

6. Limitations and Future Research

Some methodological limitations need to be mentioned. First, the sample size is relatively small, and the sample was drawn from a limited number of universities. Second, all data were self-reported due to the nature of the study. Third, the list of areas is not an exhaustive list of all possible areas that may be considered for students opinion. Last, respondents were solicited from multiple universities across Bangladesh. The researchers had no control over the design and delivery of courses, programs, or strategies used by instructors.Moreover Data should have taken from more diversified students group and for longer period. All of these elements impact the students' learning experience and influence their perceptions. Readers should interpret the results with caution due to these limitations because results may have limited generalizability in different settings and contexts. Other researchers could examine additional factors that are not included in the survey utilized

to collect data in this study. Future research could focus on examining faculty perceptions of on-line teaching learning and compare differences between faculty and student perceptions. It would be worthwhile to investigate the perceptions of Parents as this is completely a new experience for them and complex home environment is a major factor that influence students perception on online classes and its effectiveness.

7. Conclusions

Though universities is providing all kinds of required support for holding online classes, maintaining effective communication through various means of communication with teachers, students and parents, very less students think that On-line classes are more Convenient and Flexible than face to face Classes, rather most of the students strongly believe that face to face interaction gives them the better opportunities to learn more compare to distant learning. Though few students considers online learning to be considerably flexible however, most participants are unable to concentrate properly due to the fear , anxiety and stress due to COVID-19.Learning from home is also disruptive due to complex home environment such as many students cannot concentrate to household responsibilities. One of the significant findings is that very less student are happy with the reliability of online assessment and grading as they are doubtful about the quality of assessment and the condition in which the test is taken.

Overall, participants strongly believe that on campus study is irreplaceable by any forms of teaching and majority of the respondents are eager to go back to study on campus for better learning, engagement, assessment and interaction. However, some students reflected that COVID-19 crisis has led the option for new techniques of teaching and learning so that learning never stops; therefore few want the mix-method or blended teaching learning facilities as a new normal after the pandemic. The pandemic is also an opportunity to remind education community of the skills students, teachers need in this unpredictable world such as creative problem solving, adaptability and informed decision making.

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