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Factors affecting online classes and their impact on learning: a case study on American International University-Bangladesh (AIUB) Dhaka, Bangladesh

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Abstract

The COVID-19 pandemic has interrupted normal operations such as education, jobs and various activities across the world. The success of online learning mainly depends on the teachers and students including delivery, course contents, materials, training, technology, power supply, communicaton, attitude and perception of senders and receivers. Bangladesh, as a least developed country, encounters various problems related to online learning. This study illustrates the causes and effects of online classes on learners in Bangladesh.

Keywords: Online Learning, Distance Learning, Perception, Satisfaction, Students-Teachers, Bangladesh

Introduction

Covid-19 has changed the personal, social, economic and ecological life of people all over the world. It was declared as global pandemic by the World Health Organization (WHO) in the second week of March 2020 (Islam et al., 2020; WHO, 2020). Like many areas, global education had hard hit and make the next generation uncertain as a learner and for future progression. Today, because of the global pandemic, the conventional educational method is over ruled by online learning method. It is now a reality, irrespective of the pros and cons. The advancement of Information Technology (IT) has made learning very easy and efficient (Mahmud & Gope, 2009) . The Internet has influenced online learning dramatically and now in this covid-19 situation, this is the only way of learning and continuing studies.

There is no doubt that many in higher education have long perceived online education and remote learning with staggering level, even though understanding the benefits online learning. Nevertheless, fast-forward to the new coronavirus pandemic this year, and even critics find themselves accepting remote learning despite their liking and readiness (Manfuso Lauren Glenn, 2020).

Historical background

Bangladesh, like many other countries, declared the total lockdown policy into practice on March 26, 2020. (Islam et al., 2020). Social distance, isolation, quarantine were strictly enforced by the law enforcing agencies to stop spreading the virus among its population following the first outbreak of COVID-19 on March 8, 2020 (Islam et al., 2020). The whole country became stand still. All educational institutions were closed until further notice. It threatened the future of educiton in Bagnladesh. The policy makers had to come up with a solution and online learing was the only option considering the safety of students, teachers, staffs and others.

The scope of the use of e-learning system in course delivery varies greatly (Mahmud & Gope, 2009) The concept of Online learning or e-learning is two-way communication between teachers and students and here the main media is the internet. "Online education is digitally supported learning that relies on the internet to communicate with teachers-students and to share class materials."(India Education, n.d.). Earlier, it was not acknowledged wholeheartedly as was perceived that the human element required in learning was lost in this method. With the rapid growth of technology and the advancement in teaching techniques, however, the people are now following it. The invention of computers was the foundation of this movement and over time, these devices now have an important place in the learning platform as get connected to smartphones, tablets, and other devices. Electronic educational materials, such as ebooks and tablets laptops, desktops are replacing traditional books. It is also possible to share information over the internet, which is open all the time and can be accessed anywhere, anytime from around the world. There is no doubt that with the help of books and lectures, it is equally beneficial to keep forward the concept of non-electronic education, but the quality and usefulness of technology-based learning cannot be taken lightly or be kept in the dark. It is expected that, through moving images or videos, the human brain can easily recall and relate to what is seen and heard. It has also been found that images, apart from capturing the attention of the student, are also held

by the brain for longer periods (Economic Times, n.d.). According to Manfuso (2020), Greg Flanik, Chief Information Officer of Baldwin Wallace University in Ohio, illustrated that learning has provided a clear direction that educators need to take advantage of and engage major education stakeholders to create a new market for educational delivery and that the longer the pandemic continues, the more likely it is that online learning will become an acceptable general teaching and learning mode. (Manfuso Lauren Glenn, 2020).

A learning method where teachers and students do not meet in a physical classroom but use the internet to have classes, e-mail, etc. Generally, distance learning is defined as when students are isolated from teachers and this suggests that students study online and with teachers or other students may not have face-to-face communion. Holmberg (1978) and Daniel and Marquis (1979) declared the value of an interaction theory and in the 1970s, they communicated with distance learners (Keegan, 1996). The application of computers was not defined, because computers were not used at the time vastly (Chan, 2007). The increase of two-way interaction via the internet or other computer networks was started in the middle of the 1990s. They mainly focused on distance learning programs (Chan, 2007; Picciano, 2001).

A teacher who was physically present in a different area than the learner was participating in the instructional delivery, as well as potentially delivering the lesson at different times. The most common method descriptors used when discussing distance learning is distance education. For those that are geographically remote, it also defines the attempt to have access to learning. The related literature indicates that numerous scholars and researchers have used contradictory concepts of distance education and distance learning over the last two decades.

With the advent of the electronic revolution, computers took the lead to all sectors including educational industries. People visualize the application of electronic technology in their daily life with no doubt. Knowledge, technology, and information expedited the process in an unprecedented manner. In the present context, it is referred to like the world in the tip of our fingers (J. L. Moore et al., 2011; Mugridge Ian, 1990). The definition was developed by giving a comparison of the pedagogical approaches used in traditional environments and referring to the instruction as "teaching by telling". The definition also claimed that distance education uses new media technologies and related interactions to create dispersed possibilities for learning (Mugridge Ian, 1990). Keegan (1996) went by further saying that the word distance education is an “umbrella” which has terms such as correspondence education or correspondence research that may have once been used synonymously, being simply known as a future offspring of distance education (J. L. Moore et al., Moore2011)(Keegan, 1996). The comparative use of the term distance learning and distance education is not accepted by King Young, Drivere-Richmond, and Schrader (2001) since both terms vary to an extent. Distance learning is more referred to as a skill because it is a practice within the ability to learn from a distance; however, the variations in time and location also restrict these meanings (Volery & Lord, 2000) (J. L. Moore et al., 2011) (Frederick B. King, 2001) (Volery, 2000). As modern technology became visible, learning seemed to be the goal of all different types of teaching, and once again the word distance learning

was used to focus on its "distance"-related limitations, i.e. time and place (Guilar & Loring, 2008; Newby, Stepich, Lehman, & Russell, 2000) (Guilar & Loring, 2008).

In online education, teachers have many concerns. Their primary concern is how their responsibilities and duties are changed by online education, and how they can contribute to this change. Due to the current pandemic, it is high time that the education method shifted to the online platform. Therefore, there would be many differences between the traditional distance learning online education environment (Yang Candidate & Cornelious, 2005).

The virtual world differs from the traditional classroom environment. The teachers must allow the students to share their opinions about the topics or the efficiency of the classes. Participation in online education changed from a synchronous face-to-face mode to an asynchronous virtual mode of intraction (Yang Candidate & Cornelious, 2005). Therefore, a significant change of role is needed for students, if they are for success or faliur. Students need to step away from being more of an introvert and start being more effective online inquirers then traditional passive classroom learners (Yang Candidate & Cornelious, 2005).

A study was funded by Garrison, Cleveland-Innes, and Fung (2004) to validate and instrument on the position change of online students which indicates that students see a difference in the process of learning and a need for adjustment in their task. Online learning should be considered as being more intellectual or focused internally. Online learners need to start taking responsibility, adapt to a new world, adapt to a new context, synthesize ideas, understand how to engage, incorporate ideas or concepts, and encourage their interest (Garrison et al., 2004; Yang Candidate & Cornelious, 2005). Moreover, Palloff & Pratt (2003), suggested that online learners should be "open" to sensitive information about their data. Everyone should have a mindset to actively cooperate regardless the issue or topic and must have an honest and positive approach towards the process of online classrooms and should not hasitate to enquire any questions (p. 17-28) (Yang Candidate & Cornelious, 2005)(Palloff, 2003).

Technology, as the medium for delivery course, teachers becomes more significant because the level of face-to-face contact is minimized while in online classes. Therefore, using online learning technology properly in order to satisfy students perception still remains a significant challenge. Muirhead (2000) discussed the dissatisfaction of teachers with the reliability of computer technology, dealing with different versions of a software system, providing students with technical support using various operating systems, and the shortage of mature techniques for creating integrated content (Yang Candidate & Cornelious, 2005)(Muirhead, 2000). It was also noted by Palloff and Pratt (2000) that the teacher is not only necessary to be educated to use technology, but also to change the way the pieces of information they prepare and deliver (p. 3).(Yang Candidate & Cornelious, 2005).

The technologies used in McGreal and Elliott (2004) summarized the technologies used in the distance education environment of today, such as multimedia, streaming audio, live video, video conferencing, and whiteboarding for the internet. Some of the latest innovations could also be used in tomorrow's future he said.

Push technology and data sources, audio chat, and online tutorial are internet voice protocol, hand-held, and wireless technologies, and sharing of peer-peer files are some of those marvelous innovations (Yang Candidate & Cornelious, 2005)(McGreal, 2004)

Making communication and interaction with teachers and classmates is a very big challenge for online learners for a noticeable period. The researcher studied the teachers to know if they can activate the online learning environment for learning. As most of the facultes are "hand to hand" experienced, they have to face the difficulty due to a lack of direct interpersonal education, student interaction and they have no contact or feedback to evaluate the clarity of their communications (Muirhead, 2000). Besides, it is very difficult to handle electronic course materials, class participation, student performance, and course grades (Schott et al., 2003). Interacting with students is more essential for online classrooms for teachers to promote self-directed, focused, and self-motivated students. Also, improvements are required in the interpersonal relationships between the teacher and students because of the demand for various communication methods to be used (Brown, 2001)(Schott, 2003).

In online courses, a face-to-face physical environment is usually absent. Thus teachers may have little or no data on how well students are doing their performance. Therefore, in online classes, maintaining academic honesty and dignity is another big challenge for both teachers and students. Muirhead (2000) discussed in this study that all online teachers in his research were concerned when students themselves already completed the tasks provided with the help of the internet. The concerns raised by those teachers interviewed by Muirhead can also be partly linked to the concerns of other online teachers about the lack of direct teacher control of online learning and testing.(Muirhead, 2000). Another problem is the challenge of evaluating the students when interacting over the internet. Dishonesty, copying, and other problems in guaranteeing plagiarism and unfairness in taking exams are also other problems in ensuring the proper standard of online education (Simonson, 2000). Berge, Muilenburg, & Haneghan (2002) combined the barriers to found online quality guidance in 10 clusters. They are technological skill, a federal law designed, assessment and effectiveness, change of organization, social interaction and efficiency, support services for students, threats by the use of technology, access to technology, allowance and time from the faculty, and legal issues. Knowing these problems and obstacles will benefit instructors. The knowledge of the way their positions are altered, the credentials that are required, and the ways to ensure the consistent flow of online instructions may require the aid of a different kind of training strategies (Berge et al., 2002).

In the end, the opinion of students is that teachers need to play an important role in what they can do and should do, to provide an effective online session that students deserve. This article will explore problems and barriers for online learning, highlighting key issues prevalent to online education literature in respect of "effectiveness of online learning and quality control".Also provide practical strategies for teachers to design and manage successful online education.

Conceptual Framework

This article narrowly defines the effectiveness of online learning. The conceptual framework describes in this article is based on two independent variables (IV): Technology and Virtual Classroom and the dependent variable (DV) is Effectiveness.(see figure 1) The study was undertaken at the American International University-Bangladesh (AIUB), Dhaka, Bangladesh. AIUB, like all other education institutions, has beed offering online courses. Following global pandemic this is the only options available as a method of learning. The AIUB was formed in 1994. The university has around 8000 students enrolled in undergratuate and graduate programs in Science, Liberal Arts, Business, Law, Agriculture, and Engineering. Amongst, all the programs offered, the department of Computer Science and Engineering is the top in ranking. It has around 2000 students enrolled with 45 top-notch full-time faculties. The AIUB has a vast line of alumni who are placed in various local and foreign IT industries. Mr. Zaheed Sabur, Principle Engineer, Director-Google is one of the alumni of the Computer Science and Engineering of the AIUB.

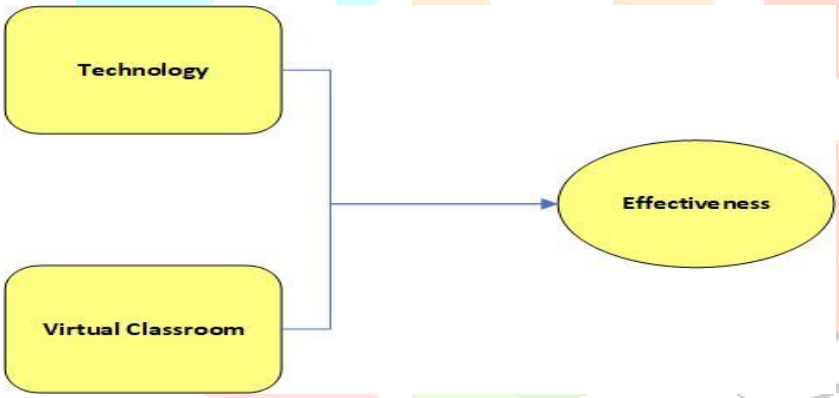

Figure 1: Independent and Dependent Variables

Problem Statement

Controversies related to the online education have not been changed over the years. The standard of online education has impacted on both teachers and students.

- New challenges and roles for online teachers
- New challenges and roles for online learners
- Using technology appropriately for online classes
- The barrier for interaction and communication with online learners
- Challenges for a new way of learning

Methodology

This empherical research is focused on students' relevant knowledge, experience and observations that affect the current and future condition of online education.

Participants

The participants were students enrolled in the American International University-Bangladesh (AIUB) in Computer Science and Engineering (CSE) course. The students completed this survey within 14 days, followed by an e-questionnaire system. There were 52 participants (34 men,18 women).

Data collection and analysis

To prepare the survey, questionnaire is divided into four sections. Where the first section represents demographic followed by six questions included with the e-learning demographic profile and also answers are measured by multiple-choice pattern. Other sections include three variables: technology, virtual classroom and effectiveness. Each section has three questions. And answers are measured on a five-scale, ranging from strongly satisfied to strongly dissatisfied. In this survey, there are 15 questions. (see Table 1).

Instrument

To complete this survey questionnaire, the author used online google questionnaire form. Which is easy to circulate and collect data during this difficult time of global pandemic.

Table 1. Questions were used for this study

Variables	Questions
Technology	1. Availability of internet connection
	2. Availability of Power
	3. knowledge in computer operation
Virtual classroom	1. Interpersonal relationship between teacher and co-learners
	2. Student participation in the virtual classroom
	3. Overall environment during class
Effectiveness	1. Online teaching method
	2. Innovative learning environment
	3. Focus in the classroom
Note: All questions were answered on a 5-point, Likert-type scale.	

In this study, the author used quantitative methods to test relationship between variables. The aim of this study is to identify the impact of online classes on students' learning in the virtual classroom.

Results

This survey focused on the analysis of the questionnaire data and factors affecting online classes and their impact on learning.

Analysis and discussion

This analysis is based on 52 responses of AIUB students of which 36.5% of the respondents are 19 and below age, followed by 32.7% are between the age of 20 to 24 (Figure 2), 73.1% of students are from the urban area and 21.2% are from the rural area (Figure 3). 65.4% of the respondents are males and 34.6% are females (Figure 4). The majority of respondents' highest degree is HSC, which is 36.5%, followed by 34.6% SSC. (Figure 5). Enrollment status of these respondents is 50% full-time and 50% part-time (Figure 6). In this survey, most of the students use smartphones, represents 59.6% and laptops 26.9% (Figure 7). These are the results of the demographic survey. In addition, there are other questions related to this topic also represent the results of the respondents feedback.

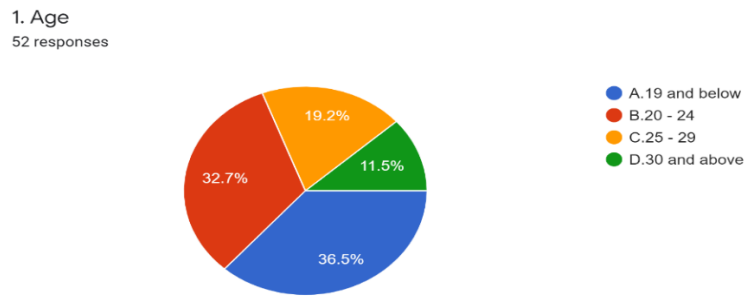

Figure 2: shows, most respondents are below 19 years of age, which is 36.5% and the lowest 11.5% is above 30 years old.

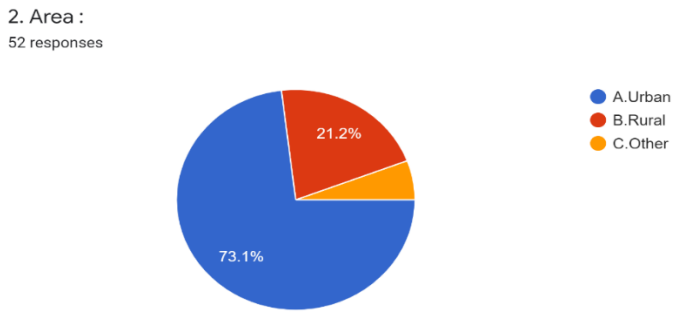

Figure 3: shows that 73.1% of the total respondents are from the urban and only 21.2% are from the rural area.

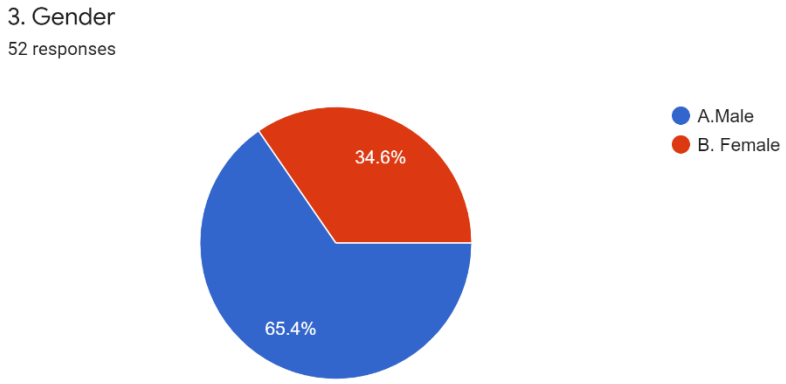

Figure 4: shows, majority of respondents are male 65.4% and 34.6% are female.

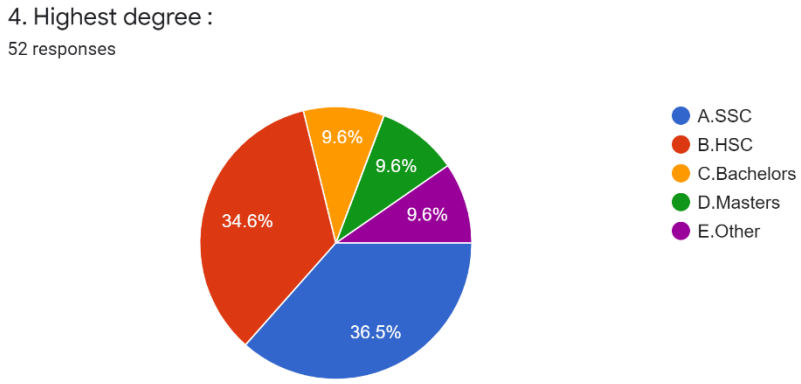

Figure 5: 36.5% of respondents have the highest degree of HSC and 9.6% evenly represents bachelor, masters and others degrees.

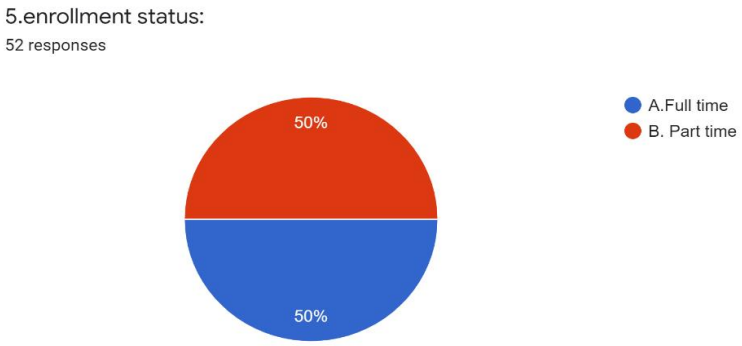

Figure 6: shows 50% full-time and 50% part-time students.

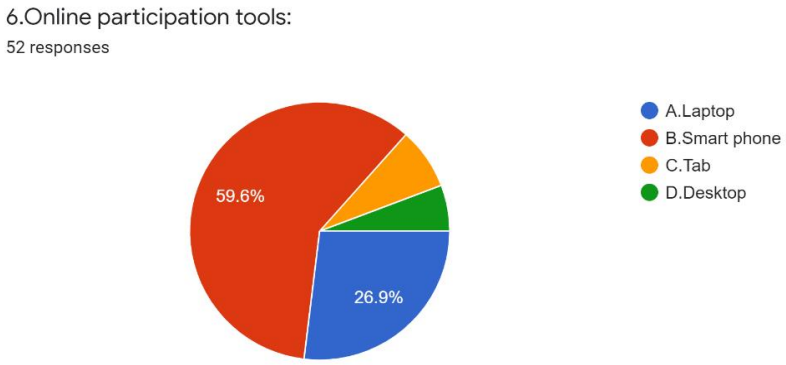

Figure 7: represents 59.6% of respondents mostly used smartphones as opposed to tabs and desktops the least.

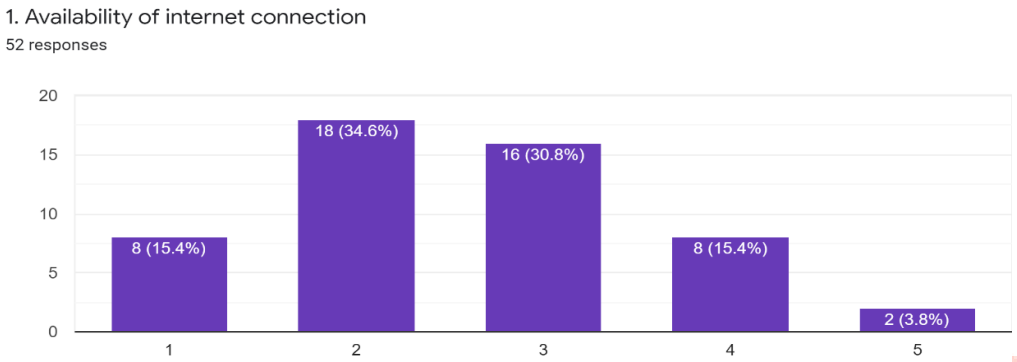

Figure 8: About online classes internet connection, 34.6% of respondents agreed and 3.8% strongly disagreed.

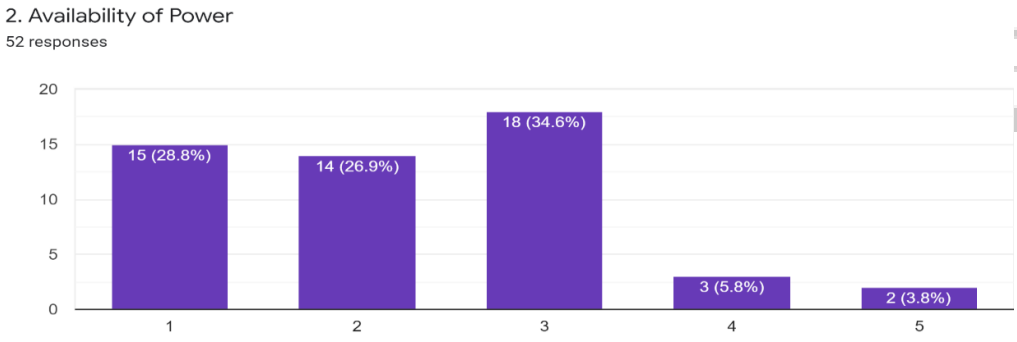

Figure 9: About the availability of electric power, 34.6% of respondents secured neutral position.

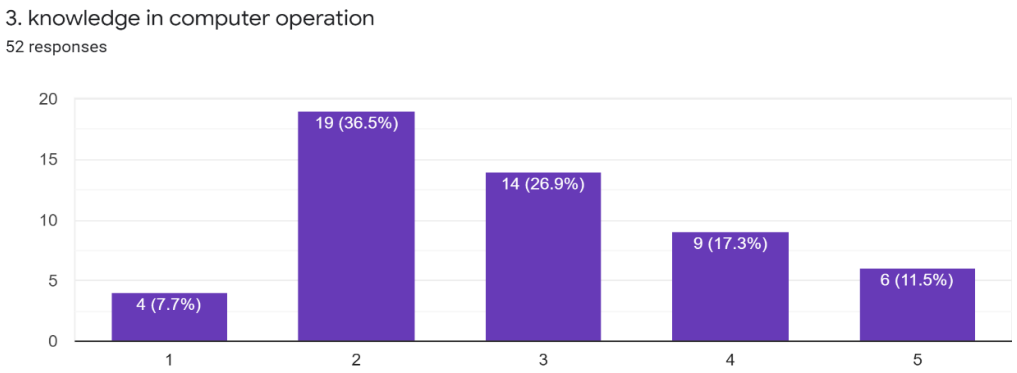

Figure 10: About the basic idea of online device operations, 36.5% agreed where as 7.7% is also strongly agreed positively.

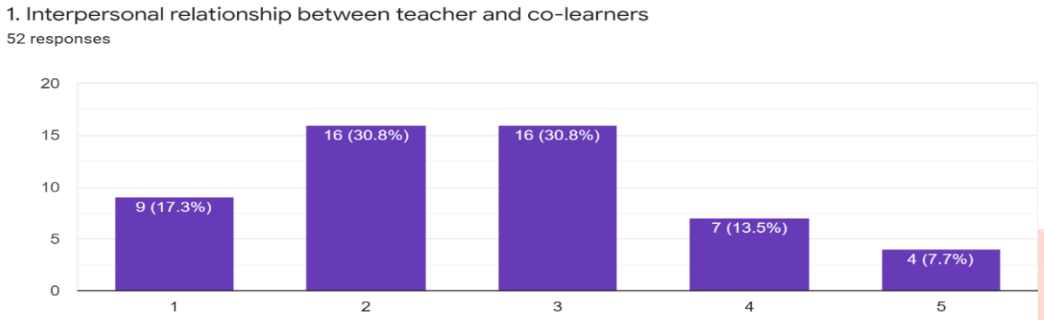

Figure 11: Here, agreed and neutral both represent same 30.8% for the interpersonal relationship between teacher and students.

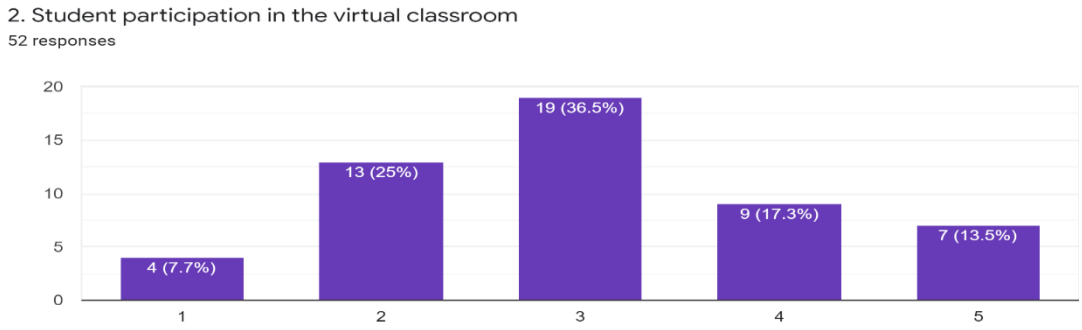

Figure 12: shows that most respondents are neutral, 36.5% for students' participation in the virtual classroom.

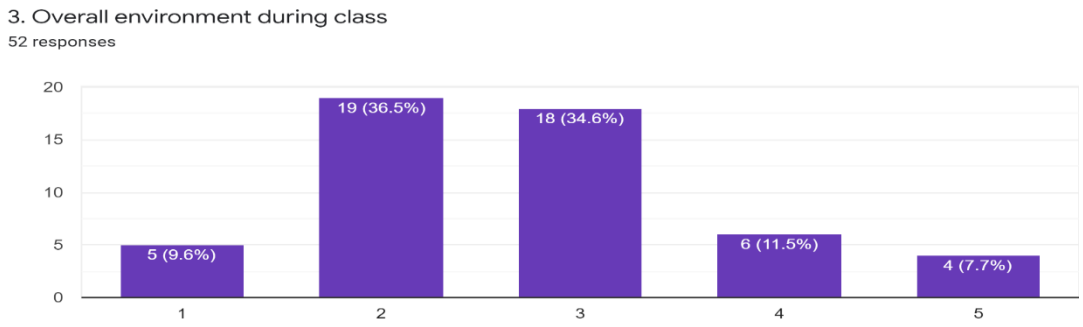

Figure 13: shows agreed and neutral both are quite close 36.5% and 34.6% in the overall online virtual class environment.

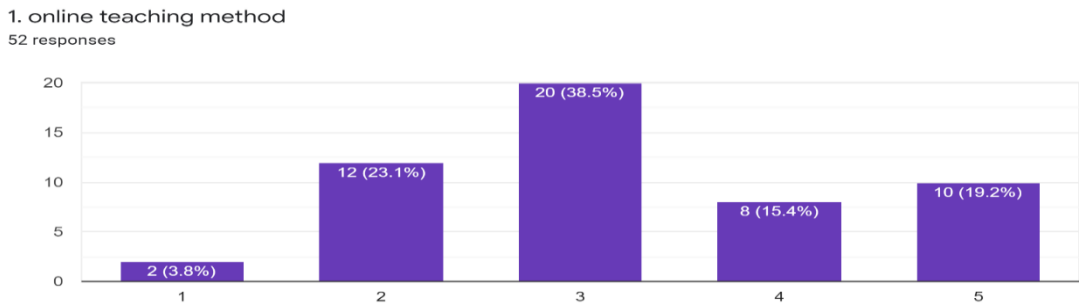

Figure 14: shows only 3.8% is agreed with the online teaching method.

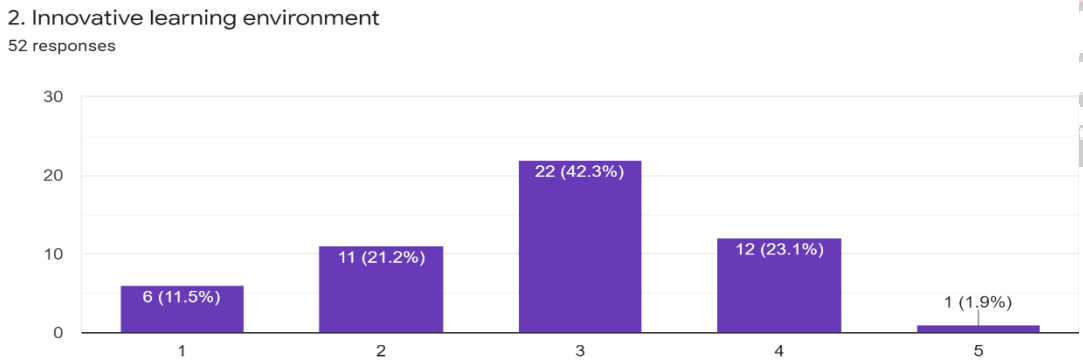

Figure 15: 42.3% represents neutral and 1.9% shows strongly disagreed with the online innovative learning environment.

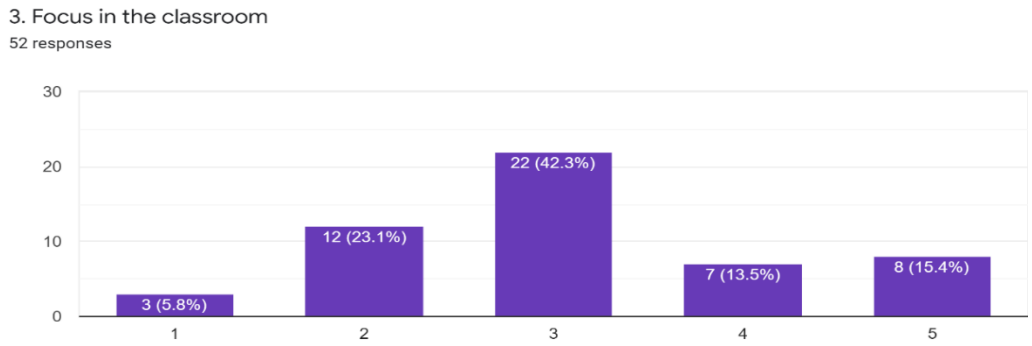

Figure 16: shows majority of respondents are neutral by 42.3% and on the other hand, 5.8% agreed with the focus in the online classroom.

Description of Descriptive Statistics:

The study considered 52 respondents as a sample (Acharya et al., 2013). Personal information of the respondents in terms of area, gender, highest academic degree, enrollment, and the online tool was collected (Phelps & Nowak, 2000).

In terms of assessing reliability score, the study computed Cronbach's Alpha (Reynaldo Santos et al., 1998), which is essential in determining the true score of underlying constructs in the study (O'Rourke & Hatcher, 2013). According to Nunnaly (1978), (Nunnally & Bernstein, 1995) 0.7 or higher the better reliability, which is considered as cut-off score (Reynaldo Santos et al., 1998) and this study's 0.818 which was expected reliability in terms of reliability of the data.

The study calculated inter-item correlation matrix to analyze the interdimensional and inter consistency of the reliability of the data individual questions on a test or questionnaire give consistent, appropriate results; different items that are meant to measure the same general construct or idea are checked to see if they give similar scores and the desired correlation score is at least 0.50 (Prof William M.K. Trochim, n.d.)(Cozby Paul, 2001)(Messick, 1980). Below is the inter-item correlation matrix presented only the correlation scores which is 0.5 or higher.

Inter-Item Correlation Matrix

	Tec1	Tec2	Tec3	V1	V2	V3	E1	E2	E3
Tec1	1.000		.574	.064					
Tec2		1.000							
Tec3	.574		1.000						
V1	.064			1.000					
V2					1.000	.517	.694		.542
V3					.517	1.000		.542	.511
E1					.694		1.000	.566	
E2						.542	.566	1.000	
E3					.542	.511			1.000

Respondents replied to those 9 items based on a 5-point Likert scale designed by Rensis Likert in 1932 which has 5 types of responses: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree.(I. Elaine Allen and Christopher A. Seaman, 2007). The first variable Tec 1 attracted mostly positive responses at all (cumulative percentage 50) and 18 respondents were satisfied with it. The next variable Tec 2 attracted positive responses as well which contained 55.8 as a cumulative percentage, however, the highest number of respondents (18) showed neutral opinion in this regard. The third variable Tec 3 attracted 19 respondents as satisfied however, the overall satisfied percentage was less than 50 percent. The fourth variable, v1, had equal responses, i.e., 16, at both satisfied and neutral points. The fifth variable, V2, showed 19 respondents were at the neutral point. The sixth variable, V3, showed 19 respondents were at the satisfying point and the percentage was 36.5. The 7th variable, E1, had 20 respondents in the neutral situation, however, the satisfaction percentage was only 26.9. An almost similar thing happened with the next variable E2, where 21 respondents were in the neutral situation and the satisfaction percentage, however, was slightly higher than the previous which was 32.7. The last variable, E3, had 22 respondents at the neutral position consisting of 42.3 percent. The cumulative satisfaction level was 28.8 percent.

(Barua, 2013)(van Laerhoven et al., 2004) mentioned about correlation coefficient interpretation derived from the Likert scale and as per analysis, the independent variable, V Avg, had shown a fairly strong positive correlation with the dependent variable, E Avg (Frost, 2018).

In terms of explaining R squared and adjusted R Squared values, the researchers always prefer to use adjusted R squared value because the value changes in any direction, both in incremental or decremental level, whereas R squared value remains constant or increase even if a redundant variable inserted into the study (Nair, 2020; 2019; Frost, 2018) and they suggested that, adjusted R square higher than 50 percent was good. In this way, the study's adjusted R square was 0.641 which was a good fit model for explaining the study.
In the ANOVA table, the F Value was 46.494 which reached the significant level with the p-value of 0.000 which was definitely below the 0.05 alpha level, meaning that, there is a statistically significant difference between the means of the different levels of the variable (ezspass.com, 2019).(Online, n.d.). Followed by the p-value, the study showed a significant change between V Avg and E Avg.

Recommendation Conclusion

This article has tried to assess the degree of satisfaction and impact of online learning by the end users, students. To assure the standard of virtual learning, the quality of teaching methods is vital and the Teachers should acknowledge first. Since the preparation of teachers is also important, and those who teach online courses should clearly understand their role. Second, designing and planning of courses are pvotal for teachers. It includes strategies for delivery, strategies, and procedures for teaching online courses. Third, university officials, both rank and file, should also understand their tasks and responsibilities as support staffs. The focus is to ensure the quality and effectiveness of online teaching.

(M. G. Moore & Moore, 2001) also noted that to deliver online courses effectively, faculty must inspire students to connect face-to-face with teachers, involve students in daily activities, develop the peer abilities of students, and then offer extra attention to students who lack self-directedness.

The shift from traditional teaching to online teaching methods also causes huge changes in the perspectives of teachers and their students (Dringus, 2000). However many problems have been raised about the effective and quality of online classes. The following recommendations are worth mentioning in order to provide an effective and quality online tearching:

- University should not insist those teachers who are less interested online classes.
- Online teaching system should be user friendly for both users.
- Teachers should answer all questions raised by students.
- The face-to-face interaction online is an important factor to keep the focus of classes and teachers can concentrate on communicating and interacting with each other.
- Teachers can take helped from other teachers who have taught previously online classes. A constant training on technical know how is an essence.
- Teachers should consider how the communication between teachers and students be improved by using user friendly methods and course design.
- Teachers should encourage students to analyze and provide feedback on course design, tearching method, performance and overall environment while classes are in operation.

ACRONYM AND NOTES

SSC	Secoebdary School Certificate
HSC	Higher Secoendary Certificate
Bachelor	Undergraduate
Masters	Graduate

Reference

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