ONLINE EDUCATION AND INTERNET CONNECTIVITY PROBLEMS: A PERSPECTIVE OF THE TEACHERS AND UNDERGRADUATE DENTAL STUDENTS

Saria Khalid[1], Muhammad Aman[2], Memoona Javed[3], Ayesha Asim[4], Maria Jabbar[5], Faiza Salman[6]

Correspondence

[1]Saria Khalid, Demonstrator Dental Education & Research and CMH Lahore Medical College, Institute of Dentistry

📞: +92-331-8772202

✉: sariakhalid@hotmail.com

[2]General Dentist & Irfan Dental Clinic, Jhelum

[3]Demonstrator Pediatric Dentistry & CMH Lahore Medical College, Institute of Dentistry

[4]House officer, CMH Lahore Medical College, Institute of Dentistry

[5]General Dentist

[6]Senior Demonstrator, Avicenna Medical and Dental College, Lahore

ABSTRACT

OBJECTIVES

Assessment of difficulties and glitches regarding internet connectivity faced by undergraduates and teachers during online learning.

METHODOLOGY

This study was conducted using an online questionnaire. 186 undergraduate students and teachers were included from CMH, Lahore. The duration of this study was 3 months.

RESULTS

There was found to be no statistical difference in reluctance to use online platforms (p=0.17), frequent loss of internet (p=0.181), difficulty in dealing with the loss of connection (p=0.181), disturbance in planned schedule due to loss of connection (p=0.213), lagging behind in schedule (p=0.630), inability to convey the message (p=0.093), lack of internet in remote areas (p=0.302), lack of training to deal with connection problems (p=0.766), poor connection due to technical problems in devices (p=0.089) and poor quality internet (p=0.740) among faculty and students.

CONCLUSION

The problems due to internet connectivity issues in online education were faced more by students as compared to faculty.

KEYWORDS: *Internet Connectivity, Online Teaching, Teachers, Dental Students*

INTRODUCTION

The coronavirus infection 2019 (COVID-19) was reportedly discovered in China in December 2019, quickly spreading over the world, and the World Health Organization labeled it a pandemic on March 11, 2020. As of springtime of 2020, institutions all around the globe were forced to close their college campuses and move the whole of their educational programs online according to Bao. Universities and other institutes seemed unprepared for this shift from traditional classroom training to entirely online teaching. Earlier, many universities lacked the necessary facilities and plans. COVID 19 had a significant influence on a variety of facets of daily living.[1] The immediate requirement to get online has contributed to the pressures and burdens of university faculty and staff who already seem to be trying to combine education, research, and service duties, much alone work-life right balance. Universities all across the globe were compelled to close their campuses permanently and relocate their instructional operations to online sites as a result of the global pandemic. The majority of the instructors thought online platforms were strange. There was a noticeable difference between electronic natives and electronic migrants in the educational field.[2] Teacher's faults were exacerbated by anticipating them to plunge into the electronic arena of educating without any preceding orientation. Universities were unprepared for that shift, thus their online education approach changed over time. Even during the outbreak, the world has witnessed a paradigmatic change in education that favored online courses.[3] Teachers of different ages and origins also had to organize and conduct lectures somewhat from home, with all of the other practical and technological hurdles that entail, and frequently without adequate technical assistance.[4] Furthermore, university lecturers have faced considerable challenges due to a lack of understanding required for online teaching as well as network concerns. In most places, teachers who were not used to teaching online had immediately been required to live broadcast their courses. This affected their teaching by eroding their integrity and expertise.[5] Moreover, students believe that instructors' online teaching performance has developed ever since the outbreak, and also that online training is currently useful. Both the teachers and the kids were confronted with numerous problems.[6] However, instructors listed excessive responsibilities as being the most significant barrier to e-learning implementation, followed by inadequate internet access, rejection of copyrights for newly designed e-learning programs, weak information and communications technologies (ICT) capabilities, inadequate resources, a shortfall of computers/laptops,

inappropriate computer labs, and time constraints for online engagement.[7] Inadequate internet connectivity was identified as the top difficulty by undergraduates, followed by a shortage of computers/laptops, inadequate computer labs, weak ICT abilities, and inadequate resources for online participation.[8] Education is among the most significant aspects of alleviating poverty and financial expansion in emerging regions, including the use of Information as well as Communication Technologies (ICTs) for educational propagation is thought to still have enormous immense potential for government agencies struggling to keep up with the rising scarcity of education because when going to face an increasing lack of supply of teachers.[9] Furthermore, in underdeveloped nations, e-learning faces numerous difficulties and problems, and simply drop levels are typically significantly greater than those in conventional classroom-based instruction. The challenges and issues linked with advanced technology include downloading faults, installation difficulties, login challenges, sound and video mishaps, and so on.[10] Students may consider online instruction to be tedious and uninteresting at times. Students never find some time to be doing e-learning since it requires just too much excellent time management. Students desire two-way communication, which can be challenging to accomplish at times.[11] It demonstrates that, as a consequence of these obstacles, e-learning implementation in medical institutions is gradual and in its inception.[12] It suggests that significant development is required in e-learning architecture, e-learning content management, capacity training, attitude adjustment, and increased e-learning understanding.[13] Earlier, e-learning was underutilized, particularly in underdeveloped nations. The present COVID-19 outbreak, however, has compelled the whole world to depend on that for instruction.[14] During the epidemic, the current essay focuses on the connectivity challenges that children and instructors face. This study was conducted to enlighten the difficulties and problems faced by undergraduate students and teachers regarding internet connectivity.

METHODOLOGY

It is a prospective study. The sample size was calculated by using an online calculator keeping the confidence level at 95% and the margin of error at 5%. The duration of this study was about 3 months. This study was conducted on 186 teachers and undergraduate participants studying at CMH Lahore. The participants had complete access to internet facilities. In this study, an online questionnaire was used to assess the internet glitches faced by students and teachers during online learning. A validated questionnaire was use for data collection with a Cronbach's alpha value of 0.789, which shows that the internal consistency is reliable for the questionnaire.[15] After approval from the ethical committee of respective colleges the data was collected by using an online questionnaire that contains 21 variables. The questionnaire comprised the parts including demographic data and quantitative variables. For the measurement of variables, a five-point Likert scale is used, ranging from Always (A) to Never (E). The score descending from 5 {Always (A)} to 1{Never (N)}. The question 1-4 were pertaining to the demographics of participants and questions 5-21 were used to assess the problem faced by instructors and undergraduates during e-learning. An online research questionnaire explaining the research objective and consent form on the front page was distributed to all the participants electronically (WhatsApp, Facebook, and email) and data was collected. The data were analyzed by using IBM SPSS version 23. Nominal data were presented as frequency and percentages. P values less than equal to 0.05 were considered significant. Mann-Whitney U test was used to find the statistical difference in the scores of problems in online education due to internet connectivity issues among teachers and students. The participants were included who have attended/conducted the online classes during the outbreak of COVID-19 pandemic and did not have difficulty in using the modalities. The administrative staff and those who did not give consent were excluded.

RESULTS

A cross sectional descriptive study was conducted on 186 participants with 28.5% males and 71.5% females. Majority of the participants belonged to the age group of 20-25 years (72.6%) followed by 25-35 years (21.5%), 35-45 years (3.2%), less than 20 years (2.2%) and more than 45 years (0.5%) Among these participants 20.4% teachers belonged to the faculty of dentistry and 79.6% were undergraduate dental students.

Table 1: Difference in the Scores of Internet Connectivity Problems in Teacher and Students

Problems in Online Education	Designation	N	Mean Rank	Sum of Ranks	Mann-Whitney U Test	Z	P-Value
Reluctance to use online platforms	Faculty	38	75.67	2875.50	2134.500	-2.387	0.17
	Student	148	98.08	14515.50			
Frequent loss of internet connectivity	Faculty	38	76.61	2911.00	2170.000	-2.306	0.181
	Student	148	97.84	14480.00			
Difficulty in dealing with the loss of connection	Faculty	38	103.29	3925.00	2.440.000	-1.337	0.181
	Student	148	90.99	13466.00			
Disturbance in the planned schedule due to loss of connection	Faculty	38	84.26	3202.00	2461.000	-1.246	0.213
	Student	148	95.87	14189.00			
Lagging behind schedule due to connection interruptions	Faculty	38	89.93	3417.50	2676.500	-0.482	0.630
	Student	148	94.42	13973.50			
Distress due to inability to convey message due to connection loss	Faculty	38	80.89	3074.00	2333.000	-1.682	0.093
	Student	148	96.74	14317.00			
Lack of internet connection in remote areas	Faculty	38	101.33	3850.50	2514.500	-1.032	0.302
	Student	148	91.49	13540.50			
Lack of training to deal with internet connection problems	Faculty	38	91.36	3471.50	2730.500	-0.298	0.766
	Student	148	94.05	13919.50			
Loss of /poor internet connection due to technical problems with electronic devices	Faculty	38	80.82	3071.00	2330.000	-1.700	0.089
	Student	148	96.76	14320.00			
Poor quality internet connection	Faculty	38	95.89	3644.00	2721.000	-0.331	0.740
	Student	148	92.89	13747.00			

Table 1 shows that there is no statistically significant difference in the problems faced by teachers and students during online teaching and learning due to internet connectivity issues. It was seen that the students faced the challenges of reluctance to using online platforms, frequent loss of internet connection, disturbance in schedule, lagging behind in schedule, inability to convey message, lack of training in dealing with connection problems, lack of connectivity due technical problems with electronics more in comparison to the faculty. On the other hand, it was also seen that difficulty in resuming work after loss of connection, lack of internet in remote areas and availability of poor quality internet were problems faced by the faculty due to internet connection problems in a higher proportion as shown in table 1.

DISCUSSION

During the last decade, e-learning has exploded. The internet, as well as the Global Online Web's expanded exposure, has spawned a plethora of non-traditional schooling alternatives. Instructors can now educate beyond the classic campus, and trainees have ready accessibility to curriculum materials thanks to the development of technologies. It is a widely held and well-supported belief in the academic community that integrating technologies into linguistic classes can result in an enhanced teaching process, as well as a boost in learner's competence levels.[16] In the world, prior to the Covid-19 induced outbreak, individuals primarily used the Web for social connection. Professors and students, on the other hand, frequently utilize cellphone information for social media sites. Academic staff afterward regards the online networking website as among the most approachable means of communicating with learners.[17] E-Learning has emerged as a viable option. Yet, there several of drawbacks to this prospective resolution, along with a lack of student satisfaction. This contentment is based on a number of contingent variables; this included direct presentations, instructor-learner connections, and learner's communication. Consequently, the interplay between economic and technical gratification is presenting a barrier to educational effectiveness.[18] The obstacles to virtual learning's sustainability are much more numerous. Poor network connection, infrastructure and technology, expensive Network costs, inadequate Broadband speeds, family economic collapse, and psychological stress are all on the checklist.[19] Furthermore, typical classroom tasks are not possible in an e-learning environment. The broadband connection and energy, on the other hand, may not necessarily be reliable.[20] Additional impediments include the Web's slow connection as well as the difficulty of someone using the digital site.[21] Another of the repercussions of these instances is a reduced number of student engagements in remote regions, compared to a substantial rate in urban locations.[17] Dutta analyzed the issues to overcome the aforementioned flaws, various methods have been devised. Better broadband speed, cheap or affordable internet services, and technical skills are all part of this answer.[22] The Internet problems already have been acknowledged as a major problem, but the details have vanished. Researchers know that online connections is

a major barrier to effective education, but maybe we just don't know how these barriers or concerns relate to present web-based learning. According to a survey conducted by Sdikka in Bangladesh, roughly 54.4% of village students admitted to having difficulty comprehending various courses considering the lack of classroom participation and also the fact that now the broadband connection in remote regions is not updated.[22] She also reported that 41.8% of participants stated that then they struggle with poor network connectivity, 55.4% significantly agreed that poor network connection contributes to a deficit of desire for e-learning, and 41.5% of respondents strongly agreed stated they couldn't manage expensive subscription plans, while 40.8% said they couldn't finance expensive telecommunication gadgets. The bulk of learners (45.1%) are affected by unpredictable electricity, with 31.3% agreeing that fluctuating electricity pushed the authorities into becoming unbridled regarding digital courses.[23] She also reported that 41.8% of participants stated that then they struggle with poor network connectivity, 55.4% significantly agreed that poor network connection contributes to a deficit of desire for e-learning, and 41.5% of respondents strongly agreed stated they couldn't manage expensive subscription plans, while 40.8% said they couldn't finance expensive telecommunication gadgets. The bulk of learners (45.1%) are affected by unpredictable electricity, with 31.3% agreeing that fluctuating electricity pushed the authorities into becoming unbridled regarding digital courses.[23] Uncertain internet access, an absence of technological understanding, reporting and information integrity and transparency, unreliable electricity, expensive network information bundles, and expensive network components are cited as reasons for participant's lack of enthusiasm. These broadband internet issues are always to blame for the lack of teacher contact in a comparable pattern. Our study reported that shows that there is no statistically significant difference in the problems faced by teachers and students during online teaching and learning due to internet connectivity issues. It was seen that the students faced the challenges of reluctance to using online platforms, frequent loss of internet connection, disturbance in schedule, lagging in schedule, inability to convey a message, lack of training in dealing with connection problems, lack of connectivity due technical problems with electronics more in comparison to the faculty. This study can help to focus on use of better internet connections. On the other hand, it was also seen that difficulty in resuming work after the loss of connection, lack of internet in remote areas, and availability of poor quality internet were problems faced by the faculty due to internet connection problems in a higher proportion.

LIMITATIONS

This study focuses on the perspective of participants from a single institute. In future, the study can be used to obtain the data from multiple institutes.

CONCLUSION

The problems due to internet connectivity issues in online education were faced more by students as compared to faculty. The problems of reluctance to using online platforms, loss of connection, disturbance in planned schedule, lagging behind in work, inability to convey message, lack of training to deal with internet connection problems in online education faced by students due to internet connectivity issues, poor internet connection due to technical problems with devices were faced by students more in comparison to the faculty. The problems that the faculty faced more in comparison to the students included difficulty in dealing with the loss of connection, lack of internet connection in remote areas and poor quality of internet connection.

CONFLICT OF INTEREST: None

FUNDING SOURCES: None

REFERENCES

1. Rapanta C, Botturi L, Goodyear P, Guàrdia L, Koole M. Online university teaching during and after the Covid-19 crisis: Refocusing teacher presence and learning activity. Postdigit Sci Educ. 2020 Oct;2(3):923-45.
2. Shetty S, Shilpa C, Dey D, Kavya S. Academic crisis during COVID 19: Online classes, a panacea for imminent doctors. Indian J Otolaryngol Head Neck Surg. 2020 Oct 17:1-5.
3. Hoq MZ. E-Learning during the period of pandemic (COVID-19) in the kingdom of Saudi Arabia: an empirical study. Am. J. Educ. Res. 2020 Jul 5;8(7):457-64.
4. Gillett-Swan J.The challenges of online learning: Supporting and engaging the isolated learner. J. Learn. Des. 2017;10(1):20-30.
5. Mishra L, Gupta T, Shree A. Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. IJEDRO. 2020 Jan 1;1:100012.
6. Chakraborty P, Mittal P, Gupta MS, Yadav S, Arora A. Opinion of students on online education during the COVID-19 pandemic. Hum. behav. emerg. 2021 Jul;3(3):357-65.
7. Islam N, Beer M, Slack F. E-learning challenges faced by academics in higher education. J Educ Train Stud. 2015;3(5):102-12.
8. Mahmood S. Instructional strategies for online teaching in COVID-19 pandemic. Hum. behav. emerg. 2021 Jan;3(1):199-203.
9. Ancheta R, Ancheta H. The new normal in education: A challenge to the private basic education institutions in the Philippines. Int. J. Educ. Manag. 2020 Sep;1(1).
10. Bergdahl N, Nouri J. Covid-19 and crisis-prompted distance education in Sweden. Technol. Knowl. Learn. 2021 Sep;26(3):443-59
11. Vispute SK, Ahirrao JJ, Potdar SM. COVID-19: A Survey on Change in Learning Method from Classroom to Virtual Using

Educational Data Mining. J. Manag. Res. 2021 Dec 6;10(2):3-6.

12. Marković M, Pavlović D, Mamutović A. Students experiences and acceptance of emergency online learning due to COVID-19. Australas. J. Educ. Technol. 2021 Dec 6;37(5):1-6.

13. Robati RM. The need to get much more ready for online dermatology education: a lesson from COVID-19 pandemic. 2020.

14. Shrivastava KJ, Nahar R, Parlani S, Murthy VJ. A cross-sectional virtual survey to evaluate the outcome of online dental education system among undergraduate dental students across India amid COVID-19 pandemic. Eur J Dent Educ. 2022 Feb;26(1):123-30.

15. Kyriazos TA. Applied psychometrics: sample size and sample power considerations in factor analysis (EFA, CFA) and SEM in general. J. Psychol. 2018 Aug 24;9(08):2207.

16. Altohami WM, Hashem ME, Omar A, Hussein MS. Technological Affordances and Teaching in EFL Mixed-ability Classes during the COVID-19 Pandemic. Int. J. Adv. Comput. Sci. Appl. 2022;13(3).

17. Rabbi MF, Smita MK, Mohammad S. Using social networking sites as medium of instruction at tertiary education during Covid-19 situation in Bangladesh. Int. J. Educ. Res. Rev. 2020 Jul 1;5(3):258-64.

18. Palvia S, Aeron P, Gupta P, Mahapatra D, Parida R, Rosner R, Sindhi S. Online education: Worldwide status, challenges, trends, and implications. J. Glob. Inf. Technol. 2018 Oct 2;21(4):233-41.

19. Tabassum M, Mannan SE, Parvej MI, Ahmed F. Online education during covid-19 in bangladesh: University teachers perspective. Aquademia. 2021 Jan 20;5(1):ep21005.

20. Rahman MM, Khan SJ, Sakib MS, Halim MA, Rahman MM, Asikunnaby, Jhinuk JM. COVID-19 responses among university students of Bangladesh: Assessment of status and individual view toward COVID-19. J. Hum. Behav. Soc. Environ. 2021 May 19;31(1-4):512-31.

21. Islam MA, Barna SD, Raihan H, Khan MN, Hossain MT. Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh: A web-based cross-sectional survey. PLoS one. 2020 Aug 26;15(8):e0238162.

22. Dutta S, Smita MK. The impact of COVID-19 pandemic on tertiary education in Bangladesh: students perspectives. Open J. Soc. Sci. 2020 Sep 4;8(09):53.

23. Peretz A. Teaching scientific/academic writing in the digital age. Electron. J. e-Learn. 2005 Jan 1;3(1):pp43-54.

CONTRIBUTORS

1. **Saria Khalid** - *Concept & Design; Data Acquisition; Drafting Manuscript; Critical Revision; Supervision*

2. **Muhammad Aman** - *Data Acquisition; Drafting Manuscript; Critical Revision*

3. **Memoona Javed** - *Data Acquisition; Data Analysis/Interpretation; Critical Revision; Supervision*

4. **Ayesha Asim** - *Data Acquisition; Data Analysis/Interpretation; Critical Revision*

5. **Maria Jabbar -** *Concept & Design; Drafting Manuscript*

6. **Faiza Salman -** *Critical Revision; Supervision; Final Approval*