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Perception of Nepalese dental students and dental school faculty towards effectiveness of online lectures during the COVID-19 pandemic

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ABSTRACT

Introduction

The COVID-19 pandemic has affected the academic sector in Nepal immeasurably, forcing lockdowns of many educational institutions and restricting movement across the nation. This has enormously affected personal interaction between academics and students. As a result, online classes have emerged as a safe substitute for traditional face-to-face classes. It is important to check students' as well as teachers' perception of the effectiveness of online teaching, and to determine the acceptance of this mode of learning in comparison to traditional face-to face-classes within both groups. The findings of this study will help to ease educational institutions' transition to online teaching and will give policymakers a clear vision of the effectiveness of such lectures. It may also help to formulate better plans to improve remote teaching in future.

Methods

This cross-sectional study was conducted among dental students and faculty of Universal College of Medical Sciences (UCMS), Bhairahawa, Nepal. A total of 170 student participants and 20 teachers were enrolled in the study, of whom 169 students and 17 teachers returned completed questionnaires. Descriptive analysis using SPSS software was carried out to determine the results.

Results

Satisfaction with online classes in comparison in-person classes was 'much' or 'somewhat' less for 92.3% of students (51.5%+40.8%). The figure for teachers was 40% (38.9% 'much' less + 11.1% 'somewhat less'), but 100% of teachers considered interaction with students in online class to be 'much' (88.9%) or 'somewhat' (11.1%) less satisfactory compared with in-person classes, and 100% considered online class to be 'much' (61.1%) or 'somewhat' (38.9%) less satisfactory with regard to their perception of student learning.

Conclusion

The study records a strong preference, amongst students and faculty of the Nepalese dental school enrolled in this study, for traditional face-to-face lectures, as these are seen to provide students with the best platform to connect with their teachers and fellow students. Perceptions are influenced by workload, perceived learning outcomes, the desire for in-person interaction and opportunities to share knowledge with fellow students.

Keywords: Classes, COVID-19, Dental education, Face-to-face teaching, Online schooling

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INTRODUCTION

Information technology (IT) has had a huge impact on modern life, particularly in the field of education. During the COVID-19 pandemic, the contribution of IT has gained additional momentum due to the closure of educational institutions, which raises challenges for students' learning. During periods of quarantine and lockdowns, IT enables the education process to continue through the use of innovative learning management systems.[1,2] The pandemic has provided unique opportunities for educators to implement novel IT solutions for teaching and for evaluating the completion of student coursework.

The efforts of stakeholders including teachers, students and institutional administrators have ensured the optimal use of technology to enable the learning process to remain efficient.[3] The ultimate goal of IT learning management systems has been to minimize the disruption to education that arose due to lockdowns but, despite multiple advantages, there are also limitations to e-learning such as social isolation, reduced face-to-face interaction between teachers and students, and challenges with connectivity issues.

As e-learning is a recent development, teachers as well as students are still in the process of adapting to the opportunities it offers and to new methods of teaching and learning. If virtual teaching is to become the new normal, however, it will be important to understand learners' opinions of it and the degree of adaptation and amendment they are prepared to make, including if some of them would prefer to reject it altogether. Despite the rapid progress we are witnessing, e-learning remains at an early stage of development and there is still room for modification and improvement. Within this scenario, the attitudes of teachers and students is highly important, as their perceptions critically impact their motivation, which in turn impacts on the students' learning.[4] Ultimately, students and teachers must accept the opportunities IT offers if they are to reap the benefits of online classes.[5] With this in mind, the main objective of this study was to analyze the perceptions of teachers and students regarding the effectiveness of online courses compared with traditional classroom learning.

METHODS AND MATERIALS

The present cross-sectional study was conducted from July 2020 to January 2021 among dental students and faculty staff working in Universal College of Dental Sciences (UCDS), Bhairahawa, Nepal. Ethical approval to commence the survey was obtained from the Institutional Review Committee of UCMS (Ref No: UCMS/IRC 113/18). A quantitative questionnaire was designed and a pilot study was carried out to check reliability, validity and refinement, by sending the questionnaire to 10 dentists who were not working in UCDS and 10 students who were not studying in UCDS.

Research questions explored within the study examined student and teacher perceptions of the effectiveness of learning through e-classes, and their satisfaction with their own experience of e-learning. The questionnaire used a five-point Likert scale to measure perceptions, allowing respondents to list whether they were 'much less' or 'somewhat less' satisfied with online teaching than in-person teaching, considered the two to be equally satisfying, or were 'somewhat more' or 'much more' satisfied with online learning. Reliability for each variable used in the study was analyzed by calculating Cronbach's alpha, which has been shown to be an appropriate method in similar, previous studies.[6] Cronbach's alpha was tested and was found to be 0.83.

Structured questionnaires were distributed to all the dental students and faculty staff working in UDCS. Written informed consent was obtained from the dental students and faculty staff who voluntarily participated in the survey. The information in the questionnaires was kept confidential.

RESULTS

A total of 170 questionnaires were distributed among students with a response rate of 99.4% (n=169). A further 20 questionnaires were distributed among faculty staff, with a response rate of 85% (n=17). The questionnaire recorded demographic information on the respondents including position in the UDCS (student or faculty), age and gender. A second section recorded perceptions towards e-learning.

Demographic information

Most students (76.9%) were aged 21–30 years; 23.1% were 20 years old or younger, 75% were female and only 25% were male (reflective of the gender balance of the student body; the 2021 intake had a female to male ratio of 16:5). Among the faculty members, 83.3% were aged 31–40, 11.1% aged 41–50 and 5.6% were >51. Faculty members were 56 female: 44 male.

Perceptions of e-learning

Of the students, 82.3% found the workload of online classes to be less in comparison to face-to-face classes (31.4% much less + 50.9% somewhat less), whereas only 50% (11.1% + 38.9%) of teachers perceived less workload online than for face-to-face classes. Satisfaction of online class was 'much less' in 51.5% of students and 'somewhat less' in a further 40.8% (92.3% negative perception overall) as shown in Table 1; similarly 61.1% of teachers felt 'much less' satisfied and 38.9% 'somewhat less' satisfied (100% negative perception overall) as shown in Table 2. The perceived amount of learning achieved was 'much less' for 35.5% of students and 'somewhat' less in 55% of students (90.5% negative perception overall). Given these overwhelmingly negative perceptions, it is somewhat surprising that only 14.2% wanted to see much less online teaching in future and 45% wanted to see 'somewhat less' (59.2% negative perception overall). Flexibility to manage time and location was agreed in 42.6% (41.4% somewhat agree + 1.2% strongly agree) and 50.3% (45.6% somewhat agree + 4.7% strongly agree) of students respectively, as shown in Table 1. But teachers disagreed, with 55% considering that e-learning offered them less flexibility in teaching time (44.4% much less + 11.1% somewhat less) though a similar proportion (44.4% somewhat more + 11.1% much more) considered that they had more flexibility in managing teaching location. In total, 72.8% of students felt that online classes offered less knowledge than face-to-face classes (17.8% much less + 55% somewhat less), and 87.6% of students felt that interaction was less with online class (28.4% much less + 59.2% much less). Teachers' perceptions were even lower, with 100% (88.9% much less + 11.1% somewhat less) finding less interaction in online class, and 100% also thought online class provided much less opportunity for students' learning (61.1% much less + 38.9% somewhat less) as shown in Table 2. In addition, 55.6% felt that course coverage time was less in online class (16.7% much less + 38.9% somewhat less) and 100% (66.7% much less + 33.3% somewhat less) thought student evaluation was less. Hence, only 29.4% agreed somewhat (none agreed strongly) that online class should be an adjunct of teaching in future.

Table 1 Students' responses to questions on e-learning

Questions	Response of students				
Online vs face to face	**Much less**	**Somewhat less**	**Equally**	**Somewhat more**	**Much more**
Class workload	31.4%%	50.9%	8.9%	7.1%	1.8%
Overall satisfaction	51.5%	40.8%	4.7%	3%	0
Perceived amount of learning	35.5%	55%	8.9%	0	0.6%
	Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
Interaction w/ teachers	28.4%	59.2%	8.9%	3.6%	0%
Similarity	30.2%	59.8%	6.5%	3.6%	1.2%
Platform for more knowledge	17.8%	55%	25.4%	1.8%	0
Flexibility for study location	2.4%	19.5%	27.8%	45.6%	4.7%
Flexibility for study time	2.4%	26%	29%	41.4%	1.2%
Flexibility in designing study agenda	4.1%	44.4%	36.7%	14.2%	0.6%
Teaching adjunct in future	14.2%	45%	29.6%	10.7%	0.6%

Table 2 Teachers' responses to questionnaire on e-learning

Questions	Response of teachers				
Online versus face-to-face	**Much less**	**Somewhat less**	**Equal**	**Somewhat more**	**Much more**
Class workload	11.1%	38.9%	16.7%	33.3%	0
Overall satisfaction	72.2%	27.8%	0	0	0
Perceived amount of learning	61.1%	38.9%	**0**	**0**	**0**
Interaction with students	88.9%	11.1%	0	0	0
Time management	27.8%	38.9%	22.2%	5.6%	5.6%
Platform for students' evaluation	66.7%	33.3%	0	0	0
Flexibility for teaching location	16.7%	27.8%	0%	44.4%	11.1%
Flexibility for teaching time	44.4%	11.1%	27.8%	5.6%	11.1%
Course coverage	16.7%	38.9%	22.2%	11.1%	11.1%
	Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
Teaching adjunct future	**23.5%**	**38.9%**	**8.2%**	**29.4%**	**0**

DISCUSSION

Online learning is an emerging development in the academic sector. Hence, developers and academics need insight into how students perceive and adapt to amalgamated learning, as students' perception and teachers' approach is critical to the effectiveness of the learning process. The significance of this research lies in its exploration of the students' as well as teaching staff's perception towards effectiveness of online versus face-to-face lectures.[4]

Even with the inherent advantages of online class such as lower costs, ease of accessibility at any time and from anywhere, online learning is not without shortcomings. Critics contend that learning online lacks many of the advantages of face-to-face learning.[7,8,9]Traditionally, classroom instruction is known to be teacher-centered and requires passive learning by the student, while online instruction is often student-centered and requires active learning.[7] Online learning environments have come under scrutiny as not delivering equal or comparable educational experiences for learners.[8–10] At the core of this argument is the notion that because the instructor is removed by distance and time, students experience a sense of loss in terms of vital contextual components of the learning community. Several studies have found that some students feel detached from their peers or isolated while learning online,[9-11] a situation that has not changed since the late 1990s[12]. Further, students often feel that the delay in online communication reduces the discussion dynamics.[13]

Social interaction plays an important role in classroom dynamics: it makes the environment active.[14] It provides productive and meaningful learning. In addition, it also promotes learning engagement, which has been identified as positively affecting the achievement of learning outcomes.[15]The results of the present study show that interaction is comparatively lacking in online lectures, similar findings from a study by Miner et al,[16] which showed lack of learner-teacher interaction contributing to learners' frustration and ultimately to a decrease in learners' motivation. Hence, online course design and delivery requires careful application of some instructional design principles; interaction should encourage activities

such as asynchronous and synchronous discussions, collaborative activities and individual student activities. A study by Khan et al[6] indicated a significant relationship between course structure and perceived student learning.

The data indicated that student interaction does not have a statistically significant impact on student satisfaction, yet instructor presence does have a statistically significant impact on perceived student learning. The data further indicated that learner interaction does significantly impact perceived student learning. The data also indicated that instructor presence influences student satisfaction. This might be the reason for low satisfaction in online learning recorded by the students in our study. Another reason for low satisfaction and perceived lower acquisition of knowledge might be due to online classes' high dependency on technology affordability, accessibility and having a good internet connection.[17]

In a study by Linjawi et al (2012),[18] participants reported better online skills and motivation when using online tools for personal purposes than than for learning. However, several studies[19,20,21] show significantly higher knowledge gain for students assigned to online e-learning compared to those exposed to traditional learning. The result that workload and flexibility of time and location are lower online compared with face-to-face classes is similar to a study by Amiel (2006).[22] In education, change comes with questions. Despite many current reports that champion online education, some researchers are still questioning its efficacy and more research is needed on the effectiveness of computer-assisted teaching. Cost-benefit analysis, student experience, and student performance are now being carefully considered when determining whether online education is a viable substitute for classroom learning. This decision process will most probably carry on into the future as technology improves and as students demand better learning experiences. Thus far, literature on the efficacy of online courses is expansive and divided.[23] Some studies favour traditional classroom instruction, stating "online learners will quit more easily" and "online learning can lack feedback for both students and instructors".[24] Because of these shortcomings, student retention, satisfaction and performance can be compromised, though some studies claim to show that online education produces students who perform as well or better than their traditional classroom counterparts.[25] The advantages and disadvantages of both modes of instruction need to be fully fleshed out and examined to determine which medium generates better student performance. Both have been proven to be relatively effective, but is one is truly better than the other?

We acknowledge limitations of the study. Data from obtained from undergraduate students in a single course taught by different instructors depending on whether classes were online or face-to-face. This study used non-probability convenience sampling to select participants: one limitation to non-probability convenience sampling is that sampling error cannot be calculated. The findings may not be generalized or be representative of any population other than the sample frame.

CONCLUSION

The present study explored the perception of dental students and faculty staff towards online classes compared to face-to-face classes, during the ongoing COVID-19 pandemic. The resulting study records the preferences of students and faculty staff for traditional face-to-face lectures as it provides them with a better platform to connect teachers with students and students with fellow students. This finding is based on perceptions of workload, satisfaction with multiple factors, perceived learning experience, and perceptions of a platform to share knowledge of students in regard to online lectures.

The study affirms useful characteristics of e-learning such as ease of study from any geographical location, flexible time and fast course coverage, which is not the case in conventional face-to-face learning. Our findings imply, however, that students' adaptability and further modifications to teaching are necessary to ensure the effectiveness of online lectures.

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