Original Article

A Comparative Study of Online and Traditional (Face to Face) Learning

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Abstract

Introduction: Ever since the advent of usage of internet as a medium of instruction in late 1980s, the method of distance learning using online methods has been on the rise. We did a comparative study of online vs. traditional learning in order to assess students' viewpoint about online learning and to assess various aspects of online classes when compared with physical classes.

Materials and Methods: A cross sectional, descriptive study was conducted in May-June 2021 in Rawalpindi Medical university in order to analyse the response of students towards the online mode of learning, and compare it with the traditional learning The target population were the students of 1st, 2nd and 3rd year MBBS at the Rawalpindi Medical University. Self-structured questionnaires were distributed among a total of 600 students, 200 students from each year. The data collected was analysed using SPSS v 28 and using chi square test.

Results: 87% (522 out of 600) students said that traditional learning is more effective as compared to online learning. It was pointed out that there was no association between year of study and mode of learning and no association between gender preferences for any specific type of learning. Weak internet connection happened to be the biggest hurdle to online learning followed by lack of technical expertise of the university and the students.

Conclusion: Majority of the participants, acknowledging the positive aspects of online learning; diversity in use of learning aids, easier preparation of assignments, easy access to contents and facilitation of giving feedback, still favoured traditional, face-to-face learning. Traditional methods ensures a better study environment, adequate clinical practice, and improved interaction with the teacher and the fellow students. The biggest hurdles to online learning were connectivity issues, lack of technical expertise, and the need for stricter self-discipline. In short, elimination of problems associated with online learning can evolve into an efficient mode of learning in the near future.

Keywords: Educational technology; Higher education, Online learning, traditional learning, interaction.

Introduction

Ever since the advent of usage of internet as a medium of instruction in late 2000, the method of distance learning using online methods has been on the rise. The ease and comfort of access to online classes has made it a favourite for many. Online mode of learning has enabled many learners with an opportunity, they would not have been able to attend otherwise (1). The freedom of deciding time & place and the pace of learning, online method of learning became very popular over the years. However, the exponential rise in online teaching that has been observed in association with the COVID-19 pandemic is unparalleled in history of Pakistan.

After the COVID-19 was announced to be a pandemic by the WHO on 11 March 2020, institutions throughout the world, including educational institutes, were shut down for an undefined time period. The uncertain situation demanded quick development of an alternate, to continue the learning process, and not let the pandemic impede the education of a whole generation. The answer was to devise an effective distant learning strategy, and the one adapted by most institutions was online learning. The abrupt shift from physical to online learning was distressing not only for the students, but for the teachers as well.

All levels of education, from pre- primary schooling to universities were affected. It took quite a lot of time for everyone to adjust to a newer mode of learning, and institutions in Pakistan experimented a lot of difficulties before finding one that suited their educational needs and provided the most optimum results. Online learning has been receiving mixed reviews from the instructors and the pupils. Some students find them more helpful because of the ability to record lectures and listen to them at one's convenience 2), allowing better time management(3), providing greater autonomy over the study schedule(4) and stimulation of creativity among learners(4). On the other hand, some didn't favour them due to technical challenges(2), lack of clinical practices(2), lack of concentration due to non-verbal communication(5). Some studies even give paradoxical responses, in which respondents, despite being appreciative of online learning, consider physical classes better (6).

We, therefore, conducted this single institution study to analyse the stance of the students of a medical university on online vs physical learning. The main objective of this study was to perform a comparison of online and physical classes, compare their various aspects, and determine the major factors decreasing the utility of online classes. The results of this study will be helpful in pointing out the main factors decreasing the potential effectiveness of online systems, and rectifying them.

Materials and Methods

A cross sectional study was conducted among the students of first three years of Rawalpindi Medical University in June 2020, with a total of 600 students participating (200 from each year) 300 male students and 300 female students. The students were selected using convenient sampling. The data was collected using self-structured questionnaires, which were distributed online and in person. Informed consent was obtained, and the data was collected in accordance with the Declaration of Helsinki, and anonymity and confidentiality of the participants was ensured.

The questionnaires included comparative questions about general effectiveness of online and physical classes, and also contrasted their specific attributes, like flexibility, time management, communication, etc. It also assessed the relative magnitude of various problems associated with online learning, like connectivity issues, impaired delivery of course contents etc.

Only the students of 1st, 2nd and 3rd year of MBBS at RMU, who had given their consent, were made a part of the study. Rest of the students were excluded from the study.

Results

The results obtained were

87% (522 out of 600) students responded that traditional (face-to-face) learning is more effective as compared to online learning as shown in FIGURE 1. More than 91% students were using Microsoft Teams for online learning whereas 8% students were using Zoom, and 1% were using other applications.

372 (62%) responded that their grade has not improved with online learning whereas 121 (20%) responded that there has been some improvement in grade with online learning.

291 (48.5%) students responded that their class time has reduced with online learning during Covid-19 pandemic, whereas 261 (43.5%) students responded

that there has been no change in class time with online learning.

312 students out of 600 (52%) responded that online learning promotes creative learning, i.e. quizzes, videos and interactive stuff. Also 360 students out of 600 (60%) responded that it is easy to give feedback in online learning as compared to traditional (face-to-face) learning, 484 out of 600 (80%) students responded that online learning does not teach clinical, professional and communication skills. (FIGURE 2)

366 (61%) students responded that online learning allows easy access to content and allows study content to be managed effectively 56% students responded that it is easy to access, manage and handover assignments online. 523 students out of 600 (87 %) responded that traditional (face-to-face) learning guarantees better interaction between student and teacher.

Majority of the students responded that there had been no change in feelings or attitude towards any subject during online learning but 21% students responded that they started liking online learning experience with time. In terms of environment, understanding of subjects, flexibility, attentiveness of students, a major chunk of students responded that there is no significant change as compared to traditional (face-to-face) learning.

396 students (66%) responded that traditional (face-to-face) learning is efficient for developing social skills and making friends whereas 204 (44%) students responded that they were able to develop good social skills even in online learning. 367 (61%) responded that online learning is suitable for all personality types (introverts, as well as extroverts) as compared to traditional (face-to-face) learning.

313 students (52%) responded that a mixture of power points presentations, oral and white board is the best way to present in online classes as compared to any of them individually. (FIGURE 3)

280 (46.7%) students responded that online learning was very for remote areas TABLE 1 and 418 (69.7%) students responded that online learning is cost effective (saving transport expenditure) as compared to traditional (face-to-face) learning.

33% students responded that the greatest hurdle to online classes is weak internet connection, 25% said it was little face to face interaction, for 24%, it was the need for implementation of strict self-discipline, and for 16.7% said poor use technology of teachers was a major impediment. (FIGURE 4)

On applying chi square test between year of study and mode of learning preferred, the p value came out to be 0.07 which is bigger than 0.05 and it shows that there is no association between year of study and mode of learning (Table 2). Also chi square showed that there is no association between gender and mode of learning. (Table 3)
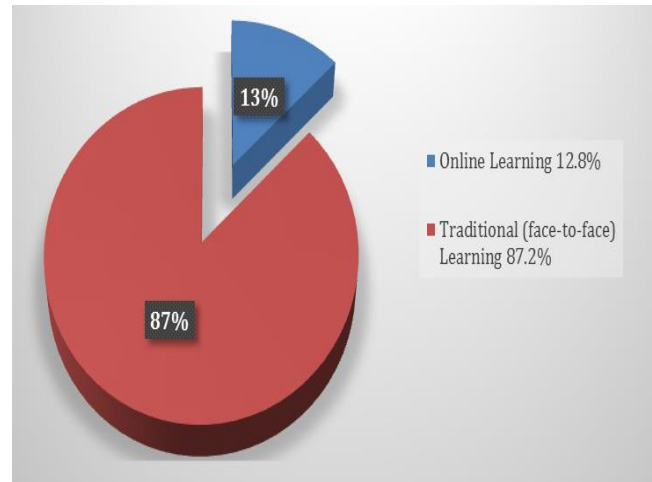

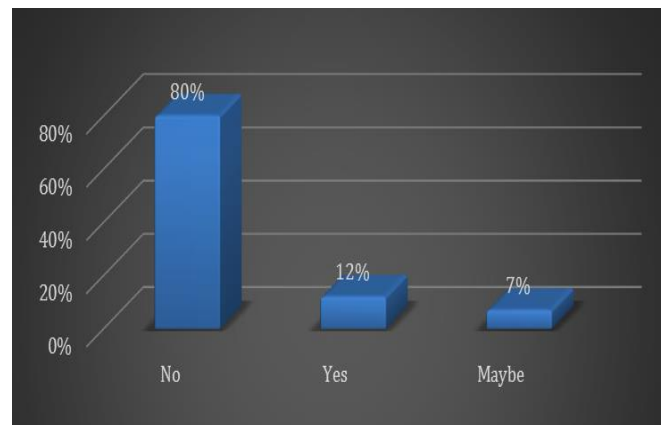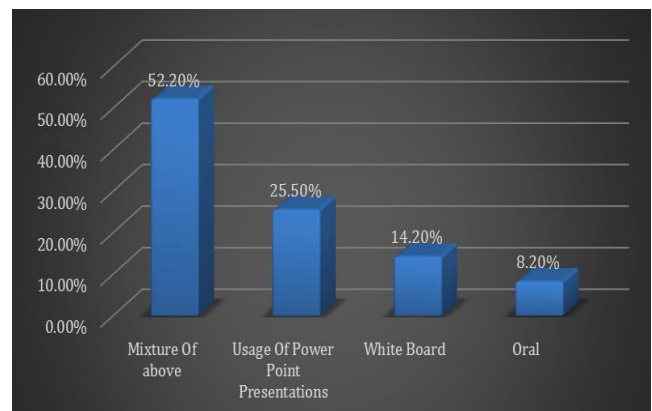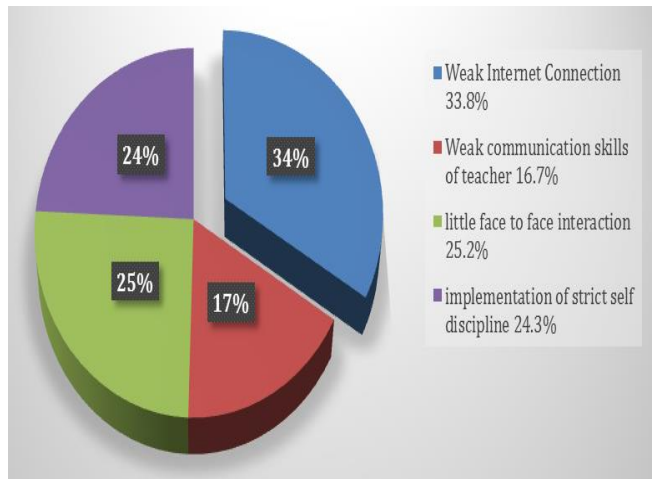**Figure 1: Which Mode of Learning is More Effective**

Figure 2: Do you think online education is teaching you the required professional, clinical, and communicative skills during COVID

Figure 3: What Is the Most Effective Way of Teaching in Online Classes

Figure 4: Greatest Hurdle to Effective Online Classes

Table 1: Do you think online learning has made it easy for people in remote areas to have access to higher education

		Frequency	*Percent*
Responses	No	280	46.7
	Yes	238	39.7
	Maybe	82	13.7
	Total	600	100.0

Table 2: Which year of MBBS are you currently studying in?

		Which mode of learning is more effective		Total
		Online Learning	Traditional (face-to-face) Learning	
Which year of MBBS are you currently studying in?	1st Year	29	171	200
	2nd year	17	183	200
	3rd Year	31	169	200
Total		77	523	600

Symmetric Measures		
	Value	Approx. Sig.
Phi	.092	.077
Cramer's V	.092	.077
N of Valid Cases	600	

Table 3: Gender

		Which mode of learning is more effective		*Total*
		Online Learning	Traditional (face-to-face) Learning	
Gender	Male	38	262	300
	Female	39	261	300
Total		77	523	600

Symmetric Measures		
	Value	Approx. Sig.
Phi	-.005	.903
Cramer's V	.005	.903
N of Valid Cases	600	

Discussion

Online classes have provided an effective, albeit unconventional, method to ensure continuation of the learning process in the wake of COVID -19 pandemic. Like every other system, it has various weaknesses and strengths. The study has tried to shed light on these varied facets.

Regarding the time allocated for study, online classes have resulted in relatively lesser time dedicated to study according to most of the students. The various distractions, during the classes and in the day afterward, and the need for implementation of strong self-discipline, have made it quite difficult for many to study properly (7).

One of the greatest difficulties faced, when online classes commenced, was the lack of IT related knowledge by most of the faculty (8), and this resulted in creating unprecedented mental tension for both the teachers and students. It, however, resolved as time progressed.

Distance learning is seen as the obvious answer for remote learners, and the use of online media is expected to overcome any access difficulties imposed by geographical distance. While the western world has moved to online learning relatively easily, the same cannot be said for remote communities in Africa and Asia (9) due to lack of internet connectivity issues and other hurdles. Our study has also shown that online learning, instead of making things easier for the learners based in remote areas, has posed a lot of problems.

It is still common that traditional classroom educators – due to strain on time, support issues, and/or curriculum requirements – hold to the tenet that "learning is a mechanistic experience" (e.g. input/output) Therefore, students may lack the opportunity to think abstractly or creatively (10). Online learning, on the other hand, increases social presence and student engagement through the use of creative and artistic expression in problem-based learning spaces (11).

A growing number of students are now opting for online classes (3). They find the traditional classroom modality restrictive, inflexible, and impractical (12). The advent of online education has made it possible for students with busy lives and limited flexibility to obtain a quality education (12) However, our study showed a relatively different opinion, where majority of our participants favoured traditional learning over online learning.

There were no significant difference in student performance between online and face-to-face (F2F) learners overall, with respect to gender, or with respect to class rank were found (12).

Online learning is significantly cost-efficient compared to traditional methods as printed manuals or in-person classes (13).

With new cutting-edge technology, online learning courses can share key information instantly with students through their digital devices. This allows universities to cut out transportation costs, teacher salaries, course materials, and more (13).

A literature review study identified major challenges to implementing e-learning systems in developing countries, including poor network infrastructure (14), lack of ICT knowledge, weakness of content development, language competency etc. (15). Our study also highlighted problematic internet connections as the greatest hurdle to effective online classes (2) (14).

The obtained data suggest that the introverts prefer to learn and contribute to an online discussion forum, while the Extroverts would rather take part in the face to face classroom environment. Contrary to extroverts, introverts are not negatively impacted by the lack of interaction with the instructor (16). Analysis of the differences of the social skills enhancement between male and female students showed that most of the social skills of male students were significantly enhanced than those of the female students, whereas in some of the social skills, female students showed significant improvement than the male students. Furthermore, in few social skills, no significant

disparity in improvement was found between male and female students. It is concluded that majority of the social skills of male and female were enhanced by using E-learning media. (17).

One of the biggest drawbacks of the online learning modality is its inability to impart satisfactory clinical know-how. As 80% of the participants, and majority of the participants of other researches have shown, (2) (5) (18) clinical knowledge cannot be obtained properly via online learning. This calls for a blended approach towards studies, with online lectures and in-person clinical practice to enhance the understanding of the students.

Technology advocates may see online teaching as the best path forward, but one important audience vociferously disagrees: students. Peter C. Herman writes, "Crisis, as the saying goes, is a terrible thing to waste", and the tech utopians have wasted little time in promoting the move to online teaching as a permanent solution to higher education's problems. Tal Frankfurt, a technology consultant and contributor to Forbes magazine, proposed that the emergency replacement of traditional classrooms with virtual ones should "be viewed as a sort of 'bypass' button'" (19). Since its mass uptake by the educational department through the world is still relatively new, online learning is receiving mixed responses from critics. Only time will tell, whether this ship will sail or sink.

There is no association between mode of learning preferred according to effectiveness and year of study or gender.

Conclusion

In these uncertain times of the COVID-19 pandemic, the world has utilized a hitherto obscure mode of pedagogical engagement; online learning. With proper adjustments and adequate improvements, online learning can develop into an effective mode of instruction in the coming times. Its cost effectiveness, flexibility, ease of access for course contents, and promotion of creative learning promises vast potential to evolve into a reliable study medium. Though currently, majority of the students (87%) supported traditional learning, they were still appreciative of the various positive aspects of online learning, as have been mentioned above. The greatest problems that accompany online learning are internet connectivity issues (34%), little face to face interaction (25%), weak communication skills of the teachers (17%), and the need for a strict self-discipline (24%). If these problems

are overcome, online learning, in conjunction with physical learning seems to be the future of the pedagogy.

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