Original Research Article

Perception of medical students on the advantages and disadvantages of online assessment compared to traditional method in a tertiary level teaching hospital

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ABSTRACT

Background: The use of e-assessment/online tests have increased in higher education over the last two decades. Technology plays a positive role in students learning process and provides an opportunity to give immediate feedback. In India online mode was not used for formative/summative assessment except in fewer renowned institutions. But now it has increased recently because of COVID-19 pandemic.

Objectives: This study aims to know the perception of I year MBBS students on the advantages and disadvantages of using online assessment in formative and internal assessment when compared to the traditional method.

Materials and Methods: In a private medical college, Cross-sectional survey was done using standard and validated questionnaires with likert scale scoring (1-Strongly disagree, 2- Disagree, 3- Neutral, 4- Agree & 5- Strongly agree) for I year undergraduate medical students.

Results: Out of 115 students' responses, 47.4% (36%-Agree & 11.5%- strongly agree) that online assessment has positive influence on their learning experience but only 39% were comfortable to use online assessment over traditional method and the others remained neutral (32%) and (29%) disagreed to the statement. By having online trial test and trainings 85.1% students agreed to use online assessment but still felt comfortable to use traditional method for assessment.

Conclusion: From our study, we found that students did not prefer to switch from traditional to an online method in the form of learning or assessment. But they show their willingness to adapt to a blended assessment method.

1. Introduction

Education is not merely imparting knowledge to the students according to the social constructivist theory. Learning is a continuous process and it is heavily influenced by sociocultural stimuli, previous knowledge, emotional beliefs, values, and attitudes.[1] Technology plays a positive role in student learning. While e-assessment are often wont to broadly ask any practice where technology is employed to reinforce or support assessment and feedback activities.[2] When students are actively involved in the process of learning and are surrounded by a supportive learning environment, they gain the motivation that is essential to succeed. Moving to online education reduces

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human interaction which could hinder the transition to incorporate technology in education.[3] Online tests are used regularly used within the learning management system (LMS) either as aptitude or as essay type in recent years to medical students to make them aware of online learning and assessment in our institution. During Covid-19 lockdown online learning and assessment was done extensively. So, the purpose of the study is to know the student's perception regarding the changes in learning and assessment tools. If their opinion was not taken into serious consideration, measures taken to solve problems become unsatisfactory solutions.

2. Materials and Methods

Study subjects of this project were undergraduate 1st Year Medical students of Tertiary level teaching Medical Institute, India are recruited by volunteer recruitment process. It was a cross sectional type of study done for the duration 1month from the date of Institute Human Ethical committee approval of the Institute. All 1st year MBBS students age 18 and above with a minimum of 3 online exams were attended by them at the end of their course were included for the study. The online Google form survey questionnaire was distributed to all 1st year medical students and the data was obtained. Whoever responded to the questionnaire within the duration of study project was taken as a study sample.

Cross sectional survey using Google form with a set of standard questionnaires, for 1st year undergraduate medical students were done to assess their perception and personal details. The purpose of this study was explained in detailed to the study participants in the beginning of the questionnaire. A set of valid questionnaires used earlier by Baleni., 2015 was used in this survey tool[4] with modifications and the newly added questions were validated by face validation, peers & subject expert validation. The survey questions were grouped under two categories 1) Demographic details and 2) Perception of students on the advantages and disadvantages of online assessment compared to traditional method. Anonymity of the students and the confidentiality of the results was strictly maintained. The results were assessed based on 5-point Likert scale scoring using the descriptive and inferential statistics. All data were entered into an online Google Form Questionnaire sheet and then into Excel spreadsheet (MS Excel 2011).

3. Results

At the end of one-month period 115 students gave consent and responded to both open & close ended questions.

3.1. Age

Out of 115 students 110 students responded. The age variations among them are starting from 18 years to 22 years. (Figure 1)

3.2. Gender

Out of 115 students, 114 students responded to this question, out of which 68 students are female and 46 students are male. (Figure 2)

3.3. Computer literacy

Out of 115 responses, 49.6% students felt confident in handling the newer technology during their first online assessment and the 48.2% students wanted online trial test before the main test for comfortability to face the online assessment but 14.9% students felt that online trial test will not make any difference in imparting knowledge in a newer technology. (Table 1)

Table 1: Questions for computer literacy

No	Questions	Yes	No	Maybe
1	Confidence to face online test directly	49.6%	16.5%	33.9%
2	Requires online trial test before the main test	48.2%	14.9%	36.9%

3.4. Close ended questionnaire scoring by Likert scale

Total no. of questions in this category is 27.

Likert scale ranging from strongly agrees (SA), Agree (A), Not Sure (NS), and Disagree (DA) to Strongly Disagree (SDA).

3.5. Attributes of good assessment

It was assessed by Q.No -1, 2, 3 & 4 and the results were analyzed (Table 2).

3.6. Advantages of online assessment

Perception of students on the advantages of online assessment were analyzed by 14 questions (Q.No- 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 20, 21 & 24) in (Table 3).

3.7. Disadvantages of online assessment

It was assessed by Q.No – 5, 16, 18, 19, 22, 23 & 26 in (Table 4)

4. Discussion

COVID-19 pandemic situation has made many educational institutions to close all over the world. The spread of this virus has tested the preparedness of all health science universities to deal with a crisis, which required advanced technology in ICT to enable learning and assessment effectively through online. Many institutions have become

Table 2: Attributes of online assessment

No	Questionnaires	Likert scale scoring				
		SA	A	NS	DA	SDA
1	Are online tests more accessible than paper-based exams?	7	25.2	39	15.7	13
2	Is marking more accurate in online exam compared to conventional grading?	9.6	22.6	41.7	21.7	4.4
3	The technology used in online assessments is reliable	9.6	35.7	37.4	13.9	3.4
4	Online assessments favour some students more than others	3.3	21.9	50	17.5	7.3

SA– Strongly Agree, A– Agree, NS– Neutral, DA– Disagree, SDA–Strongly Disagree

Table 3: Advantages of online assessment

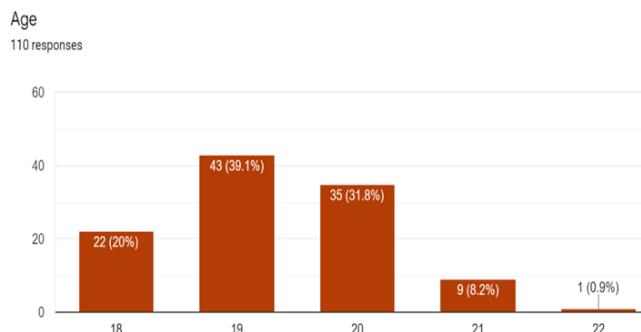| No	Questionnaires	Likert scale scoring				
		SA	A	NS	DA	SDA
1	Constructive, immediate & personalized feedback from faculty is one of the pros of online exam (Q-6)	16.7	42.1	35.1	3.1	3
2	Do you get feedback/comments from the faculty after online assessment? (Q-7)	14.9	47.4	25.4	11.4	0.9
3	Will the feedback have given by faculty improves your learning? (Q-8)	17.7	46.9	27.4	5.2	2.8
4	Timely, constructive & personalized feedback is not possible in paper-based exam (Q-9)	12.3	34.2	37.7	12.3	3.5
5	Multiple attempts are one of the pros of online assessment (Q-10)	8.8	31	45.1	10.1	5
6	Do you revisit the study material before making next attempt? (Q-11)	9.7	49.6	32.7	4.5	3.5
7	Online assessment improved your engagement with learning compared to traditional method (Q-12)	8.8	18.4	36.8	24.6	11.4
8	Have you taken preparation for online test seriously? (Q-13)	18.4	43	26.3	8.8	3.1
9	Online assessment can be stress free compared to paper-based exams (Q-14)	14.2	26.5	30.1	15	14.2
10	Online assessment can add value to your self-directed learning (Q-15)	17.5	35.1	31.6	8.8	7
11	Online assessment goes hand-in-hand with e-learning method only (Q-17)	8.8	37.2	46.9	5	2.1
12	Using online formative assessment can positively influence student's learning experience (Q-20)	11.4	36	35.1	14	3.5
13	Knowing your mark instantly in online assessment is one of the pros compared to traditional grading (Q-21)	20.2	45.6	24.6	6.1	3.5
14	Multimedia elements such as video, sound recording, graphic or table should be included in questions in order to make the online assessment more attractive (Q-24)	12.4	31	42.5	8.8	5.3

SA– Strongly Agree, A– Agree, NS– Neutral, DA– Disagree, SDA–Strongly Disagree

Table 4: Disadvantages of online assessment

No	Questionnaires	Likert scale scoring				
		SA	A	NS	DA	SDA
1	Negotiating marks cannot be done, is one of the drawbacks of online assessment (Q-5)	17.4	39.1	35.7	4.2	3.6
2	Online assessment is just a gimmick that does not really benefit learning (Q-16)	14	18.4	37.7	21.9	7.9
3	Do you feel disconnected with faculty during online assessment? (Q-18)	10.6	31	38.9	16.8	2.7
4	Formal conventional assessment method is considered as a motivation for the students to read throughout the term compared to online assessment (Q-19)	18.6	34.5	33.6	11.5	1.8
5	Do you have fear in uploading your answers because of distrust in technology (Q-22)	17.1	18.9	27	27	9.9
6	Does the timer setting in online assessment help you to complete the exam on time? (Q- 23)	7.9	27.2	37.7	19.3	7.9
7	Cheating or plagiarism in exam is one of major drawback in online assessment (Q-26)	25.4	36	31.6	4	3

interested in developing and delivering best course content by online T-L method and also to assess the students for the same by effective online assessment tools.[5]

Among the 115 students' responses, in our study we found that age distribution varied from 18 years of age to 22 years but majority of the students i.e., nearly 88 students aged 19 and above (Figure 1). Female students have responded more i.e., about 60% of the responses are from female students and 40% from male students (Figure 2).
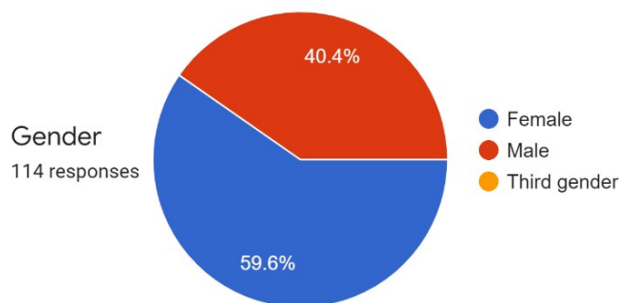

Figure 2: Sex distribution among students

Figure 1: Age distribution among students

4.1. Competency and experience of students in online test

Nearly 50% of the students felt competent to handle newer technology, but they need to undergo online trial test 1 or 2 times before feeling comfortable to implement online test.

(Table 1) from these results we understood that the students had already experience in handling online test. This is because in our university we had a working Learning Management system (Ganesha Canvas) where as a part of Competency Based Medical Education (CBME) students were exposed to online MCQ's and assignment during

their Self-Directed Learning (SDL) time. According to Boitshwarelo et al.,[6] online tests were used extensively within LMS in both online and mixed mode delivery worldwide in many higher educations. Even though 50% of students felt competent in handling online assessment in first time itself, the other 50% agreed to have online trial test which would make them comfortable and easier to handle it. This was in align with Alruwais et al.,[7] stated in her study that student's poor knowledge in handling the ICT is one of the challenges in online assessment and recommended to improve the technical infrastructure and train the students to handle the newer technology.[6]

4.2. Attributes of assessment

Question no 1, 2, 3 & 4 checks the attributes of good assessment. In question no: 1 on accessibility of online test there was mixed reaction out of 115 responses only 25.7% agreed and only 7% strongly agreed upon it. This was not in align with a study done in south Africa by Baleni Z[4] where in his university 70% of the students were strongly agreeing to the accessibility of online test compared to

traditional method.[8] Accuracy of paper checking and showing favoritism by the faculty was asked in question 2 & 4, where nearly 50% of the students remained neutral and around 30% of students agreed on it. Our results were not in align with the study done by Ridgway et al.,[9] where 100% of the students agreed on the accuracy of online test grading. On the reliability of using technology in assessment around 45% of the students agreed and around 35% -40% were neutral and less than 20% disagreed. Many studies supported our statement that newer technology cannot be reliable due to internet connection problem and other glitches in technical area.[10]

4.3. Advantages of online assessment over traditional method

Question no: 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 20, 21 & 24 were grouped together to know the student's perception on the advantages of online assessment.

In the study done by Alruwais et al.,[7] stated that students prefer E-assessment, because they can have more control and also easy to use if they are trained in it. It also provides immediate feedback which motivates the students to learn it better. Prompt and comprehensive feedback along with multiple attempts can help students in improvising their learning.[4] In our study also we found that majority of the students were positively agreeing to the advantages of the online test in form of timely feedback, multiple attempts and revisiting the study material before each attempt and preparing for the test seriously due to constructive & immediate feedback which was not happening in paper-based exam and it also added value to SDL because they take their ownership in learning.

4.4. Disadvantages of online assessment over traditional method

Question no: 5, 16, 18, 19, 22, 23 & 26 were grouped under this category.

Regarding the disadvantages of online test many studies stated that attending online test would be stressful even though it is paper free because of non-reliability of technology to upload or submit the answers on time even with timer on. Moreover, lack of personal interaction with faculty leads to poor performance in the examination.[3] In our study also we found that majority of the students agreed to the disadvantages mentioned above and 50% of the students agreed that they were constantly motivated to learn throughout the course is because of conventional assessment method only. The major drawback of online assessment is cheating/ plagiarism which was mentioned in many studies[3,4,11] and even 60% of our students agreed it openly with 30% remained neutral and only 10% disagreed to the statement. Out of 115 responses there was 1/3rd responses for agreement, 1/3rd for neutral and 1/3rd for disagreement for the comfortability of using online test and

only 25% of faculty prefer to choose online assessment over conventional method. This may be due to fact that it is always difficult to give up the old habits and to accept newer habits or methods. The study done in Arab University also found the same findings.[3]

5. Conclusion

So from our study we found that it was difficult to switch from conventional to online method in the form of learning or assessment even though the advantages of online methods overweigh the traditional method. But they show their willingness to adapt to blended learning method which gives us a positive hope that over a period of time with regular training in ICT for students as well as educating them about the importance of digitalization in education can change their mindset to accept the 21st century outcome-based education.

6. Source of Funding

None.

7. Conflict of Interest

None.

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