

Online assessment vs Traditional assessment: perception of medical teachers in a tertiary level teaching hospital in South India

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SUMMARY

The use of e-assessment has increased in higher education over the last two decades, which means that medical teachers are required to work by adapting to the increasing usage of technology. Because of the automated marking and feedback, online tests are viewed as highly efficient, fast, and reliable. The online assessment was not used for formative/summative assessment except in fewer renowned institutions in our country. But it had increased recently in all educational setups because of the COVID-19 pandemic. This study aims to know the perception of preclinical faculty on the advantages and disadvantages of using online internal assessment when compared to the traditional method. A cross-sectional survey was done using Google form with standard and validated questionnaires with Likert scale scoring (1- strongly disagree, 2- disagree, 3- neutral, 4- agree, and 5- strongly agree) for preclinical medical faculty to assess their perception of online vs traditional assessment method. The result was analyzed by descriptive statistics. Out of 45 responses, only 50% were competent

to handle the online assessment, but the other 50% were confident though not competent due to lack of training. 96% of faculty agreed that paper correction load is reduced in online aptitude tests. But nearly 40% agreed that aptitude tests can assess only the student's knowledge in the cognitive domain. In our study, we found that not all the faculty preferred to switch from the conventional method. However, they show their willingness to adopt a blended teaching and assessment method.

Keywords: Online assessment – Traditional assessment – ICT – Google form survey

INTRODUCTION

In this digital era, several changes are emerging in education, because technology is being used in human activities other than education. The need for technology integration in education becomes the core factor of quality education. Computer Assisted Learning/ Teaching/Instruction/Assess-

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ment, e-learning, e-assessment, online/virtual learning environment, education apps, and AI in education have emerged steadily (Zafar and Hussain, 2020). In addition, the delivery method in online learning environments also allows for opportunities in assessment which are unique to this type of learning environment (Baleni, 2015). The use of e-assessment/online tests has increased in education over the last 20 years. This is due to decreased resources for teaching and increased student numbers, meaning that academics are required to do more with less while adapting to the increasing usage of technology in teaching (Nicol, 2007; Donnelly, 2014). The potential of technology has been employed to benefit the challenge of heavy academic workloads in teaching and for assessment, with the use of e-assessment providing a way to avoid disjunction between teaching and assessment modes (Gipps, 2005). In other words, the growth in the use of Information and communication technology (ICT) as a teaching mode necessitates their growth as a mode of assessment. Because of the automated grading and instant feedback, online tests are viewed as highly efficient, fast, and reliable, making them useful where large numbers of learners are concerned (Bakerson and Rodriguez-Campos, 2006); online tests specifically ask for computer-assisted assessment where the deployment and marking are automated (Davies, 2010). Online tests have been used within learning management systems (LMS) either purely online or in mixed-mode delivery extensively during Covid-19 lockdown time to medical students in our institution. So, it is important to know the faculty's views regarding changes in educational techniques, and it should be taken into serious consideration to ensure a smooth and successful transition, which was the aim of our study. Because their perceptions remain critical, technological measures taken to solve problems in education may end up as substandard solutions.

MATERIALS AND METHODS

The study subjects of this project were preclinical medical faculty in our institution. It was a cross-sectional type of study. It was done for the duration of 1 month from the date of

Institute Human Ethical Committee approval by the volunteer recruitment process. The online Google form survey questionnaire was distributed to all 60 preclinical medical faculty of our university (Anatomy, 22; Physiology, 20; Biochemistry, 18), and the data were obtained. A universal sampling method was used and whoever responded to the questionnaire within the duration of the study project was taken as a study sample.

This study's purpose was explained in detail to the study participants at the beginning of the questionnaire. A set of valid questionnaires used earlier by Baleni (2015) was used in this survey with modifications, and the newly added questions were validated by face validation, peers and subject expert validation. The survey questions were grouped under two categories: 1) Demographic details and 2) Perception of faculty on the advantages and disadvantages of online assessment compared to the traditional method. Pre-defined questions were asked to know their experience in handling online assessments and the type of training they underwent to handle it. Close-ended questionnaire (15) was scored by the Likert scale ranging from Strongly Agree (SA), Agree (A), Not Sure (NS), and Disagree (DA) to Strongly Disagree (SDA) using the descriptive and inferential statistics. Advantages of online assessment were assessed in Q. No. 1,3,4,5 & 7. Disadvantages of online assessment were assessed in Q. No. 2,6,8,12,13 & 14. Perception of faculty in handling newer technology was assessed in Q. No. 9,10,11 & 15. The anonymity of the faculty and the confidentiality of the results were strictly maintained. All data were entered into an online Google form questionnaire sheet and then into an Excel spreadsheet (MS Excel 2011).

RESULTS

At the end of the one month, out of 60 preclinical faculty members, 45 (Anatomy- 20, Physiology- 15 and Biochemistry- 10) i.e., 75%, gave their consent and responded to both predefined and close-ended questions. Out of 45 responses, only 35 faculty members had disclosed their age, ranging from 28-52 years. There was equal participation from both male and female faculty. There was

equal participation of faculty from tutors to professors in all 3 preclinical departments (Professor, 7; Associate Professor, 14; Assistant Professor, 17; and Tutor, 7). Participation ranged from junior faculty with less than one year of experience in teaching to senior faculty who had more than 20 years of experience.

Experience and training to conduct online assessments

Pre-defined questions were asked to know their experience in handling online assessments and the type of training they underwent to handle them, and out of 45 responses 98% of faculty agreed that they had experience in conducting/handling a minimum of 3 online tests. 50% of faculty mentioned attending various Faculty Development Programs (FDP). 63% felt that they need to have a trial assessment (Table 1).

Table 1. Questions for experience and training to conduct online assessment.

No	Questions	YES	NO
1.	Conducted/handled a minimum of 3 online tests	98%	2%
2.	Received any formal training in medical education practices	50%	50%
3.	Competent to handle the newer technology first time	50%	50%
4.	Is the online trial test comfortable in handling the newer technology?	63%	37%

Advantages of online assessment

Q. No. 1, 3, 4, 6 and 7 stated the advantages of online assessment and 40.7% of faculty have positively responded (A and SA) to reduced paper correction load and grading the paper was easy in aptitude test by 96.1% of faculty. 33.4% of faculty were feeling comfortable using online assessments. 74.1% of faculty agreed that constructive and immediate feedback is possible (Table 2).

Table 2. Advantages of Online assessment.

No	Questionnaires	Likert Scale Scoring				
		SA	A	NS	DA	SDA
1.	Online assessment paper correction load reduced	7.4	33.3	22.2	37.1	-
2.	Easy for Aptitude test	40.7	55.6	3.7	-	-
3.	Time is reduced in grading the online test	7.4	40.7	22.2	29.6	7.4
4.	Comfortable to use online assessment	3.8	29.6	25.9	29.6	11.1
5.	Timely, constructive and personalized feedback can motivate the students	14.8	59.3	18.5	3.9	3.5

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

Disadvantages of online assessment

Q.No.2,6,8,12,13 and 14 stated the disadvantages of online assessment over traditional methods, like difficulty to download and correcting essay questions. 62.9% agreed to it and 88.9% agreed that they lacked personal connection with students during the online assessment. 40.7% of faculty agreed that online assessment can test only the knowledge component in the cognitive domain, that the major disadvantage was cheating, and that more time is required by the faculty to develop a standard online test – this was agreed by nearly 95-98% of faculty (Table 3).

Table 3. Disadvantages of Online assessment.

No	Questionnaires	Likert Scale Scoring				
		SA	A	NS	DA	SDA
1	Challenging to grade essay questions	14.8	48.1	7.5	29.6	-
2	Students have taken preparation for on-line tests seriously	-	-	11.1	70.4	18.5
3	Lack of Personal connection with students	18.5	70.4	3.7	7.4	-
4	Assess only lower-order thinking	3.7	37	29.6	29.6	-
5	Cheating is a major drawback in online assessment	59.3	40.7	-	-	-
6	Additional time is required to design quality test items	48.1	48.1	3.8	-	-

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

Perception of faculty in handling newer technology

Q. No. 9, 10, 11 & 15 concerned the perception of pre-clinical faculty on the reliability of the newer technology and also the willingness to update and adapt to the new digital world. Only 11% of faculty agreed on the reliability of the newer technology. 70% felt that lack of training would make them incompetent in handling the digital era. 75% did not prefer online assessment over the traditional method. But 80% showed their willingness to adapt the blended teaching and assessment methodology (Table 4).

Table 4. Perception of faculty in handling newer technology.

No	Questionnaires	Likert Scale Scoring				
		SA	A	NS	DA	SDA
1.	The technology used is reliable	-	11.1	44.4	29.6	14.8
2.	Is it necessary to be competent in ICT	18.5	51.9	11.1	14.8	3.7
3.	Prefer to use the online assessment method over the traditional method?	-	15.4	7.6	46.2	30.8
4.	Adoption of the blended method of assessment is essential at present	29.6	59.3	11.1	-	-

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

DISCUSSION

COVID-19 pandemic situation has made all health science universities develop effective online teaching and assessment tools (Kumar, 2018) Faculty’s perception of online assessment compared to the conventional method is very important, because they were the one who was planning, scheduling, and conducting the online assessment during this COVID 19 pandemic time and are also experienced in conducting multiple conventional assessment methods to the students.

The majority of faculty agreed that they had experience in conducting/handling a minimum of 3 online tests. The question was asked to know about their training to handle newer technology

and received a positive response from the half of faculty. And this faculty (mostly Professors, Associate Professors and Senior Assistants) were attending various Faculty Development Program (FDP) organized by the institution, Medical Education Unit (MEU) of their parent institute, or another nodal and regional center. But the other half of the faculty group had not received any training. This may be due to the selection process where senior faculty were always picked up for any training. Because of the lack of training, most of the faculty were not feeling competent to handle the newer technology.

Advantages of online assessment

From the perception of our faculty, the advantages of online assessment where paper correction load is reduced, grading online aptitude is easy and immediate constructive feedback will motivate the learner to perform well, which were in accordance with the study by Zafar and Hussain (2019), which stated that the technology integration by faculty is becoming important and vital in all kinds of education; and also in accordance with the study done by Baleni (2015), which stated that the benefits of online assessment were student commitment, faster feedback, and lecturers also benefited with less marking time.

Disadvantages of online assessment

Assessing low order thinking, extra time and effort is needed to prepare a well-designed online test, lack of personal connection, cheating and plagiarism by students were very common disadvantages of an online assessment, which was in accordance with the study results of Baleni (2015), Khan and Khan (2019) and Mukhtar et al. (2020). In the cognitive domain, only the knowledge component was tested, and more time is required by the faculty to develop a standard online assessment to test the higher-order thinking of the students, which was agreed upon by nearly 50% of the faculty; and this result was in accordance with the study result of Boitshwarelo et al. (2017).

Perception of faculty in handling newer technology

Lack of training and updates in ICT would make them incompetent in handling the digital era. Our result was in accordance with a study done by Khan and Khan (2019), which stated that when teachers lacked the technological skills and confidence to conduct online assessments, it had a negative influence on students.

So, from our study, we found that it was difficult for the important stakeholders of education like teachers, who did not prefer the switch from conventional to online methods in the form of learning or assessment, even though the advantages of online methods outweigh the traditional method. But they show their willingness to adapt to the blended learning method, and it can change their mindset to accept the 21st-century outcome-based education.

The limitations of our study were questionnaire-based, as it gave us only the percentage of people who agreed or disagreed in Likert scale scoring. Including other types of tools in educational research like Focus Group Discussion (FGD) and In-depth interviews might have given more insight into the advantages and disadvantages of online assessment by the faculty. Besides, the study was done only on preclinical faculty. Thus, the result may not truly reflect the perception of all medical faculty in clearer and broader aspects.

But from our study, we would like to recommend that online assessment can be acceptable for teachers if they are trained and equipped in handling newer technology. The administrations should: 1) improve their infrastructure in technical aspects and standardize them; 2) set up online monitoring committee and employ tracking software to check the progress of the program; 3) train the faculty in ICT by conducting FDPs for all the faculty involved in the process. And faculty should have: 1) professional responsibility to update themselves by attending FDPs, and also 2) to plan and design online proctored examinations with Standard Operating Procedure (SOP).

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REFERENCES

- BAKERSON M, RODRIGUEZ-CAMPOS L (2006) The evaluation of internet usage within the graduate-level classroom. *Int J Learning*, 13: 15-72.
- BALENI Z (2015) Online formative assessment in higher education: Its pros and cons. *Electronic J e-Learning*, 13(4): 228-236.
- BOITSHWARELO B, REEDY AK, BILLANY T (2017) Envisioning the use of online tests in assessing twenty-first-century learning: a literature review. *Res Practice Technol Enhanced Learning*, 12: 1-16.
- DAVIES S (2010) Effective assessment in a digital age. Bristol: JISC InnovationGroup. https://www.webarchive.org.uk/wayback/archive/20140614115719/http://www.jisc.ac.uk/media/documents/programmes/elearning/digiassass_eada.pdf.
- DONNELLY C (2014) The use of case-based multiple-choice questions for assessing large group teaching: Implications on student's learning. *Irish J Acad Practice*, 3(1): 12-15.
- GIPPS CV (2005) What is the role of ICT-based assessment in universities? *Studies Higher Educ*, 30(2): 171-180.
- KHAN S, KHAN RA (2019) Online assessments: Exploring perspectives of university students. *Educ Inform Technol*, 24: 661-677.
- KUMAR S (2018) Awareness, benefits and challenges of e-learning among the students of Kurukshetra University Kurukshetra: A study. *Int J Inform Dissem Technol*, 8(4): 227-230.
- MUKHTAR K, JAVED K, AROOJ M, SETHI A (2020) Advantages, limitations and recommendations for online learning during COVID-19 pandemic era. *Pak J Med Sci*, 36(COVID19-S4): COVID19-S27-S31.
- NICOL D (2007) E-assessment by design: using multiple-choice tests to good effect. *J Further Higher Educ*, 31(1): 53-64.
- ZAFAR DR, HUSSAIN MD (2020) Technological pedagogical content knowledge (TPCK) and its implication in teacher education. *JRR*, V(XXXVI): 41-46.