



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

CHALLENGES IN EVALUATION AND ASSESSMENT

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ABSTRACT:

Assessment is resource intensive and needs careful evaluation and response to a learner's objectives and details of how the target was achieved. Although in medical training, assessment is largely conducted in offline mode, except for some computer-based formative assessment in certain specific areas. Online assessment provides computer rich, comprehensive, formative feedback that can scaffold the learning process and helps the learner to self-evaluate and enhance their learning outcome while preparing for summative assessment. It also eliminates the inconvenience due to rudimentary, traditional clinical assessments, for example, the need for examination halls, printed paper, and accommodation, travel and subsistence for both invigilator and candidate. The bottom line of using e-assessment tools in the field of medical education is that it offers substantial potential benefits but needs to be carefully managed to minimize potential risks. This article seeks to revisit basic concepts of e-assessments and the ways in which it can support learners to develop domain knowledge and professional skills with the hope of encouraging thought and reflection among medical educators.

KEYWORD

Comprehensive, Scaffold, Accommodation, Domain.

INTRODUCTION

Assessment and Evaluation is universally recognized as one of the most important and powerful elements of an educational experience, as it provides observable evidence of learning, determines student progress and demonstrates understanding of the curriculum. Assessment also forms the basis for student independence and aids in development of the necessary skills for autonomous and self-directed (also lifelong) learning'. In contemporary knowledge-intensive, higher education scenario; individual and societal development is largely steered by technological advances with expectations for enhanced access, freedom and involvement in the co-construction of learning, including assessment methods, Evaluation system and protocols. Recent decades have witnessed a wave of technological advances, including technology-assisted open universities, virtual

modes of instructional delivery, and computer modelling and simulation as instructional tools. Internet-based student-faculty interactions and student-to-student networking have gained momentum as the new norm in many higher education programmes including medical education. In one form or another, e-assessment has been around for more than two decades. Historically e-assessment has been analogous with the development of e-Learning. The earliest forms of computer-assisted learning (CAL) mostly made use of multiple-choice questions (MCQ), with feedback or branching algorithms in response to individual choices. Although e-assessments are developed from conventional forms of assessment by converting paper-based versions of multiple choice, true-false, multiple response and extended matching questions into e-formats, it has now been realized that it offers: number of opportunities and advantages to transform and complement conventional assessment making it more relevant, valid, engaging and a meaningful process. E assessment has served as a potential catalyst to translate conventional assessment practices in response emerging assessment challenges such as distance learning, high student-faculty ratio, Objective and high-quality feedback.

EMERGING NEEDS

E-assessment and Evaluation are largely been used for formative purposes. Entrance examinations to various courses in India are invariably conducted through online mode. The use of e-assessment for summative purposes is restricted to "digital portfolios. Recently, University Grants commission (UGC) in its revised guidelines has asked all universities in India to complete terminal semester/final year examinations in offline, online or blended mode by the end of September 2020. Earlier, Medical Council of India has asked all medical colleges in India to finish with the process of conduct of final year university examinations of postgraduate students by June end, where a provision was made for examiners to be connected through video conference. Next biggest hurdle is conduct of final examinations of undergraduate medical students. Medical training being largely skill training necessitates face-to-face interaction and experiential learning, as well as assessment using direct observations. Although these can't be tested

entirely by online assessments, provisions can still be made to conduct a large part through online mode particularly during this crisis period.

PURPOSE AND ADVANTAGES

Application of online assessment within the academic context should not be considered as a mere incremental activity; its use should be based on an academic rationale and demonstrate how it supports and is supported by the curriculum, departmental and institutional-learning strategies so as to enrich the students learning experience. The primary purpose of e-assessments no different from conventional assessments; for students it can be attainment of the learning outcomes, receiving formative feedback, a grade or for certification. E assessment in medical education offers many advantages over conventional forms of assessment [6]; for the students, teachers, institutions and the broader educational goals.

BENCHMARKING BEST PRACTICES IN E ASSESSMENT

Assessment, being a core component of learning is at the heart of medical education. As of date, there are varied forms of e-assessment strategies that can be used; however, they should be pedagogically appropriate, implying that e-assessment needs to be so designed that the learning outcomes are considered as the driving force to decide the ways in which the available technology can be brought to use while being fully aware of what is practical and/or feasible in the students' individual learning environments. Assessment of student learning in an online setup cannot be simply transferred from a conventional face-to-face classroom but needs rethinking to weigh its benefits and drawbacks as a medium of communication *), The e-assessment guidelines developed by the Canadian

Association for Community Education can be applied to develop pedagogically appropriate benchmarks for best practices for e-assessment in medical education, variety, authenticity, collaboration, feedback, online resources and student responsibility.

Variety

Both quantitative as well as qualitative methods of assessment should be included in order to cater to the different learning styles. Encourage use of methods that ensures collaboration, feedback methods, problem-based learning, simulation, portfolios of evidence, etc. and not just surface learning.

Authenticity

Design and develop well-de fined, assessments that simulate the real-time situations/tasks students will come across after graduation.

Collaboration

Allow and encourage interaction between students, faculty, members of the local or global community and experts from other institutes. Communications technology existent within the online environment should be made use of.

Feedback

Mechanisms for appropriate, continuous and timely feedback should be included throughout the online assessment process, Online Resources Ensure students make full and appropriate use of the multitude of resources the Internet offers. Student Responsibility Provide students with opportunities that encourage accountability within course and assessment tasks. Such accountability of the learning process takes care of individual student interests, thus influencing motivational outcomes.

TYPES AND TOOLS OF E-ASSESSMENT AND EVALUATION

The digitalization of the world today presents one with a plethora of opportunities to exhibit innovation and creativity in the arena of pedagogical assessment. With a wide range of availability of digital tools and pervading information, there exists an immense capacity to prolifically utilize a wide array of assessment approaches that promote and evaluate student learning in higher education. Considering the crucial role online assessment plays in current pandemic and otherwise, the following section outlines the various tools which can be efficiently utilized for e-assessment.

Computer-Assisted E-Assessments

While multiple choice, true-false, multiple response, extended matching questions and are being used routinely, few old and newer ones like filling the gap (cloze), (1'7) text or number entry, labelling questions are being used by some medical educators globally. Focus of MCQs can range from recall type questions to questions that demand higher levels of cognitive engagement .

Hotspot Questions

These require students to place a mark on an image or a diagram while dragging labels directly over an image [4], Such systems will enable examiners to formulate.

Confidence-Based Marking

This -assessment modality can be applied to basic sciences courses for medical students employing true/ false and MCQ formats with confidence ratings.

Choice of confidence ratings is built upon mathematical theory in which students require to select a rating of reasonably confident if greater than 67% sure of their answer, and a rating of highly confident if greater than 80% sure of their answer.

Open Labyrinth

It is a web application comprising of educational research platform that supports virtual patients and virtual scenarios. Virtual patients developed using Open Labyrinth are aligned with MedBiquitous Virtual Patients Specifications ('7. It can be attached to a local server and consists of a virtual patient as a screen-based computer simulation of a case that can take many formats with the help of an Info-button. Such Info-buttons include images and hyperlinks to other web sites.

Moodle

Medical Institutions can choose to make use of e- assessment facilities already existent within learning management systems (LMS) such as the likes of Moodle and Blackboard ('»). Typical assessment tasks supported by the Moodle LMS include calculation questions, calculated MCQs, calculated simple questions, essay questions, matching questions, numerical questions, random short-answer matching questions, short-answer questions, true/false questions and description questions

Clickers

For study group quizzes and discussion prompts, medical educators can use personal response systems student learning. ARS or clickers can run on a mobile, tablet or a laptop. The cycle begins with the instructor asking a question or a problem. The students initially work independently towards a solution and by selecting the appropriate numbered or a lettered response on their clicker 'vote' on what they consider to be correct answer. The results are then displayed across the entire class to inspect and view.

Calibrated Peer Review

Calibrated peer review is a type of web-based writing development program, consisting of a central assignment library. Its main objective is to educate and assess medical students' patient note-writing skills in standardized fashion by inculcating peer-reviewing practices.

Digital 'Open Book' Exam

This consists of either a traditional sit-down/limited-time exams, with varying degrees of access to resources and references, or a take-home open-book exam which can be conducted offsite in an unproctored environment. The papers are marked automatically online. Open-book exams allow students access to any resource material needed during exam. In addition, it can consist of questions pertaining to patient diagnosis and clinical scenarios. Properly designed open-book assessment for formative assessment can enhance learning outcome.

Context-Rich Short Answer Questions Assessment System

Context-rich short answer questions (CR-SAQ) is a type of learner-centric platform consisting of context-rich short answer questions/essay-based exams to assess learners, using an automated essay scoring system.

CR-SAQ exams enable both learner and medical trainer to observe and record the chain of thought process that led to an answer.

Remote Assessment via Video Evaluation

(RAVVE)

Evaluation of post-graduate competencies is a complex process that can include multiple components, from blueprinting to patient encounters. Since assessment of communication skills and clinical performance can be conducted with the help of Direct Observation of Clinical Encounters Examination (DOCEE) between physicians and their patients, in view of this, one can try video-based feedbacks which allow recording of learner and patient encounters. This in turn is sent to external as well as internal reviewers for comments and evaluation. Literature reports use of such video-based feedbacks as a beneficial modality for assessment in medical and non-medical education. Along with this it also improves one's practical skills, for example, surgical techniques

Video-Based Communication Assessment

Video-based Communication Assessment (VCA) is a type of an innovative and a flexible system that assists in overcoming the challenges of assessment in communication skills. Video patient vignettes can be used using a computer, tablet or a smartphone, to which users reply as if conversing with the patient in the vignette. Besides this VCA helps provide meaningful, individual one-to-one feedback reinforcing the concepts and skills of proper communication between medical student and patients.

Objective Structured Video Exam (OSVE)

OSVE is another novel, rapid technique for effective assessment of specific cognitive aspects of trainee's clinical communication skills. It consists of a scoring scheme. The OSVE assesses the student's awareness and knowledge regarding consequences of different types of communication skills.

Online Progress Testing

Herein, students undertake a series of online assessments during the year that samples questions from the entire course. Students are given a period of time, a week, for instance, to take the test following which they are presented with a mark and the average mark for the year. They are then permitted to go back into the online assessment to check the questions they answered correctly or incorrectly and to read the feedback comments built into the questions beforehand.

Assessment of Clinical Competencies Using CIVA

Well-constructed Clinical Image and Video Assessment (CIVA) is a computer projected, class administered test consisting of 40-50 scenario-rich electronic stations (slides) displaying clinical vignettes/images or premium quality videos accompanied by short questions. CIVA conforms well with OSCE and DOCEE.

Simulations

Use of simulation in graduate medical education affords unique opportunities to improve the quality of resident's educational experience as well as to enhance competencies in specific field. In context of this, Virtual Patient Simulation (VPS) is preferred to traditional assessment methods when used for both learning and evaluation. This could further lead to the development of virtual rounds, wards and virtual communities which enhance the diagnostic efficiency, critical thinking and so on. Virtual patients can promote clinical reasoning skills, decision-making skills and have been used to assess interviewing skills. Invasive surgical trainer (MIST-VR) and the Endoscopic Sinus Surgery Simulator (ES3) type simulations can be used in surgical practice for purpose of assessments. The MIST-VR uses, cubes and virtual surgical instruments to simulate laparoscopic surgery.

Digital Portfolios Assessment

E-portfolios can be used to exhibit competencies across a range of clinical and non-clinical skills. For the purpose of assessment, the E-portfolio documents specific learning outcomes and must, therefore, be designed to reflect knowledge, skills or behaviours

PROCESS AND DELIVERY OF E-ASSESSMENT AND EVALUATION

Online assessment not only includes a mere assessment of students, but also includes execution, delivery, feedback and analysis of different type of online assessment tests. A whole -system is required for online assessment consisting of -administrator, e- support staff, -learners, -teachers. Planning for online assessment, like other forms of assessment needs careful considerations regarding types of assessments required with respect to intended outcomes. Assessment strategy is decided by delivery media and available resources. Using current tradition al assessment tools for online assessment would he catastrophic. Hence a thorough review of all the assessment tools with respect to aims, objectives and outcome is essential. Once the tools are finalized, appropriate delivery system must be selected. Since -learning is here to stay, it is wise for administrators to invest in -learning applications that support administration and logistics of e-learning environment including e-assessment.

One can opt for special online assessment tools which are usually embedded in many LMS, course management systems Or Virtual learning environments. However, if dedicated online assessment system is not available it has to be incorporated to existing routine assessment system. In that case, factors like availability, cost, feasibility, interoperability with existing system, means of delivery, etc. must be taken into consideration. Reliability of computer system is of vital importance. Reliability can be increased by using primary storage error-Correcting code to prevent crash of software. Uninterruptible power supply is necessity because online assessment is completely dependent on Internet. Essential administrative task regarding online assessment is audit, quality assurance and compliance including internal and external scrutiny. Availability of trained educational technologist is a must for online assessment. Educational technologists act as bridges between educators' expectations and student's output.

They are responsible for technical and creative aspects or online assessment

Since online assessment methods require usage of web special attention should be paid to security, confidentiality, system resilience, invigilation system and confidentiality of student's identity and security. Online assessment dep ends entirely on Internet and technical issues, there should be provision of recovery and backups, in case of any lapse.

CHALLENGES AND THEIR MANAGEMENT IN VIRTUAL MODE

Major challenge for future of online assessment will be like finding the ways for shifting from a cottage industry approach lead by individuals to mass-Produced system lead by management process.

Since online assessments are totally dependent on technology, they can involve high costs for assessment system software licence. servers, large number of computers, well-trained support staff and large spaces. In addition to this, dedicated assessment servers and content educationalist also incur additional costs. Online assessment is relatively new, regular faculty development programs should be conducted by administrators to keep all stakeholders updated with all technological mechanisms of assessment delivery. Similarly, student's awareness programs should also be regularly conducted to make them familiar with online assessment strategies biggest challenge in online assessments is safety from hackers and viruses. This can be overcome by investing in good licensed anti-viral software and anti-hacking system. A firewall (either hardware or software) is a system that controls requests and protocols accepted and transmitted by a server. Most assessment systems will require HTTP or ideally HTTPS (encrypted) protocols so a firewall can be used to deny access to other protocols such as r IP and e-mail. Another issue is legal-in the form of copyright of content, pictures, videos sound, assessment material from other institutes, etc. Hence, the copyright of all the content material intended to be used has to be obtained from concerned authorities. Academic dishonesty in the form of online cheating and plagiarism is an important issued to deal with in online assessments, especially in high stakes summative online tests. Ensuring identity of the student is a big challenge. Since students are not face to face, chances of identity fraud are more. Certain steps can be taken to ensure identity of students like monitoring specific login ID, face and eye recognition through computer software, proctoring through video, etc. Extra attention should be given to plan for online assessments with respect to students having special needs like color- blind students, students having physical disabilities, etc.

CONCLUSION

Many advantages are offered by online assessments like administration of assessments less time-consuming automated marking, less paperwork, Instant feedback about learner's progress, instant monitoring of student's performance, etc. Although administration of assessment is less time consuming, preparation time is more. Also, online assessment is totally technology based, thus, incurring huge costs, which is not always feasible for all institutes. Also, it is very difficult to assess skills and affective domain from online assessments. Hence, we can take best parts of online assessment and use online assessment for continuous assessment. feedback and learning.

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