Original Research Paper

Medical Education

Armoore International	COVID-19 PANDEMIC IS AN OPPORTUNITY TO REFPORM ASSESSMENT: A WEBINAR SUMMARY REPORT
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	KEYWORDS :

1.INTRODUCTION:

"During the COVID-19 pandemic, the "Opportunity to Reform Assessment" Webinar was a global event that was urgently needed. The Department of Physiology, All India Institute of Medical Sciences Rishikesh, India, hosted a faculty engagement webinar for people interested in medical education and evaluations on July 21, 2021. The objective of the webinar served both to disseminate the knowledge and to receive feedback and gather inputs on online assessments. This webinar should help prestigious medical experts, including faculty from all cadres involved in teaching, and result in improvements for planning and implementing future assessments during pandemic-like situations. Additionally, this webinar should assist in the discussion of the issues in conducting online formative and summative assessments in different medical institutions, as well as to raise solutions to the current challenges of the COVID-19 era within a certain timeline.

2.Webinar Structure:

An international webinar was hosted by the Department of Physiology, AIIMS Rishikesh, on an internet platform and simultaneously broadcast on social media. The hosts sent invitations as virtual flyers, together with the registration URL for registration through Google form, to their stakeholder networks across the world. More than five hundred medical fraternity of various designation and experience levels registered. Medical educators from all around the world tuned in to watch the live video on social media. There were three presentations by eminent speakers, each of which was followed by a Q&A session and later a post session feedback collection from all attendees.

This report summarises the presentations and assesses the conversations and input from attendees gathered through Q&A on the presentations, and chat boxes dedicated to specific topics about the COVID-19 pandemic – Opportunity to Reform Assessment" and the webinar's content.

3.Speakers:

- I. Professor, School of Health Sciences, Indira Gandhi National Open University, New Delhi.
- II. Faculty, Medical Education Unit, College of Medicine and Medical Sciences, Arabian Gulf University - Kingdom of Bahrain.
- III. Controller of Examination & Head of Student Record and Evaluation University of Petroleum and Energy Studies (UPES), Dehradun, Uttarakhand.
- 4. Session I: Planning online formative and summative

assessment

4.1. What Is The Difference Between Assessment And Evaluation?

Assessment is student orientated, to get information about the competence and performance of a student. Can be achieved through several activities.

Evaluation means passing a value judgment on the quality or worth. Used concerning educational programs.

4.2. Types Of Assessment: A. Formative Assessment

A. Formative Assessment

Purpose – ongoing learning (continuous). It aims to improve learning behaviour, motivate learners towards improvement, monitor learning, to provide feedback to learners. e.g., tutorials, assignments.

B. Summative Assessment

Purpose - terminal assessment to access if objectives of the program have been achieved. It aims to record a student's achievement, to assess the effectiveness of the program, to certify the level of knowledge /skill achieved – fail/pass, make decisions about future eligibility. e.g., semester exams, year-end exams.

4.3. Planning Effective Assessment Should Be Drafted Well Before Hand:



4.4. Three Domains Of Learning: 4.4.a. Cognitive Domain: Includes Intellectual Components Like Remembering, Thinking, Analysing, Solving Problems.

- Create new assessment tools
- Evaluate which assessment to use
- Differentiate between different types of assessment
- Prepare assessment for a course
- Classify types of assessment
- Define assessment

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4.4.b. Affective Domain: Includes Feeling, Emotional And Attitudinal Components.

- Draw out an action plan to address the issue
- Critically analyze the subject
- Actively debate on the topic
- Ask questions in the lecture
- Attend a lecture on elder abuse

4.4.c. Psychomotor Domain: Includes Physical Movements, Coordination, And Use Of Motor Skill Areas

- Devise a new technique for Hip Surgery
- Customize the surgery for the patient
- Perform surgery by precision
- Perform steps by memory
- Follow steps of Hip surgery by observing the mentor

4.5. Miller's Pyramid; For Assessing Clinical Competency



4.6. Online Formative Assessment Cognitive Domain

Skill to be	Methodology	Tool used
tested		
Knowledge	Asking questions	Intext question Web
and	in class MCQ	conferencing Comments on
understand	SAQs	social media, blogs Quizzes
		(google forms) Offline/Online
		assessments Discussion forums
Apply,	PBL, Case	Intext question
Analyse,	studies, Identify	Discussions in web
Evaluate	Picture, the	conferencing
	question on Video	Offline/Online assessment
Create	Posters, Charts,	Intext question Upload videos
	Video, audio	on Youtube Attach posters/
		files/video /picture in forms

4.7. Online Formative Assessment Affective Domain

Skill to be tested	Methodology	Tool used
Receiving Responding	Asking questions in class MCQ SAQs	Attendance in Web conferencing Quizzes (google forms) Offline/Online assessments Discussion forums
Organisati on	studies, Identify, the question on Video	conferencing Offline/Online assessment
Characteriz ation	Presentation of case studies, Posters, Charts, Video, audio	Presentation on web conferencing Upload videos on Youtube Attach posters/ files/ video /picture in forms

4.8. Online Formative Assessment Psychomotor Domain

Skill to be tested	Methodology	Tool used
Limitation	The demonstration followed by a reverse demonstration	YouTube video streaming Google meets for interaction Skill lab/ Dummy
Manipulation Precision	Demonstration	YouTube video streaming Google meets for interaction Posting own video OSCE

Articulation	Practice	Demonstration/role play	
Naturalization	with/without	checklist manual	
	supervision	logbook Telemedicine	

4.9. Question Paper Can Be In Multiple Formats: Intext questions, Google forms with MCQs, Answer key with feedback for incorrect answers, Google Form with Case Studies, Google Forms with Option for Attaching Files.

4.10. Online Formative Assessment

- i. Criteria for preparing: Frequently provided, cover major aspects of the curriculum, in sync with the objectives, provide quick feedback to the student, should enhance understanding, should not demotivate.
- Factors influencing the selection of online tools: Objectives of course (domain and level), Characteristics of your learners (tech literacy, socio-economic, compliance), and Tool used (accessibility, availability, effectiveness, reliability, efficiency).
- iii. Challenges in online Formative assessment: Technology know-how by the teachers, connectivity issues and software issue, availability of resources at the student end to carry out the activities, Plagiarism, scalability can handle the projected increase in students, assessments

4.11. Online Summative Assessment

- Online Summative examination: virtual OSCE, Viva conducted synchronously, Video recording of skill and uploading video, Live streaming of skill performed by the student, Case presentation, Checklist /logbook – document cases in the workplace for WPBA
- Challenges of online Summative assessment: Availability of resources, know how to handle technology, connectivity issues, time management, variety of questions that can be covered, testing psychomotor skills, Plagiarism.

4.12. Attributes Of Assessment

- I. Validity: Extent to which a given assessment method assesses what it is meant to assess.
- ii. Reliability: If a person is assessed on more than one occasion, the outcome should be the same, but this rarely happens because learners perform differently on different days, different teachers give different marks, learners perform differently depending upon the type of test.
- Ensuring Reliability: Have more than one assessment. Spread the assessments out over time. Use more than one assessment method as some learners do better with different tests.
- iv. Acceptability: Highly subjective assessments may not be acceptable in general. An assessment approach might be aversive to students because of the timing, length, content, or other features. When this occurs and students do not prepare as expected for the assessment or do not see it as valuable to their education, the validity of the assessment can be jeopardized.
- v. Feasibility: Is it feasible to administer, mark and grade the assessment? Can the results be interpreted accurately? Will the assessment scheme demand too much time? Does the scheme require special resources (e.g., labor, materials, or equipment), and are these readily available to me? If appropriate, can I combine less reliable methods with more reliable methods? e/g The ideal situation would be to observe a student doing a lumbar puncture or putting an IV drip but that may not be feasible in actual practice.
- vi. Educational Impact: The assessment should be linked to the objectives and content. An assessment should stimulate the students to adopt good study habits and engage in deep learning rather than in the recall of facts. It is ideal to have a mix of formative and summative assessments and a mix of methods. e.g., A poor quality assessment. promotes students to adopt shortcuts in learning e.g., entrance exams.

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5. Session II: Planning And Designing Online

5.1. Objective: Describe The Rationale For Considering Online Learning & Assessment

The rationale for considering online learning & assessment: Best available option in the given 'new normal'. Easier management of assigning students to assessors. Accurate time control. Real-time invigilation is possible. Option to incorporate multimedia (engaging). Optimum for formative assessment (Kahoot / assignment / projects). Can be video recorded for quality assurance. Safe for everyone. Relatively less stressful.

5.2. Objective: Explain The Utility Of Online OSCE In Terms Of Different Domains

a. Utility of online assessment – cognitive domain: LAQ, SAQ, MCQ, MEQ, PMP, Viva Voce

- b. Utility of online assessment motor domain: Students can be encouraged to practice the basic physical examination skills on family members/students' volunteers. e.g., Pulse examination / blood pressure measurement/ respiratory rate/ anaemia/ jaundice/ cyanosis/ edema/ lymph nodes examination/ cranial nerves/ motor system/ sensory system/ percussion/ reflexes/ auscultation of cardiac and respiratory areas etc. We can assess the process but, may or may not be able to check the credibility of the finding.
- c. Utility of online OSCE

	History taking	Physical examination	Data interpretation	Management and clinical acumen	Communication	Professionalism
Written assessment			w	۷		
Online OSCE	w	v	w	Ŵ	w	v
Online VIVA	۷		V V	w	v	v

5.3. Objective: Enlist The Steps In Organizing Online Osce

- a. Get everyone on board huge transition process, Consensus of all stakeholders, remain transparent, and spell out the expectations and limitations of online exams. Hold meetings and minute them - Leadership / College administration (CC, MEU, Assessment unit), Department heads / Technical team / Support staff, Student representatives
- b. Assess your infrastructure Appropriate selection of the venue is vital for the effective execution of virtual exams, all assessment rooms placed in the same corridor / same floor would facilitate logistics and communication.
- c. Select your task force: Three pillars of the task force are Faculty, the Secretarial staff. Technical support. After you select them send official emails to HODs to permit them and to relieve them from other commitments
- i. Capacity Building: It should be done to have a skilled team.
- ii. Procedures and Guidelines: These should be formulated well before time.
- iii. Conduct 'Mocks' before 'Real' exams: Goes with the saying "Practice makes a man perfect."
- iv. Communication is 'KEY': For better teamwork and objectives to be met one should not miss a chance to communicate.
- v. Standardize your ZOOM settings: Key areas to pay attention

The Rationale Behind Selecting A Specific Software For Online Clinical Assessment

- Number of stations designed
- The spectrum of clinical skills to be covered using this form of online clinical assessment
- The blueprint of the exam
- Aligning of the department exam with online clinical teaching provided
- Comparison regarding students' scores and exam psychometric between online exams and traditional clinical exams (technical help can be provided)

- a) Feedback from students and faculty: Enhancing the participant's experiences and learning, is a must for improvising the material.
- b) Safety first: Know the limitations of 'new normal'. Practice social distancing, mask, hand sanitizer, etc.

5.4. Objective: Summarise & Few Areas Of Potential Challenges And Feasible Solutions

I. Possibility of wrong questions being shared with the students (since the same computers are used for multiple exams)

Solution: Delete the questions at the end of each exam

II. Quality Assurance

Solution: Record and save all the exams, allow invigilator to visit all breakout rooms

III. Unexpected Absenteeism Of Task Force

Solution: Well-planned backup support

IV. Unexpected Absenteeism Of Task Force

 ${\small \textbf{Solution: Well-planned backup support}}$

V. Error In Naming The Zoom Display

Solution: Stick the correct panel number and name of the examiner on the door for every exam. Instruct the technical team to rename the ZOOM accordingly

VI. Students Might Leave Zoom Before The Next Cohort Is Admitted

Solution: Communicate the process beforehand

VII. Unavoidable Delay Due To Technical Reasons

Solution: Communicate to students that they should be available if called early b prepared to wait in case of unavoidable delay

VIII. Error In Assigning The Students To Breakout Rooms

Solution: Print the sequence of allotment with names and pictures

IX. Unexpected Disappearance/absenteeism / 'failure To Login'By Students

Solution: Policy decision in agreement with HODs / Vice-Deans/Deans

X. Suspected Behaviour / Untoward Incidents Solution: Incident report form

6. Session III: Proctoring Tools For Online Assessment – Advantages And Challenges

6.1. Changing Scenario Of Examination:

Old way	New way		
Traditional Examination	Online Examination		
Administration Create Question Paper Physical Invigilation Manual Grading 	Administration Configure Online Exam Online Invigilation & Proctoring Automatic Grading 		
Test-taker • Reach Centre at Fixed Date/Time • Take Pen & Paper Exam • Results After Months	Test-taker • Take Exam Anytime, Anywhere • Real-time Results		
Total time - Weeks to Months	Total time - Few hours to days		
Reach - Limited number of students	Reach - Unlimited number of students		
Auditability - Physical Records	Auditability - Digital Records		

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6.2. Exam Authenticity:					
Tailored to your needs	Ensure exam authenticity	Scalable & secure technology			
All types of exams – quizzes, formative, summative, finals	Authenticate candidate's identity	High volume of concurrent test- takers			
Supports various question types	Control test-taking environment	Robust information security & data privacy			
Ease-of-use for candidates & administrators	Prevent copying during the exam	24*7 support via phone/mail/web			

6.3. Advanced & Scalable Proctoring:

AI-based auto proctoring		Human-assisted live proctoring	
Credibility Index to		octors can broadcast to	
make quick decisions	all	test takers	
Face/Device/People	 Liv 	e webcam/ screen feed	
and much other	of	candidates taking the	
cheating flags	tes	t	
 Secure browser & 	• Ch	at with the candidate in	
detect distraction leve	ca	se of possible cheating	

6.4. Challenges In Online Assessment:

- I. Proctoring/invigilation cannot be done in live.
- ii. Easily detect all forms of malpractices with AI-powered anti-cheating solutions that include live monitoring, & authenticity check, and secure browsing is not available over the blackboard
- iii. Equations, diagram chemical, and mathematical equations
- iv. Face verification process
- v. Results are downloaded by the individual instructor of the course.
- vi. The screen sharing process is there which leads to a lot of unfair means.
- vii. User authentication is difficult.
- viii. Multiple users can access with the same session link.

7. Feedback Collection:

Total Sixty-one percent medical educators were from the preclinical year, twenty-seven percent were from the clinical and allied group and twelve percent of faculty were from the paraclinical year. Eighty-five percent medical educators reported that they have conducted online assessment during the COVID-19 pandemic however, fifteen percent never conducted the online assessment in any form. Those who conducted online assessments suggested that seventy-four percent of medical educators have encountered technical issues while conducting these online assessments whereas twenty-six percent have never faced any technical glitches. Concerning this webinar, ninety-nine percent of faculty reported huge satisfaction with the conduction of this webinar during COVID-19 pandemic era. Ninety-two percent reported that this webinar was most relevant to the COVID-19 pandemic time. Among three sessions, sixty percent of participants said the first and second sessions were very relevant during this Pandemic whereas fifty-one percent reported third session to be need of the current scenario. Ninety-five percent medical teachers would prefer to incorporate training in online assessment in faculty development.

8. Evaluation Of Feedback:

8.1. Which Factors Do You Feel Are Facilitating To Conduct Of The Online Assessment?

Factors	Count	%
Auditability	169	35.7
Broader reach and convenience	94	19.9
COVID-19	52	11.0

Faculty Motivation	126	26.6
Time management	32	6.8
Total	473	100

8.2. Which Factors Do You Feel Are Barriers To Conduct Online Assessments?

Factors	Count	%
Psychomotor skill assessment	77	16
Confidentiality and Proctoring	40	8
Descriptive answers	10	2
Infrastructure	28	7
Internet connectivity	318	67
Total	473	100

8.3. What Is Your Key Takeaway From This Event?

Factors	Count	%
Approach to online assessment	119	25.2
Online OSCE/OSPE	270	57.1
Online proctored assessments	84	17.8
Total	473	100

9. Recommendations:

The objective of the webinar was accomplished. The faculty and medical educators benefited from the overall session discussion. This webinar will assist participants for effective implementation in planning online assessments in medical institutes during COVID-19 pandemic.