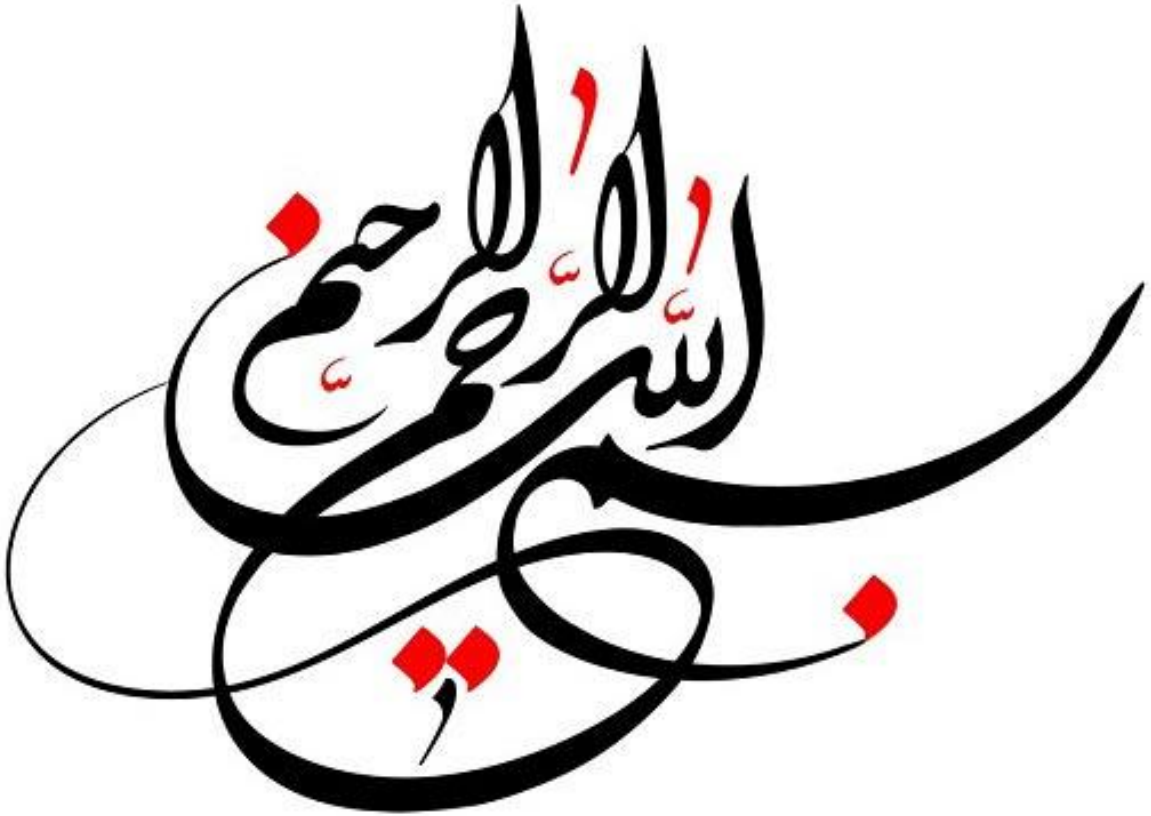
بسم الله الرحمن الرحيم

TEHRAN UNIVERSITY OF MEDICAL SCIENCES

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ediTec

Workshop On MediTec Project

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Assessment

Current Challenges and Future Perspectives

Aeen Mohammadi MD MPH PhD

Virtual School, Tehran University of Medical Sciences &

Virtual University of Medical Sciences

aeen_mohammadi@tums.ac.ir

Preface

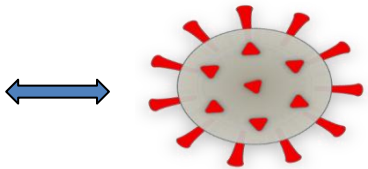
Most governments around the world have temporarily closed educational institutions in an attempt to contain the spread of the COVID-19 pandemic.

These nationwide closures are impacting over 90% of the world's student population.

UNESCO

Preface

- The profound effects: **Forever change** how future physicians are educated.
- Practical and logistical challenges: **Patient safety**



Preface

Social distancing:

The most effective preventative strategy

JAMA

Preface

Covid-19 outbreak has interfered with university education in all disciplines, encouraging university teachers to apply distance and e-learning strategies

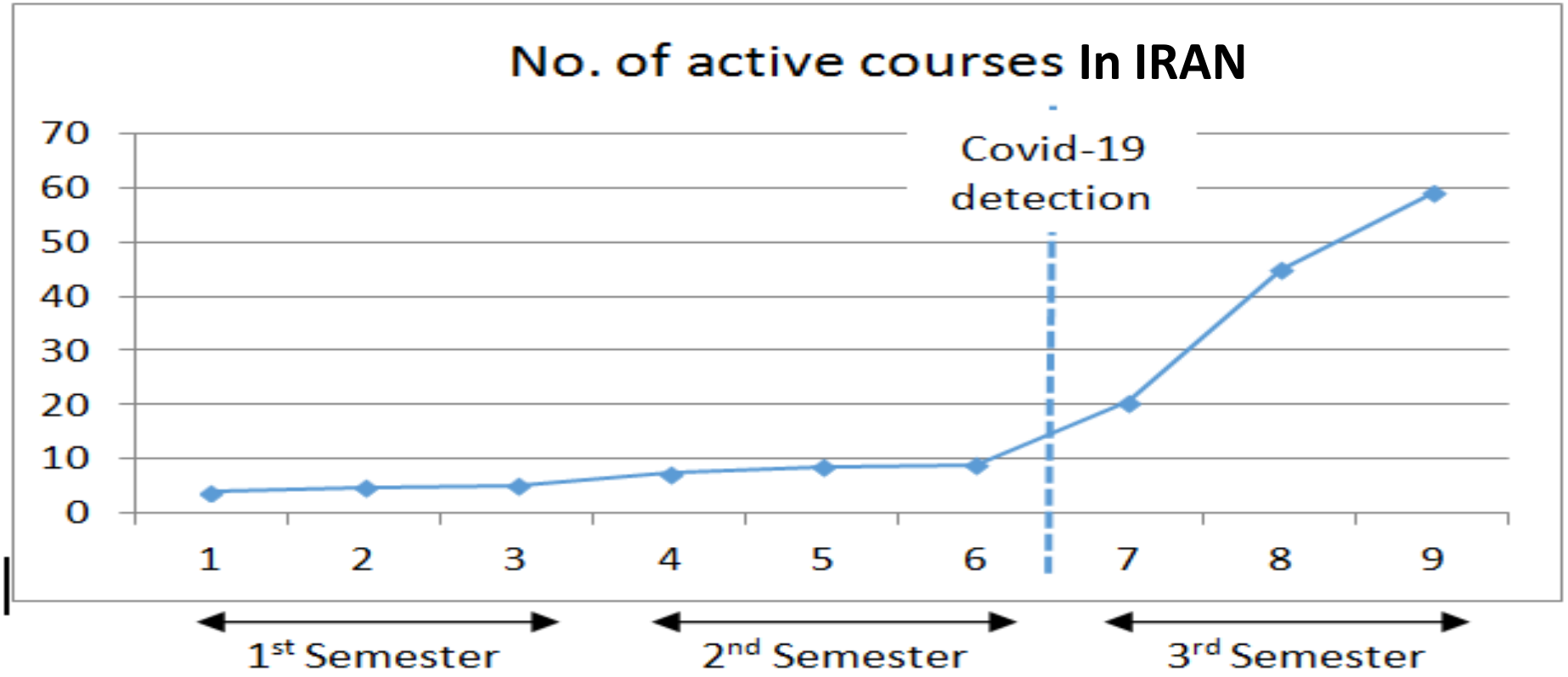
(Bevins, Bryant, Krishnan, & Law, 2020; Gewin, 2020; Rose, 2020).

Preface

- With nearly 30% of U.S. college and university students now taking at least one online course.
- Online learning enrollments in the US continue to grow at a much faster rate than overall enrollments in higher education

Allen & Seaman, 2010

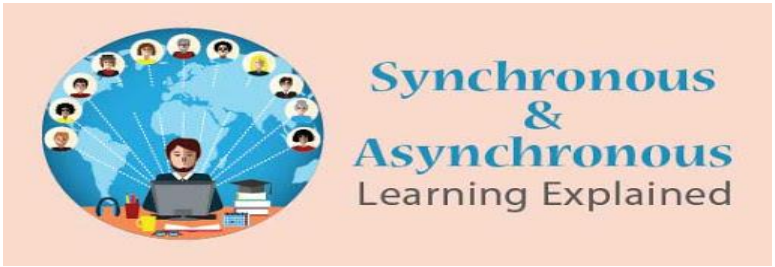
Preface


No. of active courses In IRAN
70
60
50
40
30
20
10
0
Covid-19
detection
1
2
3
4
5
6
7
8
9
1st Semester
2nd Semester
3rd Semester

Type of E-learning?

Synchronous online classes are less recommended: because of the infrastructure status and live platforms being overloaded in this circumstance

(Gewin, 2020).



Purposes of assessment in education

1. Identifying learning needs in order to drive future learning
2. Guaranteeing the safeguard the public
3. Driving learning (Assessment drives learning)
4. Ranking applicants for recruitment to postgraduate training posts.
5. Determining pass or fail situation of participants

Types and distribution of assessments in e-learning

Assessment Tools

- Exam
  - Cognitive
    - Academic achievement
    - Ability
  - Affective
    - Personality
    - Attitude
    - Motivation
    - ....

Assessment Tools

- Tools
  - Written
  - Oral
  - Clinical
  - Practical

Assessment Tools

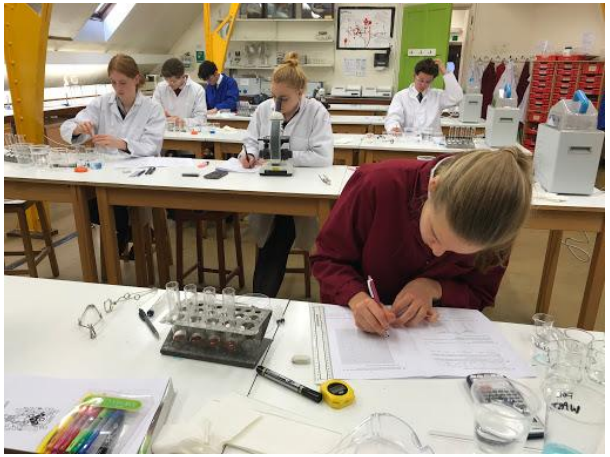
- Written
  - Open
    - Essay
      - Restricted
      - Extended
    - Short answer
  - Closed
    - MCQs
    - True/False
    - Matching

Assessment Tools

- Oral
  - Structured
  - Unstructured

Assessment Tools

- Practical
  - Lab based
  - OSCE



Assessment Tools

Clinical Exams

- Long cases
- Short cases
- Mini CEX
- DOPS
- .....

Swan

Distance Education, 22(2), 306-331

(64 institute with 400 000 students of State University of NY)

- **Discussion, papers, other written assignments, projects, quizzes and tests, and group work.**
- **Almost ¾ of the courses used online discussion as a graded activity.**
- **½ of the courses used written assignments and tests or quizzes.**

Arend

Journal of Asynchronous Learning Networks, 11(4), 3-13

The sampled courses purposely constituted a mix of academic programs across the two groups. Courses belonged to the Physical and Environmental Science, Languages and Literatures, Arts and Humanities, Computer Information Systems, Criminal Justice, Social and Behavioral Science, and Math programs.

- **Online discussion, exams, written assignments, experimental assignments, problem assignments, quizzes, journals, projects, and presentations.**
- **Quizzes and tests were used in 83% of the courses and written assignments in 63%.**

Gaytan and McEwen

American Journal of Distance Education, 21(3), 117-132

The population of the study included all faculty teaching online courses, and their students, at two southern state universities. (Survey)

Effective assessment techniques include:

- **Projects,**
- **Portfolios,**
- **Self-assessments,**
- **Peer evaluations,**
- **Peer evaluations with feedback,**
- **Timed tests and quizzes, and**
- **Asynchronous discussion.**

Types and distribution of assessments

1) Written assignment: research papers, case study responses, short essays;

2) Online discussion: any asynchronous discussion activity (discussion board, blog, or wiki);

3) Fieldwork: collecting field data and write up some kind of report;

4) Test/quiz/exam: multiple-choice or short answer questions;

5) Presentation: student presentations


Presentation
5
Average weight: 12%; Range: 10-15%
Test/Quiz/Exam
8
Average weight: 44%; Range: 6-100%
Fieldwork
9
Average weight: 28%; Range: 10-50%
Online discussion
Average weight: 32%; Range: 4-80%
19
Written assignment
Average weight: 52%; Range: 10-100%
22
0
4
8
12
16
20
24
Courses

Challenges of assessment in e-learning

Challenges

Three broad challenges:

1) The impact of physical distance between instructor and student;

2) Adaptations resulting from the necessity of using technology for communicating with students;

3) Workload and time management.

Technical Challenges of E-assessment

1- Inexperienced student with computer or with the online assessment process

2- Accessibility of computer and internet

3- Poor technical infrastructure development, especially in poor countries

4- Difficulty in scoring and correcting questions with student open response such as explain things.

Technical Challenges of E-assessment

5- Assessing group project is a difficult job. It needs a monitor of the communication skills, evaluate the group work, assess each member and the whole group, and provide a feedback.

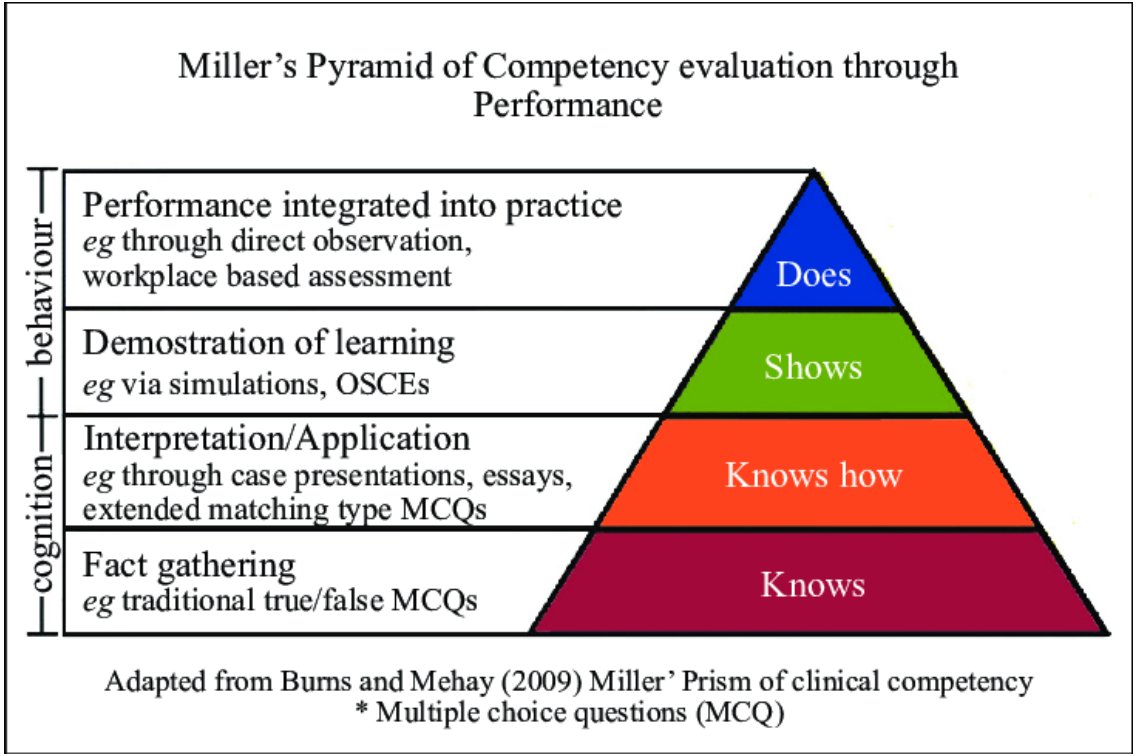
6- Some teachers are unfamiliar with technology, or most of them use e-assessment for first time.

Solutions:

1- Type of assessment

Miller ’ s Pyramid

Competencies are a complex set of behaviors built on the components of **knowledge**, **skills**, **attitudes** and “competence” as **personal ability**



What about e-learning ?

Solutions:

2- Aim of assessment

Assessment for Learning

- enables teachers to use information about students' knowledge, understanding and skills to inform their teaching
- teachers provide feedback to students about their learning and how to improve

Assessment as Learning

- involves students in the learning process where they monitor their own progress, ask questions and practise skills
- students use self-assessment and teacher feedback to reflect on their learning, consolidate their understanding and work towards learning goals

Assessment of Learning

- assists teachers to use evidence of student learning to assess student achievement against learning goals and standards

Formative vs Summative Assessments

Aspects	Formative	Summative
Goal	To improve	To prove
Purpose	To enhance learning	To make judgments
Time	During the program	At the end of program
Frequency	Usually continuous	Once at the end
Role	Allows teacher to make decision and monitor his instruction	Allows to give grade and Determine if the content being taught is retained

What about e-learning ?

Solutions:

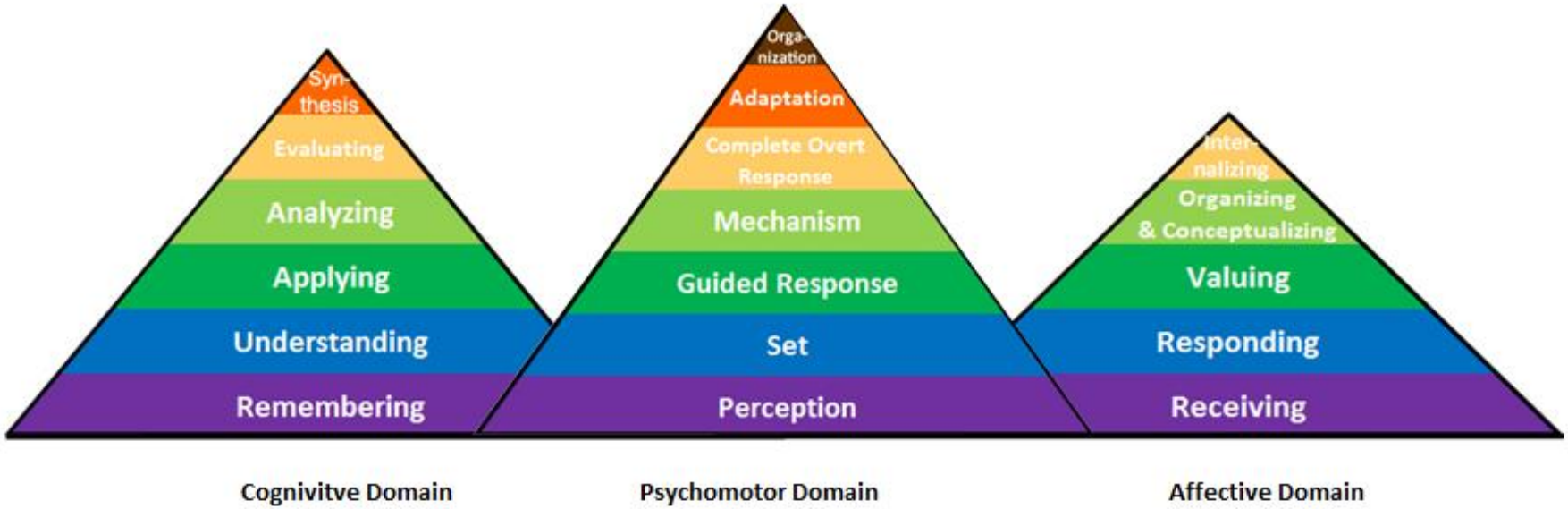
3- Domain of assessment

Domains of assessment

The simulated clinical scenarios might come under these domains:

- **Technical skills,**
- **Non-technical skills,**
- **Medical knowledge,**
- **Personal attributes,**
- **Teamwork,**
- **Clinical reasoning,**
- **Patient management skills**
- **Confidence and …**

Domains of assessment



Benjamin Bloom (1956)

What about e-learning ?

Solutions:

4- Characteristics of assessment

Utility of an assessment tool

Reliability

- **Assessment must produce measurements of individual performance that are reproducible in similar circumstances.**
- **Assessment must measures consistently the performance of the students**

  - On other occasions: test–retest reliability
  - Other raters: inter rater reliability
  - …

Utility of an assessment tool

Validity

Assessment accurately measures what it is intended to measure.

- Does the exam include materials that are relevant and important?
- Does the exam include a good representative sample of course content?
- Will the exam assess what have been taught?
- Have content experts (generalists and specialists) reviewed the items?

Utility of an assessment tool

Educational impact

Assessment drives learning

An assessment, with comprehensive feedback, can inform learners about their current levels of performance, highlight their individual strengths and weaknesses, and point the way towards future learning and development.

- Formative
- Summative

Utility of an assessment tool

Acceptability

Assessment is more acceptable, where careful scenario design has been used to construct a realistic situation of real-world clinical practice.

- Appropriate level of difficulty
- Adequate opportunity for learners to display their abilities
- Grades permit, to discriminate assesses.
- …

Utility of an assessment tool

Feasibility and cost- effectiveness

Assessment is both time and resource intensive:

- Large numbers of individuals within limited time frames
- The cost of assessment, (the technological and human resources involved)

What about e-learning ?

General recommendations

Recommendations

- ✓ Use assessment system instead of assessment tool.
- ✓ Align assessments to learning outcomes.
- ✓ Organize repeated and ongoing assessments.
- ✓ Combine formative assessment with summative ones.
- ✓ Provide feedback and feedback and feedback …

Recommendations

- ✓ **Use written assignments that require synthesis of material from the entire semester, divide the assignment into phases and have students submit interim deliverables for feedback.**
- ✓ **Use rubrics to guide student activity on the discussion board as well as in written assignments.**

  A rubric can be as simple as a checklist that specifies target performance criteria for an assignment.

Recommendations

- ✓ For dense courses, self-check quizzes can be very effective to oblige students to complete the required reading.
- ✓ Make use of synchronous technologies, where appropriate.
- ✓ Explore the use of peer-assessment strategies to foster community development and give students chances to learn through analyzing and critiquing the work of others.

Conclusion:

WHY?

Define the aims and consequences of the assessment

Consider formative *vs.* summative

WHAT?

Identify the domains to be assessed

Consider Miller's pyramid

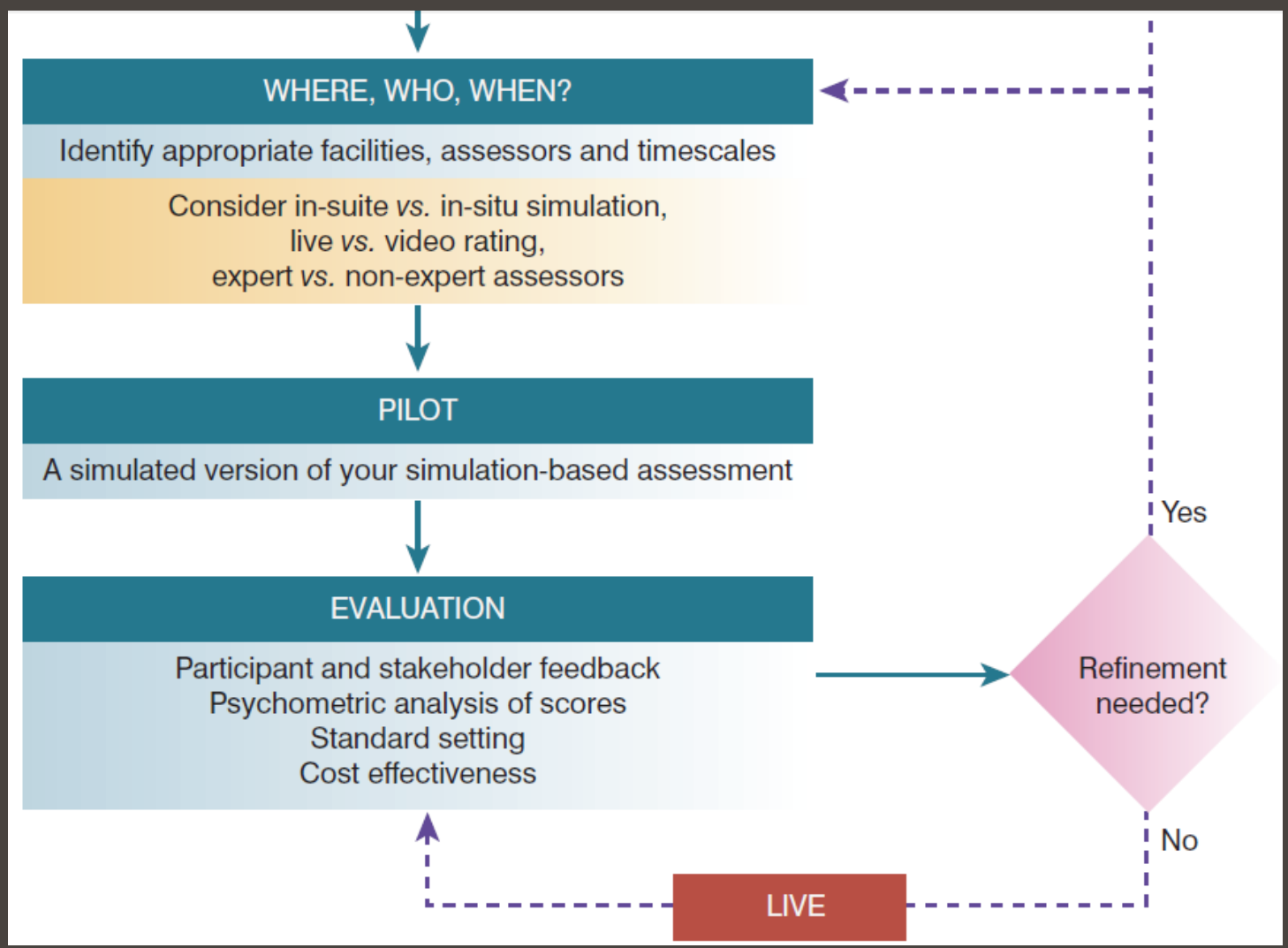
HOW?

Consider the appropriateness of simulation

Define suitable tasks and blueprint
Choose or create scoring metrics

Consider checklists *vs.* global ratings

Conclusion:


WHERE, WHO, WHEN?
Identify appropriate facilities, assessors and timescales
Consider in-suite *vs.* in-situ simulation,
live *vs.* video rating,
expert *vs.* non-expert assessors
PILOT
A simulated version of your simulation-based assessment
EVALUATION
Participant and stakeholder feedback
Psychometric analysis of scores
Standard setting
Cost effectiveness
Refinement needed?
Yes
No
LIVE

Main References

- Lorna R. Kearns. Student Assessment in Online Learning: Challenges and Effective Practices. Journal of Online Learning and Teaching. Vol. 8, No. 3, September 2012
- Nuha Alruwais, Gary Wills, and Mike Wald. Advantages and Challenges of Using e-Assessment. International Journal of Information and Education Technology, Vol. 8, No. 1, January 2018
- Yao Xiong, Hoi K. Suen. Assessment approaches in massive open online courses: Possibilities, challenges and future directions. Int Rev Educ (2018) 64:241–263
- Thomas Gale and Martin Roberts. Assessment In: Kirsty Forrest and et al. Essential Simulation in Clinical Education. 2013
- Seif. Student assessment. 2019
- John A Dent and et al. A Practical Guide for Medical Teachers. 2017
- https://www.behance.net/gallery/32320377/Assessment-for-learning-Confused
- Bloom, Benjamin S. Taxonomy of Educational Objectives (1956).
- Cees van der Vleuten & et al. Assessing professional competence: from methods to programmes. Medical Education 2005; 39: 309–317