

# ‘Authentic’ Assessment of Clinical Competence: Where We Are and Where We Want to Go in Future

Nurunnabi ASM<sup>1</sup>, Rahim R<sup>2</sup>, Alo D<sup>3</sup>, Muqueet MA<sup>4</sup>, Rahman HH<sup>5</sup>, Jahan N<sup>6</sup>, Talukder MAS<sup>7</sup>, Tapu TT<sup>8</sup>

### ABSTRACT

*The assessment of clinical competence is one of the most difficult tasks facing medical education. Teaching and assessment need to be meaningful for the students and their relevance in real life context and challenges should be apparent. Ideally, assessment tasks should require students to use the same competencies, or combinations of knowledge, skills, and attitudes that they need to apply in their future professional life. However, for the medical teachers of our country the term “authentic assessment” is very new, as most of them are very stick to traditional assessment while running a course or training students in different medical colleges. Clinical competence is an extremely complex construct and one that requires multiple, mixed, and higher order methods of assessment. As we have experienced a recent pandemic situation, it seems that plenty of questions remain in relation to clinical competence assessment in medical colleges for now and near future. In authentic assessment, students will go beyond the textual reproduction of fragmented and low order content and move towards understanding, establishing relationships between new ideas and previous knowledge, linking theoretical concepts with everyday experience, deriving conclusions from the analysis of data, allowing them to examine both the logic of the arguments present in the theory, as well as its practical scope. That is why we are moving away from traditional, limited test formats to new, more complex, yet innovative, mixed methods of ‘authentic’ assessment – from faculty observation ratings and paper-and-pencil examinations to online MCQ tests, SBA questions, experimentation with advanced OSPE and OSCE, and project-based assessment supplemented with clinical reasoning. These moves are expected to bring not only several challenges but also great educational rewards for the measurement and advancement of clinical competence among students. We would like to continue to work on those progressions.*

**Keywords:** *Authentic assessment, traditional assessment, clinical competence, medical education*

*Mugda Med Coll J. 2023; 6(1): 37-43*

1. Dr. Abu Sadat Mohammad Nurunnabi, Assistant Professor, Department of Anatomy, OSD, Directorate General of Health Services (DGHS), Dhaka-1212.
2. Dr. Riffat Rahim, Assistant Professor, Department of Obstetrics & Gynaecology, Mugda Medical College & Hospital, Dhaka-1214.
3. Dr. Dilara Alo, Associate Professor and Head, Department of Neonatology, Mugda Medical College & Hospital, Dhaka-1214.
4. Dr. Md. Abdul Muqueet, Assistant Professor and Head, Department of Nephrology, Pabna Medical College & Hospital, Pabna-6602.
5. Dr. Hasan Hafizur Rahman, Assistant Professor, Department of Medicine, Sheikh Hasina Medical College & Hospital, Tangail-1900.
6. Dr. Nelema Jahan, Assistant Professor, Department of Surgery, Shaheed Suhrawardy Medical College & Hospital, Dhaka-1207.
7. Dr. Mohammad Abu Sayeed Talukder, Assistant Professor (Medical Education), Centre for Medical Education (CME), Mohakhali, Dhaka-1212.
8. Dr. Thanadar Tamjeeda Tapu, Assistant Professor (Medical Education), Centre for Medical Education (CME), Mohakhali, Dhaka-1212.

**Address of Correspondence:** Dr. Abu Sadat Mohammad Nurunnabi, Assistant Professor, Department of Anatomy, OSD, Directorate General of Health Services (DGHS), Dhaka-1212. Email: shekhor19@yahoo.com

## INTRODUCTION

The assessment of clinical competence is one of the most difficult tasks facing medical education.<sup>1,2</sup> Teaching and assessment need to be meaningful for the students and their relevance in real life context and challenges should be apparent.<sup>3</sup> Ideally, assessment tasks should require students to use the same competencies, or combinations of knowledge, skills, and attitudes that they need to apply in their future professional life.<sup>3-6</sup> However, for the medical teachers of our country the term “authentic assessment” is very new, as most of them are very stick to traditional assessment while running a course or training students in different medical colleges.<sup>1,5</sup> There are different international and national traditions in assessment practices in medical education,<sup>1</sup> however, medical education is witnessing a paradigm change involving a transformation from a culture of objective and standardised tests that are focused on measuring portions of knowledge, towards a more complex and comprehensive assessment of knowledge and higher-order skills.<sup>4,7,8</sup>

There are many established definitions of authentic assessment in higher education arena. Wiggins stated that in “authentic assessment”, “(there should be some) engaging and worthy problems or questions of importance, in which students must use knowledge to fashion performances effectively and creatively. The tasks are either replicas of or analogous to the kinds of problems faced by adult citizens and consumers or professionals in the field.”<sup>6</sup> Earlier, Stiggins highlighted performance assessments in a similar tone and defined as “(they) call upon the examinee to demonstrate specific skills and competencies, that is, to apply the skills and knowledge they have mastered.”<sup>9</sup> Therefore, authenticity is understood as “realism, contextualisation and problematisation” when teaching and assessing curricular content.<sup>3,4,6</sup> In short, realism involves linking knowledge with everyday life and work, contextualization characterises situations where knowledge can be applied in an analytical and thoughtful way, and problematisation invokes a sense that what is learned can be used to solve a problem or meet a need.<sup>3-6</sup> Therefore, authentic assessment aims to integrate what happens in the classroom/hospital ward/outpatient department (OPD) with the world of work outside, replicating the tasks and performance standards typically faced by professionals in real life in their day-to-day practice.<sup>1,6</sup> This paper aims to

highlight some of the issues with our current assessment system in medical education and further improvement strategies to make it more authentic.

## LITERATURE REVIEW

Authenticity has been identified as a key characteristic of assessment design which promotes learning; it aims to replicate the tasks and performance standards typically found in the world of work and has been found to have a positive impact on student learning, solve problems skills, autonomy, motivation, self-regulation, and metacognition; abilities highly related with employability.<sup>3-6</sup> There is a strong culture in medical education of testing as the principal form of summative assessment, particularly in most of the courses. This is also common in many systems worldwide, where a focus on testing risks encouraging superficial approaches to learning<sup>1,4,5</sup> and measuring decontextualised memorization and understanding of content, and not the integration or application of knowledge.<sup>1,8,10</sup> Such learning is unlikely to be useful beyond the classroom.<sup>5,10</sup> Some researchers showed that teachers may use multiple-choice tests with adequate validity and reliability indexes, but most of them do not question the relevance and significance of the assessment.<sup>8,11,12</sup> In such a culture, there is a lack of initiatives to use methods that evaluate the construction of knowledge, critical thinking or problem solving.<sup>3,4,13</sup> Some research also indicates that teachers hardly want to change formal assessments, such as exams, because changing these practices makes great demands on time, energy, and intellectual resources.<sup>1,10,13</sup> Sometimes, changes are also perceived as risky.<sup>5,13</sup>

Behind traditional and authentic assessments is a belief that the primary mission of our medical colleges is to help develop professional and productive physicians.<sup>8</sup> That is the essence of most mission statements we have read to date. From this common beginning, the two perspectives on assessment diverge. Essentially, traditional assessment (TA) is grounded in educational philosophy that adopts the following reasoning and practice:<sup>14</sup>

1. A medical college’s mission is to develop professional and productive physicians.
2. To be a professional and productive physician, an individual must possess a certain body of knowledge, skills and attitude.

3. Therefore, our medical colleges must teach this body of knowledge, skills and attitude.
4. To determine if it is successful, medical colleges must then test students to see if they acquired the knowledge, skills, and attitude.

In the TA model, the curriculum drives assessment. The body of knowledge is determined first. That knowledge becomes the curriculum that is delivered. Subsequently, the assessments are developed and administered to determine if acquisition of the curriculum occurred in our traditional medical education arena, which has been following over decades.

In contrast, authentic assessment (AA) springs from the following reasoning and practice:<sup>14</sup>

1. A medical college's mission is to develop professional and productive physicians.
2. To be a professional and productive physician, an individual must be capable of performing meaningful tasks in the real world.
3. Therefore, medical colleges must help students become proficient at performing the tasks they will encounter when they graduate.
4. To determine if it is successful, medical colleges must then ask students to perform meaningful tasks that replicate real world challenges to see if students are capable of doing so.

Thus, in the AA model, assessment drives the curriculum. That is, teachers first determine the tasks that students will perform to demonstrate their mastery, and then a curriculum is developed that will enable students to perform those tasks well, which would include the acquisition of essential knowledge and skills. This has been referred to as planning backwards by McDonald.<sup>15</sup>

Authentic assessment is sometimes referred to as 'performance assessment' (or performance-based), 'alternative assessment' or 'direct assessment'. It is called performance assessment or performance-based assessment as students are asked to perform some meaningful tasks. However, some educators distinguish performance assessment from AA by defining performance assessment as performance-based e.g., Stiggins<sup>9</sup> and Meyer<sup>16</sup>, but with no reference to the authentic nature of the task. For these educators, authentic assessments are performance assessments

using real-world or authentic tasks or contexts.<sup>1,5,6</sup> Since we should not typically ask students to perform work that is not authentic in nature, we have chosen to treat these two terms interchangeably. Authentic assessment is also known as alternative assessment because it is an alternative to our traditional assessment system. It also characterises direct assessment because it provides more direct evidence of meaningful application of knowledge and skills. If a student does well on a multiple-choice test, we might infer indirectly that the student could apply that knowledge in real-world contexts, but we would be more comfortable making that inference from a direct demonstration of that application such as putting them to bedside history taking and examination and asking them to perform methodically. Thus, we may now imagine that in authentic assessment, the context is realistic when information about the described situation-problem comes from real and/or professional life, involving pertinent and relevant questions to solve, applicable to realistic situations.<sup>4,5,17</sup> This transfer is possible when ideas relate to facts and skills to experiences, applying previous knowledge to new situations and tasks. This realistic context can be present in examinations and written tasks when items are prepared such as case analyses, problem solving, and short or extensive essay questions, which act as a proxy of the real world.<sup>1,6,17</sup> The other way to create realism is through performance-based tasks, where students produce work or demonstrate knowledge, understanding and skills in activities that are close to their future professional practice.<sup>1,18</sup> Moreover, in authentic assessment, the task involves building knowledge, and using higher-order cognitive skills, such as those proposed in Bloom's taxonomy.<sup>5,6</sup> This type of assessment intends that students will go beyond the textual reproduction of fragmented and low order content and move towards understanding, establishing relationships between new ideas and previous knowledge, linking theoretical concepts with everyday experience, deriving conclusions from the analysis of data, allowing them to examine both the logic of the arguments present in the theory, as well as its practical scope.<sup>1,4-6,17,19</sup> One of the aims of authentic assessment is for students to develop criteria and standards about what a good performance means in order that they can judge their own performance and regulate their own learning; referred to as 'evaluative judgement'.<sup>5,18</sup>

## HOW TO MAKE AN ASSESSMENT 'AUTHENTIC'

A sound assessment modality must include a clear statement of purpose, a detailed description of what is to be measured, a set of instructions for feasible administration and scoring, and guidelines for data interpretation.<sup>2,8</sup> If intended to measure complex cognitive skills, it is reality based and taps into the high-level skills of application, analysis, synthesis, and evaluation. Finally, it also includes sufficient evidence that the scores derived from the modality are reliable and valid indicators of students' clinical competencies.<sup>2,20,21</sup> An essential component of developing evaluative judgement in medical education is formative assessment.<sup>1,8,20,21</sup> Students need to be exposed to a variety of tasks with diverse performance requirements, and have the experience of learning about quality, judging quality and seeking and receiving feedback.<sup>7,20,22</sup> Studies emphasised the use of feedback dialogues to engage students with disciplinary problems and to develop their self-regulation and the direction of learning should be the development of skills that have employability and must be part of the subjects that make up the curriculum.<sup>3,4,7,21,22</sup> In this way, it can be ensured that once graduated, professionals can successfully face the typical problems of the workplace.<sup>3,6</sup> Another important part is designing authentic assessment. To accomplish the process, teachers' pedagogical decisions regarding the assessment process must reflect the challenges that professionals of this discipline face in work. For example, decisions about the conditions in which the assessment is taken (i.e., individual or group, access to reading and information, time available),<sup>5,23</sup> about the assessment formats (i.e., online or in the classroom, open or closed construction answer, OSPE, OSCE, development of disciplinary knowledge or deployment of professional performance),<sup>8,13,21,23-25</sup> and about the kind of problem to which students will apply knowledge (i.e., derived from employers, former students or students' experience in professional placements).<sup>5,6,17,23</sup> Besides, professional problems derived from contemporary workplace assist courses in keeping their assessment problems up to date with the demands of the working world for that profession, as we have witnessed during COVID-19 pandemics.<sup>7,19,23-26</sup> There are also propositions that virtual role-playing and multiplayer games provide authentic, engaging activities for students to develop problem-solving, decision-making, and collaboration

skills without the barriers and risks of the real world, especially in online learning while medical education has a shift from face-to-face to an online format.<sup>26-28</sup> Educators also contends that authentic assessments must be judged by the same kinds of criteria (standards) which are used to judge adult performance on similar tasks.<sup>5,9,16</sup> Besides, some stressed the value of self-assessment in helping students identify criteria to use in judging their own assignments and found explicit benefits of peer observation and feedback in developing students' evaluative judgement.<sup>10,12,18</sup>

## PROSPECTS

Learners' agency is promoted within such assessment procedure as students can demonstrate (to themselves and their assessors) how successfully they have mastered their acquisition of knowledge and skill,<sup>4</sup> which is applicable even in the current medical education context in Bangladesh. However, the content of an 'authentic' assessment is not always discipline specific and it can be applied to various instructional settings like classroom teaching, bedside teaching, and even distance/online teaching.<sup>11,12</sup> Authentic assessment has an impact on the quality and depth of learning achieved by the student,<sup>6,9</sup> and the development of higher-order cognitive skills.<sup>1,6,9</sup> Moreover, it improves autonomy, commitment, and motivation for learning,<sup>3,6</sup> self-regulation capacity, and self-reflection.<sup>1,6</sup> Furthermore, authentic assessment is a response to criticisms of higher education, as students have difficulty applying the knowledge acquired in different academic contexts.<sup>3,6</sup> Sometimes, our students feel unprepared for employment and insecure when they begin working in the professional field.<sup>3,5</sup> This type of assessment procedure is seen as a way to overcome such barriers.

## CHALLENGES

There are significant barriers to the introduction of authentic assessment, particularly where there is a tradition of 'testing' decontextualised subject knowledge.<sup>3,17</sup> One barrier may be the lack of conceptualisation of the term authentic assessment sufficient to inform assessment design at the individual course level.<sup>3,17</sup> Another barrier is lack of support from the medical education administration and medical educators; the greatest challenge for them in their efforts are to prepare and later implemented authentic assessment in the classroom.<sup>1,6</sup> Another challenge in preparing authentic assessment is the

burdening teaching hours and preparation.<sup>1-3</sup> Overwhelming documentation appears to be another hindrance for medical teachers in implementing authentic assessment.<sup>5</sup> Moreover, in many countries, medical educators lack special training on various approaches in assessment, in particular authentic assessment.<sup>1,11,26</sup>

### **MEDICAL EDUCATION DURING THE COVID-19 PANDEMIC**

One more topic of discussion in recent medical education system – what is going to happen if situation like COVID-19 arises again in near future. We know that medical colleges in Bangladesh, like many other countries, cancelled clinical placements, formal teaching, and examinations. However, medical schools tried to adapt online methods of teaching and assessment to accommodate the nationwide lockdown, which was in effect in many countries.<sup>7,19,21,23-26</sup> Meanwhile, it was seen as drastic change in medical education by most of the faculties, as the mode of instruction was transferred to online/distance learning from our traditional face-to-face one.<sup>19,26</sup> Moreover, there were a lot of challenges like technical expertise in designing online curriculum, assessment technique, internet issues, providing students with devices etc. However, this led to the implementation of novel online PBL that became really very effective and successful, and it was subsequently integrated into the curriculum.<sup>26,29-32</sup> This rapid restructuring procedure opens opportunities to strengthen student engagement by involving them in the planning and execution of learning resources.<sup>33,34</sup> Several researchers have argued that involving students as stakeholders in their education adds value and fosters intrinsic motivation, which strongly correlates with self-efficacy and academic performance.<sup>4,19,26,33,34</sup> Moreover, transfer of knowledge is promoted by such assessments, since they stimulate skills that can be used in contexts other than academic ones that are required and valued in the world beyond the classroom.<sup>2,3,22</sup>

### **RECOMMENDATIONS**

Based on our literature review and personal experience, we would like to put some recommendations for future teaching and learning in medical education. Those are stated below:

1. Medical colleges in our country need to actively engage with students to call on their ingenuity

and to develop the resources, which may benefit medical education in the long term and motivate future educators.

2. Innovation in teaching and assessment driven by the medical educators and medical students during this pandemic should continue to progress, as because it may accelerate the continuing transformation away from traditional teaching and assessment methods in medical education.
3. Research is needed to investigate the nature and value of assessment feedback and its impact on remediation.
4. Phobia among students related to assessment/examination needs to be addressed and mental health counselling should be in place.

### **CONCLUSION**

Clinical competence is an extremely complex construct and one that requires multiple, mixed, and higher order methods of assessment. As we have experienced a recent pandemic situation, it seems that plenty of questions remain in relation to clinical competence assessment in medical colleges for now and near future. However, we are moving away from traditional, limited test formats to new, more complex, innovative, mixed methods of ‘authentic’ assessment – from faculty observation ratings and paper-and-pencil examinations to online MCQ tests, SBA questions, experimentation with advanced OSPE and OSCE, and project-based assessment supplemented with clinical reasoning. These moves are expected to bring not only several challenges but also great educational rewards for the measurement and advancement of clinical competence among students in our current settings. We would like to continue to work on those progressions.

### **ABBREVIATIONS**

AA: Authentic Assessment

MCQ: Multiple Choice Questions

OSCE: Objective Structured Clinical Examination

OSPE: Objective Structured Practical Examination

PBL: Problem Based Learning

SBA: Single Best Answer

TA: Traditional Assessment

## REFERENCES

1. Gupta S. Authentic assessment in medicine. *J Postgrad Med Edu Res.* 2019;53(1):42-4.
2. Howley LD. Performance assessment in medical education: where we've been and where we're going. *Eval Health Professions.* 2004;27(3):285-303.
3. Ashford-Rowe K, Herrington J, Brown C. Establishing the critical elements that determine authentic assessment. *Assess Eval Higher Educ.* 2014;39(2):205-22.
4. Harrison C. Aiming for agency and authenticity in assessment. *Perspect Med Educ.* 2018;7(6):348-9.
5. Villarroel V, Bloxham S, Bruna D, Bruna C, Herrera-Seda C. Authentic assessment: creating a blueprint for course design. *Assess Eval Higher Educ.* 2018;43(5):840-54.
6. Wiggins G. Assessment: authenticity, context, and validity. *Phi Delta Kappan.* 1993;75(3):200-14.
7. Darling-Hammond L, Hyler M. Preparing educators for time of COVID and beyond. *Eur J Teach Educ.* 2020;43(4):457-65.
8. Ferris H, O'Flynn D. Assessment in medical education; what are we trying to achieve? *Int J Higher Educ.* 2015;4(2):139-44.
9. Stiggins RJ. The design and development of performance assessments. *Educ Measur Issues Pract.* 1987;6(3):33-42.
10. Badge JL, Saunders N, Cann A. Beyond marks: new tools to visualize student engagement via social networks. *Res Learn Tech.* 2012;20:16283.
11. Dikli S. Assessment at a distance: traditional vs. alternative assessments. *Turkish Online J Educ Tech (TOJET).* 2003;2(3):13-9.
12. Crossley J, Jolly B. Making sense of work-based assessment: ask the right questions, in the right way, about the right things, of the right people. *Med Educ.* 2012;46(1):28-37.
13. Madaus GF, O'Dwyer LM. Short history of performance assessment: Lessons learned. *Phi Delta Kappan.* 1999;80(9):688-9.
14. Mueller J. Authentic assessment toolbox. 2018. Retrieved from: <http://jfmuller.faculty.noctrl.edu/toolbox/whydoit.htm> (Accessed October 17, 2022)
15. McDonald JP. Dilemmas of planning backwards: rescuing a good idea. *Teach Coll Rec.* 1992;94(1):152-69.
16. Meyer CA. What's the difference between authentic and performance assessment? *Educ Leaders.* 1992;49:39-40.
17. Cumming JJ, Maxwell GS. Contextualising authentic assessment. *Assess Educ: Princ Policy Pract.* 1999;6(2):177-94.
18. Tai JH, Canny BJ, Haines TP, Molloy EK. The role of peer-assisted learning in building evaluative judgement: opportunities in clinical medical education. *Adv Health Sci Educ Theory Pract.* 2016;21(3):659-76.
19. Adedoyin OB, Soykan E. Covid-19 pandemic and online learning: the challenges and opportunities. *Interac Learn Environ.* 2020;2020:1-13.
20. Sadler R. Formative assessment and the design of instructional systems. *Instruct Sci.* 1989;18:119-44.
21. Snekalatha S, Marzuk SM, Meshram SA, Maheswari KU, Sugapriya G, Sivasharan K. Medical students' perception of the reliability, usefulness and feasibility of unproctored online formative assessment tests. *Adv Physiol Educ.* 2021;45(1):84-8.
22. Nurunnabi ASM, Rahim R, Alo D, Al Mamun A, Kaiser AM, Mohammad T, et al. Experiential learning in clinical education guided by the Kolb's experiential learning theory. *Int J Hum Health Sci (IJHHS).* 2022;6(2):155-60.
23. Egarter S, Mutschler A, Tekian A, Norcini J, Brass K. Medical assessment in the age of digitalisation. *BMC Med Educ.* 2020;20(1):101.
24. Fawns T, Schaepkens S. A matter of trust: online proctored exams and the integration of technologies of assessment in medical education. *Teach Learn Med.* 2022;34(4):444-53.
25. Mahadevan SV, Walker R, Kalanzi J, Stone LT, Bills C, Acker P, et al. Comparison of online and classroom-based formats for teaching emergency medicine to medical students in Uganda. *AEM Educ Train.* 2017;2(1):5-9.
26. McMaster D, Veremu M, Santucci C. COVID-19: opportunities for professional development and disruptive innovation. *Clin Teach.* 2020;17(3):238-40.
27. Janssen A, Shaw T, Goodyear P. Using video games to enhance motivation states in online education: protocol for a team-based digital game. *JMIR Res Protoc.* 2015;4(3):e114.
28. Dankbaar ME, Richters O, Kalkman CJ, Prins G, Ten Cate OT, van Merriënboer JJ, et al. Comparative

- effectiveness of a serious game and an e-module to support patient safety knowledge and awareness. *BMC Med Educ.* 2017;17(1):30.
29. Canesin MF, Furtado FN, Gonçalves RM, Carraro DC, Oliveira TMN, Rodrigues R, et al. Learning: new strategy for humanized digital medical education and training in cardiology. *Arq Bras Cardiol.* 2022;119(5 suppl 1):35-42.
  30. Grady ZJ, Gallo LK, Lin HK, Magod BL, Coulthard SL, Flink BJ, et al. From the operating room to online: medical student surgery education in the time of COVID-19. *J Surg Res.* 2022;270:145-50.
  31. Kim TH, Kim JS, Yoon HI, Lee J, Lee JJB, Byun HK, et al. Medical student education through flipped learning and virtual rotations in radiation oncology during the COVID-19 pandemic: a cross sectional research. *Radiat Oncol.* 2021;16(1):204.
  32. Cunningham A, Hung W, Levin A, Jamal A. Adapting nephrology training curriculum in the era of covid-19. *Can J Kidney Health Dis.* 2021;8:2054358120988446.
  33. Gulati RR, McCaffrey D, Bailie J, Warnock E. Virtually prepared! Student-led online clinical assessment. *Educ Prim Care.* 2021;32(4):245-6.
  34. Jiang Z, Wu H, Cheng H, Wang W, Xie A, Fitzgerald SR. Twelve tips for teaching medical students online under COVID-19. *Med Educ Online.* 2021;26(1):1854066.