

Formative assessment in health professional education

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The clinical teaching and learning process involves different activities including assessment. No one denies the importance of assessment and its role as a main driver in the educational processes. Assessment is defined as a “process of measuring or appraising individual performance against a required standard”.¹ An assessment process can be viewed as 2 complementary and overlapping models aiming to benefit both the quality of learner proficiency and professional development of the teacher. Assessment can be formative (guiding future learning and supporting self reflection of the learners) or summative (summarize the learning up to specific point and making an overall judgment about competence). Traditionally, most educational systems (including medical training disciplines) have used assessment to determine how much the learners have learned up to a particular point as final judgment through summative assessment. In fact, summative assessment does not provide immediate feedback for the teacher and the learner during a learning process, while formative assessment provides constant feedback that enables the learners to revise their understanding and build strong ideas and develop competences. A formative assessment can also provide information to teachers on the difficulties learners are experiencing, and where to focus their teaching efforts. Therefore, it is essential to examine the evidence and literature that focuses on the importance and benefits of formative assessment, particularly in professional health education where it is scarce. Herein, the available evidence, as well as, personal experience is used to address the importance of formative assessment in this field.

A formative assessment is defined as “providing information on performance, which is for the guidance and benefits of the learner, to let them know how they are doing and suggest further learning opportunities whilst not necessarily reporting such information for the purpose of certification.”² This type of assessment can be used as a resource to help teachers identify teaching weaknesses and give them ways to improve, and should not be used to evaluate or grade learners. Results of formative assessment can assist teachers to determine whether curriculum or learning activities need to be modified during the present, or prior to the next activity. In contrast, summative assessment is

used to measure the degree of learning achievement of learners at the end of the learning process to measure the competency or to certify that the learner has met all training requirements. Such high-stakes assessments are carried out at or toward the end of the course and give an overall picture of performance. Summative assessments are intended to provide professional self-regulation and accountability and may also act as a barrier to further practice or training.³ Therefore, it is of paramount importance that a distinction should be made between assessments that are only suitable for formative use and those that are used for summative purposes. However, there is a significant difference in learning outcomes when traditional assessment (summative assessment) is integrated with formative assessments in clinical teaching. In order to step outside the everyday traditionally used assessment, we need to develop personal skills in all aspects of formative assessment. This often demands collaborative work with the learners in order to produce self-directed learners to encourage high standards of performance.

The main purpose of formative assessment is to explore how much the learner gained in the learning process and to produce self-directed learners. There are 2 models of formative assessment, formal and informal.⁴ These 2 models contribute to the ultimate concept of formative assessment. Formal formative assessments include all activities that take place within the curriculum framework, such as, activities required of the learner (namely, assignments or tasks) and of the assessor (namely, feedback on these tasks). Informal formative assessments comprise activities that take place in the course of events, but which are not included in the curriculum design (namely, learners and teachers verbal questions and comments). From my perspective as a clinical educator in general practice training, the integration of both formal and informal formative assessments is necessary because it allows a teacher to diagnose any problems in teaching activity and plan to re-teach any information learners do not understand. Furthermore, it gives learners motivation to learn, engage themselves in the learning process and inspire them to set higher standards for themselves. As an ongoing process, formative assessment helps teachers to check the current learning status of their learners in order to make appropriate changes in the teaching process. It also gives chances to learners to engage themselves in the learning process and to monitor their progress. Formative assessment helps learners to achieve their desired goal by narrowing the gaps with the present level of knowledge, skills, and understanding and to help them to undertake necessary actions toward the

Table 1 - Summary of the benefits of formative assessment.

For the teacher	For the learner
1. Determine what standards learners already know, and to what degree.	1. Students are more motivated to learn.
2. Teachers can decide what modifications and changes in instruction they need to make so that all students can succeed on subsequent assessments.	2. Students take responsibility for their own learning.
3. To create appropriate lessons and activities for the learners based on their needs.	3. Students become users of assessment.
4. Teachers can inform students of their current progress in order to help them set goals for improvement.	4. Students learn valuable lifelong skills such as self-evaluation, self-assessment, and goal setting.

ultimate goal.^{5,6} Implementing formative assessments is a key element to be fully functional in our learning environment. The benefits of formative assessment both for the teachers and for the learners are summarized in Table 1.^{7,8} In general, the values of formative assessments will create an engaging and inclusive learning process to both the teacher and learner. This occurs by emphasizing on the learners to contribute in their assessment process, and training of the educators to enrich them with necessary strategies to competently use formative assessment.

Formative assessment depends on understanding learners' weaknesses and strengths through ongoing feedback. Feedback is defined as "information on the existing gap between actual level and the reference level of the performance, stressing that information was only feedback if used to alter the gap."⁵ Central to this interpretation of feedback is the realization that feedback is not a grade to be given, but rather a process of formative assessment. It has been proven that feedback comments to learners outweigh grading performance because grading makes learners compare themselves against others, while feedback teaches them to focus on the difficulties in the task, and on making efforts to improve.⁹ Feedback has the overall tendency to improve students' learning behavior. In this instance, some researchers found that formative assessment feedback provides the student clarity and self esteem as a learner.^{10,11} One of the most influential models of feedback in clinical training practice is one-to-one teaching because it provides immediate and private feedback to the learner. This model of assessment has a vital role in learning processes, and provides the most effective and helpful feedback is based on observable behaviors. In most general practice training programs, there is more focus on self-directed learning and feedback. For example, the Australian vocational

training program in General Practice training has used Knowles' principles of adult and self-directed learning because feedback was seen as a central component of these principles.¹² In general, feedback given as part of formative assessment helps both learners and teachers become aware of any gaps that exist during the learning process, and guides them through actions necessary to overcome these gaps.

We conclude that formative assessment does appear to have the clear advantages of providing an effective environment for the process of learning. The advantages are manifold, from raising the level of student attainment to increasing equity of student outcomes. Moreover, evidence explores feedback as central to formative assessment. Little of the literature addresses the concept of formative assessment in professional health education. However, my experience as a clinical educator is that applying evidence of the concept of formative assessment from general education to medical education might result in significantly improved outcomes.

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