

An Overview of Formative Assessment

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Formative assessment is integral to classroom instruction and learning. This paper gives an overview of the major issues in formative assessment, including its definition, scope, and the assessment process. Formative assessment can be performed by a teacher, peer, and even AI, includes self-assessment, and involves the process of eliciting and interpreting evidence of learning and using the information to make decisions on further learning.

Keywords: formative, assessment, agents, process, learning

Introduction

Assessment is essential to good teaching and effective teachers assess constantly and intend to maximize student achievement (McMillan, 2003). The power of assessment can be harnessed for learning purposes (Black et al., 2003) and assessment can be made of learning, for learning, and as learning. Teachers are encouraged to implement formative assessment to facilitate learning.

Definition

Scriven (1967) made a distinction between “formative” and “summative” evaluation: Using evaluation in the development or improvement of some educational processes is “formative” whereas using evaluation to make decisions about the end result of an educational process is “summative” (p. 4043). The term “formative assessment” (FA) was then taken up by Bloom, Hastings, and Madaus (1971) who claim that formative assessment involves “the process of curriculum construction, teaching, and learning for the purpose of improving any of these three processes” (p. 117). Sadler (1989) formulated the concern of formative assessment is “how judgments about the quality of student responses (performances, pieces, or works) can be used to shape and improve the student’s competence by short-circuiting the randomness and inefficiency of trial-and-error learning”.

Black and William (2009) defined FA as follows:

Practice in a classroom is formative to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited. (p. 9)

This definition makes explicit the agents of assessment, including the teacher, peers, and the learners themselves. The term decision is used rather than intention or action, for intention may imply there are cases in which evidence is collected but not used while action may imply the use of evidence to make adjustments in teaching or learning that actually improve learning. However, actions or interventions that seem to be most likely

to result in learning might not do so in some situations and may not always lead to better learning for all students due to the complexity and unpredictability of learning.

Most classroom routine activities and formal assessments are tools of FA: teachers' oral questioning of students as daily checks, informal observation, oral presentations, written products, interviews, projects, self-assessment, peer-assessment, portfolios, tests, and quizzes (Shepard, 2000; McMillan, 2003; Ross, 2005).

Scope

The agents of FA include the teacher, peers, and learners themselves. The assessors have different status and assessment expertise and content knowledge and the assessment information they generate may vary widely.

In Wiliam and Thompson's (2007) theorization of formative assessment, the assessment agents of teacher, peer, and learners are crossed with Ramaprasad's (1983) three key processes in learning and teaching, that is, establishing where the learners are going, where they are in their learning, and what needs to be done to get them there. The teacher makes clear the learning goals to students who need to understand what the learning expectations are and share them among peers. Then, the teacher uses activities and tasks to elicit students' evidence of understanding and learning and provides feedback to move learners forward. In the meantime, students also can be activated as learning resources for one another by engaging in collaborative learning and peer assessment, and to be activated to take control of their own learning through self-assessment.

FA has generally been equated with assessment for learning (AfL). The term AfL came into use in the late 1980s and early 1990s and may be considered a somewhat newer concept (Gardner, 2012) and has been defined as "the process of seeking and interpreting evidence for use by learners and their teachers, to identify where the learners are in their learning, where they need to go and how best to get there" (Assessment Reform Group [ARG], 2002), comprising similar formative assessment practices, i.e., "What good teachers do and have always done" (ARG, 2002) when using assessment to help students take the next steps in their learning (Gardner, 2012).

Teachers are mainly responsible for the implementation of formative assessment (Gu & Lam, 2023). Learners can learn to assess peers and their own performance as well and it is important for them to develop assessing ability. Peer-assessment and self-assessment are activities of assessment as learning (AaL).

Peer assessors benefit from peer-assessment by consolidating and deepening understanding (Topping, 1998) and learning the motives and strategies employed by peers to address similar problems and enhancing their assessing ability in terms of fostering internal standards of quality and promoting their ability to make valid judgments (Bourgeois, 2016) in the reviewing and assessing process.

Self-assessment may be a neglected component of formative assessment and underdeveloped ability in students. Self-assessment is "an essential component of formative assessment" (Black & Wiliam, 1998, p. 143). Sadler (1989) pointed out that formative assessment includes external evaluative feedback information and self-monitoring when learners generate evaluative information internally both and the instructional goal is to "facilitate the transition from feedback to self-monitoring" (p. 122). Learners must develop the capacity to judge the quality of their own performance or product and be able to regulate what they are doing simultaneously (Sadler, 1989). The interaction between external assessment and feedback and internal self-assessment and feedback can be complicated. In the learning process, learners may experience initial stronger dependence on external assessment and feedback, gradually develop self-assessment and feedback, and eventually achieve the ultimate goal of self-feedback and self-regulated learning.

The agents of formative assessment are not limited to humans and can incorporate automated evaluation systems, such as automated writing evaluation (AWE). With the capacity of AI expanding, these systems are likely to evolve into more accurate and powerful assessors. Hence, formative assessment encompasses teacher, peer, self-assessment and can accommodate automated evaluation systems and entails both AfL and AsL.

Process

Formative assessment is embedded in classroom interaction between and among teachers and learners (Shepard, 2000). A formative interaction involves interactions between external stimulus and feedback and learners' internal response or production and influences learners' cognition (Black & Wiliam, 2009) and is typically characterized by the pattern of IRF—Initiation-Response-Feedback (evaluation) as the basic linguistic structure.

The complete formative process can be formally and systematically delineated into different steps. Gulikers and Baartman (2016) developed the FA cycle that consists of five phases: clarifying expectations, eliciting student responses, analysing and interpreting responses, communicating with students about the responses, and taking follow-up actions to adjust teaching and learning. Gu (2021) conceptualized the major steps of a complete classroom based FA event as consisting of eliciting evidence of students' understanding or learning, interpreting the elicited information in relation to the learning target or the success criteria, then providing feedback to students accordingly, and finally the student(s) and/or the teacher taking follow-up actions to improve learning.

Black and William (2009)'s definition of FA implicates the process of FA: eliciting, interpreting, and using evidence of students' achievement by teachers, learners, or peers, to make decisions on the next steps in teaching and learning. An assessment task is developed or adopted by the teacher to elicit students' responses as evidence of learning, and then interpretations on the quality of students' responses in terms of their gap in understanding or performance, strengths and weaknesses and suggestions concerning improving and closing the gap are communicated to the learner via feedback. The feedback contains interpretation information on their gap in learning and remediation information on how to bridge the gap, and may be oral or written, individualized, or collective. Sadler (1989) conceived formative assessment as a feedback loop to close the gap between the learner's current status and desired goals. Black and Wiliam (1998) stressed that for assessment to be formative "the feedback information has to be used" (p. 16). Gu (2021) also formulated that a formative assessment event should have an intentionally formative purpose, contain a formative practice cycle (a formative event), and achieve formative effect. Nevertheless, actually the feedback information may not always be accepted and taken in due to the quality of feedback and learner internal factors, such as motivation and their ability to interpret and implement feedback. Students generally make positive formative decisions in engagement in using feedback, but some students may sometimes make negative formative decisions by giving up or lowering their goals of closing the gap in learning as evidenced in their resistance in using feedback and in adjusting learning. Formative feedback will not always have a positive impact on the learner and sometimes neutral or de-formative impact ensue (Torrance, 2012). Therefore, the intended consequence of formative assessment to improve learning may not always be actualized. The teacher is responsible for designing and creating "an effective learning environment" (Black & William, 2009, p. 7), but it is the learner who make final decisions on how much effort to expend on what aspects of learning.

The separate and consecutive steps in a formative process constitute a cycle and learners proceed through these cycles with students' understanding or learning approaching to the target (Gu & Yu, 2020) gradually.

Nonetheless, formative assessment should not become “conformative” assessment (Torrance, 2012) in procedure and outcome, making allowance for divergent practices and diversity in learner styles and strategies and path of learning to realise its transformative power.

Conclusion

Formative assessment is the intended use of assessment information derived from teacher, peers, and other external sources and self-assessment to improve learning and teaching. The intended consequence to improve learning depends on what goes on in the assessment process of learning evidence elicitation, interpretation, and use to make decisions and is not always fulfilled in learners as expected.

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