THE INTERFACE OF INTERIM ASSESSMENT AND FEEDBACK: AN OPINION PAPER

By

MOHAMMAD ALI SALMANI NODOUSHAN

Assistant Professor, Iran Encyclopedia Compiling Foundation, Iran.

ABSTRACT

Many schools and educators prefer to use state tests. However, teachers can benefit a lot from the tests and quizzes they give in their classes over the course of a term or year. The minimum such tests can do is to afford information that teachers can use to assess how their class is learning and which changes in instruction need to be made to assure maximum outcome. This is a diagnostic quality that teacher-made tests possess, a quality that can technically be termed formative assessment which can be contrasted with summative assessment or making judgments about class achievement. This paper elaborates on the advantages of formative assessment and gives some examples to support teachers' use of it.

Keywords: Formative Assessment, Summative Assessment, Interim Assessment, Diagnostic Testing, Achievement.

INTRODUCTION

"The best instructional improvements are informed by ongoing assessment of student strengths and needs." (Biancarosa & Snow, 2006, p. 19). "Adolescents deserve assessment that shows them their strengths as well as their needs and that guides their teachers to design instruction that will best help them grow as readers." (Moore, Birdyshaw, & Rycik, 1999, p. 6). These quotations are not the only ones that can be found in support of formative assessment, but they clearly show the importance of formative assessment in education. In a note in 2009, US Legislative Research Commission used the term formative assessment to refer to the process used by teachers and students during instruction to adjust ongoing teaching and learning to improve students' achievement of intended instruction. Formative assessment can be defined as "testing that is part of the developmental or ongoing teaching/learning process. It should include delivery of feedback to the student" (Wojtczak, 2002, Online).

Background

The term formative evaluation was first used in the field of program evaluation. Perhaps Scriven (1967) was the first person to suggest that a distinction can be made, based on the function of evaluation, between summative and formative evaluation. For Scriven (1967), summative evaluation aimed at assessing whether the program, person, or intervention—that is, the outcome of the object of evaluation—met the goals stated whereas the job of formative evaluation was to sustain growth and progress within an individual, product, program, or activity. Later, Bloom, Hastings, and Madaus (1971) embodied the idea of formative assessment in the practice of what they called Mastery Learning. Bloom (1968), in a discussion of successful education, argued that a promising approach to education would be for teachers to implement feedback and corrective procedures that follow quizzes and frequent classroom assessments as learning aids. Bloom recommended that teachers and educators use during-the-program assessments instead of end-of-the-program achievement testing. Such middle-of-the-road evaluation can help teachers and educators identify individual learning difficulties (i.e., feedback) which can then be followed by remediation procedures or remedial instruction (i.e., correctives).

According to Bloom, this is exactly what happens when an experienced tutor works with an individual learner; as soon as the learner errors, the tutor points out the mistake (i.e., provides feedback) and then explains and clarifies the point (i.e., provides correctives). This strategy helps the learner understand the point. The education procedure whereby feedback and correctives go hand-in-hand to assure maximum learning outcome was termed learning for mastery (Bloom, 1968) which was later shortened to mastery learning (Bloom, 1971).

In mastery learning programs, teachers organize the skills and concepts they would like their students to learn into learning units, teach each unit in one or two instructional weeks, and then give the learners' a quiz or assessment which is based on the learning goals of the corresponding unit the aim of which is to tell the learners where they are weak and need remedial instruction. Bloom called this new function of assessment as 'formative assessment' since it informs the learners of their weaknesses and tells them where they need further instruction and practice (Bloom, Hastings, & Madaus, 1971). Mastery learning is linear in nature. It includes successive steps that are arrayed in a linear fashion with the aim of making it possible for the learners to master one step before they are allowed to proceed to the next. For students that have not mastered one step, the teacher uses the information from formative evaluation and applies corrective instruction to help students master that step.

In more recent years, the term formative assessment has expanded to include assessment that does not necessarily relate top mastery learning. Wiliam and Black (1996) recommended that a formative evaluation afford evidence that will provide construct-referenced interpretations which not only indicate that there is a gap between observed outcomes and desired ones but also provide recommendations and suggestions as to how the gap can be closed (cf., Black & McCormick, 2010; Black & Wiliam, 1998; Boyle & Charles, 2010; Buck, Trauth-Nare, & Kaftan, 2010; Wiliam, 2006). This perspective on formative assessment differs from that of Bloom in that it does not require assessment to be embedded within day-to-day teaching activities—and to provide on-sight feedback—to be considered formative; rather, any kind of assessment will be formative if it yields information that can correct flaws and deficiencies observed in learning outcomes.

This recent look at formative assessment includes a multitude of test types no matter whether they are quizzes, sub-standard teacher-made tests, classroom interview strategies, or even standardized assessments. Any assessment activity can gain the label 'formative' if it can provide information about flaws in instructional activities or learning outcomes. As such, formative assessment will embody any inference and action that teachers and educators will make on the basis of assessment results. One point of caution is that although the terms 'formative assessment' and 'interim assessment' are sometimes interchangeable in that they can be used in the place of each other, the two should not be confused. Interim assessment is tantamount to the traditional perspective on formative assessment that was nurtured by bloom, et al. (1971). It refers to the traditional during-the-instructional-program evaluation that aims at identifying the weaknesses of the program.

In the more recent type of formative assessment, it is almost always done at the beginning of (or during) a program to provide immediate evidence (i.e., feedback) for learning the purpose of which is to improve the quality of student learning, not to assign scores to students. Formative assessment of this type will also engage teachers not only in the design but also in the practice of course objectives and goals. If we take it that a program consists of several courses, the involvement of teachers in the process of setting goals and objectives for courses will imply that formative assessment paves the way for teachers to be engaged in shaping or forming instructional programs—hence the term formative assessment (Dunphy, 2009; Ramaprasad, 1983; Sadler, 1989).

Unlike coaching activities in which feedback and instruction simply focus on helping the students to get the right answer (i.e., test backwash effect), the job of feedback and remedial instruction in formative assessment is to provide students with specific comments about their mistakes, to make certain suggestions as to how these mistakes can be avoided, and to encourage learners to focus their attention on the learning task to internalize the learning material (Bangert-Drowns, Kulick, & Morgan, 1991; Elawar & Corno, 1985). Ames (1992) argued that this kind of feedback is particularly beneficial to lower-achieving students in that it encourages them to accept that they can achieve; it emphasizes that they can improve as a result of personal effort. It does not imply that they will have to succumb to failure since they are

doomed to fail as a result of their innate deficiencies. In this way, formative assessment defies the traditional claim that children fail to achieve due to lack of ability (Ames, 1992; Vispoel & Austin, 1995).

Teachers and educators are not the only people who are engaged in shaping a program through formative assessment. Formative assessment also involves learners in the process through self-evaluation. Through formative assessment, students learn to reflect on their own work to find ways for improvement and gains in performance. Two experimental studies found evidence in support of this claim (Fontana & Fernandes, 1994; Frederikson & White, 1997). Self-monitoring strategies that result from students' reflection on their own learning process are in fact a kind of formative assessment (Fluckiger, Vigil, Tixier, Pasco & Danielson, 2010; McCurdy & Shapiro, 1992; Sawyer, Graham, & Harris, 1992).

1. The Nature of Feedback

The term feedback was first used in electronics to refer to the process of feeding the output of one circuit into the input of another either to reduce the gap between the two (i.e., negative feedback) or to increase the gap (i.e., positive feedback). In behavioral sciences, feedback is seen as a system which consists of four elements:

- access to data that show the existing level of the attribute to be measured;
- access to data on the desired level of that attribute;
- access to a mechanism that makes the two levels comparable and identifies any gap between the two; and
- access to a mechanism that will make it possible for the educator/teacher to close the gap.

Kluger and DeNisi (1996) used the term feedback-standard discrepancy to refer to the gap between observed and desired level of a given attribute. However, they (1996) argued that only the first element is enough to determine the existence of feedback. Kluger and DeNisi (1996) provide a short-sighted definition for feedback which encapsulates the totality of the actions that are taken by external agents to afford information about some aspects of learners' task performance. This definition is short-sighted in that its emphasis on external agents rules out the importance of learners' self-regulation in connection to feedback. By way of contrast, earlier in 1983, Ramaprasad (p. 4) had defined feedback as: "information about the gap between the actual level and the reference level of a system parameter which is used to alter the gap in some way." The main point in this definition is that there is no feedback where the information is not used in altering the gap.

2. The Nature of Corrective Actions

In their review of the literature on feedback, Kluger and DeNisi (1996) noticed that there were four courses of action in relation to feedback-standard discrepancy:

- to strive to close the gap and reach the standard; this requires high commitment to the standard as well as belief in eventual success;
- to abandon the standard; this course of action is taken when there is lack of belief in eventual success (i.e., learned helplessness (Dweck, 1986).
- to modify and manipulate the standard by lowering it; or
- to deny the existence of the gap.

Depending on which of these courses of action is taken, the resulting corrective action will vary. Through their review of the studies on feedback, Kluger and DeNisi (1996) developed a theoretical model which consists of three different methods of providing corrective action: (i) Meta-task Processes which involve the self, (ii) Task Learning Processes which involve the focal task, and (iii) Task Motivation Processes which involve details of the focal task.

2.1 Meta-task Processes

Perhaps the most comprehensive attempt at classifying teacher feedback was made by Tunstall and Gipps (1996). They developed a continuum of corrective action with two extremes. At one end of the continuum stands corrective action that directs attention to the task or learning methods; at the other end, one can see corrective action that directs attention to the learner's self—the extreme form of which consists of rewards and punishment. In an evaluation of this taxonomy, Siero and

van Oudenhoven (1995) noted that directing attention to the learner's self is likely to bring about negative effects on the learner's task performance. As interesting as it may seem, they noted that even 'praise' leaves some negative effect on task performance. This complies with the conclusions made in a study by Good and Grouws (1975) that the most effective teachers actually praise less than average. Moreover, it can also explain the result obtained by Boulet, Simard, and Demelo (1990) that feedback, when delivered orally, is more effective than written feedback. Butler's study (1987) also provided further evidence of the negative effect of persuading students to focus on the self rather than the task. Corrective action that draws on task-involvement (e.g., teacher's comments on how the task should be accomplished) is more fruitful than feedback which requires ego-involvement (e.g., grades, praise). Along the same lines, Cameron and Pierce (1994) found that verbal praise and supportive feedback can increase students' interest in and attitude towards a task; however, such feedback has little or no effect on task performance.

Deci and Ryan (1994) identified four types of corrective procedures that can regulate learners' behavior. Black and Wiliam (1998) summarized these corrective procedures as follows:

- *External Regulation*: Any corrective behavior that is overtly external to the individual (e.g., pressure from the teacher);
- *Introjected Regulation*: Any corrective behavior that is motivated by some internal drive, prod, or pressure (e.g., learner's self-esteem);
- *Identified Regulation*: Any correction from a source extrinsic to the learner that the learner adopts as something personally important or valuable;
- *Integrated Regulation*: Internalization and integration of external rules, regulations, and values into one's coherent sense of self.

Table 1 displays a schematic representation of the four types of behavior regulation or corrective action.

Deci and Ryan (1994) concluded that both intrinsic and extrinsic motivation can be fruitful, but this can only happen when they are associated with internal value systems.

		Value system	
		External	Internal
motivation	Extrinsic	External Regulation	Identified Regulation
	Intrinsic	Introjected Regulation	Integrated Regulation

(adopted from Deci & Ryan, 1994)

Table 1. Classification of Corrective Action

Black and Wiliam (1998) also evaluated the literature on attribution theory and claimed that learners' success or failure depends on three factors:

- *Personalization*: This has to do with whether students' see their success or failure as resulting from factors that are internal or external;
- *Permanence*: This has to do with their evaluation of whether these factors are stable or unstable;
- *Specificity*: This has to do with their assumption as to whether the factors are specific and isolated or whether they are global, generalizable and transferable.

Black and Wiliam (1998) further concluded that teachers should try to insinuate into the minds of their students that their success is due to such internal, unstable, and specific factors as effort and perseverance.

2.2 Task Motivation Processes

Besides corrective actions that direct attention to meta-task processes, there are certain types of feedback that direct attention to the task itself. These types of test-like feedback are referred to as task-involvement corrective action, and are considered to be generally much more successful (Bangert-Drowns, Kulik, and Kulik, 1991; Black and Wiliam, 1998). Examples of this type of feedback include evaluation questions in programmed learning materials, review tests at the end of a block of teaching, and so on (Bangert-Drowns, Kulik, and Kulik, 1991; McDonald, 2010; Volante, Beckett, Reid & Drake, 2010). Black and Wiliam (1998) noted that providing feedback in the form of answers to the review questions is effective only when teachers/materials control for pre-search availability; in other words, students should not be able to look ahead to the answers before they have attempted the questions themselves (Bangert-Drowns, Kulik, and

Kulik, 1991). Along the same lines, Elshout-Mohr (1994) observed that detailed feedback that provides an explanation for the correct answers to questions is most effective. The use of preview questions (i.e., pretests given to students before the material is taught) can also benefit the students because questions of this kind function as primitive advance organizers which encourage students' mindfulness in the process of learning (Dempster, 1991 and 1992). Dempster also noticed that tests not only sample learning but also promote it.

2.3 Task Learning Processes

The effectiveness of feedback is closely related to the nature of the task at hand (Black and Wiliam, 1998). When the learning situation or task is heavily cued or structured (as in computer-assisted learning, computerized-adaptive testing, or programmed learning sequences), feedback is least effective (Bangert-Drowns, Kulik, and Kulik, 1991). This happens because the nature of such learning situations defies higher-order thinking or concept mapping (Bangert-Drowns, Kulik, and Kulik, 1991; Bernard & Naidu, 1992; Young & Kim, 2010). To explain why this happens, Simmons and Cope (1993) designed a study and concluded that a feedback-rich environment where huge immediate feedback (directed at the product of learning) is available discourages trial-and-improvement strategies. Day and Cordon (1993), Declos and Harrington (1991), Bland and Harris (1990), and Ross (1995)reached almost the same conclusion. They found that scaffolding strategies (or feedback directed at the process of learning) through which teachers provide only as much feedback or help as learners need result in optimal learning.

The nature of scaffolding is also very important. Fuchs, Fuchs, Hamlett, and Stecker (1991) argued that scaffolding techniques that have previously proved insufficient are not as effective as providing immediate solutions to the problems learners run into.

Conclusion and Implications

From the points presented above, it can be concluded that formative assessment is vital in measuring the amount of knowledge learners already possess, and in determining how much of which kind of feedback should be provided for the them. The success of formative assessment, as Fuchs and Fuchs (1986) noted, depends on teachers' systematic analysis and use of feedback. Moreover, Lidz (1995) noted that formative assessment can not only diagnose the current condition of the learners and learning but also suggest what kind of remedial strategy is required for success.

The points presented in this paper have several implications for teachers:

- Teachers are encouraged to ask reflective and thoughtful questions (rather than factual ones) that involve students in the process of creative thinking.
- Teachers should provide learners with adequate time to respond to the questions they ask.
- Teachers can invite learners to discuss each question in pairs or small groups; a representative from each pair/group can then share the result with the whole class.
- Teachers can provide several answers to each questions and then ask the students to choose the best answer and justify their choice.
- Teachers can use pre-task questions and after-teaching quizzes.
- Teachers may want to interview learners about their thinking as they solve problems.
- Teachers should be aware that frequent short tests are better than infrequent long ones.
- Teachers should know that the best time for testing new learning is within a week from first exposure.
- Teachers should encourage learners to keep portfolios and learning logs that can be used to show their progress and problems.

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ABOUT THE AUTHOR

Mohammad Ali Salmani Nodoushan is an Assistant Professor of Applied Linguistics and a member of faculty and senior researcher at Iran Encyclopedia Compiling Foundation, Iran. He is also an Adjunct Professor at the Kish International Campus of the University of Tehran. His major interests are language testing and ESP.