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Formative Use of Assessment Information: It's a Process, So Let's Say What We Mean

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The term *formative assessment* is often used to describe a type of assessment. The purpose of this paper is to challenge the use of this phrase given that *formative assessment* as a noun phrase ignores the well-established understanding that it is a process more than an object. A model that combines content, context, and strategies is presented as one way to view the process nature of assessing formatively. The alternate phrase *formative use of assessment information* is suggested as a more appropriate way to describe how content, context, and strategies can be used together in order to close the gap between where a student is performing currently and the intended learning goal.

Let's start with an elementary grammar review: adjectives modify nouns; adverbs modify verbs, adjectives, and other adverbs. Applied to recent assessment literature, the term *formative assessment* would therefore contain the adjective *formative* modifying the noun *assessment*, creating a noun phrase representing a thing or object. Indeed, formative assessment as a noun phrase is regularly juxtaposed to summative assessment in both purpose and timing. Formative assessment is commonly understood to occur during instruction with the intent to identify relative strengths and weaknesses and guide instruction, while summative assessment occurs after a unit of instruction with the intent of measuring performance levels of the skills and content related to the unit of instruction (Stiggins, Arter, Chappuis, & Chappuis, 2006).

Distinguishing formative and summative assessments in this manner may have served an important introductory purpose, however using *formative* as a descriptor of a type of assessment has had ramifications that merit critical consideration. Given that *formative assessment* has received considerable attention in the literature over the last 20 or so years, this article contends that it is time to move beyond the

well-established broad distinctions between formative and summative assessments and consider the subtle – yet important – distinction between the term *formative assessment* as an object and the intended meaning. The focus here is to suggest that if we want to realize the true potential of formative practices in our classrooms, then we need to start saying what we mean.

Background Examples

Within the last decade, the commercial assessment market has capitalized on the use of the term *formative assessment* by creating numerous products that purport to provide periodic measures of achievement that can be used in relative isolation to inform instruction on a formative level. Several authors (e.g., Goertz, Oláh, & Riggan, 2009; Perie, Marion, & Gong, 2009; Shepard, 2005) have questioned claims of such value given the disconnect between the assessment and the actual curriculum taught, as well as the time lapse between instruction, assessment, and the instructional response. Whether or not commercially-available products can have any formative value in a broader system is open for debate, however there is little evidence to show that

these products have substantial formative value when used in isolation, regardless of the label applied.

Even within the classroom, labeling an assessment item or activity as *summative* or *formative* without considering the timing and use can be misleading regardless of the quality of the item or the connection to instruction. Take for example a common type of item designed to assess student understanding of order of operations in mathematics: $3^2 + 2 \times 4$. There is one clear answer (17) and the item (along with others) could measure student achievement with respect to the unit of study, and therefore the item may have summative value if used at the end of the unit. Used during the instructional unit, individual student work and explanations could demonstrate conceptions and misconceptions; for example, answering 44 may indicate that the student is calculating from left to right ignoring the hierarchy of multiplication over addition. Used this way, the item can have formative value in that the teacher can make instructional decisions to address this misconception. Labeling the item itself as inherently formative or summative ignores important and necessary considerations related to the item such as timing, alignment to instruction, and what the student and teacher do with the information obtained. As Wiliam (2000) noted:

It has become conventional to describe these two kinds of assessment as formative and summative assessment respectively, but it is important to note in this context that the terms ‘formative’ and ‘summative’ do not describe assessments – the same assessment might be used both formatively and summatively – but rather are descriptions of *the use to which information arising from the assessment is put* (p. 1, italics in original).

While most educators and researchers acknowledge these considerations, continuing to use *formative assessment* in an objective sense (grammatically speaking) takes us down the dangerous path of saying, “You know what I mean” with respect to the notion that it’s the timing and use combined with the quality of the assessment that represents the litmus test that determines the formative value of an assessment.

Defining the Term

In order to explore the nature of the term, consider two recent and prominent definitions. Popham (2008) defined formative assessment as

... a planned process in which assessment-elicited evidence of student’s status is used by teachers to adjust their ongoing instructional procedures or by students to adjust their current learning tactics (p. 6).

The Council of Chief State School Officers (CCSSO) defined it as

... a process used by teachers and students during instruction that provides feedback to adjust ongoing teaching and learning to improve students’ achievement of intended instructional outcomes (CCSSO, 2006 cited in McManus, 2008, p. 3).

Note that in both of these definitions, the focus is on the process or set of actions and not on the assessment objects themselves. Implicit in these definitions is the assertion that in order to have formative value, an assessment must be done – and the results used – within a process that occurs during an instructional unit, provides accurate and relevant information about student performance, and is coupled with various strategies to generate information as to where the student is now and where to go next with instruction. We need to be explicit that in a system with formative value, what goes on around the time the student takes the assessment is as important as what goes on during the assessment. Such a system could be described in a number of ways, however for the purpose here, content, context, and strategies are highlighted as necessary components as a means to suggest a better way of phrasing formative processes.

Content

There is little argument against the notion that assessments should contain quality items in terms of basic measurement properties such as appropriate difficulty, sufficient score reliability, lack of bias, etc. Additionally, the items also need to measure aspects of the content at the appropriate level of specificity in order to reflect and inform instruction. There should be a range of items that evaluate the extent to which students are demonstrating discrete skills as well as the bigger,

global ideas that represent broader content knowledge (National Research Council [NRC], 2000, p. 141).

Related to this, items with formative value will be able to elicit responses that differentiate relative levels of understanding. A critical component of formative processes is understanding the gap that exists between a student's current achievement and the intended learning outcome (Heritage, 2007). Further, both teachers and students should be able to use results to determine how deep the student's understanding is and how much the student can do independently and with assistance (see Vygotsky's [1978] zone of proximal development). Finally, students should be able to transfer skills and knowledge to new situations in order to have a deep understanding; assessment content with formative value should be able to detect this transfer (Shepard, 2000). Put together, these characteristics of assessment content depict items that provide much more than simple right/wrong evaluations; they describe items that can accurately portray varying degrees of understanding and inform instructional decisions as to what is needed next.

Context

Understanding the context in which particular assessment items sit is a critical component within a formative system. Assessment items that have formative value need to be tightly aligned to the identified learning goals broadly and to current instructional targets specifically. Presenting tasks or items that are disassociated from either of these can cause teachers to respond in a manner that addresses strengths and weaknesses as they appear in a given assessment but not necessarily as they appear to the student during instruction. This is what Shepard (2005) referred to as the "1000 mini-lessons" problem. Teachers who create lessons that respond to what appear to be weaknesses identified on assessments (external or otherwise) without putting those weaknesses in the context of current instruction risk presenting lessons that are targeted on specific, isolated skills but are not combined into logical and meaningful units of study.

In addition to curricular and instructional alignment, assessments should provide information as to where students are along an identified learning progression so that teachers can plan appropriate next instructional steps (Heritage, 2008). Understanding how the underlying skills and knowledge of a given instructional unit connect is critical to a teacher's ability

to evaluate individual student responses. A misconception presented early in the learning process may be addressed quite differently than if it were to appear later in the instructional unit.

An inherent need within sound learning progressions is a thorough understanding of the short- and long-term intended learning objectives. That the teacher should understand these objectives is fundamental to a sound curriculum (Tyler, 1949), however in the context of formative processes the understanding of the learning objectives must extend to the students. While cognitive theories describe the importance of metacognition in the process of learning, students need to know the intended outcome and how their work will be judged as they consider their own mental strategies (i.e. thinking about their thinking) in solving a given problem. For example, Arter (2000) described two equal purposes for scoring rubrics: a) as a tool for teachers to evaluate and track student progress; and b) as a tool for students to improve performance against a known criterion. Teachers should attend to both of these purposes as they use a given rubric. The necessary involvement of students in the understanding of learning objectives and evaluation criteria requires a "shift" from teachers being primarily responsible for student learning to a classroom context in which students "assume meaningful responsibility for their own learning and the learning of their classmates" (Popham, 2008, pp. 94-95).

The notion that assessment information should sit within, rather than apart from, the learning process is also an important facet of context. The well-intentioned triangle we have often seen depicting the interconnectedness of curriculum, assessment, and instruction may better describe a summative process that treats these elements as related, yet separate. A formative system should view ongoing assessment within a learning process. This shift in the "learning culture" is what Shepard (2000) presented as needed "... so that students and teachers look to assessment as a source of insight and help instead of an occasion for meting out rewards and punishments" (p. 10).

Strategies

There are scores of examples in the literature that describe strategies that support formative assessment processes, however several notable examples highlight a common group of strategies that are posited here as

necessary components in a formative system. Specifically, Black and Wiliam's comprehensive meta-analysis (1998a) and subsequent summary (1998b), Shepard's (2000) conceptualization of classroom assessment within the context of cognitive, learning, and curricular theories, and NRC's *How People Learn* (2000) and *Knowing What Students Know* (2001) collectively noted the importance of:

- providing quality, descriptive feedback;
- using effective questioning techniques;
- assessing prior knowledge and misconceptions; and
- implementing student goal setting, self-regulation, and self-evaluation.

While not necessarily exhaustive, these strategies are presented as essential in a system that purports to have formative value. While notable on their own, the strategies are often connected with one another in describing formative processes. For example, in summarizing the ways in which teachers and students communicate (i.e., use) assessment information, the NRC (2001) connected most of the strategies above by concluding that:

In brief, the development of good formative assessment requires radical changes in the ways teachers give feedback to students so they can develop the ability to manage and guide their own learning (p. 227).

Simply administering an assessment is not a sufficient condition for having formative value, regardless of the quality of the items. Interacting with students about their responses (correct or not), posing questions that cause additional thinking, having both the teacher and student understand where the student is in relation to the learning goal, and making instructional decisions that close any gap that exists are all valuable strategies that are used in conjunction with assessment results in a formative process.

Bringing the Elements Together

Together, the specific elements within context, content, and strategies constitute a system that has formative value and is depicted in Figure 1.

Far from focusing solely on assessment objects (i.e., items) themselves, it is the combination of the content, context, and strategies that represents the

critical attribute of a formative system. Said as a bit of a circular tautology, formative assessments are formative only to the extent that they are used formatively. There must be explicit understanding that in order to have formative value these elements must be integrated within a process. However, as long as we are satisfied with the characterization of formative assessment as an object that may be isolated from use, we cannot get to the point where we realize the process notion inherent in the definitions presented above.

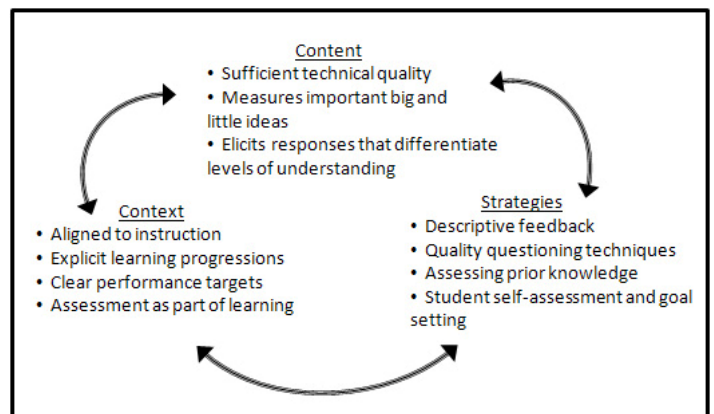


Figure 1: Components of a formative process

Validity Connections

Conceptualizing the formative use of information as a process more than an object is parallel to modern ideas related to assessment validity. Whereas original views of validity made judgments about the assessment itself, current perspectives emphasize the inferences drawn from the results and their subsequent use (American Educational Research Association, 1999; Messick, 1989). To the extent that inferences lead to decisions or other actions, this conceptualization of validity evidence is well aligned to the notion that the interpretation and use of assessment information should lead to related instructional decisions. The process of inference and use, rather than the assessment itself, becomes the focal point. Wiliam (2000) used this parallel with validity to highlight the nature and importance of both formative and summative information. That there is value in both formative and summative contexts is well documented; the challenge ahead of us is to put into practice the presumption that the label applied to an assessment is far less important than what is done with the information gathered.

Alternate Phrasing

One way we can better support the notion that formative information is a process rather than an isolated product is to simply begin using the phrase *the formative use of assessment information*. Stated this way, the process notion becomes more evident as a verb phrase (formative now modifies *use*) rather than as a noun phrase. Adding *information* to the phrase makes explicit that what students and teachers learn about a student's understanding goes beyond the response to a particular item. What a student says before, during, and after the assessment provides valuable information that can be used by teachers to modify instruction as needed to either address gaps and misconceptions or extend students' depth of understanding.

However as teachers receive more and more assessment results there is growing concern that the information is not being used instructionally. Heritage, Kim, Vendlinski, & Herman (2008) found that 6th grade math teachers were better at determining levels of understanding in students than they were at deciding on what to do next instructionally. Relying solely on results obtained from assessments (even if they are labeled formative) often provides little new information and ignores the critical interrelationship between the content, context, and strategies that undergird the formative use of assessment information. This makes it difficult for teachers to look beyond the scores alone and answer the question, "Based on all I have seen related to this student's performance, what activities or instructional changes can I employ to help this student close the gap between where she is now and where we want her to be?" Changing our phrasing to make the use of information explicit will encourage educators to move beyond scores and focus their attention on the next instructional steps.

Conclusion

In this article, I have put forth the notion that the term *the formative use of assessment information* is more appropriate than *formative assessment* even though the latter is more prevalent. Conversations with knowledgeable educators and researchers often presume the understanding that we're talking about a process more than a product and, as mentioned above, some respond with, "You know what I mean" when challenged with the distinction. However this distinction is not trivial. While a complete shift from

formative assessment to *the formative use of assessment information* may not be plausible given the momentum the former term has acquired, there is a real need to at least use the terms interchangeably within the assessment literature and related discussions if we want to emphasize process and use in our assessment practices.

The lack of implementation and robust use of formative information to change instruction on a broad scale in our classrooms suggests that we need to be more explicit and accurate in our phrasing in order to change how school districts, teacher education programs, and academic researchers view the use of assessment information. The power of the effective use of formative information is well documented. If we want to realize this power and expand our understanding of quality assessment practices, as well as see formative processes as both common and successful in our classrooms, then we need to acknowledge that the phrasing we use is important and we need to start saying what we mean.

References

- American Educational Research Association, American Psychological Association, and National Council on Measurement in Education (1999). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.
- Arter, J. (2000, April). *Rubrics, scoring guides, and performance criteria: Classroom tools for assessing and improving student learning*. Paper presented at an annual meeting of the American Educational Research Association, New Orleans, LA.
- Black, P. & Wiliam, D. (1998a). Assessment and classroom learning. *Assessment in Education: Principles, Policy, & Practice*. 5(1), 7-74.
- Black, P. & Wiliam, D. (1998b). Inside the black box: Raising standards through classroom assessment. *Phi Delta Kappan*. 80(2), 139-144.
- Goertz, M. Oláh, & Riggan, M. (2009, Dec.). From testing to teaching: The use of interim assessments in classroom instruction. Consortium for Policy Research in Education (CPRE) Research Report #RR-65. Retrieved on May 15, 2010, from <http://CPRE.org>
- Heritage, M. (2008). Learning progressions: Supporting instruction and formative assessment. Council of Chief State School Officers: Washington, DC. Retrieved on August 20, 2010, from http://www.ccsso.org/Resources/Publications/Learning_Progressions_Supporting_Instruction_and_Formative_Assessment.html

- Heritage, M., Kim, J., Vendlinski, T.P., & Herman, J.L. (2008). *From evidence to action: A seamless process in formative assessment?* (CREST Report 741). Los Angeles, CA: University of California, National Center for Research on Evaluation, Standards, and Student Testing (CREST).
- McManus, S. (2008). Attributes of effective formative assessment. Council of Chief State School Officers: Washington, DC. Retrieved on July 19, 2010, from http://www.ccsso.org/Resources/Publications/Attributes_of_Effective_Formative_Assessment.html
- Messick, S. (1989). Validity. In R.L. Linn (Ed.), *Educational Measurement* (3rd ed., pp. 13-103). New York: American Council on Education and Macmillan Publishing Co.
- National Research Council (2000). *How people learn: Brain, mind, experience, and school*. Washington, D.C.: National Academy Press.
- National Research Council (2001). *Knowing what students know*. Washington, D.C.: National Academy Press.
- Perie, M., Marion, S., & Gong, B. (2009). Moving toward a comprehensive assessment system: A framework for considering interim assessments. *Educational Measurement: Issues and Practice*, 28(3), 5-13.
- Popham, W.J. (2008). *Transformative assessment*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Shepard, L. (2000). The role of assessment in a learning culture. *Educational Researcher*, 29(7), 4-14.
- Shepard, L. (2005, Oct.). Formative assessment: Caveat emptor. Paper presented to an Educational Testing Service Invitational Conference, New York.
- Stiggins, R., Arter, J., Chappuis, J. and Chappuis, S. (2006). *Classroom assessment for student learning: Doing it right – Using it well*. Portland, OR: Educational Testing Service.
- Tyler, R. W. (1949). *Basic principles of curriculum and instruction*. Chicago: University of Chicago Press.
- Wiliam, D. (2000, Nov.). *Integrating summative and formative functions of assessment*. Keynote address to the European Association for Educational Assessment, Prague, Czech Republic. Retrieved on Jan. 17, 2011 from http://eprints.ioe.ac.uk/1151/1/Wiliam2000IntegratingAEA-E_2000_keynoteaddress.pdf
- Vygotsky, L. S., (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

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