

What's My Motivation? Ideas for Rethinking Student Assessment

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Three of the articles in this issue of the Iowa Science Teachers Journal address assessment in the science classroom. [Jesse Wilcox](#) and [Frank Noschese](#) each discuss standards-based grading (SBG). Frank provides examples of his approach to SBG in his physics classes and makes a strong case for SBG while Jesse adds detail by sharing the frameworks he uses to inform and implement his SBG practices. [Joe Bower](#) goes a bit further by encouraging readers to consider why we assign grades at all. Each of the articles raises important, and related, points about the connection between assessment and motivation.

Unfortunately, the connection made by many teachers is between assessment and extrinsic motivation. Joe addresses this problem directly while Jesse and Frank each hint at how assessment practices can improve students' intrinsic motivation. So, as an introduction to this issue, I want to discuss a framework for considering intrinsic motivation. Through this framework, the arguments the authors make may be a bit more persuasive.

When considering motivation, Pintrich, Marx, and Boyle (1993) coined the term "hot conceptual change theory". The authors provide a framework for considering the motivation of students to learn made up of four interrelated constructs: goal orientation, value, control beliefs, and self-efficacy. Each of these ideas, and some possible connections to assessment are explored below.

Goal Orientation

This construct refers to the kind of goals students hold in a learning situation. For some students, they might have a performance orientation in which they want to receive a particular grade, or get above a certain score on a test. Other students may have a mastery orientation in which they want to understand the material deeply or be able to apply the information to new situations. Ideally, we want students to have a mastery orientation. Unfortunately, traditional grading systems that value point accumulation push students toward performance orientations. This orientation manifests itself when students ask, "What do I have to do to get an A?" By contrast, the assessment systems described in this issue of ISTJ, implicitly and explicitly push students toward a mastery orientation.

Value

The connection between students' perceived value of the material to be learned and their motivation is a bit intuitive. However, consider how students might find more or less value in different kinds of assessments. For example, when students are given a test over trivia, they may only spend a minimum amount of time in preparation because they see little value in the task. However, students who are asked to

apply their knowledge to solve an authentic problem may spend significantly more time engaged with material because they are genuinely curious about the answer. That is, they value the task.

Control Beliefs

Education is too often something that is done to students. Students rarely see how they have control in school. Indeed, most decisions are made for students including: what to learn, how to learn, and when to move to a new concept. While some of this control may even be out of teacher's hands (not as much as you might think), the more control students perceive they have, the more motivated they will be. All three authors make explicit connections to how their approach to assessment helps students be more autonomous in their learning.

Self-Efficacy

This construct is related to students' confidence. Frank Noschese's article explicitly addresses this issue by quoting students who felt more confident based with his assessment practices. If students do not believe they are capable of learning, they are not likely to be motivated. When students struggle with complex concepts early, and they are penalized for not immediately catching on, their self-efficacy is not likely to be very high. Instead, we need to carefully scaffold our instruction and assessments so students recognize their own abilities. Once their self-efficacy is established, they will be able to handle the more challenging tasks we have for them.

Importantly, the ideas from hot conceptual change theory above are not prescriptive. That is, they do not tell you what to do. Moreover, good teaching cannot be reduced to prescribed procedures. Instead, consider the ideas above and the ideas of the authors within this issue as "things to think about." Being a reflective educator is more than considering what worked and what did not work. Reflection means engaging in the difficult mental work of questioning your own thinking and making changes based on evidence and thought.

Changing your assessment strategies, like anything else, is a process and not all assessment and evaluation strategies will (or should) look the same. Indeed, the authors of this issue do not always agree and differ in significant ways. While it is hard to make claims about what the "right" assessments are, some questions I find useful as I reflect on my own assessment and evaluation strategies include:

- To what extent are students able to learn from their mistakes?

- How can I understand student thinking rather than whether students know the right answers?
- In what ways will an assessment task cause students to learn something new?

Such questions help me to be more critical of my assessment strategies and continually seeking ways to improve upon those strategies.

References

Pintrich, P.R., Marx, R.W. & Boyle, R.A. (1993). Beyond Cold Conceptual Change: The Role of Motivational Beliefs and Classroom Contextual Factors in the Process of Conceptual Change. *Review of Educational Research*, 63(2), 167-199.