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Continuous improvement approach and data improves student learning, engagement

by Jim Shipley

At every level of education, determining the appropriate use of student performance data is an ongoing conversation. Deciding how to assess student progress—including how often and how much should be assessed—has become a critical component in the education process.

Unless an educator can see direct connections to classroom learning processes, he or she will frequently question the validity of the assessment. These academic measures typically take the form of a test that is required by the state or local education agency.

When the connection to learning isn't clear, classroom teachers often say there are too many tests that take too much time away from learning. To examine how data are being used in the classroom, it's important to establish the purpose of student data used in two approaches to classroom learning.

Traditional approach

In many traditional classrooms, data are obtained only to establish the degree to which individual students have learned specific content. In this case, the summary of student learning occurs at the end of the learning process and is termed summative data.

These data might be the result of an end-of-chapter test, weekly spelling test, final exam or a state-required annual assessment. When classroom data are used as summative data, the assessment is administered, grades are given and the teacher moves on to the next lesson plan. The test becomes the last step in the learning process, and it's used to rank students and assign grades that are sometimes based on the traditional bell curve.

Continuous improvement approach

Applying a continuous improvement approach has recently gained popularity in the classroom. Teachers have taken on a new perspective of student data: They use them to evaluate the effectiveness of specific classroom learning processes.

When used in the continuous improvement process, assessment data are called formative, and they're used to evaluate the effectiveness of the learning process. An example of summative versus formative might be as follows:

- When a cook tastes the soup, that's a formative assessment.
- When the customer tastes the soup, that's a summative assessment.¹

In the continuous improvement classroom, the formative assessment provides the data needed for the "study" phase of a plan-do-study-act (PDSA) cycle (a four-step model for implementing change).² The decision of how to measure, how much to measure and how often

to measure is then determined by the scope and complexity of the learning process being utilized in the classroom.

In the traditional approach, the measurement of student progress comes at the end of the learning process. In a continuous improvement approach, assessments occur frequently during the learning process to make needed adjustments or ensure it's working as designed.

As a result, teachers who use the continuous improvement process do not find that taking time to assess (test) takes away from learning, and instead, it adds value by making the learning process more effective. It could be argued that the only reason to administer a formative assessment is to evaluate the learning process and decide what to do next within the context of the PDSA cycle.

Data and student involvement

When using continuous improvement best practices in the classroom, teachers and students work together to improve the learning process, the classroom and individual student learning results. Teachers and students regularly analyze PDSA cycles to improve classroom learning, which translates into improved learning results.

Making student learning data available to students is critical to the success of a continuous improvement classroom. It allows students to actively engage in evaluating and improving the classroom and their individual learning processes. Engaging students in the classroom PDSA process and using their individual data reflects the belief that students should be actively involved in their own learning and assume more responsibility for the learning

process. This approach is proving to provide significantly higher levels of student learning in all grade levels and subjects.

Classrooms with engaged students who monitor and maintain their individual data have developed various methods to do this. For example, some use student data folders—a method used from elementary school through high school. The actual vehicle for maintaining the individual student data may not be a traditional folder, it also could be electronic. The student data folder concept gives students the ability to answer the following questions:

- What is my personal learning goal for this class or subject?
- What is my personal action plan for improvement?
- How will I visually display my data to monitor progress toward my goal?
- Where am I academically compared to where I need to be?
- To what degree am I making progress toward my personal learning goals?
- Are the learning processes I use—such as homework, study habits, or listening and note-taking skills—helping me achieve my goals?
- What could I do differently to achieve better learning results?

In addition to students charting and maintaining their personal data, it's also essential for the teacher to display classroom results without identifying specific student names. With the public display of classroom data, students can evaluate their own level of performance and compare their performance to the classroom results. Publically displaying classroom results not only motivates individual students, but when a teacher displays results from other classrooms or other class periods it can create healthy competition between classes.

To meet increasing accountability requirements demanded by the public and to better prepare students for the competitive global economy, there must be a transformation from the current traditional classroom. Using performance data only to evaluate students and assign grades won't be enough to meet these requirements.

The education transformation must not only provide the required increase in content—in subjects such as science, technology, engineering and mathematics—but also provide a student problem-solving skills by using data in the context of continuous improvement.

Reference and note

1. Paul Black, "Formative Assessment: Raising Standards Inside the Classroom," *School Science Review*, Vol. 80, No. 291, 1998, pp. 39-46.
2. The plan-do-study-act cycle functions by recognizing an opportunity and planning a change, implementing the change, studying the results of the change, taking action based on information gained in the study phase and starting the cycle again. For more information, visit <http://asq.org/learn-about-quality/project-planning-tools/overview/pdca-cycle.html>.

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