

# Using Assessment to Improve Learning

## *A White Paper on Formative Assessment*

### **formative**

Pronunciation: for' mu-tiv

Function: *adjective*.

1. Susceptible to transformation by growth and development.
2. Of or relating to formation, growth, or development.

In the 2001 fourth edition of her book, *Unlocking Formative Assessment* Shirley Clarke defines formative assessment with a gardening analogy: “If we think of our children as plants. . . summative assessment of the plants is the process of simply measuring them. The measurements might be interesting to compare and analyse, but, in themselves, they do not affect the growth of the plants. Formative assessment, on the other hand, is the garden equivalent of feeding and watering the plants—directly affecting their growth.”<sup>1</sup>

Properly conducted formative assessments can greatly contribute to the successful care and nurturing of our students’ learning. We know that frequent tests, giving tidbits of learning feedback after each, are most effective in helping students to learn.<sup>2</sup> Research has also proven that improved formative assessment helps low achievers more than other students and so reduces the range of achievement while raising achievement overall<sup>3</sup> – the precise intent required by *No Child Left Behind* (NCLB).

Additionally, it has been shown that formative assessment can, and should be used to ensure that teaching is modified until learning is internalized. To that end, improving learning through formative assessment depends basically on these three key factors:

1. **The provision of effective feedback to students**
2. **The active involvement of students in their own learning**
3. **Adjusting teaching to take into account the results of assessment**

### **Providing Feedback**

Some educational experts have referred to this as “feed forward,” that is, providing useful information to both the teacher and student that will help them recognize where gaps in student learning are, and use that data to move forward with the intent of closing the gaps. With this vital information, teachers can adjust the content and method of their teaching to meet the needs of individual students. Students, likewise, can understand what their strengths and weaknesses are, where they need to concentrate studying efforts to gain comprehension of the concepts being taught. There must be a dialogue between student and teacher, both discussing and understanding specific activities that need to be pursued to ensure the greatest learning by the student.

As much as we would like it to, student comprehension does not take place all at once. Learning occurs bit-by-bit, line upon line, concept upon concept. Only by checking understanding of each small piece can teachers be assured that they are taking the best path for their students. . .that they are forming an appropriate knowledge base. Black and Wiliam, in their 1998 landmark research “Inside the Black Box: Raising Standards Through Classroom Assessment” conclude that frequent short tests are better than infrequent long ones, and that new learning should be tested within about a week of first exposure.<sup>4</sup>

**Pearson NCS testing products provide feedback to both teachers and students:** Three products offered by Pearson NCS offer both students and teachers quick access to “feedforward” regarding student understanding of concepts taught.

**CPS (Classroom Performance System)** This unique feedback system features wireless handheld response devices for student use in the classroom. Students are anonymously assigned devices, and as teachers pose questions regarding recent instruction, students respond. In this non-threatening environment students give honest answers without fear of embarrassment or criticism. Of greatest value, however, is the fact that both students and teachers know immediately when corrective action needs to be taken.

Students stay engaged in learning as they readily come to understand their comprehension strengths and weaknesses. Teachers can readily assess which concepts need to be re-taught to which students, and instructional correction can be made quickly—before students have moved on to a new learning assignment. Subsequently, reports can be generated reflecting how an individual student and the group as a whole performed on a lesson. Among these reports is a Student Study Guide, which includes the question text, correct answer, and prescriptive resource or study material, directing the student to review the material.

**ExamView® Test Generator Software:** This powerful, easy-to-use item banking/test generator software allows teachers to build tests either using item banks that are included with their textbook purchases or those they have entered into the system themselves. Items can easily be imported from a word processor. The variety of item formats makes it easy to adjust tests and quizzes to the response style of the student.

Test items can be linked to objectives and/or state standards, so tests can be created on that basis. Textbook item banks are organized by chapter for ease in testing concepts as they are covered. Additionally, each test item can be correlated to state or district curriculum framework.

When tests are generated using ExamView and imported into CPS system or the Prosper™ assessment system, as outlined below, teachers have at their fingertips a virtually endless supply of key test items to check student understanding.

Specifically, using the dynamic content feature, math items can be readily replicated with different values to give students additional practice with specific math elements. Once a test item with dynamic content is entered into the system, an endless number of duplicate items can be generated, simply changing numeric values in the item. Teachers can easily check understanding repeatedly until they are certain the student has reached it.

**Prosper™ assessment system:** Using answer keys from tests created with ExamView software, or answer keys that have been manually entered, the Prosper assessment system scores, analyses and provides important skills mastery data to teachers in a variety of report formats. These reports show student growth on understanding of key concepts and allow disaggregation of data for better instructional grouping. Data can also be segmented to produce reports based on NCLB filters. Multiple tests and test administrations can be compared and contrasted to determine growth or to contrast one test with another that tests the same standards.

### **The Active Involvement of Students in their Own Learning**

According to Black and Wiliam, the ultimate user of assessment information that is elicited in order to improve learning is the pupil. Rather than focusing on data for the sake of data, formative assessment information should form the basis of ongoing conversations between teachers and students about concepts and skills the student has mastered and those he/she has not. Students should not feel as though they are in competition to earn the highest marks; rather, they should look at test results as indicators of where they should turn to improve learning.

However, students need to be able to look at their own assessment information as clues to gaps in their learning. In addition, the use of frequent, short assessments can provide them with small, easy-to-digest bits of “feedforward.” These bits of information about a student’s understanding can be used by students to form and nurture their learning, just as plants in a garden slowly reach for the sun.

In his September 2004 *Phi Delta Kappan* article addressing effective uses of all types of assessment in schools, Rick Stiggins speaks of the hopelessness and loss felt by students who, in the past, have not been given the regular feedback afforded by formative testing. We need “to build learning environments that help all students believe that they can succeed at hitting the target if they keep trying. We need to understand how to use classroom assessment to keep students confident that the achievement target is within reach.”<sup>5</sup>

**Two Pearson NCS products provide opportunity for students to be actively involved in their own learning.**

**Classroom Performance System (CPS):** The uniqueness of this product offering promotes and encourages students' involvement with their own learning and assessment. Students are assigned handheld response devices anonymously, so no one knows (except the student himself) how he has answered specific questions. Behind the scenes, response devices are associated with student names, so teachers can know what their students know about the instructional content presented.

This offers three advantages: (1) Students are immediately aware of whether or not they answered a question correctly because the correct response is immediately shown on the screen. They know right away, what they do and do not know. (2) Teachers can look at results and immediately make instructional corrections for individual students or groups of students. (3) Teachers also know what individual students do not know, so essential communication can take place immediately regarding closing learning gaps.

The beauty of CPS is that it makes the administration of frequent tests easy. Information is available instantaneously to both student and teacher for correcting instruction and enhancing learning.

**Prosper assessment system:** This paper-based assessment system offers similar advantages to those of the CPS.

Frequent, short tests are easy to conduct. At the touch of a mouse, mastery information is available so that individual or group needs can easily be met. Specifically, the *Learner Standards Proficiency* and *Learner Test Report* identify specific skills not mastered by an individual student. These two reports offer detailed information to both student and teacher as a basis for learning and instructional correction. In addition, prescriptive information can be printed next to each incorrect response, providing students with information as to where to go for additional study and remediation.

**Adjusting Teaching Based on Assessment Results**

Black and Wiliam suggest that the crux of the issue with regard to the use of formative assessment is a teacher's answer to the question, “Do I really know enough about the understanding of my pupils to be able to help each of them?” They also talk about the indivisibility of instruction and formative assessment practices.<sup>6</sup> Attention needs to be paid to the core aim of teaching, “. . . enhancing student learning. To achieve this goal calls for a willingness to rethink the planning of lessons, together with a readiness to change the roles that both teacher and students play in supporting the learning process.”<sup>7</sup>

To achieve this lofty goal, teachers must have access to information about what students know and understand and be willing to not only enter into discussions with students about how mastery of the concepts not learned can take place, but also offer up instruction using alternative teaching methods and resources. Note that having access to learning information is foremost in this equation. Quick, ready access to student learning information is essential in the effective use of formative assessments.

**Two Pearson NCS products provide teachers with assessment results so that teachers can adjust teaching appropriately.**

**Classroom Performance System:** Based on the adage that it is always most effective to “strike while the iron's hot,” teachers can use real-time assessment information available from CPS to re-teach students at the moment they realize they have not mastered specific skills.

Using the CPS handheld response devices, students respond immediately to questions that are posed on a screen, wireless chalkboard, or verbally. With the click of a mouse, the correct answer is revealed. At this point, both student and teacher are intimately aware of whether or not the student is proficient in the subject. With this understanding, a variety of different instructional methods can then be tried to help ensure mastery.

**Prosper Assessment System:** Similarly, information gathered from the Prosper assessment system can be used to direct teachers as they re-form their instruction to meet the needs of students. Assessment data collected and stored in Prosper assessment system databases can be presented for individual students or disaggregated for subsets of the student population. Teachers can then re-teach individual students or small groups of students using different teaching methods.

Another benefit of the Prosper Assessment System is its ability to track student progress on specific objectives, standards, or skills over time. As students are re-taught based on early formative assessments, new assessment information is collected and shown as student mastery or progress. *The Comparative Class and Learner Summaries* and the *Cumulative Class and Learner Proficiency* reports display student and class results across multiple assessments. Tracking successful mastery and how teaching was altered to affect that mastery can be very helpful in planning future instructional methods.

The Prosper assessment system is also capable of identifying and linking prescriptive information to test items. Using these resources, teachers can generate study guides for practice with specific skills and include mastery information on the various Prosper reports.

### What about Summative Assessment?

#### *summative*

Pronunciation: sum'u-tiv

Function: adjective

1. Additive

Summative assessment data is still necessary for providing a variety of interest groups with “snapshot” information. They provide Adequate Yearly Progress (AYP) data for *No Child Left Behind* funding, and, if they are used as exit competency tests or end-of-course tests, they give districts and schools information for making student advancement decisions. They help districts and schools plan course offerings and scheduling options. Summative assessments can also be used for purposes of accountability, ranking, and certifying competence.<sup>8</sup>

Used appropriately, summative assessment data can also be used to inform instruction, much as true formative assessment. To do that effectively, data needs to be available in a timely fashion and in a format that can be used by both student and teacher alike. Summative test information needs to be available to both students and teachers so that it can be used to make a difference in how the student learns and is taught. When summative data is made available to teachers months after instruction has taken place, it will have little “feedforward” value and will be primarily historical.

Summative assessments can also be used to direct formative assessments. Fundamentally, summative assessment tests require standards to determine school and district success. Those same standards are taught, tested, and re-taught with formative assessment programs. Formative assessments, if aligned to the same standards, can identify which students will not likely be proficient on summative tests. According to Stiggins, “classroom assessments provide a continuous flow of evidence of student mastery of the classroom-level learning targets that lead over time to attainment of the desired achievement standards.”<sup>9</sup>

We see that summative assessments are necessary for accountability and guiding instruction. Formative assessments are necessary for learning. Both have their place in today’s schools, and, with care, they can both be used to nurture student learning and growth.

- <sup>1</sup> Clarke, Shirley. (2001). *Unlocking Formative Assessment—Practical Strategies for Enhancing Pupils' Learning in the Primary Classroom*, p. 21. London: Hodder and Stoughton
- <sup>2</sup> Paul Black and Dylan Wiliam, "Inside the Black Box: Raising Standards Through Classroom Assessment," *Phi Delta Kappan*, Vol. 80, No. 2, October 1998, pp. 139-148.
- <sup>3</sup> Ibid.
- <sup>4</sup> Ibid.
- <sup>5</sup> Rick Stiggins, "New Assessment Beliefs for a New School Mission," *Phi Delta Kappan*, Vol. 86, No. 1, September 2004, p. 24.
- <sup>6</sup> Black and Wiliam
- <sup>7</sup> Paul Black, Christine Harrison, Clare Lee, Bethan Marshall, and Dylan Wiliam, "Working Inside the Black Box: Assessment for Learning in the Classroom," *Phi Delta Kappan*, Vol. 86, No. 1, September 2004, pp. 9-21.
- <sup>8</sup> Ibid.
- <sup>9</sup> Stiggins, p. 26.



For more information, call Pearson NCS at  
800-447-3269 or visit the Web site,  
<http://www.pearsonnccs.com/testing/formative-assessment.htm>