

Develop classroom 'assessment for learning'

Summary

Feedback is important in guiding any system; in education it is often weak. Classroom assessment can make students' learning quicker and more robust, provided it is focused on performance, not just scores. 'Assessment for Learning' is an approach that develops students' self-diagnosis of their strengths and weaknesses.

This approach is in development in various ways in various places. The specific tools described here are chosen because they have already been extensively developed and successfully used by typical teachers in U.S. classrooms. They should be seen as a good first step, rather than the last word, in introducing 'assessment for learning' to the classroom.

Challenges addressed

Students see scores, not weaknesses, My students don't remember things, Gains in elementary math scores not sustained in secondary grades, State/district tests are too narrow

Key features

- focus on both student performance and how students learn
- get students to look at their own, and others', work in detail
- encourage self-assessment
- recognize all achievements, strengths and weaknesses

Background

Of course, the use of student performance on mathematical tasks to inform future learning and instruction is as old as teaching. The recent interest in 'assessment for learning' was inspired by the booklet *Inside the Black Box*, by Paul Black and Dylan William, London: Kings College. This reviews a large number of studies of classroom assessment and abstracts a number of principles to guide the design of assessment for learning activities. The assessment for learning movement has grown from this. Unusually, it has aroused strong interest from both innovative teachers who are seeking better methods and from government – a rare combination.

Implementing the strategy

This approach can yield substantial gains. However, 'assessment for learning' is far from a well-defined program and many of the initiatives have not got to the point of developing robust tools that others can use. Here we describe one specific well-developed program, *Balanced Assessment in Mathematics*, that is a good way to gain experience with classroom assessment focused on improving student performance in mathematics. For contact with the broader 'assessment for learning' movement, see e.g., www.assessment-reform-group.org.uk¹

¹ Link current as of December 2004

How can it be organized?

The classroom activities should be fitted in to the curriculum on a regular basis, once every week or two.

Every curriculum is always too full, so finding time is a problem for anyone thinking of introducing something new; however, this activity saves time in other ways. This, like any other cross-topic activity that is not tied to the current focus of teaching, consolidates learning by helping students develop connections between different parts of mathematics, and with applications to problems from the real, outside world. Such more robust learning reduces the need for 'review' and 'test prep' activities, where a lot of time often goes.

Strengths

If done well, it seems to:

- improve learner motivation
- promote commitment to learning goals and assessment criteria
- help students learn how to improve
- help students take more responsibility for their learning

Likely challenges

- It is challenging for teachers, requiring the broad range of teaching strategies and tactics that are characteristic of student-centered classrooms with high expectations.
- As with any innovative strategy, challenges are likely to arise, expected and unexpected. Students, once they have adjusted "to this new game", will enjoy the power over, and responsibility, for their own work that it gives them. Some teachers will find the necessary style shifts challenging; with support all will cope. For those who seek challenge, pushing back further the frontiers of assessment for learning in the classroom will offer new ones.

Tools

Classroom assessment for learning benefits from three types of tools:

Classroom teaching materials, based on rich assessment tasks, are the key ingredient. Used regularly as part of the curriculum, they switch the focus from learning and practicing new concepts and skills to seeing how each student has been able to integrate their growing knowledge into a coherent 'cognitive structure' that they can use flexibly and effectively. The strengths and weaknesses that are revealed are then understood and 'debugged' through discussions of student work provided. The *Balanced Assessment in Mathematics: Classroom Packages* provide materials to support this for the various grade ranges. They are published in four grade ranges (elementary, middle, high school, advanced high school) and provide collections of tasks for classroom use, together with descriptions of the core elements of performance, the characteristics of performance at various levels, illustrated by exemplars of student work.

Test tasks show in a vivid way the various kinds of performance that are part of contribute to doing mathematics well. Scoring rubrics pick out the elements of performance that are important, and, through the points assigned to each, how they are valued. The Practice tests from *Balanced Assessment in Mathematics: the tests* are one resource. It is important that the scoring rubrics are shared with the students, who are expected to discuss and analyze their strengths and weaknesses.

These tests, currently for Grades 3-10, are aligned with *Principles and Standards for School Mathematics (PSSM)*. They assess the broad range of performance that national and

international standards require, with some associated classroom materials. The annual 40-minute tests at each grade are built from 5 to 10 minute tasks, which sample the broad domain of mathematical performance that the standards specify. They demand substantial chains of reasoning and non-routine problem solving. Materials are provided to support reliable local scoring – a contribution to teacher professional development; a scoring and reporting service is also available, as are Practice Tests. The tests are published by CTB/McGraw-Hill.

Professional development support is an important part of any program that aims at getting most teachers involved in classroom assessment for learning. Many teachers will need help to develop the broader range of teaching strategies and skills needed to do it well. These include:

- a deeper understanding of the mathematics than is needed for expository teaching, so as to be able to respond sensitively to the unexpected lines of reasoning that some students will always provide;
- the ability to handle student discussion and explanation in a facilitative way, that encourages students to pursue their own lines of reasoning, can detect when one is going astray, and help the student to sort it out (not simply imposing the teacher's own line of thought).

Balanced Assessment in Mathematics Professional Development Series is a set of materials developed for this purpose. It supports professional development activities built around rich assessment tasks and focused on both teachers' and students' understanding.