

Foreword

From Russell Gersten

Ongoing assessment of student learning in mathematics is far from easy, but it is certainly feasible. In mathematics, we can ask students to solve problems, explicitly show us or tell us or write down for us their strategy for solution. At the very least, we can quickly assess whether their answer is right or wrong, or at least partially correct. When time permits, we can also evaluate the level of understanding revealed in their choice of solution strategy.

There is a good deal of writing and rhetoric about using data for instructional decision-making. When the National Mathematics Panel, on which I served, reviewed the research literature on use of formative assessment, we found that when teachers regularly conducted formative assessment of student progress, students' growth in mathematics was accelerated significantly. We also found that this increase doubled when researchers provided teachers with specific techniques for using the data to reshape instruction.

Yet, at the current point in time, few such tools exist. Most guidelines are vague, idealistic and not always feasible for day-to-day use. Thus, the need for a volume such as the current one. Many seemingly abstruse or vague concepts—such as differentiated instruction—come alive in the numerous vignettes.

We see, for example, how to provide specific feedback that is constructive to students with disabilities in the regular mathematics classroom. We see numerous models of how to provide sensible, differentiated instruction for this group of students as well as others who are struggling. We see numerous examples of ways to quickly assess relevant student background knowledge before teaching a new topic and how to use this information for tiered instruction following an RTI (Response to Intervention) model.

The author reminds us of the relevance of some of the older research from the 1960s and 1970s, again by providing examples of how distributed practice makes instruction so much more interesting and powerful than the typical habit of massed practice with no cumulative review. We also see a creative use of the powerful summarization strategy—perhaps the major contribution of this book.

This volume helps demystify concepts that are often vague and amorphous; the author's attention to practical application makes it a great tool to use for teacher study groups, and for mentoring those new to teaching—or new to teaching at a given grade level.

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From Dylan Wiliam

Students do not learn what we teach. We plan our lessons with great care, students seem to be engaged in what we are doing (most of the time), but yet, when we take in their notebooks, what they have learned often seems to bear little or no relation to what we have taught. Anyone who has spent any time in a classroom knows this; no matter how well designed the instruction is, it is impossible to predict with any certainty what students will learn as a result. This is why assessment is the central process in effective instruction. Assessment is the bridge between teaching and learning. It is only by assessing where students are that we can make smart decisions about what to do next.

Many years ago, David Ausubel suggested that the most important factor influencing learning is what the learner already knows, and that teachers should ascertain this, and teach accordingly. Almost half a century later, we are just beginning to realize how difficult it is to put this simple-sounding advice into practice. Sure, we can find out where the learners are at the beginning of a sequence of instruction, but even if all the learners in a class are at the same place when the lesson starts (highly unlikely!), within minutes, students will have reached different understandings.

From this perspective, integrating assessment with instruction sounds impossibly complex. Fortunately, help is at hand. In this very readable book, Leslie Laud shares with us her experiences of working with teachers in real classrooms who have begun the task of trying to make their teaching more responsive to their students' needs.

This book is at the same time well grounded in the latest research evidence, and very practical. It contains a number of templates that can be immediately used in mathematics classrooms, or modified to accommodate differences in teaching style. More unusually, it is not just a list of smart-sounding ideas dreamed up in an office, but incorporates many real-life examples from teachers who are developing their own use of classroom assessment to improve their teaching. The book is also realistic, in that it recognizes how little spare time teachers have for innovation, and provides a number of concrete starting points for teachers, either working alone, or in teams.

In short, Laud's book provides an invaluable road-map for mathematics teachers to understand what students are learning, to use this to systematically inform their instruction to better meet their students' needs, and to involve students more in their own learning. Each of these three elements can make a difference to student learning. Together, they have the power to transform what happens in our classrooms.

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