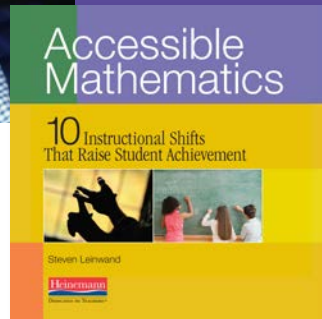




Recording My First Audiobook: The Ultimate Math Read-Aloud



By Steven Leinwand

Recently, Heinemann brought Steven Leinwand in to record his 2009 publication *Accessible Mathematics: Ten Instructional Shifts That Raise Student Achievement* as an audiobook. The world of education has certainly changed since 2009, and this is especially true for mathematics. In the following article, Steve gives us a glimpse into his thought processes as he wrote the book some years ago. We hear what has stood the test of time, and what Steve would change if he were to pen the book now. And we hear his hopes for the future of mathematics education.

Creating an audiobook of my *Accessible Mathematics* was a wonderful opportunity to read the book aloud from cover to cover, to reflect on what has evolved in the math education world since I wrote it in 2009, and to notice how much hasn't changed a bit.

I was proud of the extent to which the elements of better instruction I identified are as valid as they were twelve years ago. I was intrigued by how much discussions of curriculum have changed in the era of the Common Core. And I made note of instructional shifts I now consider essential that were completely missing from the book.

For those who have read *Accessible Mathematics* (or now will listen to my audiobook), here are my author reflections through the lens of a changing educational world.

I wrote most of the first draft of *Accessible Mathematics* in 2008 in Islamabad, Pakistan, where I spent three weeks helping strengthen professional development for high school teachers in the earthquake-ravaged sections of Northern Pakistan. Due to security concerns, we were shuttled to an office each morning, traveling different routes each day, and the rest of the time we sheltered in place at the Islamabad Marriott. I used the absence of any English on TV to allocate four or five hours each day to writing. I remember this time as an ideal opportunity to convert a 10,000-word transcript of a workshop I had been presenting on "Practical Strategies for Making Math More Accessible" into a 35,000-word manuscript. Each night I used the transcript to outline a chapter before dinner, and then I just talked through my fingers on a keyboard to flesh out first drafts of each chapter after dinner.

I look back on those three weeks with awe about how productive I managed to be without all the typical distractions.

It feels ironic that I write this article in the spring of 2020 while hunkered down in our home in North Carolina, overseeing the distance learning of our thirteen-year-old granddaughter during a worldwide pandemic. But once again, I am in awe of the skill and creativity of teachers and their commitment to making the best of the seriously challenging situations that are presented to them.

Last year, as I entered the audiobook recording studio to read *Accessible Mathematics* aloud, I reflected on the biggest change

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since I first wrote this book: the development and broad impact of the Common Core State Standards for Mathematics, first introduced in 2010. As I note on the home page of **my website**:

The fact that, for the first time, the U.S. has what is essentially a national curriculum, equivalent in quality to what is found in the highest scoring countries in the world, means that the focus of leadership can finally shift from arguing about what math to teach, to how best to teach the agreed upon content to all students.

These discussions about *how* to teach math remain difficult, so I continue to emphasize the need to focus on cumulative review,

adapting from reading, representations, number sense, and realistic contexts. I also underscore the discussions of measurement and data, which, despite the emphases of the Common Core on numbers, are still undertaught and are prime opportunities for making essential connections across the curriculum.

There is one chapter in my book (Chapter 9, “Just Don’t Do It!”) that, gratifyingly, we no longer need. This chapter addressed the then jam-packed curriculum that was usually unteachable in any form other than superficial coverage. It argued that too much content was presented prematurely, with inadequate readiness, and that too much time was wasted on multidigit whole number computation with pencil and paper. Now, the Common Core

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State Standards for Mathematics have, at least in grades K–8, addressed many of these concerns and made Chapter 9 pretty much obsolete.

I like to think that *Accessible Mathematics* provided a strong first approximation of research-affirmed guidance for effective mathematics instruction. The second, and much more powerful, approximation is the NCTM Mathematics Teaching Practices, from *Principles to Actions*, 2014, for which I had the honor of heading the writing team. We make mathematics instruction far more effective and accessible when every lesson focuses on these eight practices.

It felt right to build *Accessible Mathematics* around ten instructional shifts, but looking back, I shouldn’t have focused on the number, but the right bites—even if there were eleven. The largest hole I left, and my greatest regret, is not devoting a chapter to formative assessment (“elicit and use evidence of student thinking,” in NCTM’s language). **John Hattie** has argued convincingly that no single instructional intervention carries a greater effect size than deliberate formative assessment to monitor learning in real time. The late **Grant Wiggins** wrote that the problem wasn’t too much testing, but too little of the right kind of assessment—particularly formative assessment. Oh, how I would love to use and expand on **Rick Stiggins’** idea: “Used with skill, assessment can motivate the unmotivated, restore the desire to

NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS Mathematics Teaching Practices

1

Establish mathematics goals to focus learning.

Effective teaching of mathematics establishes clear goals for the mathematics students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.

2

Implement tasks that promote reasoning and problem solving.

Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and that allow for multiple entry points and varied solution strategies.

3

Use and connect mathematical representations.

Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.

4

Facilitate meaningful mathematical discourse.

Effective teaching of mathematics facilitates discourse among students in order to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.

5

Pose purposeful questions.

Effective teaching of mathematics uses purposeful questions to assess and advance student reasoning and sense making about important mathematical ideas and relationships.

6

Build procedural fluency from conceptual understanding.

Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.

7

Support productive struggle in learning mathematics.

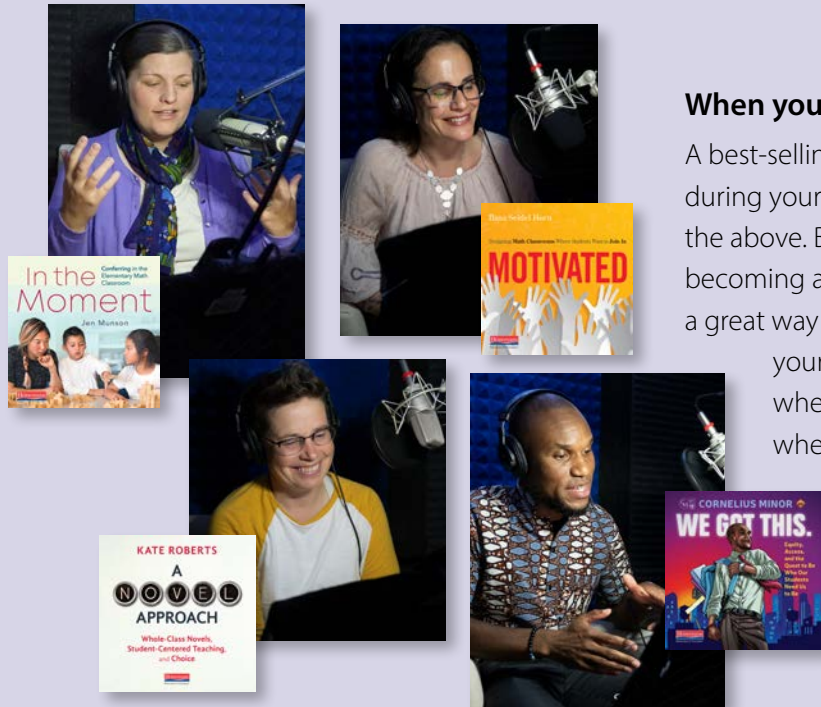
Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.

8

Elicit and use evidence of student thinking.

Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to continually adjust instruction in ways that support and extend learning.

NCTM, *Principles to Actions*, 2014



When you hear “audiobook,” what do you think of?

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Here at Heinemann, we’re making some of our best-selling books into audiobooks, giving you the opportunity to hear your favorite authors reading their own books.

learn, and encourage students to keep learning, and it can actually create—not simply measure—increased achievement.”

I wistfully ponder whether including a chapter on formative assessment would have increased the chances of seeing exit tickets or other quick formative assessment strategies in the classes I get to observe. But then I remember that I still love the chapter on cumulative review (Chapter 2, “Ready, Set, Review”) and the chapter on representations (Chapter 4, “Picture It, Draw It”), and when I’m

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honest with myself, I don’t see a lot of these practices or shifts in most mathematics classrooms today.

I know the time is absolutely still right to emphasize the importance of gaining broad implementation of these strategies. Little consumes my thinking more these days than the dearth of professional development and how teachers of mathematics everywhere yearn for support and guidance on being more effective. We must continue to work to end the professional isolation of most educators and to bring meaningful opportunities for professional growth to schools everywhere.

I continue to encourage math educators and their schools to significantly increase the planning and implementation of collegial classroom visits, with videotaping and collegial analysis of instruction and with an understanding that without effective coaching for all teachers of mathematics, students and teachers are deprived of the most impactful form of professional growth we can provide. It is one thing to write about and list strategies that best serve our students and then have hardworking dedicated professionals read about (and now listen to) an outline of these strategies. It is an entirely different, and far more impactful, experience to try them out in our own classrooms, capture them on video, use the observations and videos to envision and practice these strategies with our colleagues, and, best of all, do this work hand in glove with a supportive coach.

As I wrapped up my audiobook recording session, I hoped this new resource will spark in its listeners the sense of fight I share for continued advancement in math professional learning and instruction. All of these years after my book’s initial publication, that’s what this author dreams about and fights for.



Steve Leinwand is the author of the best-selling Heinemann title *Accessible Mathematics: Ten Instructional Shifts That Raise Student Achievement*, now available as an audiobook. Steve also presents a Heinemann On-Demand Course based on

Accessible Mathematics. He is a Principal Research Analyst at the American Institutes for Research in Washington, D.C., where he supports a range of mathematics education initiatives and research. Steve served as Mathematics Supervisor in the Connecticut Department of Education for twenty-two years and is a former president of the National Council of Supervisors of Mathematics.