

NEWSLETTER

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INVESTING IN CURRICULUM OR TEACHERS?

Why districts need to reconsider how they invest in mathematics improvement.

In today's edition, we explore:

- **What districts spend:** what 0.5% of \$100 million in current expenditures represents
- **What teachers need to know:** one fraction response and the knowledge it calls for
- **Classroom tips:** what mathematics professional learning should develop

Educators!

Districts continue to spend substantial resources purchasing and implementing new mathematics curricula. However, teachers often receive only a few days of training before being expected to use those materials effectively.

What if districts invested as much in developing teachers' mathematical knowledge as they do in selecting and purchasing new curricula?

High-quality curriculum matters. Teachers, however, must understand the mathematics, recognize student reasoning, connect representations, and determine what instruction should come next. These decisions require more than learning how to navigate a curriculum.

What Are Districts Spending on Curriculum and Teacher Learning?

In 2020–21, salaries and employee benefits accounted for 79% of current expenditures in U.S. public schools (NCES). The remaining expenditures covered purchased services, supplies, instructional materials, and other operating costs.

A \$100 Million District Example

In a district with \$100 million in annual current expenditures, 0.5% represents \$500,000. Consider what sustained mathematics professional learning that investment could provide. This is an illustrative example, not a documented district expenditure or a prediction of achievement gains.

A district spending \$1 million annually on professional development could examine whether reallocating \$100,000 or \$200,000 toward sustained mathematics learning would better support teachers.

What Teachers Need to Know

A student adds $\frac{1}{3} + \frac{1}{4}$ and gets $\frac{2}{7}$. The student may be treating numerators and denominators as separate whole numbers. The teacher needs to recognize the reasoning behind the response and help the student understand that one-third and one-fourth represent different-sized units. To combine them, the quantities must be expressed using the same fractional unit.

Classroom Tips

What mathematics professional learning should develop:

- 1. Mathematical knowledge.** Understanding units, quantities, mathematical structure, representations, relationships, and why procedures work.
- 2. Student thinking.** Examining student strategies, errors, and misconceptions to understand how students are reasoning.
- 3. Instructional practice.** This includes planning lessons, examining student work, asking questions, and connecting representations and procedures.

What Does the Research Say?

Hill et al. (2005) found that teachers' mathematical knowledge for teaching was positively related to student mathematics achievement. Research on professional development also identifies the importance of mathematical content, opportunities to examine instruction, and sustained learning (Desimone, 2009; Garet et al., 2001).

Before the Next Curriculum Adoption

Districts need quality curriculum materials and teachers who understand the mathematics they are teaching. However, purchasing new materials without sustained opportunities for teachers to study mathematics and student thinking limits what a curriculum change can accomplish. Before purchasing another mathematics program, districts should examine how much they have invested in developing the mathematical knowledge of the teachers who will use it.

When your district adopts a new curriculum, how much time do teachers spend learning the materials versus studying mathematics and student thinking?

Keep developing mathematical thinkers.

More Information

Read the full research overview and find additional DMTI resources at mathsuccess.io/dmtinsights. The free Math Success Foundations Course at mathsuccess.io introduces seven components of K–8 mathematics instruction.

Share how your district balances curriculum training and teacher learning at contact@dmtinstitute.com.

For more information on professional development and curricular resources, visit mathsuccess.io.



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