

Teaching Mathematics to English Language Learners

Integrating English language acquisition and academic content in the mainstream classroom is a delicate balance, even for experienced teachers. While experimental research on the subject is still limited, several organizations have developed guidelines and strategies for teachers. These organizations include the Center for Applied Linguistics (CAL); the National Clearinghouse for English Language Acquisition (NCELA); the Center for Research on Education, Diversity & Excellence (CREDE); the National Association for Bilingual Education (NABE); and Teachers of English to Speakers of Other Languages (TESOL).

Here is a short list of strategies drawn from these organizations and from David Hill Elementary School teachers Megan Turner-Baxter and Toni Parque from Hillsboro, Oregon.



need to put the new terms into context as soon and as often as possible: “I cover the vocabulary fairly quickly and get immediately into the lesson. It’s important to make the vocabulary contextualized and to give them a lot of opportunities to use the new words.”

4 USE DIRECT INSTRUCTION

“I frequently use a direct instruction method in that I demonstrate,” says Parque. “I always demonstrate the new skill first—then, I have them do it with me. The way it looks is: I leave the sample problem on the board and then ask them to do the next problem on their own. Then they hold up their answer: If it’s correct, they can go on and work independently. If it isn’t correct, I take those students aside and do a second example and repeat the whole process. So, it’s—I do it; we do it; they do it.” Turner-Baxter also moves from what she calls “guided practice”

to individual practice. The difference with ELL students, she says, is that “the guided practice is really long: maybe double the length of a regular class. And we take our time, too. If they can’t perform the task in independent practice, then the next day we do it again. There are times when I’ve done a lesson five times—a whole week, one concept—because they have to get it or it’s pointless to move on.”

1 MAKE IT VISUAL

“You should have all sorts of visuals in the room. An overhead projector is essential, if at all possible, and I also use a lot of posters,” says Megan Turner-Baxter. Research also recommends providing students with frequent opportunities to draw and to use graphs, charts, and flash cards.

2 MAKE THE INSTRUCTION HANDS-ON

Using manipulatives, such as numbered blocks and cones, helps cross the language barrier. “You need to have hands-on items at all times,” says Turner-Baxter. “The more hands-on it is, the more creative and individualized the lesson can be.”

3 INTRODUCE NEW VOCABULARY AT THE BEGINNING OF A LESSON

“The introduction to every new lesson is a vocabulary piece,” says Parque. Turner-Baxter emphasizes the

5 USE GROUP-BASED WORK

“I make it incredibly group-based,” says Turner-Baxter. “In the intermediate grades, especially, kids teach other kids. They don’t like to learn from a teacher; it’s not as interesting. And you also need to differentiate—you’ve got to put the kids who do get it in with the kids who aren’t getting it, and group them based on that. It really works for ELL kids because not only do they get the repetition and several students working on the concept and explaining it to them, but they also get the language component.” Other evidence suggests using group-based strategies, such as “Think-Pair-Share,” in which students think about a concept, share their thinking with a partner, then share their ideas with the entire class.

6 SIMPLIFY INSTRUCTIONS

“You don’t want the directions to be what they get stuck

Teaching Mathematics to English Language Learners continued...



on,” says Turner-Baxter. “If they get stuck, you want it to be on the concept, not the directions. I learned right away that you have to simplify the language you use to introduce a new concept.” Similar research-based practices in-

clude modifying your speech by speaking slowly and enunciating clearly; using a variety of words for the same idea; and writing clearly, legibly, and in print rather than cursive.

7 MAKE IT PERSONAL

A favorite strategy of Turner-Baxter’s is to incorporate details from her students’ lives—including their names and the names of family members—into the lesson problems. “I often redo the worksheets because they’re just not realistic for my students,” she says. “Students who are learning English need very concrete examples of what they’re dealing with. You have to really think about their context and how to introduce a concept in a way that will make sense to them.” Research has shown that embedding a problem in a familiar context improves a student’s ability to understand the structure of the problem and to discuss possible solutions.

8 WHENEVER POSSIBLE, SUPPLEMENT A LESSON WITH BILINGUAL MATERIALS

“All of our grade-level resources come with Spanish-language worksheets,” says Turner-Baxter. “And they’re already translated, so even a teacher with limited Spanish skills can use them.” Math, she says, is particularly easy to translate. “A lot of the technical language in math is actually the same or very similar in both languages, so I try to give them both. I teach them the Eng-

lish term, but then I say ‘In Spanish it’s this ...’” Although David Hill Elementary does not use a bilingual model, teachers try to support the retention of the students’ native language, while still building their English skills. “I try not to rely too much on the Spanish language materials,” says Turner-Baxter. “They can take the test in Spanish, but that’s not necessarily going to help them as they move on to middle school and high school.”

RESOURCES FOR MAINSTREAM TEACHERS OF ELL STUDENTS:

Center for Applied Linguistics: www.cal.org

Center for Research on Education, Diversity & Excellence: www.crede.org

National Association for Bilingual Education: www.nabe.org

National Clearinghouse for English Language Acquisition: www.ncela.gwu.edu

Teachers of English to Speakers of Other Languages: www.tesol.org

Also, see NWREL’s By Request, *Strategies and Resources for Mainstream Teachers of English Language Learners*, at www.nwrel.org/request/2003may/

