Leading students to 'I can'

With minimal training, teachers can implement instructional strategies that increase student self-efficacy

By Carla Thomas McClure

Thirty years of research has revealed a positive relationship between self-efficacy and academic performance. A new study published in the *Journal of Advanced Academics* demonstrates that teachers can significantly increase student self-efficacy after receiving two hours of targeted professional development.

How important is self-efficacy to student achievement?

Studies conducted across a variety of subject areas have shown that students with strong "I can" beliefs are more likely than students with low self-efficacy to tackle new tasks, work hard, persist, and attain academic goals.

How do students decide that they "can" or "can't" succeed at a task?

Previous research has shown that individual judgments about one's own abilities are based on four types of information: (1) past performance, (2) vicarious experiences of observing the performances of others, (3) verbal persuasion of one's own capabilities, and (4) physiological cues (e.g. a relaxed feeling vs. sweaty palms). Of these, successful past performance is the strongest predictor of success.

What can teachers do to increase students' self-efficacy?

Teachers can increase students' self-efficacy by using feedback and instructional strategies to increase students' awareness of their own abilities, skills, efforts, growth, and accomplishments. (See box above.)

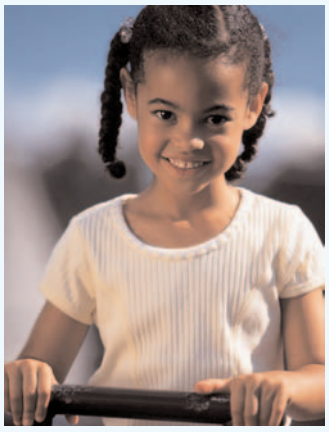
What was the purpose of the recent study?

Researchers Del Siegle and D. Betsy McCoach wanted to know "whether teachers who received staff development on classroom self-efficacy strategies would effect changes in students' mathematics self-efficacy."

How was the study done?

Using a cluster-randomized pretest/posttest design, researchers assigned 15 volunteer schools in six states to either the treatment or control condition. In the control group were 442 students

Daily strategies for increasing student self-efficacy



- Review lesson accomplishments from the previous day; post objectives, refer to objectives during instruction, and review objectives at the end of lesson.
- Have students record something they learned or something they did well.
- Prompt students to attribute success to effort.
- Draw students' attention to their own growth, and compliment them on their specific skills.
- Have students model a problem-solving technique or some other aspect of the lesson so that other students see peers mastering the material.

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in 19 5th-grade classrooms in eight schools. The teachers in this group received no training in self-efficacy strategies. In the treatment group were 430 students in 21 5th-grade classrooms in seven schools. The teachers in this group received two hours of training in self-efficacy strategies. The training focused on goal setting, teacher feedback, and modeling (having students observe classmates as they successfully performed learning tasks). Teachers in both groups taught the same four-week unit on measurement and used the same materials, with one difference: The teachers who were provided self-efficacy training received suggestions for integrating the strategies into the first two weeks of lessons and a reminder to continue using the strategies during the last two weeks.

Before the study began, teachers were asked to rate their students' math ability. Before and after completion of the instructional unit, students took the Student Mathematics Survey, which asked students to judge their self-efficacy, as related to measurement, on a seven-point scale ranging from not good to super good. Students also took a pre- and post Math Achievement Test in measurement.

How did teacher professional development affect student self-efficacy?

At the end of the study, the average math self-efficacy was higher in the treatment group than in the control group. This held true across students of varying ability levels and students of both genders. Although results of the math achievement tests showed no difference between the math achievement of students in the treatment vs. control groups, "students whose teachers were trained in self-efficacy showed a stronger relationship between posttest self-efficacy and posttest achievement than students of teachers who were not trained." This finding supports the large body of research connecting self-efficacy and achievement.

What is the educational importance of this study?

The study demonstrates that teachers can modify instructional strategies in ways that increase students' self-efficacy — and that "these increases can be achieved during a short period of time with minor changes in instructional style."

Any cautions?

Yes. In this study, 92% of the students were Caucasian. These students "benefited from feedback complimenting their skills," say the researchers, but "students from other cultural backgrounds may not." They suggest that the study be "replicated with a more culturally diverse population." They also suggest replicating the study over a longer time period to see if the approach leads to eventual increases in academic achievement.

Reference

Siegle, D. & McCouch, D.B. (2007). Increasing student mathematics self-efficacy through teacher training. *Journal of Advanced Academics, 18*(2), 278-312. ◆