



Fidelity of implementation proves key to achieving student results

WHAT THE STUDY SAYS

A three-year, randomized controlled trial study demonstrates that, when implemented with high levels of fidelity, the Responsive Classroom approach results in achievement gains in reading and math for 5th graders in schools participating in the intervention for three years. For students with initial low math achievement, the effect is greater than for students with initial high achievement. The study emphasizes the importance of fidelity of implementation.

Study description

The study examined the relationship between the specific teaching practices associated with Responsive Classroom, a professional development program, and 2nd- through 5th-grade students' achievement in reading and math. Teachers developed the "capacity to create a caring, well-managed classroom environment characterized by respectful social interactions and academically engaging instruction" (p. 569). This study builds on previous research on the

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At a glance

In a randomized controlled field trial, Responsive Classroom, a professional development intervention that strengthens teaching strategies to support students' social, academic, and self-regulatory skills, resulted in positive effects on 2nd- through 5th-grade student achievement in math and reading when implementation fidelity was high.

THE STUDY

Rimm-Kaufman, S., Larsen, R., Baroody, A., Curby, T., Ko, M., Thomas, J., Merritt, E., Abry, T., & DeCoster, J. (2014, June). Efficacy of the Responsive Classroom approach: Results from a 3-year, longitudinal randomized controlled trial. *American Educational Research Journal*, 51(3), 567-603.

Responsive Classroom approach and is the first randomized controlled trial that examines the approach. The study examined the effects over three years of Responsive Classroom practices in elementary schools randomly assigned to either the treatment or control group.

Questions

Researchers examined three questions:

1. What is the impact of the Responsive Classroom approach on students' reading and math achievement over three years?
2. To what extent does fidelity of implementation mediate the relation between treatment assignment (intervention vs. control) and reading and math achievement over three years?
3. To what extent is the mediational relation affected by whether

students are qualified for free and reduced-priced lunch and students' initial achievement?

Methodology

The randomized controlled trial study of the Responsive Classroom approach included 24 elementary schools in a single school district in a large, mid-Atlantic state. The district's students are ethnically and socioeconomically diverse. The district required all its elementary schools to select and implement an approach to foster social, emotional, and behavioral learning for students.

The research team worked with district administrators and principals to invite school participation. All 24 invited schools agreed to participate in the study and had not previously selected a program or begun formal training in a program to comply with

WHAT THIS MEANS FOR PRACTITIONERS

Fidelity of implementation is a continuing challenge in professional learning. This study demonstrates that sustained focus and support over three or more years is necessary to achieve effects for teachers and students.

When educators learn new practices, especially those grounded in research, it is their accurate and frequent use of the practices rather than their knowledge about the practices that influence results for students. In this study, professional learning to prepare and support teachers to use Responsive Classroom practices included multiple designs, such as summer workshops, coaching, access to ongoing support, and print and electronic resources. Deep change requires intensive professional learning and implementation support over a multiyear period.

In addition to professional learning and implementation support for teachers, school administrators engaged in

workshops, coaching, and fall and spring planning meetings to focus their attention on schoolwide efforts to implement the new practices.

Researchers note that in other Responsive Classroom studies, teachers' perceptions of their principals' engagement and buy-in positively influenced teachers' use of Responsive Classroom practices, especially if the principals made structural changes to influence teachers' use. Teachers' use was negatively affected if they perceived principals bought in to gain prestige or recognition or if principals adopted practices that conflicted with Responsive Classroom practices or principles.

In the design of this intervention, researchers address five of Learning Forward's Standards for Professional Learning (Learning Forward, 2011). They strongly address Leadership, Resources, Data, Learning Designs, and Implementation. They fail, however, to explain how they addressed Learning Communities or Outcomes, especially

in relationship to the degree to which Responsive Classroom practices aligned with teacher or administrator performance expectations. The inattention to the Learning Communities standard, especially given the principle-focused nature of Responsive Classroom, may have been a significant oversight.

Overall, implementation of a new set of practices requires deliberate, persistent, and thoughtful attention to the fidelity of implementation, the culture in which the practices are implemented, the characteristics of the implementers, and the support provided by administrators and the organization. No set of new practices is likely to succeed without substantive attention to developing capacity in implementers and their supervisors, the conditions in which the implementation will occur, and consistent support for implementation fidelity.

Reference

Learning Forward. (2011). *Standards for Professional Learning*. Oxford, OH: Author.

the new district policy. Schools were subsequently assigned to either the intervention or delayed intervention group. The delayed intervention group served as the control group.

Researchers examined the comparability of the two groups of schools for gender, free and reduced-priced lunch, ethnic composition, and English language learner status. After the initial tests, researchers discovered that two schools within the control group had received some initial exposure to the Responsive Classroom approach. One of the two schools was selected through random assignment to be included in the intervention group, while the other remained in the nontreatment group. There were 13 schools in the intervention group and 11 in the nonintervention group. After re-examining the comparability of

the two groups of schools, researchers found no statistical difference in ethnicity, achievement, free and reduced-priced lunch, gender, or ELL status prior to the treatment.

The 276 teacher participants taught 3rd, 4th, and 5th grades in the 2008-09, 2009-10, and 2010-11 school years. Teachers were mostly Caucasian with an average of 10 years of experience (range 1-38). Students were ethnically diverse, with slightly more than a third Caucasian; 11% African-American; 19% Asian; 24% Hispanic; and 5% other. Both the treatment schools and control schools experienced sizable, yet comparable, student attrition between 2008 and 2011.

The 3rd-, 4th-, and 5th-grade teachers engaged in professional development in the Responsive Classroom approach in two weeklong

sessions during consecutive summers. Teachers also participated in three days of school-based coaching and additional workshops during each school year following the sessions. Teachers also received printed materials, on-demand support from their coaches via email or in person, and access to additional electronic resources on the Responsive Classroom website.

School administrators in the treatment schools participated in the two summer sessions, three administrator coaching sessions per year, and twice-yearly planning support from Responsive Classroom consultants. Treatment schools received resource materials for the school library.

Teachers in the control group received no professional learning and operated as usual. Within the control group, four principals reported taking

actions to address social and emotional learning and classroom management. However, none implemented Responsive Classroom practices. The remaining seven schools implemented no schoolwide program for social and emotional learning.

Researchers used five classroom observations per teacher per year, teacher questionnaires, principal interviews, and principal questionnaires to collect data to assess implementation of Responsive Classroom practices within the intervention schools. Observations occurred on a planned schedule to ensure balance in reading and math instruction and morning and afternoon times.

Students in 5th grade took the state's standardized test or the alternative if they were not English proficient. Baseline math proficiency was measured using an abbreviated version of the Stanford 10.

Analysis

Researchers applied structure equation modeling analyses to examine the relationship among multiple sets of variables: the main effect of treatment on outcomes; the mediate effect of treatment on outcomes through fidelity; the effects of treatment through fidelity based on free and reduced-priced lunch and initial achievement. Interclass correlation values for 5th graders indicated that 4% of math and 14% of reading variance could be attributed to school-level rather than child-level variance.

Fidelity of implementation was computed based on school level rather than classroom level for the duration of the three years to take into consideration that student enrollment in a class varies over the three years of the study and because some students moved among classrooms within a single day for different subjects.

Student attrition in both treatment and control groups was about 30% over the three years and, after further analysis,

researchers determined that missing data were random. Ceiling effects were noted in student performance, with 23.7% and 5.9% of 5th-grade students scoring at the maximum. Variables that suggested ceiling effects were treated as censored variables.

Results

Researchers conclude that the correlation between treatment assignment and fidelity of implementation was very high and statistically significant, as was the 5th-grade reading and math. Intervention and control group schools differed significantly in fidelity of implementation.

For each of the research questions, researchers concluded that:

1. Treatment was not significantly correlated to 5th-grade reading or math. While there are multiple possible explanations for the lack of effects, one that is notable is that implementing new classroom practices may interrupt instruction or that, as critics of the Responsive Classroom approach have noted, that Responsive Classroom practices detract from instructional time. Many other variables not mediated may also influence results, such as the schools' history with change, teacher efficacy, or burnout; competing commitments; leadership skills, or organizational culture.
2. Fidelity of implementation was positively related to 5th-grade math and reading achievement. Treatment related positively to fidelity. The indirect effects of treatment through fidelity on 5th-grade math and reading were positive and significant. Assignment to the Responsive Classroom treatment caused increased fidelity and that, in turn, is associated with increases in math and reading achievement. For students, being in a treatment school with higher levels of fidelity related to gains in

3. Mediated effects show greater impact for student with initially low achievement in math than for students who had higher initial achievement in math.

While the overall treatment effects are not statistically significant, it is important to note that the effects change when the variance is examined in light of fidelity of implementation. Other notable results indicate that teachers' level of experience is negatively related to fidelity of implementation, while free and reduced-priced lunch is positive related to fidelity of implementation.

Study results demonstrate the important role of fidelity to implementation on student achievement in reading and math.

Limitations

Researchers note several limitations. Among them is the choice of the measure of student achievement in reading and mathematics, particularly one that has been cited for its persistent ceiling effects. Another is the timing of observations. The first series of observations occurred after teachers received only the first summer institute and not all the coaching provided throughout the program. This might have influenced levels of implementation and benefits to students as well.

The study design, including the number of schools in the study, selecting a district with a new policy mandating implementation of a social and emotional learning program, and the location of all treatment schools within a single district, might also have impacted the study's results. In addition, data were collected during teachers' first and second year of implementation because of constraints imposed by the period of grant funding. Researchers acknowledge that change is a three- to five-year process. ■