

TEACHER **as** RESEARCHER

BRIEF: Empowering Teachers as Researchers in South Carolina

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Marzano Research’s *Teacher as Researcher* provides tools, coaching, and research design workshops that help teachers select evidence-based instructional strategies, design authentic experiments to implement the strategies, collect data, analyze these data, and ultimately reflect and act on the results of their experiments, all within a structured, easy to implement Instructional Improvement Cycle. Ultimately, teacher reflection within the workshops leads to ongoing improvement in classroom practices.

This brief highlights key findings from an evaluation of *Teacher as Researcher* implemented in South Carolina. These key findings show that *Teacher as Researcher* contributes to teachers’ access to evidence-based practices, capacity to use data and evidence-based strategies to improve instruction, and efficacy. Refer to Box 1 for an overview of the evaluation design.

1. Grounding in Evidence

The research is clear: teachers have the strongest effect on student achievement compared to other school factors (Sanders et al., 1998; Opper, 2019). How can teachers ensure that their effect is positive?

Beginning with the work of Kurt Lewin in the 1940s, teachers have borrowed methods from social science research to identify and solve practical education problems (Masters, 1995). This type of teacher research in classrooms has a long tradition and is often called “action research” (Manfra, 2019). It has promise.

However, action research fails when teachers use haphazard methods and do not ground their instruction in evidence-based strategies (Newton et al., 2016). In addition, despite the annual and interim testing typical in schools over the last two decades, many articles documented the importance of building teacher capacity by using formative data to improve classroom instruction (Means et al., 2011; Schildkamp et al., 2020).

BOX 1. Evaluation Design

The evaluation is a pretest-posttest design focused on teacher outcomes, and the program is based on a well-defined logic model and rigorous research. In the spring of 2022, 17 teachers from 10 schools in 4 districts participated in the workshops and piloted the evaluation pre/post survey. These data were not used in the evaluation.

In the next two school years, participants in the evaluation included:

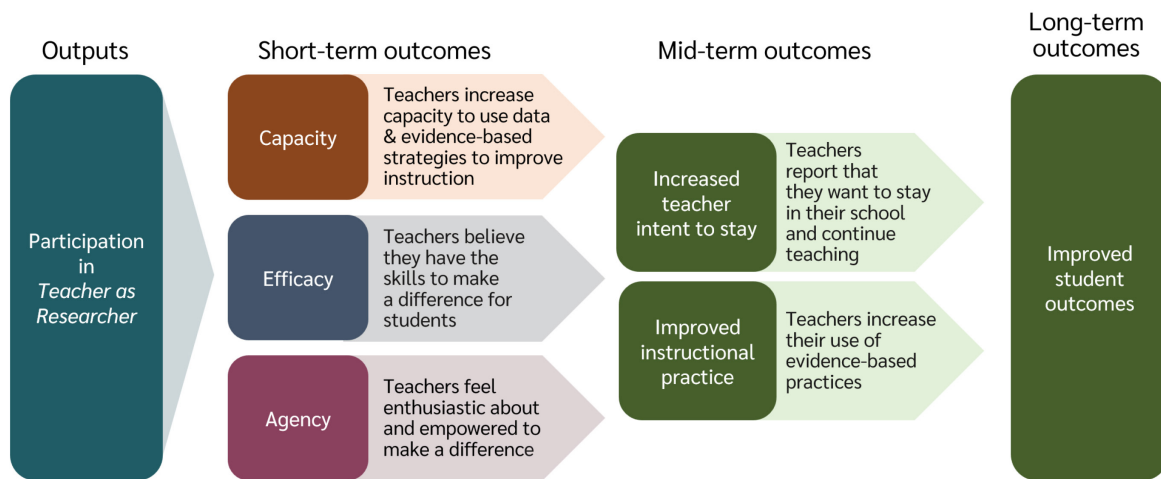
- **2022–23 Cohort 1**
(172 teachers in 32 schools in 18 districts)
- **2023–24 Cohort 2**
(19 teachers in 17 schools in 12 districts)

A team at Marzano Research conducted the research. Data sources included the *Pre/Post Capacity, Efficacy, and Agency Survey, Exit Surveys*, and documents related to teachers' instructional improvement work.

Marzano Research’s *Teacher as Researcher*¹ uses tried-and-true experimental research methods that rapidly provide accurate information about instruction (Marzano et al., 2020; Cherasaro et al., 2015). With its focus on evidence-based instruction, immediate feedback about students, and teacher reflection, *Teacher as Researcher* has the hallmarks of professional learning with “staying power”—the ability to be implemented and sustained by teachers and the power to make a difference for students in the long term (Guskey, 2021).

Ultimately, South Carolina leaders expect that *if* Marzano Research offers evidence-based strategies, provides tools and coaching, and delivers research design workshops to educators, *then* participation in *Teacher as Researcher* will be associated with increases in teachers’ capacity, efficacy, and agency, *which will lead to* teachers’ changes in practice and intentions to stay in the teaching profession, and *which will ultimately help* increase student achievement (Figure 1).

Figure 1. Intended Outcomes of *Teacher as Researcher* in South Carolina



Source: Created by the Marzano Research evaluation team.

2. Access to Evidence-Based Strategies

Teacher as Researcher developers at Marzano Research identified evidence-based mathematics, English language arts (ELA), and cross-content strategies from the existing Institute for Education Sciences What Works Clearinghouse (WWC) Practice Guides. Figure 2 shows an example of a recommendation summary.

- 65 evidence-based **mathematics strategies** aligned to South Carolina standards
- 89 evidence-based **ELA strategies** aligned to South Carolina standards
- 22 evidence-based **cross-content instructional strategies** aligned to South Carolina standards

¹ Marzano Research’s *Teacher as Researcher* is a trademarked professional learning program for teachers; however, other publications have used the phrase “teacher as researcher” in a general sense.

Currently, the team is working on developing evidence-based behavioral strategies.

Marzano Research experts created a summary for each recommendation that:

- describes the recommendation,
- includes the reported levels of evidence, i.e., the amount and quality of the research evidence that supports the recommendation,
- highlights examples of the instructional strategies related to that recommendation, and
- shows how each strategy is aligned with South Carolina Learning Standards and Teaching Standards.

Figure 2. Recommendation Summary Example

ELA Recommendations and Strategies Aligned with South Carolina Standards	
Teaching Elementary School Students to Be Effective Writers Grades K–6 th	2
Teach students the writing process.....	3
Strategy 1: Teach students strategies for the various components of the writing process....	3
Strategy 2: Gradually release writing responsibility from the teacher to the student.	5
Strategy 3: Guide students to select and use appropriate writing strategies.....	5
Strategy 4: Encourage students to be flexible in their use of the components of the writing process.	6
Teach students to write for a variety of purposes.	8
Strategy 1: Help students understand the different purposes of writing.....	8
Strategy 2: Expand students’ concept of audience.....	9
Strategy 3: Teach students to emulate the features of good writing.	9
Strategy 4: Teach students techniques for writing effectively for different purposes.	11
Teach students to become fluent in handwriting, spelling, sentence construction, typing, and word processing.....	15

Source: *Teacher as Researcher* developers’ consolidation of IES’ practice guide: *Teaching Elementary School Students to Be Effective Writers*.

Most importantly, for each strategy, Marzano Research developers have included examples of how to carry out the strategy effectively (Box 2). Teachers select from among these strategies based on their classroom needs. The teachers then conduct Instructional Improvement Cycles that test the strategy with some of their students, gather data about student outcomes, and calculate the effect of the strategy as implemented by the teacher using rigorous scientific methods. Teachers reflect on this process and determine the next steps for improving instruction.

Box 2. Implementation of Strategy 1 in Recommendation 2b (Teach students to write for different purposes)

Strategy 1

Help students understand the different purposes of writing.

South Carolina standards alignment

LITERACY: K-2.W.MCC.1, K-2.W.MCC.2, K-2.W.MCC.3, K-2.W.RC.6, 3-5.W.MCC.1, 3-5.W.MCC.2, 3-5.W.MCC.3, 3-5.W.RC.63

TEACHER: INST.TCK.1, INST.TCK.2, INST.TCK.3, PLAN.SW.2

Instructional strategies from the examples:

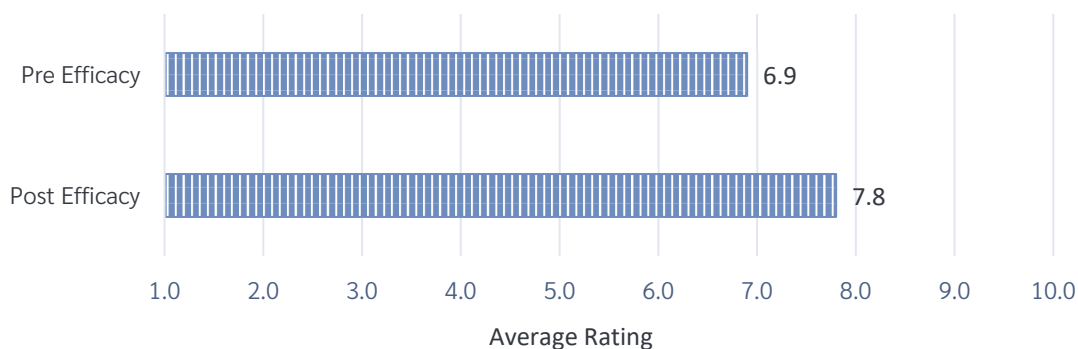
- Emphasize the purpose of writing and features of each type of writing.
- Relate each genre to real-life examples.

3. Increases in Teacher Efficacy

The evaluation shows that teachers participating in *Teacher as Researcher* increased their sense of “efficacy,” i.e., confidence in their instructional abilities. Other research has shown that teacher efficacy is highly correlated with positive results for students (Cantrell et al., 2013; Kim et al., 2018; Tschannen-Moran et al., 2004).

On the *Pre/Post Capacity, Efficacy, and Agency Survey*, teachers’ responses indicated a statistically significant increase in their efficacy. The *Teachers’ Sense of Efficacy Survey* created by Tschannen-Moran and Woolfolk Hoy has shown typical scores of 6.7 to 7.5 on a 10-point scale (Page et al., 2014). The evaluation of *Teacher as Researcher* in South Carolina found that pre-survey efficacy levels were relatively low (6.9) but rose to 7.8 on the post-survey (Figure 3). While there may be other contributing factors, this change in efficacy was statistically significant, which means that it was unlikely to have occurred by chance.

Figure 3. Change in Teacher Efficacy



Note. Effect size of $g = 0.88$. 104 teachers had both pre and post scores and are included in this analysis.
Source: Author analysis of *Pre/Post Capacity, Efficacy, and Agency Survey* data.

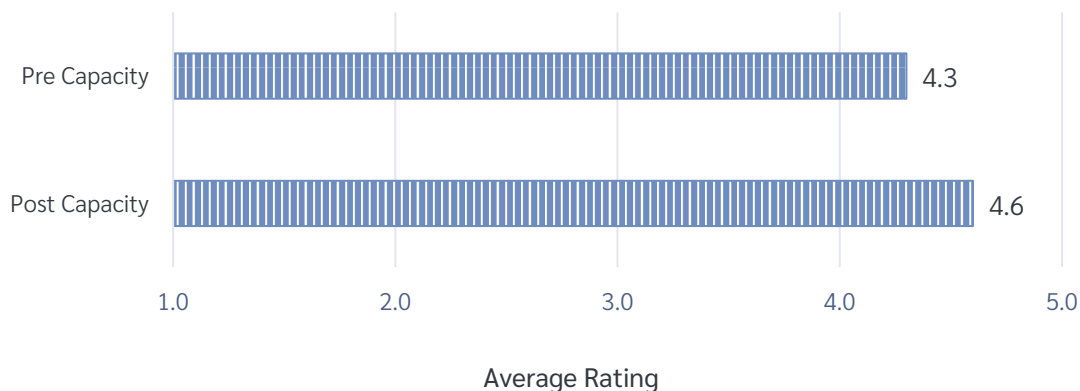
4. Increases in Teacher Capacity to Use Data and Evidence-Based Strategies to Improve Instruction

The evaluation shows that during *Teacher as Researcher*, participating teachers increased their capacity to use data and evidence-based instructional strategies to improve their teaching. Other research has shown that effective teacher data use is associated with increases in student achievement (Lee et al., 2020; Klute et al., 2017).

The evaluation team developed questions using the stated objectives of the *Teacher as Researcher* research design workshops. These questions measure four themes—reflective practice, knowledge about testing and evaluating instructional strategies, knowledge about selecting appropriate instructional strategies, and collaborative classroom practices. Participants rated their responses from “I don’t understand this” to “I understand this, and I use it often in my teaching.”

On the *Pre/Post Capacity, Efficacy, and Agency Survey*, teachers’ responses indicated a statistically significant increase in capacity to use data and evidence-based strategies (Figure 4).

Figure 4. Change in Capacity to Use Data and Evidence-Based Strategies



Note. Effect size of $d = 0.71$. 104 teachers had both pre and post scores and are included in this analysis. Source: Author analysis of *Pre/Post Capacity, Efficacy, and Agency Survey* data.

5. Endorsement from South Carolina Teachers

Teacher experiences in and satisfaction with professional development have long been associated with changes in beliefs, which lead to changes in practices (e.g., Guskey, 2002). The research design workshops in *Teacher as Researcher* aim to provide teachers with positive experiences that lead to positive changes in practices, and Marzano Research coaches pride themselves on delivering workshops that are high-quality and appreciated by educators.

More than 85% of participants agreed or strongly agreed with positive statements related to the research design workshops.

In their comments about what was useful about *Teacher as Researcher* in the first four sessions, teachers most frequently said they increased their knowledge of evidence-based strategies and data use in classrooms:

“Today I was able to dive deeper into what an instructional strategy is and how the things I have been doing already are actually strategies that I can refine and do with more purpose and intent.”

“Tonight’s session helped me think more critically about my pre- and post-assessments and how to streamline them to focus solely on the learning objective.”

After completing Instructional Improvement Cycles in sessions 5 and 6, teachers most frequently commented that they appreciated reflecting on their work with their colleagues:

“This [session] really made me think a little more about my practice. One is never too experienced to not refine his/her craft.”

“It was really helpful to listen to other teachers’ experience with the study. It gave me some idea into how to better assess outcomes.”

“I was able to interpret my results and reflect on what led to them, and was able to begin thinking about future applications of an instructional strategy.”

“It was helpful having an opportunity to discuss the implemented strategy and figure out ways of improving it for the next cycle.”

6. Find Out How to Participate in *Teacher as Researcher*

No matter what your role is in education—teacher, principal, central office, superintendent, university educator, or state leader—you can connect with *Teacher as Researcher*. Find out more about *Teacher as Researcher* on the [Marzano Research website](#), sign up for our [newsletter](#), or contact Marzano Research Director Trudy Cherasaro at Trudy.Cherasaro@marzanoresearch.com or 720.463.3600 x 114.

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