

Case Study by Sarah Watt Ph.D. - Miami University

While we have not had a research project on the Green level, Sarah Watt Ph.D. of the Miami University did a case study “to recommend a pathway by which teachers can determine if the programs and practices they use are effective and how to disseminate those findings among their colleagues.”

For this case study she chose the Perceptions Blue level. Here is a brief synopsis of her findings and results.

In her case study teachers were able to identify one subgroup of six students that were having difficulty in the area of multiplication, division, and fractions. To provide one-on-one instruction the teacher’s reached out to students in the education program at the local University. Given the use of the video-based instruction that anchors the program, the teachers were able to learn how to use Perceptions Math and train the tutors in just four, two hour sessions. To determine if the tutors were able to implement the program with high fidelity they observed them each teach one of the lessons.

Prior to the first supplemental session with the students, the tutors each administered the student assigned to them, a math curriculum-based measure (CBM), three different times on separate days. In addition to monitoring student growth specific to the instruction, the teachers also evaluated progress on how this specific instruction generalized to their knowledge of basic algebra skills. Perceptions Math focuses on teaching three building blocks of algebraic thinking-multiplication, division, and knowledge of fractions. In addition, the curriculum teaches algebraic reasoning through inverse operations, emphasis on the properties of math, and strong focus on the underpinnings of the relationship between numbers. To measure the impact the intervention had on algebraic understanding, the teachers administered an Algebra Basic Skills CBM (ABS; Foegen & Lind, 2009) during baseline collection and following the intervention.

This triangulation of data collection helps teachers to make more informed decisions and increases the validity of the results. Once the eight weeks of tutoring was completed, the team of teachers came together again to visually inspect the progress monitoring graphs of the group of students (see Figures 4-10). The school psychologist also pulled their most recent STAR scores to provide additional data to support the decision making process. Student’s names have been changed for confidentiality purposes.

- Emily's STAR scores also increased from a standard score of 584 to 668 (670 is considered proficient). In addition, to large increases in division and multiplication, Emily showed significant improvement on her Algebra Basic Skills assessment, increasing from 33% correct to 47% correct.
- Brooke's STAR scores have increased from a standard score of 698 to 725. She also increased on the Algebra Basic Skills assessments from 10% to 17% correct.
- Dani's STAR scores also increased from a standard score of 810 to 842. Her Algebra Basic Skills assessments increased from 6%-27% correct.
- Jeff's standard score on the STAR grew from 640 to 706 and Jeff also showed significant increases on the ABS assessment. Jeff increased from 10% - 23% correct.
- Chelsie's standard score on the STAR went from 731-779 also Chelsie also showed significant increases on the ABS assessment from 17% - 33%.
- Erika's standard score on the STAR improved from 684 to 783, her ABS score remained the same pre/posttest.

Final results were that all students were improving at or above the same rate as their peers.