

RESEARCH CASE STUDY

Cherokee County School District,
Georgia and *Do The Math*

Cherokee County School District, Georgia



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Cherokee County School District, Georgia

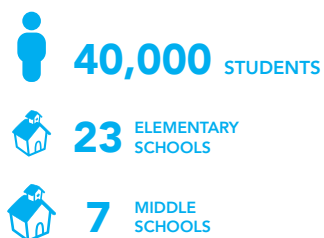
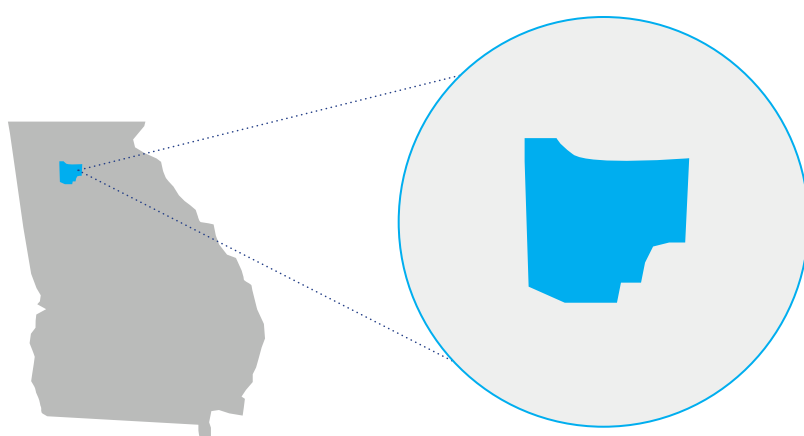
QUICK FACTS

Evaluation Period: 2016–2017

Grades Included in Evaluation: 1–8

Assessments: *ProgressSpace™*

Participants: 242 *Do The Math®* students, 265 *Do The Math Now!* students



THE CHALLENGE

With over 40,000 students, Cherokee County School District (CCSD) is the ninth largest school district in Georgia. Students with disabilities account for 11.6% of the student population. Many of the students enrolled in Special Education were two or more grades behind in mathematics. While their teachers were well trained in Special Education, many teachers did not feel comfortable teaching mathematics. CCSD wanted a program that could support Special Education teachers and students at their 23 elementary schools and seven middle schools, bringing students up to grade-level mathematics work. The district spent a long time looking for a program that would be appropriate for Special Education teachers. For teachers that tended to lack experience in teaching mathematics, CCSD wanted a program that would provide them with the skills, scripting, and guidance to teach mathematics.

THE SOLUTION

CCSD chose *Do The Math* and *Do The Math Now!* for their Special Education students and teachers. The district chose these programs because *Do The Math* and *Do The Math Now!*'s teaching materials provided a thorough explanation of the mathematics teaching process, a critical component that the district felt was missing in other programs. *Do The Math* and *Do The Math Now!* helped students develop the skills they need to compute with accuracy and efficiency, the number sense they need to reason, and the ability to apply their skills and reasoning to solve problems. *Do The Math* was used in elementary schools by 242 students and *Do The Math Now!* was used in middle schools by 265 students.

Do The Math is made up of 13 modules, covering addition and subtraction, multiplication, division, and fractions. Each module consists of 30 lessons and takes six weeks to complete. *Do The Math Now!* is designed as a yearlong course with two parts: Multiplication & Division and Fraction Fundamentals. Each part, designed to be completed over a semester, is organized into five units and each unit has 15 lessons. Both programs are designed to be taught five days a week. Lessons take 30 minutes each and there is a student assessment after every fifth lesson, to allow teachers to actively track students' progress.

CCSD Special Education teachers had a 45- to 60-minute block to teach mathematics. They used this time to teach both the intervention program and a grade-level mathematics lesson. This was the only mathematics instruction during the school day for most Special Education students. Special Education teachers used a variety of *Do The Math* and *Do The Math Now!* modules and units with small groups of students, typically four to six students per class.

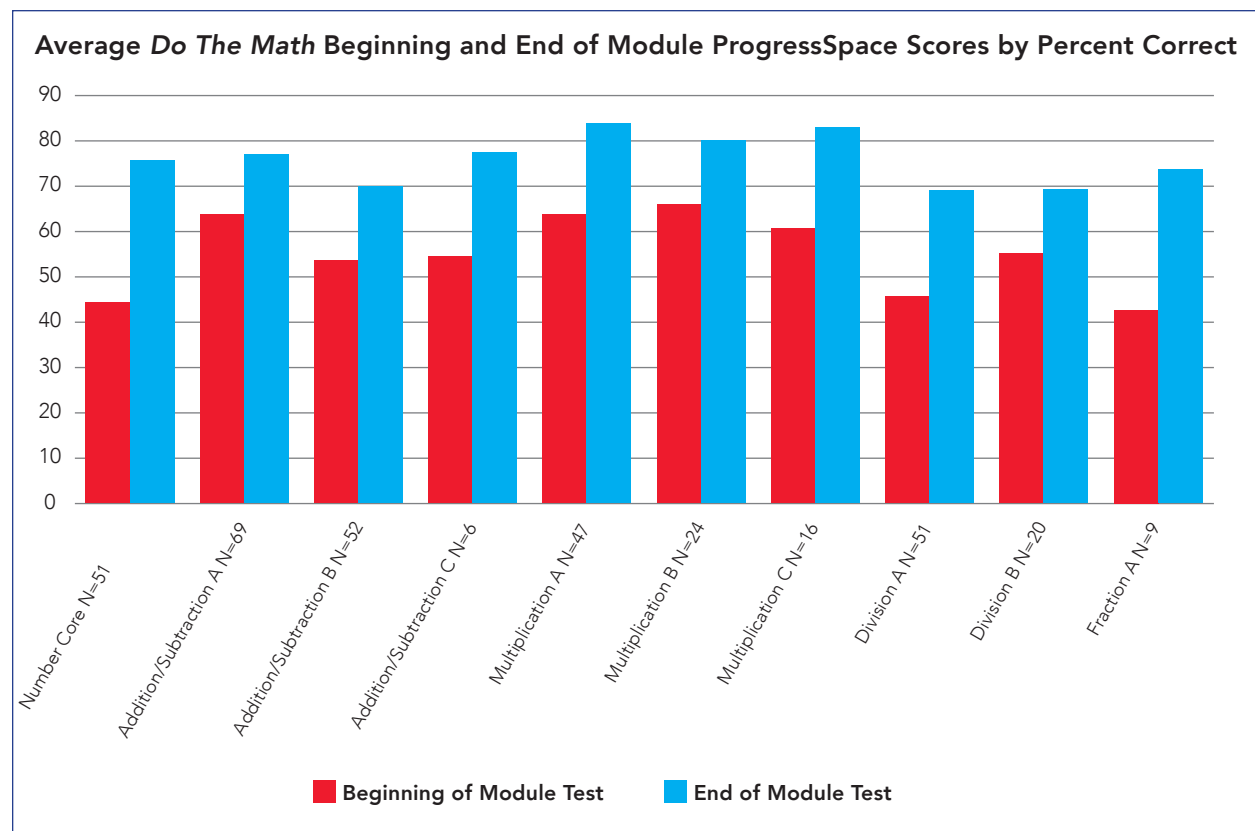
CCSD piloted the programs at five schools during the 2014–2015 and 2015–2016 school years before expanding districtwide to 30 schools for the 2016–2017 school year. There were often several teachers implementing the mathematics programs at each school, with district leaders estimating that well over 60 teachers used the program districtwide. Some students begin using the program as early as Grade 1, but most *Do The Math* students were in Grades 3–5 and nearly all *Do The Math Now!* students were in Grades 6–8.

While there were weekly site visits and meetings with administrators, many administrators did not always know what to look for in a successful *Do The Math* or *Do The Math Now!* implementation. To support their teachers, CCSD worked with a Math Solutions® coach. The coach led a training session at the beginning of the year for teachers new to the program and then continued to support teachers throughout the school. The Math Solutions coach visited classes identified by district leaders as being most in need of coaching, observing the class, gave feedback, and then coached all Special Education teachers at that school. District leaders believe the Math Solutions coach has visited every school and every *Do The Math* and *Do The Math Now!* teacher over the 2015–2016 and 2016–2017 school years.

THE RESULTS

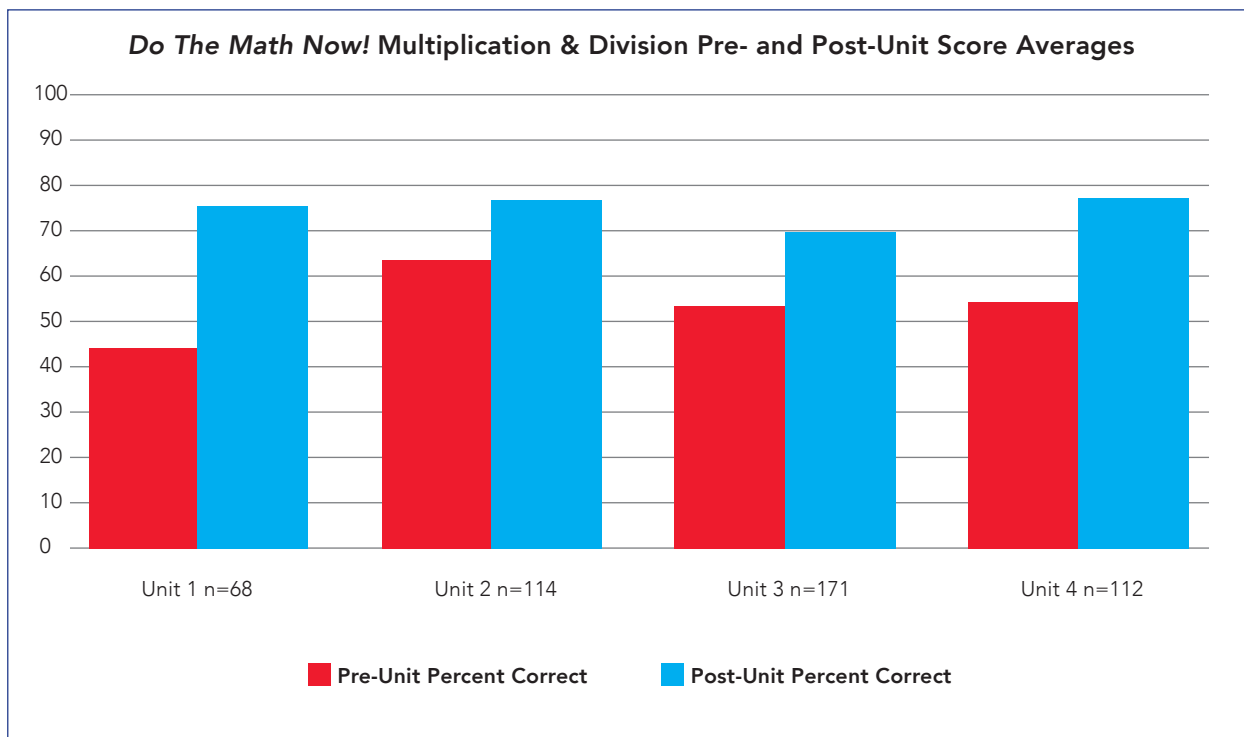
Students used ProgressSpace, a computer-based assessment tool, at the beginning and end of the instructional modules as well as the “Show What You Know” assessments after every fifth lesson in the student workbooks. The district believes that the ability to constantly and consistently track student progress is a great asset of the program. *Do The Math* employs a beginning and an end of module assessment, which consists of 20 multiple choice questions. For the purposes of this analysis, only students who had at least one month between their beginning and end of module assessments were included, as the program takes at least one month to complete. As Figure 1 shows, students performed between 12 and 32 percent better on their end of module assessment than they did on the beginning of module assessment. Paired sample t-tests were performed on each of the pretest and posttest assessment scores. The results indicated all score changes were statistically significant at the $p < .01$ level.

Figure 1. Pretest and posttest performance on ProgressSpace assessment for *Do The Math* modules.



Do The Math Now! also uses ProgressSpace assessments for the beginning and end of semesters and units. Units consist of 15 30-minute lessons so only students who had at least three weeks between their pre-unit and post-unit assessments were included in this analysis. Figure 2 depicts student growth between pre- and post-unit assessments for the Multiplication & Division module. There was not enough data for students enrolled in *Do The Math Now!* Fraction Fundamentals or Multiplication & Division Unit 5 to be included in this analysis. Paired sample t-tests were performed on each of the pretest and posttest assessment scores. Although the magnitude of change was much smaller for the first and second units, the results indicated all score changes were statistically significant at the $p < .01$ level. The strong performance on the initial test (pretest) for these two units indicates several students in the sample had already mastered much of the material leaving little room for growth. These students could have likely been placed directly into more advanced content.

Figure 2. Pretest and posttest performance on ProgressSpace assessment for *Do The Math Now!*



CONCLUSION

The largest *Do The Math* knowledge gain was for students enrolled in Number Core. Number Core focuses on building the foundations of Numbers and Operations. Many teachers expressed surprise to discover how far students must go back to address early computation skills. Teachers initially thought that they should only focus on grade-level material to make progress in grade-level mathematics. While some teachers felt uncomfortable going back to address skills that students should have learned at a much earlier grade, those beliefs changed once they saw the progress that was possible with *Do The Math* and *Do The Math Now!* As one teacher said, “*Do The Math* has provided my students with a toolbox of strategies that they were able to use currently as well as refer to in the future to help them solve problems involving multiplication, division, and fractions.” A teacher went on to say, “I have always been an advocate for number sense and math fluency. *Do The Math* has given me a resource to use as I implement number sense into my daily lessons.” By rebuilding with strong foundational mathematics and numerical reasoning skills, students were able to finally move forward with grade-level mathematics.

Teachers like the scripting and directing inherent in *Do The Math* and *Do The Math Now!* This support helped them to better understand why they’re doing what they’re doing in the classroom. Teachers also noted their love for the games incorporated into many of the program’s lessons. A teacher noted that not only did students enjoy playing the games but the games also reinforced the lessons in a meaningful way. The district leader’s instinct that CCSD Special Education teachers needed more support to teach mathematics was correct. When asked specifically how the *Do The Math* and *Do The Math Now!* programs have benefited their Special Education students, a teacher said, “*Do The Math* has benefited my Special Education students in many ways. Most of my students need numerous repetitions in order to move new learning into long-term. The consistency of the program allows me to help them make connections between new learning and past learning so that they can pull that knowledge and apply it more successfully in new situations. It is truly a resource.”

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RESEARCH CASE STUDY



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