

REASONING MIND:

Results for the 2011-2012 School Year



Program Impact: Key Findings for the 2011-2012 School Year

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Executive Summary

Reasoning Mind is a nonprofit organization based in Houston with the mission of improving the quality of math education for all students. Reasoning Mind is a comprehensive approach to mathematics instruction, including professional development for teachers, a strong curriculum, and engaging blended-learning courses for students. The key elements include differentiated materials for students to master the foundational elements of mathematics for future success in algebra, along with data to inform individual and small-group instruction led by a classroom teacher. Reasoning Mind combines personalized learning delivered by adaptive technology with targeted teaching that is focused on individual student needs to deliver a world-class algebra readiness program to students in grades 2–6.

Reasoning Mind's combination of a rigorous curriculum along with increased student engagement and teacher effectiveness ultimately improves student outcomes.

The 2011–2012 academic year was one of strong results for Reasoning Mind students. Here are some of the key findings:

- ✓ *Reasoning Mind grew tremendously, more than doubling the number of students served from the previous school year.*
- ✓ *Reasoning Mind narrows the achievement gap, providing positive outcomes for students nationwide as measured on a variety of standardized tests.*
- ✓ *Reasoning Mind is most successful when implemented with fidelity.*
- ✓ *Reasoning Mind improves more than just test scores: Students who use the program are more likely to enjoy both studying math and attending school.*

Growing the Reasoning Mind program

The Reasoning Mind program saw its biggest implementation to date during the 2011–2012 academic year:

- ✓ *Reasoning Mind served about 47,000 students, up from 19,000 in 2010–2011.*
- ✓ *Reasoning Mind served 379 schools within 56 districts in eight states.*
- ✓ *Reasoning Mind is most successful when implemented with fidelity.*
- ✓ *Students spent a total of 2,051,542 hours using Reasoning Mind throughout the school year, during which they tackled 44,802,848 problems.*

“ I liked that it helps me think and try harder to work on my math assignments. ”

— Reasoning Mind student

Because Reasoning Mind is a comprehensive program that requires teachers to learn new strategies for math instruction, teacher support and professional development are critical to student success. Educators receive intensive training as well as regular in-class support to ensure that implementation is of the highest quality and that teachers and students alike make the best use of the program.

Teacher support for the 2011–2012 academic year included the following:

- ✓ *1,282 teachers received 23,020 hours of continuing professional education.*
- ✓ *Reasoning Mind educators participated in 58 different courses, including curriculum study workshops, best practice workshops, and qualification courses.*
- ✓ *34 Reasoning Mind Program Coordinators supported teachers through more than 5,000 classroom visits.*

“ Professional development online was great. It was very helpful and it fit right into my busy schedule. I especially enjoyed the best practice workshop that I completed online about incentives. I gained so much as a teacher that I feel truly benefited my students. ”

— Reasoning Mind teacher

Closing the achievement gap

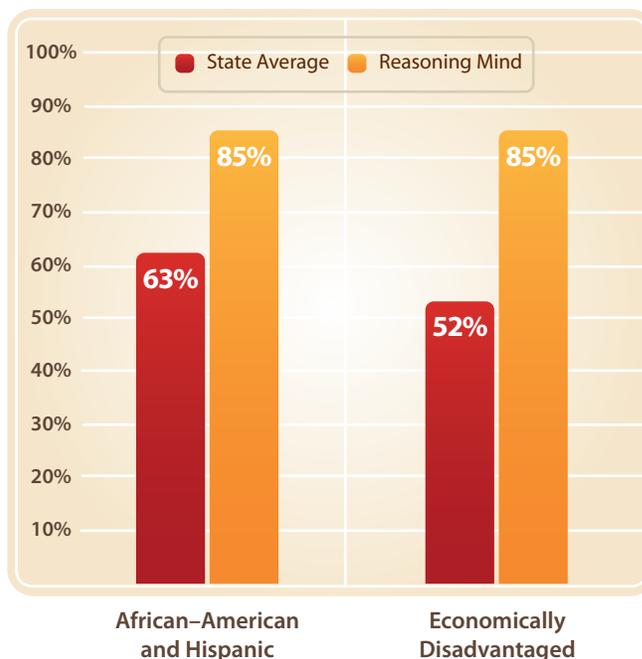
Reasoning Mind has continued showing results, even as student numbers have grown exponentially. Students across the nation demonstrated positive outcomes on a wide range of measures, including the State of Texas Assessments of Academic Readiness, California Standards Test, West Virginia Educational Standards Test (WESTEST), and Iowa Test of Basic Skills, which is used nationwide.

Texas state testing

In fall 2011, the Texas Education Agency provided funds for Reasoning Mind to serve Title I schools and schools rated “Academically Acceptable” or “Academically Unacceptable.” In most cases, fewer than 65% of students in these schools met state standards in mathematics on the 2011 state exam. Furthermore, the majority of students at participating schools were economically disadvantaged. The goal of this partnership was to achieve measurable growth on these campuses.

The schools served by Reasoning Mind under the TEA funding achieved this goal. From 2011 to 2012, *the passing rate for Reasoning Mind students showed statistically significant growth.*

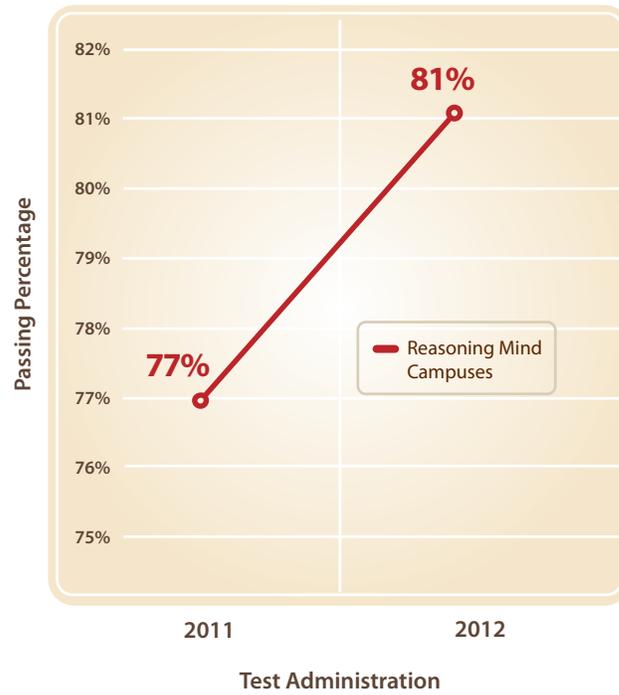
Districts made demographic information available for approximately 90% of the cohort. These data showed that *the Reasoning Mind cohort had a significantly higher minority and economically disadvantaged population* than the state as a whole.



“ It is a great way to learn math. Thank you for never giving up on us, RM City! ”

— Reasoning Mind student

The Reasoning Mind students served through the TEA funding showed a statistically significant increase in performance between 2011 and 2012.



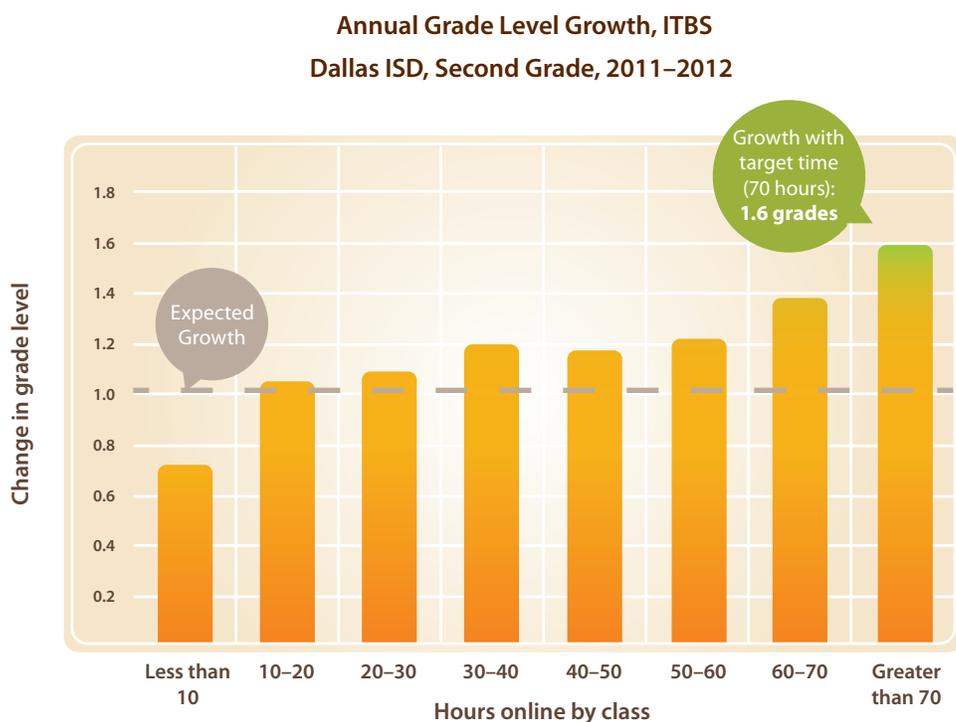
“ I feel this program has made a huge difference in my students’ problem solving and number sense skills. I think the rigor of the system has also helped our students with the STAAR test. ”

— Reasoning Mind teacher

Dallas Independent School District

Reasoning Mind established a strong partnership with Dallas ISD. For the 2011–2012 school year, the district chose to implement Reasoning Mind with all 13,000 of its 2nd-grade students. The results confirmed that the program is both scalable and, when implemented effectively, associated with remarkable growth for students.

Every 10 hours of Reasoning Mind use corresponded to an average growth of 1/8 grade level on the Iowa Test of Basic skills. In particular, students in classes that used the program for the recommended amount of time (at least 70 hours) grew 1.6 grade levels in just one year. This effect is especially significant given that 70 hours during the year translates into just two hours per week. Similar correlations were found with each ethnic group, including Hispanic and African-American students.



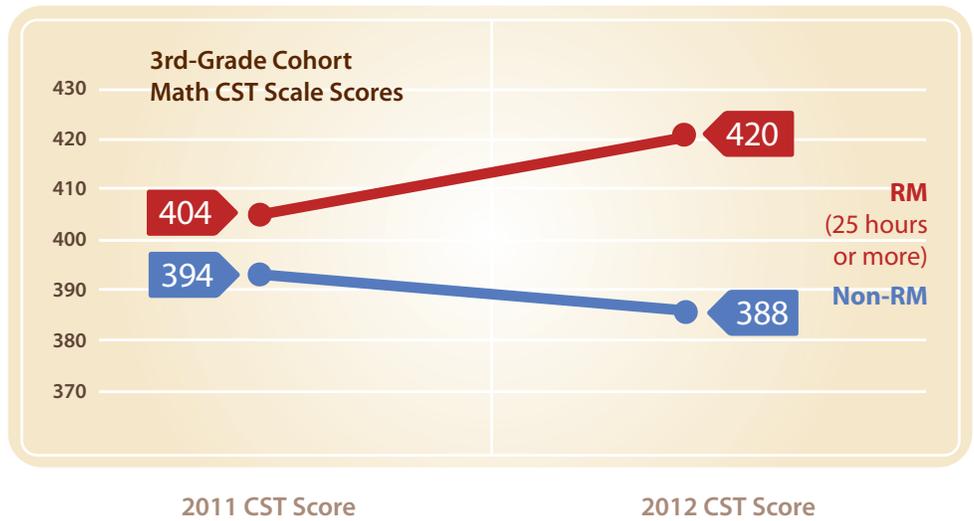
“ RM City educates me and sometimes gives me information that I did not get in class, and RM City is to the rescue. Thank you. ”

— Reasoning Mind student

Compton, California

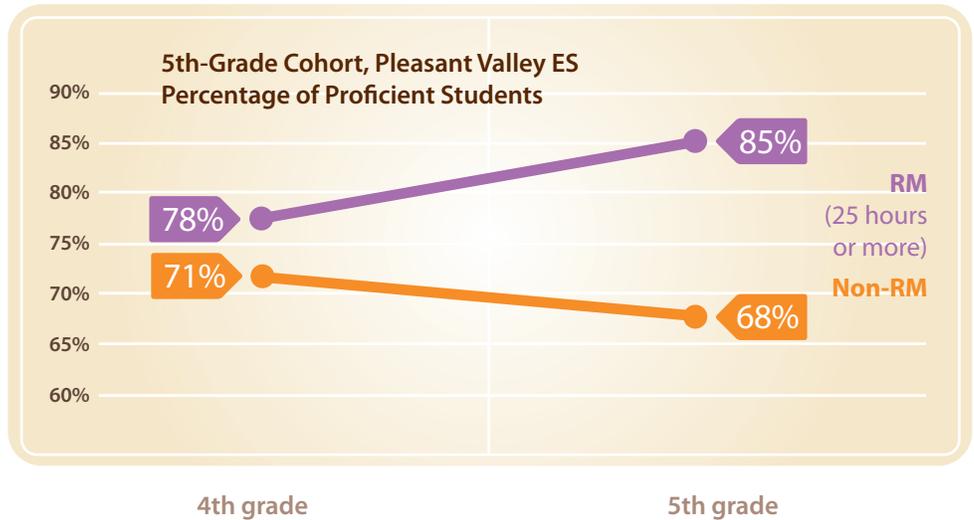
Third-grade students in the Compton Unified School District participated in Reasoning Mind with varying levels of implementation fidelity. More time spent using the program directly correlated to stronger scores on the California Standards Test.

CUSD 3rd graders who spent more than 25 hours online per week significantly outperformed those who did not participate in the program.



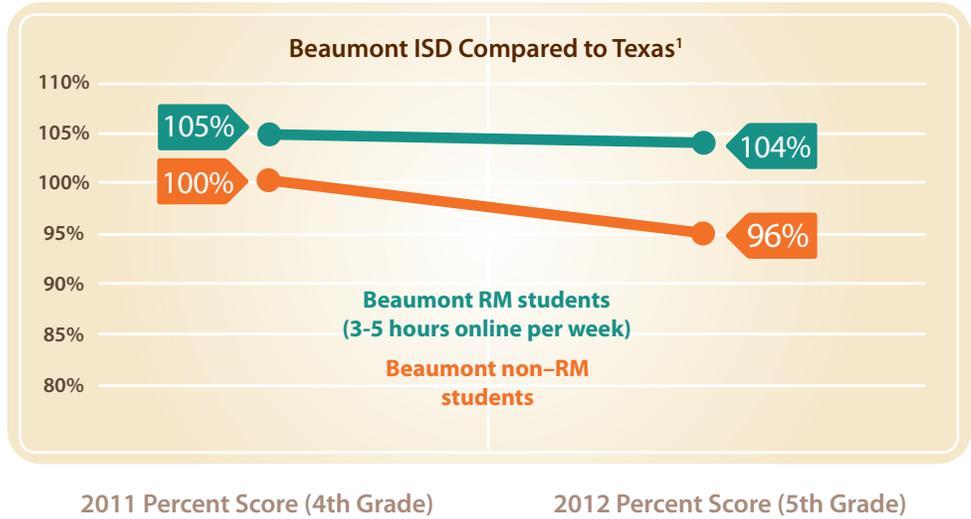
Marion County, West Virginia

In 2011–2012, a group of students at Pleasant Valley Elementary School in Marion County used the Reasoning Mind program for the first time. *The 5th-grade students who participated in Reasoning Mind outperformed the control group on the WESTEST by a wide margin.* After one year of participation in the program, the group that used Reasoning Mind saw an increase of 7 percentage points in the number of students achieving proficiency. The non-Reasoning Mind group, by contrast, finished 3 percentage points *lower*.



Beaumont, Texas

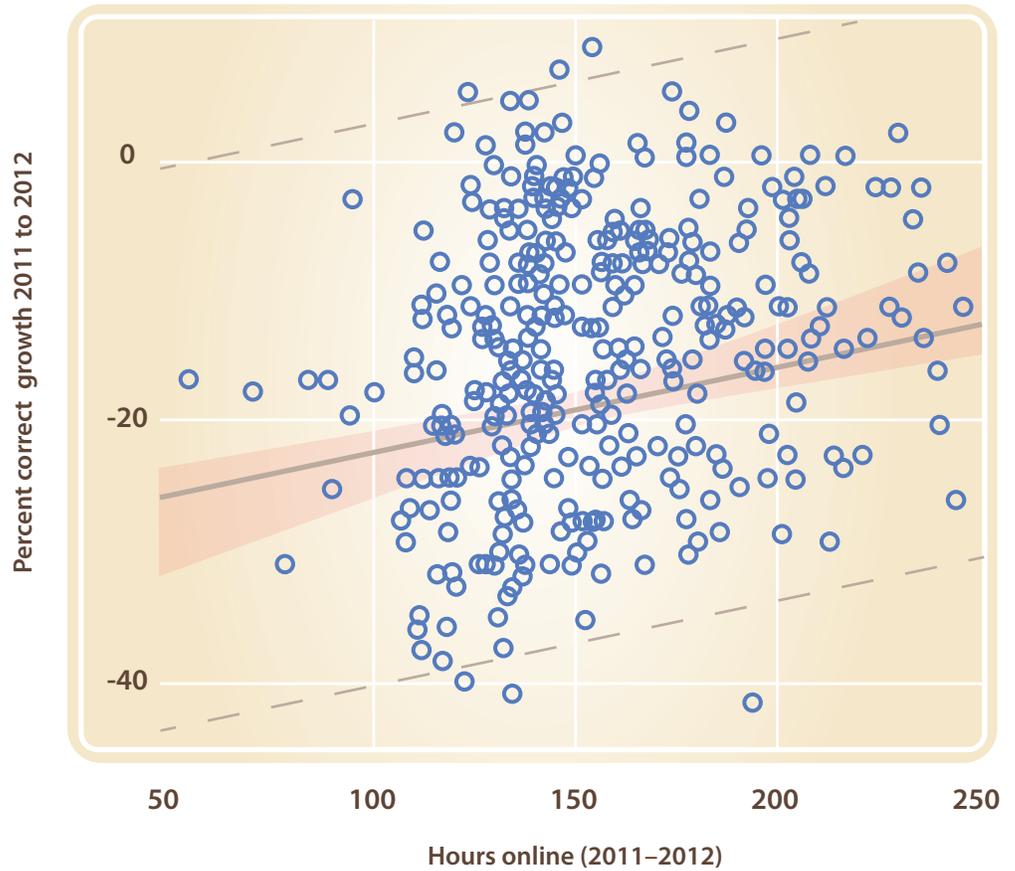
Texas state standards changed dramatically between the 2010–2011 and 2011–2012 school years. *While overall performance on the state standardized test fell dramatically for Texas students, 5th graders in the Beaumont Independent School District who used Reasoning Mind for the recommended allotment of time — three to five hours per week — not only outperformed non-Reasoning Mind participants within the same district but also scored higher on average than students throughout the state.*



¹ Because the state standards changed dramatically between 2011 and 2012, district scores are normalized by state scores. For example, because the average 2011 percent score for non-RM students in Beaumont was 83% and the average 2011 score for 4th graders across the state was also 83%, the normalized 2011 score for non-RM students in Beaumont is 100%.

Abilene, Texas

Fifth-grade students in the Abilene Independent School District who used Reasoning Mind spent an average of 152 hours using the program. *Each 14 hours spent using Reasoning Mind corresponded with 1 percentage of extra growth in terms of accuracy on the state standardized test, meaning extra growth of 11 percentage points over the course of the year.*



Implementing Reasoning Mind

Implementation fidelity is an enormously important component to program success. Teachers reported a large number of advantages of the program. One comment teachers made is that Reasoning Mind improves their pedagogy. Reasoning Mind trains teachers on effective methods for teaching mathematics and implementing blended learning. *This professional development, in combination with comprehensive reporting tools and support, led 77% of Dallas ISD Reasoning Mind teachers to report that the program helped them be more effective in the classroom.*

Individualized support from Reasoning Mind Program Coordinators is key to this success. Program Coordinators visit classrooms to provide hands-on support to educators as they implement the program. *During each classroom observation, a Program Coordinator identifies the strengths of the implementation across 10 categories:*

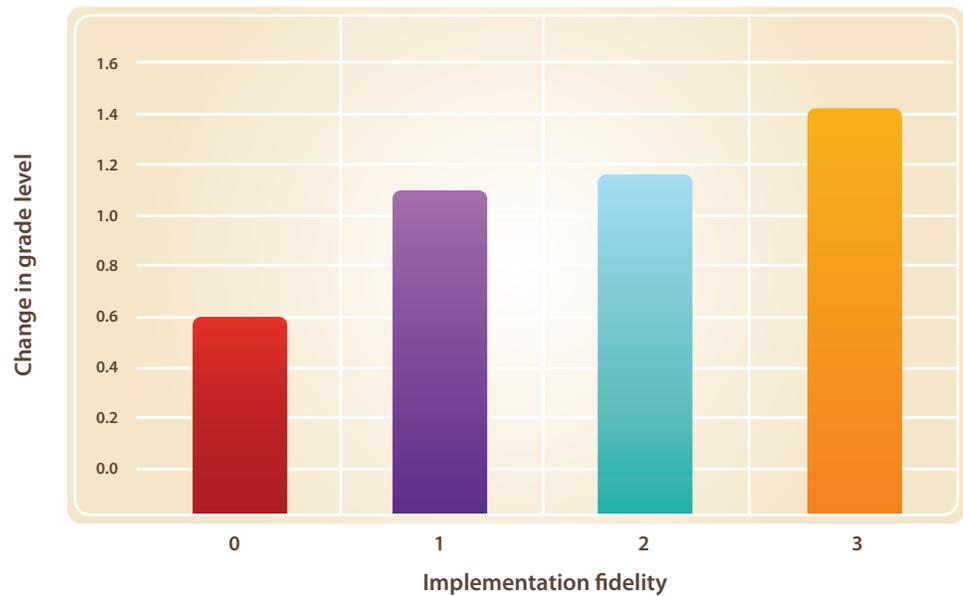
- ✓ *Data-driven decisions*
- ✓ *Lesson planning*
- ✓ *Instructional methods*
- ✓ *Learning modes*
- ✓ *Teacher engagement*
- ✓ *Procedures*
- ✓ *Incentive systems*
- ✓ *Notebooks*
- ✓ *Independent learning*
- ✓ *Student engagement*

These observations use a standard protocol to ensure their consistency and accuracy, and the score for each category is measured on a four-point scale, recorded in a database, and aggregated over time. Program Coordinators use this information to recommend relevant professional development sessions and new instructional strategies to help teachers use data to drive instruction and improve implementation fidelity. *Program Coordinators provided about 5,000 support sessions for teachers during the 2011–2012 school year.*

Implementation fidelity

Implementing Reasoning Mind at the recommended level — 70 hours of instruction per student per year — is key to program success. An analysis of the Dallas ISD implementation showed a strong correlation between implementation fidelity and grade-level growth on the Iowa Test of Basic Skills: ***A one-point increase in implementation fidelity is associated with a score increase equivalent to nearly two months of additional instruction.*** As shown in the chart below, low implementation fidelity corresponded to about a half year of growth, whereas high implementation fidelity corresponded to a year and a half.

Implementation Fidelity vs. Change in Grade Level



Improving what matters most

It is significant that Reasoning Mind raises performance averages for students. It is just as significant, however, that it removes barriers for students who, once given the opportunity to excel, grab hold of it and take off. These are the children who will become the next generation's innovators, and the ability to identify and support them is critical not only to their individual futures but also to the future of our nation. *Some students become so immersed in learning mathematics with Reasoning Mind that they choose to spend their free time online, working from home to reach exceptional levels of math achievement.*

Case studies

A study in the Dallas Independent School District uncovered a student we will call Max. Max is an at-risk English Language Learner who entered 2nd grade below grade level. Reasoning Mind unleashed his potential. *Working evenings and weekends, Max spent 168 hours on the system over the course of a single school year; by the end of the year, he had moved from a grade level of 1.8 to a grade level of 4.3 on the Iowa Test of Basic Skills — far enough ahead to be in the gifted/talented range.*

Another example is an at-risk student we will call Crystal. She began 2nd grade at a grade level of only 1.5. Crystal enjoyed the Reasoning Mind program and spent a full 72 hours online, as recommended. *In a single school year, Crystal moved from half a grade level behind to over 2 levels ahead, ending the year at a grade level of 4.4 on the ITBS.*

Remarkably, 22% of Dallas ISD students on Reasoning Mind spent at least 3 hours on the program after school (averaging 8 hours per student) — approximately the same percentage of students in the district who are estimated to have regular Internet access outside of school. In other words, the large majority of students who had the opportunity to continue using Reasoning Mind after school did so, thereby voluntarily extending their learning day at no additional cost to schools. The analysis also suggested that time spent online from home was spent productively, as it was positively associated with growth in scores on the ITBS at a comparable rate to hours spent in school.

“ I think it is beneficial for students to be able to move at their own pace, while still having access to teacher support when they struggle. ”

— Reasoning Mind principal

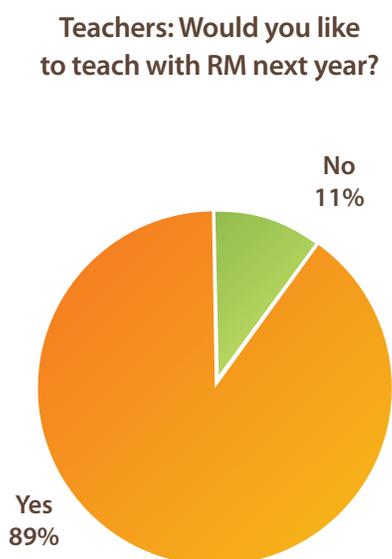
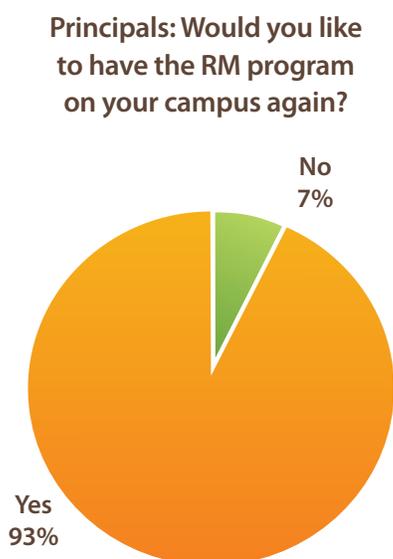
Student and educator survey results

To provide additional context for the student results, Reasoning Mind surveyed a sample of students, teachers, and principals. Below are some of the statistics collected:

- ✓ *More than half of the students surveyed (58%) stated that mathematics was their favorite subject, while 67% said that their enjoyment of mathematics increased as a result of Reasoning Mind.*
- ✓ *Of the students who had a preference, the number who said they liked coming to school more on days when they had Reasoning Mind class was three times greater than the number who said they liked coming to school less.*
- ✓ *The vast majority of the students surveyed (86%) said they enjoyed Reasoning Mind.*

The support of educators is just as important as numerical data. This is both because educators often see impacts of programs beyond what is measured and because support and acceptance are essential if any program is to be effective at a large scale. The efforts and investment of teachers and administrators are crucial to success.

- ✓ *Anonymous surveys of teachers and principals confirm that, even when expanding rapidly into new districts, Reasoning Mind earns strong, broad-based support from educators.*
- ✓ *Approximately 90% of surveyed principals and teachers said they would like to participate in Reasoning Mind next year.*



✓ *Teachers saw growth in their students' math abilities, reading abilities, and confidence, which they attributed to the program.*

Teachers found the program improved...

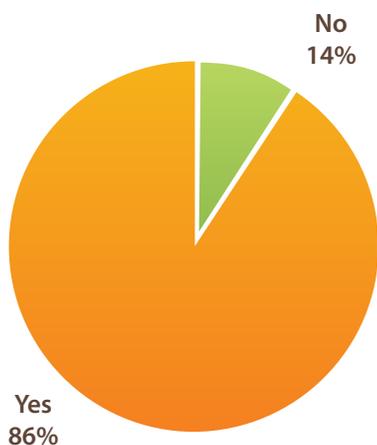


A response of 1 indicates that teachers saw significant regression in this area; 5 represents significant improvement.

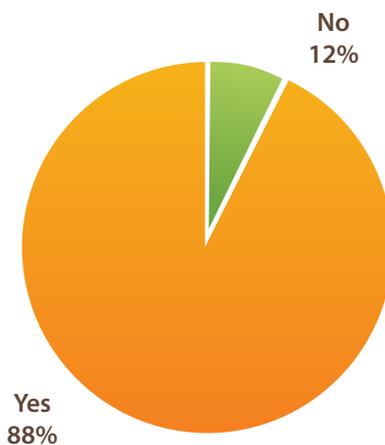
✓ *Teachers and principals were satisfied with Reasoning Mind overall.*

✓ *A higher percentage of teachers and principals saw advantages to using Reasoning Mind than disadvantages.*

Principals: Are there advantages?



Teachers: Are there advantages?



Learning from feedback

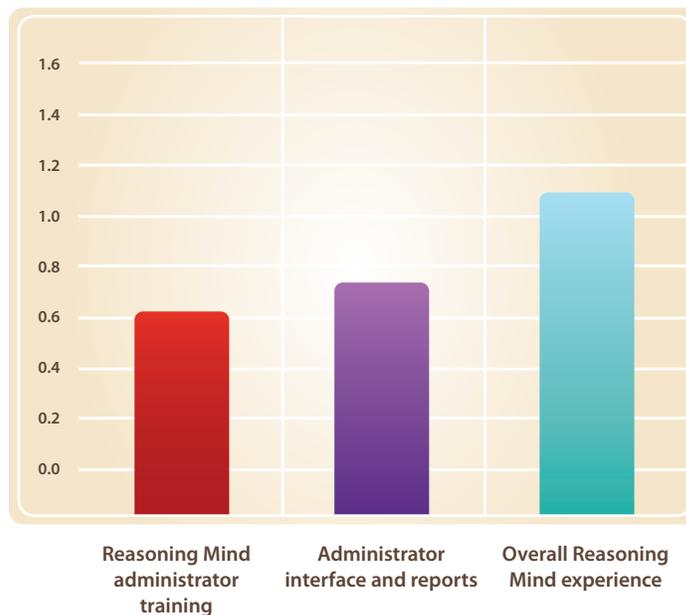
Improving teacher and principal support

Reasoning Mind surveyed a sample of principals and teachers about their satisfaction with the program.

On average, principals were satisfied with the overall Reasoning Mind experience. However, feedback indicated several areas for improvement.

- ✓ *Principals were least satisfied with the administrator training provided by Reasoning Mind, rating it about halfway between “neutral” and “satisfied.” In the upcoming academic year, administrators will get more in-depth training. In addition, the training manual for administrators has been completely rewritten.*
- ✓ *Principals were also less satisfied than teachers with the interface and reports. This is most likely because teachers used the reports more frequently and became experts, while principals used the reports less often and had to relearn the interface each time. During the 2012–2013 academic year, Reasoning Mind staff will meet with administrators more frequently to address any issues as they arise.*

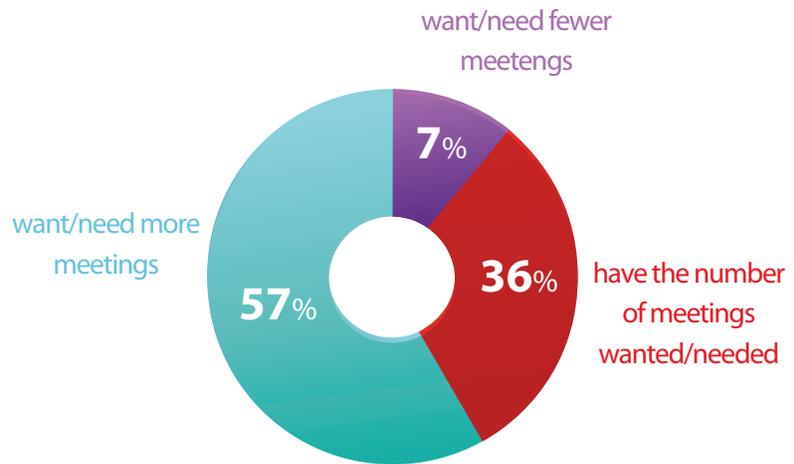
Overall Principal Satisfaction



0 is equal to a “neutral” rating; 2 represents “extremely satisfied.”

- ✓ *During the 2011–2012 school year, principals met with their Program Coordinators about once every other month and clearly felt they needed additional meetings. In response to these findings, Reasoning Mind is scheduling additional meetings with principals throughout the school year.*

Principals:
Satisfaction with Meeting Frequency



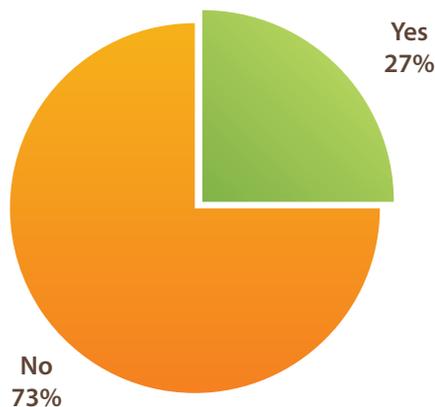
Increasing parental involvement

Students benefit from the involvement of their parents in their schoolwork. In the past, anecdotal evidence has suggested that the program increases parental involvement for some students. In the 2011–2012 academic year, Reasoning Mind introduced new features allowing teachers to send information about student performance to parents. Reasoning Mind surveyed a sample of teachers and principals as to whether they noticed a change in parental involvement as a result of the program.

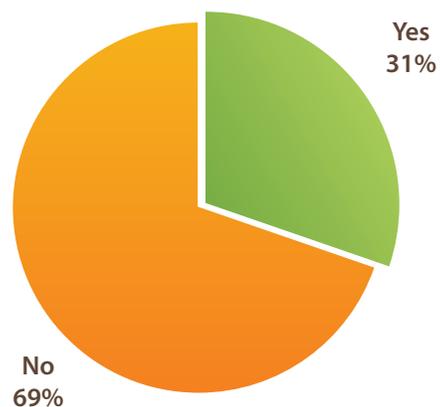
According to both teachers and principals, parental involvement changed somewhat with Reasoning Mind. However, many teachers have mentioned that the vast majority of their students do not have access to the Internet outside of school. Reasoning Mind will continue to work with teachers and parents to direct students to local libraries if they do not have Internet access at home and to reach out to parents to let them know what their students are learning and how to support their progress.

Additionally, Reasoning Mind is redesigning the Parent/Guardian Update Center, which allows teachers to send regular emails to parents, with the goal of making these communications more engaging, informative, and interactive.

Principals: Does RM change parents' involvement in their children's education?



Teachers: Does RM change parents' involvement in their children's education?



Improving data gathering

Starting in the 2012–2013 school year, we will begin using our own pretest and posttest to allow us to consistently compare students across all of our schools.

Conclusion

“ RM City has made math really fun, and I hope I can do RM City next year, and the year after that. ... RM City is the best!!! ”

— *Reasoning Mind student*

The results are clear: Students love it, teachers and principals strongly support it, and — most importantly — Reasoning Mind improves performance in mathematics and prepares students for future success in algebra and beyond. Reasoning Mind provides a unique opportunity to give all students the math education needed to succeed in today’s complex, rapidly-changing economy.

It’s low-cost, it’s scalable, and it’s effective; it transforms the way students think and the way they feel about math. It works in every type of school — public, charter, and private. It’s sustainable. And it’s ready to go nationwide now.