REL WEST
Regional Educational Laboratory
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TRANSCRIPT

High-Quality Tutoring to Accelerate Learning: A Deeper Dive into Literacy and Mathematics

KATIE DRUMMOND

Hi, everyone, and welcome to our REL West webinar on High-Quality Tutoring to Accelerate Learning. Today, we'll be taking a deeper dive into literacy and mathematics tutoring. Here's a little bit about the Regional Education Laboratory West, or as we sometimes call ourselves, REL West. We're one of ten Regional Education Laboratories in the country, and we're funded by the Institute for Educational Sciences. Our goal is to promote the use of data and research evidence to inform policy and practice. We work with educators and policymakers to support evidence-based education systems. And as you can see, we focus on the four western states, but there are Regional Education Labs in each region of the country.

Today's session is actually a part of a series that we've been doing on high-quality tutoring. You can see that our session 1, which we held in September, is ready and has been archived as well as the session we had in October. The first one focused on research evidence in depth, and the second one provided some specific tools and strategies for implementing and improving tutoring. And again, today, we'll be taking a look further into literacy and math in particular.

We have a terrific set of speakers today, and I'll give you a bit more background about each of them as we get to their sections. Here's the agenda for today. We'll begin with an overview of tutoring, and the research on math and reading in particular. And then, we'll take a look at some information about models for math and reading tutoring, looking at a specific example. We'll then hear from district and implementation examples, both reading and math tutoring in practice. And then, finally, we'll have time for your questions.

I'll let you take a look at the goals for the session. As you can see, we'll be presenting research along with practical implementation issues, and we'll focus on everything from tutors in particular to content that takes place in tutoring sessions and assessment of your program. The first section that we'll focus on is just really giving an overview of the research. And some of this information was highlighted in different ways or shape in our past webinars, but just to remind you, if you were not able to join us, that tutoring has become quite a hot topic these days.

As we know, millions of students were struggling with proficiency before the pandemic, and now with COVID-19, these issues with achievement gaps has only been exacerbated. And as one study showed last spring, students may be five to nine months behind in their learning, and we need to find ways to quickly accelerate their learning. Thankfully, the evidence on tutoring is quite strong. And in fact, it's sometimes hard to find really strong evidence in all our education research for interventions, but tutoring really has been one of the most impactful tools that we've seen in terms of improving student learning. As this graphic compilation shows, tutoring

is actually one of the more effective interventions, among others. This is a synthesis that was done by our colleagues at the National Student Support Accelerator, a center at Brown that focuses on tutoring.

And as you can see on the left side, results show at the elementary school, literacy tutoring can be quite effective compared to other things that have been studied in the realms of technology or class size reduction. On the right-hand side, you can see that math tutoring at the high school level has been shown quite effective, and these graphics are showing the average months of additional learning. Given that tutoring really customizes needs to the students, these outcomes probably make sense.

What are the most effective approaches of tutoring? Well, we know that it needs to be targeted and intensive, so it's not being done on just sort of a casual or periodic basis, but really in a very intentional and systematic way. Tutoring programs and planning also really need to consider the needs of the students, how they will be grouped, and how they'll be scheduled in addition to how the tutors will work. Thinking about issues of staffing the tutoring, hiring them, as well as training and supervision. And, of course, we want tutoring to follow data-based decisionmaking principles so that it adequately identifies the highest-need students in order to effectively use resources aimed at achieving more equitable outcomes.

I'm going to focus now on a meta-analysis that was done in 2020, and this involved 96 studies that all used a randomized controlled trial for examining the outcomes of tutoring. This graphic of those results was developed by colleagues at Education Trust and MDRC. First of all, just a little background on the meta-analysis: all the studies that were included were conducted after 1980, and all the studies included a group of students who received tutoring being compared to a group of students who did not. And tutoring programs in this study were defined as either one-on-one or small-group instruction. And these were all human tutors, so there was no computerized tutoring included in this meta-analysis. The sessions for tutoring were also aimed at supplementing and not replacing classroom-based instruction. And lastly, across those 96 studies, age range varied from preschool all the way through the secondary level.

What did they find in this meta-analysis? As I'm going to show in the graphic here, the findings spanned from things that are more effective to less effective over on the right-hand side. And that's not to say things that are less effective are not effective at all, it's just when you're thinking about where you're going to put your resources, obviously you're going to get more bang for your buck on the things that are highly effective shown on the left-hand side. On the first line, you can see there were higher average effect sizes for tutoring programs carried out by certified teachers. However, as we know, requiring teachers to service tutoring could be really expensive, and they may not be available for that role. It's important to know that programs carried out by paraprofessionals and other professional tutors were also shown to have really strong results. There were smaller effects for non-professional tutors, parent tutors, and peer tutoring was shown to be the least effective.

Moving to the second line there, tutoring was also more effective when done on a one-to-one or two-to-one ratio, with larger groups being less effective. However, there were some grade-level effects. Results suggest that small ratios are most important for students in the preschool, kindergarten, and 1st grade levels, and slightly larger groups may be beneficial for older students. This finding is particularly notable when considering programs' capacity to scale at lower cost.

I'm going to continue to build this graphic. On line three, you can see that it's important for tutors to utilize a skill-building curriculum and not just provide ad hoc homework help. And as far as supervising and training goes, more is better. The strongest effects are for tutors who receive not only initial training, but also ongoing support and professional development. Line five here addresses the location or the context of training. You can see that during-school tutoring is more effective, and that was true across all grade-level categories. This is not to say that after-school tutoring can never be effective or is not effective at all, but again, if you're looking to get the most out of your resources, it's really helpful when it's done during the school day and complements what students get during their regular class periods.

On line six, you can see that higher frequency, more intensive tutoring yielded the strongest results. And finally, on the last line, you can see that findings are generally strongest for younger students. However, as researchers have pointed out, there's currently a large growth of tutoring services at the secondary level. And sometimes, our research is a little bit slow to catch up to practice. I just want to emphasize that while effect sizes tend to be higher at the early elementary level compared to the higher grades, the impact of secondary school-level tutoring still has potential to significantly improve student learning outcomes. The research on tutoring programs for high school has been less extensive, but among those that have been studied, promising interventions have been identified.

To come back to math and reading in particular, you might not be surprised to learn that high-quality tutoring should focus on distinct skill-building for both of those subjects. It should also be aligned with the core math and reading curriculum that students are experiencing in their regular class, and it should be targeted to individual students' academic needs. And I did want to point out some further age-related findings for math and reading tutoring in particular. As you can see by the second bullet on my slide here, overall effects of math and literacy tutoring are similar to each other in terms of effect sizes. But there are some age-related effects. On the left-hand side, you can see, for literacy, the highest effect sizes are for students at the youngest ages, and then they begin to decrease a little bit as students get older. However, even when the effect size is slightly smaller, it still represents important growth for students.

The pattern for math is the opposite. We can see that effects are actually larger when students are older. But again, important growth can still happen for younger students. And I did want to just point out my two notes at the bottom of this slide that about 80% of the tutoring studies, at least in this meta-analysis, were done for literacy while only 25% were done for math. And as you can see in the last bullet there, over 50% of the studies were done with really young students, and less than 7% included students at or above grade six. Again, our research is still catching up with the field here, but we do have this pattern occurring.

One last topic that I'll discuss is the use of a tutoring provider. One big decision that a district needs to make is whether they're going to grow their own tutoring program or use a tutoring provider. Growing your own program can have advantages. For instance, you can get more buy-in internally and more deeply embed the program into your school operations. However, partnering also has advantages, as an existing partner may be able to get started with less effort on the part of the district, and they will already have systems in place for tutors themselves, like hiring and coaching those tutors as well as systems and materials that will be helpful for efficiency's sake. Our colleagues, again, at the National Student Support Accelerator, have some different tools, including this decisionmaking tree of whether or not you should grow your own program or hire a provider. And we're going to go ahead and put the link to this toolkit from the Accelerator into the chat in case it can be helpful for your context.

Today, we're going to hear from one particular tutoring provider, but if you're interested in looking at results for other providers, I would highly encourage you to look at that meta-analysis that I was mentioning. And we'll go ahead and put that into the chat. It was done by JPAL, or the Jameel Poverty Action Lab. And they not only have a nice summary of their meta-analysis, but I encourage you to look at the full working paper because if you dig into the appendices, you'll see a lot of details on different ages, and content, and type of tutoring programs that were studied in their meta-analysis. And with that, I'm going to hand it off to our next presenters.

First, you'll hear from Lindsay Dolce, who serves as a Chief Advancement Officer for Reading and Math Foundation. She's responsible for leading the development team to support continuous improvement and scaling of strategic initiatives. Additionally, she's responsible for working with emerging states to successfully start up and implement the Reading Corps and Math Corps models. She'll hand the presentation off to Marc Hernandez, who's a Principal Research Scientist at NORC. He works in NORC's Early Childhood and Research Practice Collaborative, and he served as a co-principal investigator for multi-state evaluations of Reading Corps, including studying the program's implementation and looking at randomized controlled trial evaluations. Lindsay?

LINDSAY DOLCE

Thanks, Katie. And good afternoon, everyone, or good day. Starting us off today, as Katie mentioned, I am going to share with you a little about the program models. You'll see our logos at the bottom here of this slide. But one is the Reading Corps, and the other is the Math Corps model. Both operate using really what you see here on this slide as the drivers of how we reach impact. We have been a tutoring program around since 2003, combining the science that we know works in terms of helping students learn. The components you see on the left, using data-driven decisionmaking, empirical research, implementation fidelity, culturally relevant practices, and we combine that with AmeriCorps members aged 18 to alive is what I always share with people—they're really all ages and stages of life who support our students to create real, positive impact.

On this slide, what you see is the idea behind the Reading Corps and the Math Corps program models. As an organization, we've identified educational milestones that I think many of you probably can relate to. Our tutoring programs are designed to support students in getting kindergarten-ready, to make sure that they're proficient in reading by the end of 3rd grade, and then to support them in becoming algebra-ready by the end of 8th grade. We think of our program models in achieving those milestones or working towards those milestones in everything that we do.

On this slide, you see a representation of where we are as of today. The state of Minnesota is yellow, and that just tells you that the program started there in 2003. And it's interesting to note that the program model started with the support of some folks at the state Head Start Association as well as the leaders for AmeriCorps for the state of Minnesota. There was a state representative at the time named Alice Segrin, who was really curious about students coming into kindergarten classrooms who were not quite where she thought they ought to be after having some additional support, having been in a Head Start classroom. She wanted to know if it would be possible to have AmeriCorps members serve as tutors and provide additional literacy support to those students in an effort to get them really and truly ready to begin in

kindergarten. The program model started that year with 24 tutors, and today, we have more than 2,000 tutors nationally in all of the states that you see represented here.

It's interesting, as Katie was talking and sharing some of the research that you see out there—and I'll just mention, two primary websites share a lot about our research. She mentioned one already, the National Student Accelerator definitely highlights the work and the external evaluations that have been done of the Reading Corps and Math Corps models. Another is ProvenTutoring.org, which comes out of Johns Hopkins University, also has a lot of information about a variety of different programs out there. What you'll find in the research, and what we know to be true from our experience, is that what makes our program model replicable, operating in all of those states you see represented on the map, is that we've created a model that we know works. And when we take it to a new state and we implement it in a new school district, we stick to using the model we have built and refined multiple times over the last essentially 20 years.

The things that we know are really, really important to replicability and that Dr. Hernandez will talk about in terms of what he found, include the literacy coaching and training. We don't just provide training once to our tutors, we use a learning management system to provide a really extensive training prior to them beginning their service here. We also then provide ongoing coaching and training support throughout the course of the year, and that's what we refer to as our secret sauce. It really is the thing that makes the difference in terms of what we see working for students. We also know that data-based decisionmaking is a critical component to what we do, but we know our tutors can't do that without the support from their coaches. We have Alicia Sanborn with us, who's going to talk a little bit later more about this coaching piece. But one of the things that's important to know about our coaching model is that it includes two layers of coaching support. The first is at the school site, we identify someone who serves as an internal coach. That person is an employee of the school, and they provide support on-site to those tutors, walk through implementation checklists to make sure tutors are implementing the tutoring model with fidelity, and then provide additional support to those tutors around things like behavioral concerns they might have about a student or how to address a certain issue that might be happening.

The second layer of coaching support comes from what we call a coaching specialist. That's an employee of our organization, of Reading Corps and Math Corps, who has an expertise in reading or math, that then supports the internal coach as well as the tutors with all of that driving to create a solid impact for our students. The other thing that's worth knowing that I think is really important about replicability for us is that in the multiple external evaluations our program model has gone through, we've been able to demonstrate the model is effective in any kind of setting. That includes urban, suburban, and rural. And when you see that map of a variety of states, what you should know is that we're in districts as small as a place like Bertha, Minnesota, and as large as Miami-Dade County Public Schools. It really does range the full spectrum of what that looks like.

When you think about the AmeriCorps model of tutoring, and there are a few different AmeriCorps programs that do operate tutoring, many of them follow a good portion of what you see here on the left side of this slide. Like us, they manage all aspects of hiring the tutors. We manage the background checks, we recruit the members, we often ask for our schools to help us find individuals from the community who would be really effective. It's important to note that when we recruit, we're not recruiting nationally for our local community, we recruit from

the community because a big piece of what we do is about building the capacity of the community as well as helping to build that teacher pipeline.

We, again, manage all aspects of the hiring process, and then we also are responsible for supervising the AmeriCorps members and making sure they're getting their hours along the way. AmeriCorps members are eligible for very specific benefits that include what we call a living stipend. On an annual basis, if they serve a certain number of hours, they're paid every two weeks, and it is the equivalent this year of $15 an hour for our AmeriCorps members in most of our states. In addition, they're eligible for health insurance if they're serving in a full-time capacity, which is 35 hours a week. And then, they're also eligible for childcare assistance if they're serving in that role. The last benefit they receive for a year of service, which is a really critical one, is what's called an Education Award. And that is the equivalent of a Pell Grant, prorated based on the number of hours they serve, but it can be used to pay off qualifying student loans, student debt, or if they're 55 and older, they can transfer that education award to children, grandchildren, and a whole list of other people. It's actually a pretty well-kept secret, I think, as something that many people really appreciate having the opportunity to do. The other thing we do is work with schools to facilitate finding that internal coach. And it's important to note that the expectation is that the school provide that coaching support, so per AmeriCorps member, our model requires six to nine hours of coaching support a month, and many programs have some requirement, but it varies depending on the specific program.

Let's get into the details a little bit here in terms of what does Reading Corps mean in terms of a model. We support students age 3 through grade 3 with reading interventions. In our pre-K models specifically, our tutors are embedded in the classroom, so they support whole-day instruction and whole-day activities, providing Tier 1 support in the classroom as well as small group time and interventions with students. They spend their days focusing on all those literacy skills, and this year, our tutors also provide numeracy skills. It's new to us, but it's something that we started pre-pandemic and decided wholesale that what we were seeing and what the research was telling us was that about 5% of a pre-K classroom day was spent on numeracy skills and we decided that it was an opportunity for us to help build that capacity within our classrooms and with our partners, so that's new this year.

In the K–3 setting, what you'll see is that our tutors work with students 20 minutes a day, five days a week and have a caseload of between 15 and 18 students as the year progresses. I did see in the questions earlier, someone asked what the time period for tutoring was. And I'll just mention with our program model specifically, our tutors support students throughout the entire school year. They start with them in the fall and benchmark—both in the pre-K and the K–3 model—benchmark students using a variety of different tools that we specifically use. In pre-K, we rely on the PELI tool, and in the K–3 space, we rely on FastBridge as well as a tool called Curriculum-Based Measured Reading and a few others. I can share those as well at a later time, or if you look at our research, you'll see a long list of what we use. But as we go through that process, we benchmark students fall, winter, and spring. And as students are progressing through the interventions, they may exit or graduate from our program in the spring. And if they do, another student comes into the program immediately after one graduates.

The active ingredients—again, this comes from the external evaluation as well as national research—what we know works and the things that we prioritize in terms of our tutoring model include early oral language and literacy instruction, so continuous assessment of the child's progress. As I mentioned, we use those benchmarking tools fall, winter, and spring. In the

interim, we're doing progress monitoring of our students and collecting that data in our data management system. Both for reading and math, that's true. Our school partners have access to that data and can regularly check in to see how students are doing and progressing through the different interventions that we use with them.

It's helpful to know what reading tutoring sessions look like, specifically in terms of the logistics. In the pre-K space, they're about 5 to 10 minutes. You can imagine those small group times in a pre-K classroom where a tutor is going to work with their small group of students while a lead teacher and a paraprofessional might be working with another small group. In addition, in the K–3 space, our tutoring is 20 minutes a day. Again, the tutoring support is daily for both, and it always happens during the school day. We get asked a lot about providing after-school support, and as the research indicated, as Katie walked through that earlier, we really have focused on the school day. We never pull students during core instruction time, but we do work with students during those practice times or other times that we identify in partnership with our school partners that look like the best time to work with students. We focus on that time because after-school time is inconsistent, and dosage really does make a difference, as we've learned from the evaluation. The instructional content is always evidence-based, standardized intervention protocols, and all of our interventions are scripted, practiced interventions that have been both written by a group of individuals—you'll meet Dr. Sandy Pulles later, who helped create our Math Corps interventions—and then evaluated and refined by a national group of experts who have helped us in that process.

Additionally, in terms of what do reading and tutoring sessions look like, you'll see a little bit here about our instructional content. Again, in the research that we have done, you'll see a list of the variety of different intervention tools that our tutors are using. But in the pre-K, I think great examples include repeated read alouds, which obviously are focused on building vocabulary and comprehension. In the K–3 space, we definitely use repeated reading, we use a tool called Newscaster and a variety of others that help focus on comprehension strategies. It's worth noting that they are individualized based on the grade of the student and based on where the student benchmarks. If a student is a third-grader but reading at a kindergarten level, we'll be using those tools that are specifically individualized to support where they're at. Additionally, the formative assessments we use are valid, reliable, and help us determine the student need. As I mentioned earlier, the tutor, along with those different coaches, meet on a monthly basis to go over the data and look at how students are doing, and make determinations as a team about what happens next for students.

In our math tutoring model, the active ingredients are the things that we think are really critical; focus on what you see at the top here—conceptual understanding, computational proficiency, and word problem solving. Tutors are trained in the "I Do, We Do, You Do" method. They also are using scripted interventions, but they're a little bit different in that there are practice pieces that they're doing. They use things like manipulatives in working one-on-one with students. And I should correct that…in our Math Corps model, we actually do a one-to-two or one-to-three model. Tutors work with either two students or three students at a time. Additionally, our program model started supporting students 4th through 8th grade. As Katie mentioned earlier, the evidence and the early research has demonstrated that's the area or the time period that is really effective in terms of supporting students with math. But as time has gone on, our school partners have been asking for some time for us to develop something in the K–3 space, and in the current year, we are piloting what we called an

incomplete pilot from last year, our K–3 Math Corps model, which we hope to share nationally beginning in the fall of 2022.

Again, tutoring sessions in math, 90 minutes a week is the dosage that we are looking for in terms of what our students receive. And because we're operating in 4th through 8th grades, you can imagine that times look a little different. The schedule's a little different. At the beginning of any partnership with a new school, we're looking at the school schedule and identifying those pockets of time that make the most sense. Students either receive three segments of 30 minutes a week, or they receive two segments of 45 minutes a week, scheduled, obviously, as it says, two to three times a week, again, using those scripted practice interventions and following what the best evidence says in terms of what works for our students. Additionally, in terms of math tutoring sessions, instructional content obviously is noted here. Conceptual, representational, abstract—those are the instructional strategies that we're using in terms of building those key concepts around math. Early on, focusing on things like fractions, and as you get later on, pre-algebra skills are part of what we're doing.

Similar to our reading model, we progress-monitor students on a weekly basis in terms of Math Corps, and we're tracking that information and then meeting on a regular basis to understand how students are progressing. We currently use the STAR Math assessment tool. We're in the process actually this year of working with some researchers to build our own assessment tool that we'll begin to use not for a few years, so in the interim, we'll continue to use STAR Math. We work with lots of districts that use other tools, and I think it's good to know that it integrates or works well with things like i-Ready and other assessment tools. I think for many AmeriCorps program models, we use our own tool to make sure that the model that we're implementing is working, but expect that our tutors or AmeriCorps members are the individuals who are tracking that and doing those formative assessments.

At this point in time, I'm going to ask Dr. Marc Hernandez from the University of Chicago, who has been our partner and a principal investigator for multiple studies for us, to jump in and talk a little bit more about our research.

MARC HERNANDEZ

Good afternoon. I'm going to show a little bit about the findings from two studies that we conducted with a focus on pre-K. In 2013 and 2014, my colleague Carrie Markovitz and I led a study for the Corporation for National Community Service to try to both understand the magnitude of potential effects of the Minnesota Reading Corps pre-K program and the K–3 program. For the pre-K program, we conducted a quasi-experimental study that looked at over 50 schools throughout the state of Minnesota, as mentioned earlier, across multiple different types of urbanicities, serving diverse children. There were about 1,500 kids who participated in that study. And what we found was that the Minnesota Reading Corps program did produce meaningful effects—statistically significant, meaningful effects—across all five areas that we assessed of emergent literacy skills for 4- and 5-year-old children. We looked at both 4- and 5-year-old students as well as 3-year-old students. There, we assessed four skills, and in two of those four areas we also saw statistically significant and meaningful effects. I'll speak a little bit more about what those skills were in a moment.

In addition to conducting the outcome evaluations, the quasi-experimental study, we also concurrently conducted a process assessment to understand what the early-learning environment looked like, particularly as it related to literacy in both the Reading Corps sites as

well as non-Reading Corps sites and also looked at fidelity of the implementation of the model. And what we found, as mentioned before, was a striking amount of consistency and fidelity of implementation across the Reading Corps sites. And as we conclude in the report, a lot of it had to do with the robust coaching system that had been put into place, that multi-tiered internal capacity with the internal coach and then the Reading Corps coach as well. Everywhere we went we saw this program, regardless of who they were serving and where they were located, we found very similar implementation of that program.

On the next slide, it lists some of the skills that we assessed. For the 4- and 5-year-olds in particular, we looked at the skills of rhyming fluency, alliteration fluency, phonological awareness measures, letter sound fluency, letter name fluency, and then picture fluency, which was a measure of vocabulary. This was a mix of the IGDI version 1.0 assessments as well as FastBridge assessments. For 4- and 5-year-olds, we saw statistically significant meaningful effects. For those of you who are familiar with effect sizes, they ranged from 0.40 for letter names all the way up to 0.72 for phonological awareness measures. I'm going to provide insights into two of the larger effect sizes we saw.

One of them here is for rhyming fluency. Just to orient you to this graph quickly, we collect the data at three points in time—at the beginning of the school year in fall, mid-year in winter, and then in spring, and that's what you see across the bottom x-axis. And then the y-axis up and down is showing you the outcome, which is the number of words that children were able to accurately rhyme. At the beginning of the year, you see the orange bars are the Reading Corps sites, and then the gray bars are their matched comparison sites. They start at about the same place, and a child was able to roughly rhyme five words. You see growth and improvement in both groups in winter, a little bit larger in the Reading Corps sites, and then at the end of the year, which is in spring, you can see again, both groups grew but the Reading Corps group grew significantly more than the comparison group. And at the end of the year, kids in the Reading Corps sites were producing at least 13 rhyming words correctly versus 8, almost 9 for the comparison group. That dotted line also is an empirically defined benchmark for end of year, and you can see that the children in the Reading Corps sites surpassed that benchmark, whereas those in the comparison sites did not. Finally, in the bottom-right corner, there's an effect size listed there, which was 0.66 standard deviations for this, which is a meaningfully large effect.

In the next slide, we're going to show you letter sound fluency. Here, again, we're showing the same type of representation. Now, it's the number of letter sounds the children were able to accurately identify within a minute. Here, you can see they started very low. This is a more difficult skill for children in preschool, so not many were able to produce many letter sounds correctly in fall; about two in both groups. They started in the same place, same pattern growth for both, but significantly more growth by the end of the year for the children in the Reading Corps program. They were able to produce at least 10, about 10 and a half letter sounds, whereas the comparison schools a little bit less than 7, and then this benchmark was 10, which again, the Reading Corps sites were able to hit but the comparison did not. The effect size here was one of the largest effect sizes we had across the five skills, which was a 0.71.

In addition to looking at the pre-K program, we also conducted a randomized controlled trial evaluation of the Reading Corps' K–3 program. This happened a year before that. And here, we found there were different outcomes that we looked at depending upon the age of the child. In kindergarten we were looking at letter sound fluency, in 1st grade we were looking at nonsense

word fluency, and then in the 2nd and 3rd grades we were looking at oral reading fluency as the outcome measures. And what we found was that there were significant and meaningful effects, statistically significant, for kindergarten, 1st, and 3rd grade. And that for Black and ELL students who are often considered at risk, they particularly benefitted from the program. When we looked at subgroup analysis of these groups in particular, we found that their effect sizes were even larger than the overall population. We also saw that the effect sizes themselves were bigger, as Katie mentioned earlier, for younger students than for older students.

For example, in our kindergarten students, the effect sizes were very large, over 1.0 standard deviations for letter sound fluency, and then they decreased as the children aged, for example, in 1st grade, 0.37. Nevertheless, significant and meaningful effects. Second and 3rd grade students, we also looked in a subsequent study at when children at the beginning of the year were closer or further away from the benchmark. In the distribution of skills at pretest in fall, did kids who were further away from that benchmark benefit more from the Reading Corps than kids who were closer to the benchmark? And we found that that is the case for 2nd and 3rd grade students. And finally, we found that more than one semester of tutoring can produce significant, positive impacts on 2nd and 3rd grade students. This follow-on study also looked at a longer duration over a longer period of time. The program provides services over the course of a year. Our evaluation of K–3 in the first time we did this was only for one semester. We ended up doing a replication for two when we saw, of course, bigger effects, as we had hypothesized, when you follow them for a longer period of time.

I think that may be my slides. I'm going to hand this back to Lindsay.

LINDSAY DOLCE

Thanks, Marc. So the last slide here…I'm speaking on behalf of our researchers who led the studies here. Two studies were done—funded by the Brady Education Foundation, another by the Laura and John Arnold Foundation, now called Arnold Mentors—of our Math Corps model. Again, these were semester-long studies. What we learned was, as you can see represented on the graphic here, that there was a difference of 20 scaled gross score points for our students who are receiving the intervention, and what we saw in just that one semester, we hope to explore again in the near future on a total of a year or so, as Marc was mentioning. Oftentimes, those studies can be a semester first, and then you go a little bit longer. You can obviously see or read that students were two times more likely to achieve math fact fluency and meet that end-of-year math benchmark, which was very exciting. Just wanted to share that.

KATIE DRUMMOND

With that, I'm going to change over to the implementations side of our presentation today. First, we're going to hear from Alicia Sanborn, who comes from Washington Unified School District, where she is the Early Literacy and Assessment Director. She was a key leader in bringing tutoring to the district, and now oversees the reading tutoring that the district is doing with Reading Corps. And I'm not sure that Alicia's going to be on camera, I know she is in transition and currently in a car after having attended some professional development this morning. Alicia, I'll let you weigh in, and we'll just go with the flow whether you're on camera or not.

ALICIA SANBORN

Hi, everybody. Thank you so much for having me today. I'm Alicia Sanborn, I am Director of Early Literacy and Assessments for our district for pre-K through 12th grade. I was very honored to lead this work when asked by our superintendent, Mr. Morris, with this idea of Reading Corps to help support this endeavor that I'm leading and this amazing team and with the help of the county office. With a little bit of information about our district, we're in Central California, and we have farmland, rural and urban areas in our school district. Our urban section has the third-largest level of concentrated poverty in the United States. And we roughly have about 2,600 students. We grow, we have students come and go often; 90% socioeconomically disadvantaged, and 77% approximately of our Hispanic students, of which about 36% of those students are English learners.

Why we landed on a need of supportive tutoring outside of our district, and we are in differentiated assistance, and so this team I lead for early literacy, our focus is in alignment with why we're in differentiated assistance. Currently, we have 50% of our 3rd graders that are not meeting English language arts standards. And we have that as our mission, to teach students of Washington Unified to read. That is near and dear to our hearts as to what we are trying to serve for this Reading Corps endeavor. It's just one of the components. We have two elementary schools and two preschools. We have internal coaches, as mentioned, as part of the model for each of the sites. For our TK through 3rd grade students, we use our intervention teachers to serve that role at the site. And then, within our preschools, we have the internal coaches as the preschool teachers.

I'll talk a little bit in a minute just about the difference there. But the year before we did not follow this model that we are currently in place, and as a result of some of our learning, not only just from in distance learning, but just the model in itself and what worked at our sites. At our larger school site, we have two tutors that are in our preschools. We have five tutors that are serving the TK through 3rd grade students, and overall we have 98 students being served. And at the second school site, which is much smaller, we have one tutor that's for preschool and one tutor for TK through 3rd grade, and we have about 45 students. Thank you so much, Katie, for that assist. TK is transitional kindergarten for those that are from outside California. I forget about that. And overall, serving 45 students. We had just recent [0:48:13] exited one of the school sites, 9 students of those 98 students. that were far more advanced than we had expected, so we're very excited about the results that we continue to see with Reading Corps.

Some next steps that we have in using the tutoring model, we have monthly data chats that our internal coaches work through with the external coach that's from Reading Corps, and those are extremely valuable for us because we're able to not only celebrate our tutors and our students, we're also allowing our internal coaches at the site to reinforce our programs and our expectations at the site, so we can serve more students. One of the struggles that we had in designing our setup of time of tutoring was, in the day, certain grade levels did different instructions at different times. These monthly chats allow us to really see if we're seeing as many kids as we're able to in the model. It also gives our tutors this opportunity to have a sense of belonging. They are very much a part of our vision of how we are going to develop this early literacy team initiative, starting in preschool. We really want them to know that they are part of that vision as a part of this team and this endeavor. Our internal coaches at the sites share the data with not only their principals, myself as director, and the teachers, and families

to make sure that we are ongoing, constantly communicating this progress and monitoring what is happening to make sure that the model is being followed as it is set.

The one item I said I would come back to here, just to kind of talk through, is this idea of our preschool internal coaches. We had our intervention teachers serving the preschool through 3rd grade model. It was very difficult for intervention teachers to do so. What we did was learn from these great results we got with our preschool teacher working with the internal coach at that time last year very closely. Everything was going so great that we really felt that we should have our preschool teachers actually become the internal coaches. And oh, goodness, we're so glad that we made that shift because our preschool teachers have received this indirect type of professional learning, and we have seen them in a short three months grow and excel in their instructional practices.

They've set up their ways in which they handle their centers for their small group instruction with their preschool students as a result of what they are learning from the tutors. The professional learning they've received to be able to serve as an internal coach has actually allowed them to grow in their own capacities as preschool teachers. It's been huge for us to see that. They've even set up their classrooms differently for how they designed their instruction, not only in small group, but in whole group settings. We're very excited to continue this endeavor [0:51:46] so thankful that we learned of this service prior to the pandemic hitting. Anything else, Katie, that maybe I missed?

KATIE DRUMMOND

Yeah, maybe I could just throw a couple questions your way before we shift over to the math side of things. A couple questions that have come up, people are wondering to what degree have you accessed or did you access any new federal or state funding that was set aside for tutoring? And maybe if you did not access that, you could just talk a bit about how funding for tutoring took place in Washington Unified.

ALICIA SANBORN

Yeah, absolutely. Before the pandemic hit, we actually had already planned for a certain number of tutors for both of our school sites, including the preschool. And then, COVID hit. The superintendent had set a certain amount of funds aside, and I can't speak to exactly where those funds were coming from within our budget, but once COVID did hit and all of the ESSER funds, we increased the number of tutors as a result. We are using those funds to be able to pay. There's a recent grant, too, and we're using those funds as a way to have more tutors come on board. As we look forward to the next semester, we actually might increase and have a couple more tutors come aboard at a larger site and an additional one at the other site.

KATIE DRUMMOND

Great. And the other question I have for you at this moment is, how does tutoring address accelerating language acquisition and development for English learners? I know we have a tremendous amount of interest in English learning and the context of tutoring. I wondered if, given your context, if you could talk about that a little bit.

ALICIA SANBORN

Absolutely. The way that the model is in those one-on-one types of settings, it's very much based on the model itself. We stick to that. But what we're learning, especially in the

preschool model, is these experiences that the students are able to partake in with these rich conversations that are taking place with this one-on-one type of setting with the tutor to help use the academic language that they should be in alignment to the tutoring that's happening with fluency development, their comprehension, it's very consistent. They're being able to access those four domains within the actual model of the intervention.

KATIE DRUMMOND

Great. For now, I'll switch over to math, but I'm sure some other questions will come your way in a few minutes when we open it up for more Q&A. But thank you.

Next, we're going to hear from Sandy Morán Pulles, who, in her role with Reading and Math Corps, aims to bridge research to practice in communities primarily serving Black and Latino students to eliminate racial disparities. She contributed to the development of Math Corps for the organization as well as the training and coaching models as they expanded nationally. Sandy, take it away.

SANDY PULLES

Great, thank you. Hi, everyone. My name is Sandy Pulles, she/her pronouns, and I'm excited to be talking to you today about Math Corps and how we've expanded to different communities, and the implications behind that. I'm actually going to ask my colleague, Lindsay, who spoke earlier, just to share a couple words about the expansion process and how that happened in Albany, Georgia with Math Corps in particular.

LINDSAY DOLCE

Just really quickly, as we think about the typical contexts and key drivers of districts that are using math tutoring, I think Albany, Georgia is a great example of a partnering location where there was a really unique need. The business community there had come together after a number of different local employers had left the community. Albany is a relatively small town in Southwest Georgia in a region that had been economically hit very hard for a number of different reasons. The local business community identified that math was something they were really interested in and concerned about and wanted to do something to help support students who were not doing well. One of the elementary schools, for instance, in the Southwest Georgia area has a 6% proficiency rate for their 4th grade students in math.

We were excited to think with them about how we might be able to plug into their district. I think one of the things I know, and I think it's probably even more true today, but I know was true in that district for us, was that they were so ready for some additional support. I think many educators have experienced a loss of funds over the course of the last 20 years, probably a lot longer than that, to be honest. But as that's happened, there have been less and less intervention dollars or support for interventionists in schools.

When we started in Albany, one of the things that we heard again and again was that they were really excited about MTSS implementation but didn't have the resources to fully do what they wanted to do, and in particular, couldn't provide those intervention supports. They were excited to find a math tutoring program that fit. Since we launched there, we've really been able to scale and expand what we've been doing with the support of a state senator named Freddie Powell Sims. Incidentally, she was a 6th grade math teacher in her early career, and she is very committed and very passionate about math for students, and so she has continued

to champion our work in Georgia. We're continuing to look at expansion in other rural communities in Georgia because I think probably many of you can relate to this as well, but rural communities often struggle to get those resources, and state legislators really do like to see an even spending of resources, if you will. We've been lucky in that we've been able to do that while there.

I would say we saw a similar opportunity in partnering with folks like Alicia in California when we started in the Central Valley. We're in many rural districts that surround the city of Fresno and have seen great success, I think, in terms of launching our math there. But primarily, I think, there are more opportunities or options in terms of reading. I know that another math tutoring program that's effective presented in an earlier listed webinar, Saga, is another that operates in the math space, but there aren't as many math tutoring programs, and so, I think there's still room to grow there, and hopefully more districts will take advantage of the opportunity to access some of those programs that exist. I'm going to pause there and let Sandy jump in and share a bit more.

SANDY PULLES

Great, thanks, Lindsay, for that context. As we expand, the typical context of our partners really includes partnering with schools and districts that have a commitment not only to enhancing the students at their schools and that outcome for students, but also creating opportunities to engage community members through service. We're an AmeriCorps program, we deeply believe in the power of community members providing service and what can emerge from that in terms of the community growing and ultimately, leading to career development opportunities as well for the AmeriCorps members and the tutors themselves. The way that we approach expansion is really understanding the communities we are going to be expanding to, learning about what is unique about those communities, and what sorts of changes within our existing program need to be made in order to meet the needs of our program. That includes things like, how do we train the AmeriCorps members, how can we make adaptations?

A key component to our training obviously centers on students' data privacy, so the scenarios that we share with tutors as we're onboarding look different in a rural community, where a lot of tutors may know personally some of the students that they're tutoring. That is an example of a time where we've had to shift how we deliver our training to ensure that it is culturally responsive and relevant to those who are receiving the training.

Of course, with COVID, like we all had to over the last 18 months, we really had to learn how to shift our programming to meet the needs virtually to sustain virtual tutoring, not only during that pandemic year, but as other pieces have emerged with COVID outbreaks or school cancellations in ensuring that we have the infrastructure to support students outside of the typical in-person day. Our tutors are able to continue doing the tutoring through the school site, where they would come to school and provide the virtual tutoring in place, and we were able to maintain some of those practices as we moved forward in this pandemic. Students, again, were given hotspots and devices for continuing their tutoring at home while the tutors themselves were given the wraparound support services that they needed in order to be able to provide tutoring virtually.

And then, as Lindsay mentioned, the importance of developing career pathways is really critical to the work that we do. I talked about a lot of times when we think about tutoring, we're centering the students, and rightfully so. But also, we have taken the approach to

thinking about how we can also work towards developing and enhancing opportunities for the person who is providing tutoring support to become a teacher. Our AmeriCorps members are interested in education, they're passionate about supporting students, and we want to ensure that their year, or two, three, four years of service can extend beyond their AmeriCorps experiences to support the broader community. Last spring…actually, in Albany, Georgia, we had eight tutors that were hired by the school district in permanent roles. We know there's a shortage in our education field, across every field right now, but in particular, in education. And this is the perfect way for a community member who receives robust training, support, coaching, feedback, growth opportunities over their AmeriCorps service to then take those skills and services and apply them to a career in education.

Another key piece that we look at when we are expanding is what sort of community colleges, or training programs, or universities would be willing to partner with us in this work to have, for example, credit for prior learning covered or other opportunities so it is really a mutual benefit, not only for the student, but for the tutors themselves, providing the services. And then, we continue to adapt our program. We have our lessons, like Alicia mentioned, that don't really change. But the way we deliver the materials, there's room for growth, always thinking about how can we meet new communities that we're expanding to. We were fortunate to receive funding from the Gates Foundation as part of a larger cohort of other math tutoring programs in the middle-years math tutoring program that they have to really understand some of the implications, particularly on developmental relationships and how those developmental relationships interplay with tutoring. How do they increase students' competence in math?

And then, also, how can we engage caregivers, parents, family members to be a key role in the development of our program and development of materials and engagement opportunities? One piece that we learned over the past spring was that caregivers were seeing, for the first time—given distance learning and those who were able to support distance learning—watching their student engage in it. That was the first time they were actually able to see what their student was doing live and in class. And they were a little bit worried for some caregivers that as this transition back to normal or back to in-person learning, that they would no longer be able to see what their student was learning and working on. They wanted to ensure that they could continue to support that. Part of this project is really working closely with caregivers to understand how we can continue to support their involvement with understanding what their student is working on, not necessarily needing to know how to do a long division problem, but knowing what their student is working on in order to reinforce some of those same concepts or have a conversation about math outside of school that fosters that strong math identity.

And then, another key takeaway—as we've expanded to not only different communities but different grades, and every school district having different pieces in place across the entire district, it's really important for us to work closely with each district in understanding how does their intervention fit, to supplement and not replace any existing structures that the school district has in place. We are not tied to a particular curriculum, which has its benefits in that, again, it's supplemental. Oftentimes, when schools and districts are looking for an added curriculum material, this is part of that solution, as other tutoring programs as well can add on as a supplemental piece to core instruction.

And then, the last thing that I just wanted to highlight again is the importance of recruiting from the community. That's probably one of the biggest questions that we receive as we are expanding to other communities. "Does this mean that we're just going to hire somebody from outside of our community to come in and provide this tutoring?" And our goal, really, is to

recruit from the community, so it is people from the community providing the same types of services and support. Students are seeing people who they can relate to, they have a similar identity, and really foster that sense of math identity as a student early on. With that, I will give it back to Katie.

KATIE DRUMMOND

All right. Sandy, I might do the same thing and ask you a couple of follow-up questions right away. You touched on this, but I know there's high interest among our audience for the logistics of virtual tutoring, given that we still see schools and kids in and out of being live on-site. And I wondered if you could just talk a little bit more about how you have seen virtual tutoring used, especially with math, any special considerations that need to be given to the virtual environment. I know probably the more specifics you can give, the better for this audience.

SANDY PULLES

Yeah, great question. We use a lot of math manipulatives to teach math. Part of a benefit of using these math manipulatives is really encouraging students to find small manipulatives that they may have access to; and it's not that they need to have access to marbles or things like that, but how can we utilize things that we may have around us—a piece of paper, other easy, tangible manipulatives that they can use to still demonstrate the same type of concept that we are trying to teach. We work closely with each school, with each district, each family to really understand what sorts of devices might a student need access to; how can we partner with a school or another community learning center for maybe the student to attend, to have access to a device or whatever resources are needed in order to be able to provide that tutoring. We also have engaged with different math family nights virtually; having games where we send home materials. We just had one about two weeks ago with one school site in particular. Sent home decks of cards, had some students make their own decks of cards online as part of a family engagement opportunity with flash cards, and talked about how we could do different games with some of those manipulatives as well. Really just trying to build some real-world connections at home in their home environment, however that may look like, and then tying that back to the work that is done during the lesson.

I see there's another question. "When you recruit from the community, how do you train people to be effective tutors?" I can speak to that a little bit. For Math Corps, and Reading Corps as well, there is no prerequisite in terms of you need to have a math degree. And, in fact, I think Lindsay talked a little bit about the requirements to be a tutor. But really, the main thing is a high school diploma or GED equivalent, and that is because of the coaching support system that is provided. Tutors attend about a weeklong or so onboarding training experience, where they learn about the effective practices that we use in our programs, some of the research strategies that we have with our programs. There's robust coaching supports that were talked a little bit about. There's the internal coach on school that the tutor can talk to every day to get some of that feedback as well as the external coach that Alicia referenced. Both of those coaches are trained on our program and are trained on how to use a tutoring fidelity checklist that provides immediate feedback to the tutors on how things are going. Again, that data management system that we use for our programs allows for tutors to enter daily notes as well as progress-monitoring materials, other related data information, including attendance for the coaches to support with any sort of problem solving as it may relate to students' attendance or students responding or not responding to a certain material or

question. We really have seen that part, the coaching support, to be really helpful for tutors and really seen tutors who come from that community as an asset in our program. It's something that's harder to teach. We're at so many different schools and districts, and of course, we learn about strengths and different skillsets at each school, but it's always a huge benefit and a major asset when a tutor from the community knows the community, the school that they're working in.

KATIE DRUMMOND

Great. And, Sandy, maybe at this point, I'll have all the presenters come back on camera, and we can circle around to some of the questions that we've seen come in. One of them is a more general question, and maybe Lindsay, we can start with you, and then if Alicia or Sandy have comments on this as well. What are some best practices to encourage student engagement during tutoring?

LINDSAY DOLCE

That's a great question. It's really interesting. I have seen a lot of creativity among our tutors, but one of the things I saw not that long ago that I really loved, and it seems so simple, that one of our tutors went to the Dollar Store and got a lot of little stickers. And you would be surprised at how engaging it is for kindergarten through 3rd graders to be incentivized with a sticker. There are little things like that I see all the time in our schools that our tutors practice. The other thing I would say is that it's surprising how you might think initially that it would be a little bit challenging, or it might be hard to build some of that rapport or relationships with students, but students are so excited to have one-on-one time with another adult who cares about them that it really doesn't take a whole lot to get them engaged. There are definitely things like the stickers that can be really helpful, but they're just so grateful to have time with someone who clearly is…and that's part of how we select tutors; we're looking for people who are passionate and caring about the students in their community. That's what will engage the students, is having someone who really wants to be there.

KATIE DRUMMOND

Great. And, Alicia, anything you would add to that?

ALICIA SANBORN

It's interesting, when I've observed the tutors picking up the students, they're doing things like singing and talking to them to get to know them in between their actual tutor sessions where they're one-on-one. You see little behaviors like that [1:14:50] stories. It's really sweet to see.

LINDSAY DOLCE

I saw that note that it was a little hard to hear Alicia. One of the things I think she might've been mentioning too is, especially in the pre-K space, we do a lot of singing. I'm not going to sing any of the songs for you today because you will never be able to get it out of your head if you do, and I'm a terrible singer, but they're very catchy little tunes, and I'm sure Marc could even talk about during the study, he probably saw songs and saw kids pick up on them and start singing them. And then, we hear from parents as well, "Why is my kid singing this song all night when they get home?" But there are things like letters have names, letters have sounds. They're fun, and they're instructional, so that's another little tool that we use. I think Alicia

was talking about that in the transition. We try to use those when students are transitioning from one room to another. They're another really helpful tool that we use in that space.

KATIE DRUMMOND

Great. And this is a little bit more of a technical question that I'm going to throw to Marc on the research side. We know that traditionally some tutoring programs have had pretty weak dose or frequency, and then that leads to low effectiveness. I wondered if you could talk a little bit more about how you tracked dosage in your studies and the implications for practitioners with that, like, what should district or school personnel be thinking about as they think about monitoring, and tracking, and evaluating the frequency for their students.

MARC HERNANDEZ

Very good question. And yes. It's interesting because the pre-K model and the K–3 model are different. I think a lot of the audience here, if I remember correctly, was interested in K–3, so maybe I'll speak to that one. Because it was helpful to be able to really partner in the evaluation with the Reading Corps because they have a very robust data management system that records that kind of information. As you've heard, there is an expectation of the amount of tutoring that is supposed to occur. And back to this fidelity of implementation, we saw part of why the fidelity is so good is because they have these regular check-ins, both at the site level and higher up at the program level, and that information is tracked. They knew how frequently those kids were being tutored, and they had, for those who were being tutored, frequent progress monitoring data.

What I presented today were benchmarks, so we looked at fall, winter, spring. But there's additional data that's collected on a more regular basis. So there are multiple ways in this program to know how much dosage that child is getting. And that's part of, when you don't see it, part of what happened with the coaching. It gets to the fidelity of the tutor's implementation of the program as well. Outside of the Reading Corps, if you were trying to do this with another program of your own, having a robust system of checks at what you expect to be happening, is useful. If you're collecting data, and you have a centralized system or an online data collection system that allows you to, in the cloud or elsewhere, collect that data for scoring, check-in, or coaching, is really helpful. I would say if I were doing it on my own, I would highly recommend having a system like that. That's how we were able to tell. And since we had access to that data, we did run some models where we did check on dosage. I could say something about pre-K if you wanted to, but it's a little different there. For K–3, that's my answer.

KATIE DRUMMOND

Great. And yeah, Sandy, please add in. And I'll mention that this is probably time for our last comment, given how time is running. But take it away. We'd love to hear your thoughts.

SANDY PULLES

Thanks. Yeah, one piece, too, is we've been able to specifically track…let's say, a Math Corps tutor is working 90 minutes a week, and they are seeing the students three 30-minute sessions. Our tutor would enter how many minutes of that 30-minute session did the students attend. We get an exact minute-by-minute report on how students are doing, which is helpful, then, on the coach's end to problem solve with the tutor to pick up on any patterns: Are we noticing every

Friday, the last 15 minutes are cut short? And then, being able to modify and adjust intervention times to then increase dosage and performance time.

KATIE DRUMMOND

Yeah, so important to have all those details. Well, with that, I'm going to thank everyone so much for their presentations and all the great questions we got, the participation from the audience here. As a reminder, we will be sending the recording of the webinar as well as the slides. We're also going to send you a brief survey, and if you'll click on that link and give us your feedback, we can use it to improve our presentations in the future. In addition, just a reminder, those first two webinars on tutoring are already archived, and the third one will be coming soon. Thank you so much for your participation, and we'll be seeing you again soon.