School Collaboration in a Rural Setting: Improving Student Reading Outcomes by Implementing a Tiered Model of Instruction

Sunaina Shenoy, Christopher Johnson, and Allison Nannemann

Abstract

This study highlighted the school collaboration and process involved in implementing Tier 1 reading instruction in a rural school in New Mexico and measured the efficacy of this model on student outcomes. Our participants included seven elementary grade teachers, two special educators, one principal, and 106 students in Grades K–6. Our process involved adding more reading time to the schedule, providing teachers with pacing guides and fidelity checklists to maintain teacher accountability with reading instruction, leading biweekly professional learning communities for teachers, and using individually administered curriculum-based measures to track student outcomes in reading. Our results depicted student growth in reading outcomes across elementary grades and a reduction in risk for reading difficulties from the beginning to the end of the school year, which in part could be attributed to our model of Tier 1 reading instruction.

Key Words: School collaboration, professional learning communities, response-to-intervention, tiered model, rural school

Introduction

This research project was undertaken as a multiyear university–school collaboration with researchers at the University of New Mexico and a principal

at a rural school site in New Mexico. The principal reached out to the research team to implement a tiered response to intervention (RTI) model in reading at her school site to improve student outcomes. The RTI model was conceptualized in the early 2000s to replace the historical intervention model that waited for students to fail academically before qualifying them for special education needs (Berkeley et al., 2020). RTI promotes the use of evidence-based pedagogy beginning with general education and increasing in intensity depending on a student's response to specific interventions (Fletcher & Vaughn, 2009; Sugai & Horner, 2009). In essence, RTI is a preventive rather than reactive approach to support children identified as being academically at-risk as a range of interventions are provided systematically to help all students succeed (Brown-Chidsey & Bickford, 2016; Kauffman et al., 2018; Marsh & Mathur, 2020; Sugai & Horner, 2009).

According to Fuchs and Fuchs (2006), the responsiveness to intervention is seen at three different tiers, in which all students receive evidence-based core curriculum in academic areas in Tier 1, a small subset of students who do not respond well to this instruction receive intensive small group instruction in Tier 2, and finally, a smaller subset of students who do not respond well to small group instruction receive intensive individualized special education and remedial services in Tier 3. Instead of waiting for students to fail and then providing them with intensive special education supports, the goal is to prevent school failure by providing all students with better instructional programs, monitoring their progress, and reevaluating program goals to reduce the number of students who are identified as having learning disabilities. Thus, at every level, a child gets instructional supports and early intervention practices to avoid falling behind the other students in class, and when the child clearly does not respond to intervention even at Tier 3, the teacher is more convinced of their decision to refer the student for special education services. Existing literature shows that positive academic outcomes have been associated with RTI (Burns et al., 2006; Gage et al., 2017; Poon-McBrayer, 2018; Vaughn et al., 2010; Vaughn et al., 2012). The need for early and intensive multitiered intervention programs is proven by the scientific literature showing that the reading difficulties of a large majority of pupils can be prevented if early and intensive interventions are provided (e.g., Vellutino, 2003). Early identification of reading difficulties and providing appropriate support can result in significant academic improvement (Fuchs & Fuchs, 2006; National Reading Panel, 2000; Torgesen, 2002). O'Connor and Klinger (2010) argued that though early intervention helps many students improve their academic skills, we know little about whether it identifies students with learning disabilities more accurately than earlier practices.

Klinger and Edwards (2006) found the RTI model to not only help with early identification, but also with identifying learning disabilities among students from varied cultural and linguistic backgrounds by providing students with language supports and comprehensible input in classrooms at every tier to tease apart language differences from learning disabilities. However, Gutiérrez et al. (2010) found that bilingual students are understudied, excluded from early learning studies, and the least understood in terms of policy changes when it comes to RTI models. Moreover, the heterogeneity of this population in terms of social class differences, literacy levels in both languages, uses of L1 and L2, and citizenship are not reflected in RTI models (Cavendish et al., 2016; Gomez-Najarro, 2023; Gutiérrez et al., 2010).

The outcomes of tiered RTI models, however, depend on the fidelity with which the RTI process is operationalized. Studies show that RTI approaches have a number of core implementation components in common, including: (a) progress monitoring, (b) evidence-based instruction and intervention at all the tiers, (c) professional development, (d) collaborative problem-solving, and (e) evaluation of the fidelity of implementation. Students' progress on academic content areas must be monitored on a regular basis, and instructional changes should be tailored to address the needs of the students. Moreover, instruction that is provided at Tiers 1, 2, and 3 needs to follow evidence-based practices that have been proven to work with the given population of students. Teachers need to be provided with in-service training to meet the wide array of academic needs of all students in their classroom, including students who are at-risk for disabilities and who are from culturally and linguistically diverse backgrounds. Finally, the efficacy of the program needs to be evaluated and changes in implementation need to be addressed as needed.

The RTI model is shown to have many benefits as a theoretical framework, but the limitation of the model lies in it not being a practical solution for many teachers and school districts because of the time commitment and investment at different levels of implementation. This is particularly true in low-income school districts that do not have the resources to support this long-term endeavor. One way to alleviate this is through professional learning communities (PLCs). Mundschenk and Fuchs (2016) suggested that PLCs are well-suited for RTI program development. PLCs are groups "in which the teachers in a school and its administrators continuously seek and share learning, and act on their learning. The goal of their actions is to enhance their effectiveness as professionals for the students' benefit" (Hord, 1997, p. 6). Stoll and colleagues (2006) highlighted three essential aspects of PLCs based on this definition: (1) learning is focused on improving instructional practices, not maintaining the status quo; (2) practices need to be implemented with students; and (3) the

primary function of PLCs is to enhance student learning. Although outside experts may be involved in PLCs to build teachers' capacity for new practices, teachers retain the primary responsibility for establishing the group's goals and determining the utility of new practices for their teaching context (Stoll et al., 2006). Research documents that PLCs contribute to the successful implementation of new instructional practices such that the implementation is sustainable and results in greater student learning (Andrews & Lewis, 2007; Cordingly et al., 2003; Little, 2002; Louis & Marks, 1998; Owen, 2016). Cordingly and colleagues (2003) related PLCs and student learning by reporting that PLCs increase teacher confidence, strengthen the belief that teachers can impact student learning, generate enthusiasm for collaboration, elicit commitment to educational change, and foster teachers' willingness to try new practices.

The unique contribution of this research project is to: (a) provide a low-income rural school district with a sustainable RTI model that is a product of teacher knowledge, training, and following evidence-based practices; and (b) evaluate the efficacy of this model for use in other low-income schools in New Mexico.

Multi-Tiered System of Support (MTSS) Framework

The MTSS model for intervention was first introduced in 2009, as a RTI framework. Tiered instructional groups have been a part of the educational system since the 1980s with Positive Behavioral Intervention Support (PBIS); academics were added in the 1990s as part of such systems (Choi et al., 2020). With the reauthorization of the Individuals with Disabilities in Education Act in 2004, studies were implemented to measure the feasibility of merging the two systems into one integrated system for schools to deliver the MTSS (Choi et al., 2020).

The Tiers in the system are:

- Tier 1 is the high-quality, evidence-based classroom education that all students receive. This includes high-quality core instruction, differentiation of instruction, and enrichment opportunities in the regular education environment. In order to gather the best data possible, teachers will use all forms of assessment and observation in this tier, provide frequent feedback to all students, and consistently check for understanding.
- Tier 2: Students who struggle after receiving instruction from Tier 1 will begin to receive targeted interventions in academic areas they are struggling in and not making the expected progress. Examples include small-group and focused one-on-one instruction with intervention specialists in the target academic areas. Students who require Tier 2 intervention in dealing with behaviors that are disrupting their learning and the learning of others

will receive targeted behavior supports. Like Tier 1, teachers will provide consistent feedback and check for understanding. Behavior interventions in Tier 2 may include referrals to the school counselor or social worker for interventions dealing with coping skills, behavior contracts, and so on.

- Tier 3: These students are provided with an array of intensive academic and behavioral supports that include focused, small group, and one-on-one instruction with a certified education specialist and other service providers. Progress towards targeted goals is monitored on a regular basis, and the supports and services are adjusted based on need and available data. If the student progresses in the Tier 3 intervention, then the intensity and nature of the supports could be scaled back, and the student could be placed back into Tier 2. Behavior interventions at Tier 3 will consist of Functional Behavioral Assessments, Behavior Intervention Plans, and nonpunitive disciplinary methods. If these methods are not effective, adjustments can be made accordingly based on data gathered by stakeholders.

Recent research into the effectiveness of implementing MTSS shows that although the implementation of this system is complex, many districts have shown improvements in academic and behavioral areas once the complementary systems of PBIS and RTI are combined (Eagle et al., 2015). A recent study conducted in Orange County, California, showed that over a three-year period, scores in English language arts (ELA) and math increased in schools that implemented an MTSS model for their students (Choi et al., 2020). Coyne et al., in their study published in 2018, showed that within a MTSS environment, targeted Tier 2 small-group reading interventions showed great efficacy for at-risk students. The authors of the study found that Tier 2 intensive interventions can produce meaningful growth in student reading achievements in schools with persistently low reading scores among students in Grades 1–3 (Coyne et al., 2018).

Multi-Layered System of Support (MLSS) in New Mexico

In New Mexico, MTSS is represented as MLSS, a layered system instead of a tiered one. Apart from the change in language, the premise of RTI and MTSS models are still maintained. According to the New Mexico Public Education Department's (NM-PED) manual on implementation of MLSS (NM-PED, 2021), it is a comprehensive framework for students that encompasses intensive, evidence-based practices to support academic achievement, social–emotional needs, and positive behavioral support. These facets of the system are needs based and informed by data gathered by teachers and school staff. Students' movement through the layers of support is determined by the Student Assistance Team working collaboratively with teachers and parents.

During the 2021–22 academic year, New Mexico rolled out the MLSS model in response to the ruling in *Yazzie/Martinez v. State of New Mexico* (2018). In the case, the plaintiffs argued that the state of New Mexico violated Article II, Section 18, by not fulfilling its constitutional obligation to provide adequate funds and services for at-risk students and failing to help students be college and career ready. Citing New Mexico's lowest-in-the-nation graduation rate of 70%, as well as the fact that over 50% of students who attend college after graduating from New Mexico High Schools need remedial classes, the plaintiffs were able to successfully argue in favor of needed reform for at-risk students (*Yazzie/Martinez v. State of New Mexico*, 2018). The implementation of the MLSS program is intended to bring about a more equitable education system for all students (NM-PED, 2021).

Context of Present Study and Research Questions

According to Semke and Sheridan (2012), there are many definitions of rurality, and researchers need to make their parameters explicit to the reader. We have tried to provide as many details of the rural school district we worked with as possible without providing identifying information. The school district is located in a rural part of the state; the closest medium-sized city is over 170 miles away. New Mexico is one of the poorest states in the U.S., and rural parts of the state are even poorer. According to the U.S. Census Bureau (2022), at the end of 2021, the total population of this rural area was very close to 1,000, with a median age of 55 years. White collar workers make up just over 80% of the population, while blue collar employees account for almost 18% of the population (U.S. Census Bureau, 2022). The median annual household income is just over $35,000, and 22% of the population was below the poverty line (U.S. Census Bureau, 2022). Approximately 55% of the population holds a high school degree, and almost 25% have a college certificate (U.S. Census Bureau, 2022). In the 2018–19 school year, the participating school district served approximately 220 public elementary school students (NCES, 2021). The district's overall average reading proficiency score was 25%, compared to 29% statewide. Moreover, the adults in this community are twice as likely to lack a high school diploma and slightly more likely to be unemployed compared to statewide prevalence (NCES, 2021). Finally, 75% of the population speaks a language other than English. The students in these schools come from various ethnic backgrounds, with 75% identifying as Hispanic, 22% identifying as Caucasian, and 3% identifying as Native American (NCES, 2021).

Practical affordances and constraints were taken into consideration, acknowledging the fact that "RTI systems should reflect a balance between what is effective and what is doable, and the balancing of the two should occur at

the local level" (Fuchs & Fuchs, 2006, p. 266). A RTI model that is implemented with fidelity will streamline the assessment and intervention processes at this school district and will improve the decision-making process in identifying students who have learning disabilities. We are specifically interested in addressing two larger goals within our state: (a) to complement the MLSS that was piloted by the NM-PED during the 2021–22 academic year (NM-PED, 2021), and (b) to provide students from low-income families, English learners, and students with disabilities better educational outcomes, in response to the consolidated lawsuit *Yazzie/Martinez v. State of New Mexico* (2018).

Based on the background information and the need for a tiered system of reading instruction in this rural low-income school in New Mexico, our research questions for this study were the following:

1. What resources and procedures were developed in collaboration with teachers to implement Tier 1 reading instruction in the school?
2. What effect did the Tier 1 reading instruction framework have on reading outcomes for: (a) all students in Grades K–6; (b) students identified as being at-risk for reading difficulties, from the beginning to the end of the school year?

Methods

Participants

Our participants included: (a) seven grade-level teachers representing each grade in our sample; (b) the principal of the school; (c) two special educators/interventionists; and (d) 106 students in total from Grades K–6 (n = 17 in K; n = 7 in Grade 1; n = 16 in Grade 2; n = 12 in Grade 3; n = 16 in Grade 4; n = 25 in Grade 5; n = 13 in Grade 6). Out of a total of 106 students in the school, 63 students (59.43%) were females, six students (5.66%) were diagnosed with a disability and received special education services, and nine students (8.49%) were English Learners.

School Setting

Our school site was in a school district located in a rural part of northern New Mexico. Students were just returning to school for in-person instruction after a year and a half of online instruction due to the COVID-19 pandemic. During our first PLC meeting with teachers, they mentioned that many students in the school did not have access to laptops, computers, and internet in this remote part of the state and were starting the school year with a significant learning loss. The teachers were previously trained in the Wonders®, Wilson Fundations®, and Heggerty® reading curricula, but had not yet received all the

grade-level materials. They were currently being trained in the LETRS® reading curriculum (Moats & Sedita, 2004) and were planning to transition to that in the next academic year.

Procedures

Collaboration With Teachers

Pacing Guides. We developed pacing guides in reading per grade level that teachers could use as a guide to cover all the New Mexico ELA state standards. Firstly, we divided the academic year into four quarters and allocated the standards almost equally across them. Secondly, we further divided them into fewer standards to be covered per week. Thirdly, we assigned time spent on each standard per week to reflect a developmentally appropriate trajectory of reading subskills. When we presented the first set of pacing guides to teachers, they mentioned that they were covering reading for 4 hours in a week and would not be able to cover all the standards in that time. We worked with the principal on scheduling and extending the time spent on reading. We were able to increase time spent on reading from 4 to 6 hours in order to cover all the standards per grade level.

Fidelity Checklists. We developed a fidelity checklist (see Appendix A) to record the following: (a) focus area for each reading lesson (i.e., oral language, background knowledge, literacy knowledge, phonemic awareness, phonics and spelling, sight word recognition, fluency, syntax, vocabulary, comprehension); (b) time spent on focus area; (c) program/resource used (i.e., Fundations®[1],Wonders®[2], LETRS®[3], Heggerty®[4], Florida Center for Reading Research (FCRR)[5]. The last resource, FCRR, was provided to the teachers by the researchers during a PLC meeting. In addition to this, teachers had to record how they evaluated student progress (e.g., oral, written, etc.), their goal for mastery, how many students mastered the task, and their reflection on next steps. Fidelity checklists were implemented in the Spring 2022 semester, and teachers filled them out on a weekly basis.

Professional Learning Communities. The researchers led biweekly online PLCs for teachers. The purpose was to provide them with a platform to discuss reading assessment and instruction in their classrooms and to help them with any additional support they requested to improve these practices. The topics covered during these meetings involved: (a) presenting student data on easyCBM and forming groups for tiered reading instruction; (b) instructional planning to differentiate instruction in Tier 1; and (c) providing teachers with resources (i.e., website links, books, materials) to work with specific students in their classrooms or specific focus areas in reading.

easyCBM Progress-Monitoring Tool. An alternative to standardized testing that has rich empirical support is curriculum-based measurement (CBM; Greenwood & Kim, 2012; Jin et al., 2015; Kendeou & Papadopoulous, 2012; Kim et al., 2012). CBMs are brief measures of an academic construct, reading, writing, or mathematics, that can be repeatedly administered by the classroom teacher (Deno, 2003; Reschly et al., 2009; Tindal, 2013). Unlike other formative assessments, CBMs have robust validity and reliability data and can be used to guide educational decisions by comparing student performance over time, as well as to performance benchmarks (Miura Wayman et al., 2007). Measuring students' reading skills is an important component that educators consider while making intervention decisions for their students. Researchers at the University of Oregon developed and revised a curriculum-based measure called easyCBM which measured students' grade-level progress in reading and math (Anderson et al., 2014). The focus has been to facilitate "data-driven instructional decision making through enhanced reporting options" (Anderson et al., 2014, p.4) to promote progress-monitoring and universal screening in schools (Deno, 2003; Keller-Margulis et al., 2008). Our participating teachers were instructed in the administration of the easyCBM subtests, and they individually administered this test to all students in their classroom to measure grade level skills in reading. It was administered three times during the 2021–22 academic year, in Fall (August), Winter (December), and Spring (May). It measured reading subskills per grade level, including phonemic awareness, phonics, fluency, vocabulary, and comprehension. It is important to note that this measure was administered in addition to the district-mandated IStation measure (a computer-based CBM), for two reasons: (a) teachers indicated in the PLCs that the online format of IStation was difficult to navigate for younger students, Els, and students with disabilities, and the teachers preferred a paper/pencil test; and (b) teachers mentioned that some students began the 2021 school year with a significant learning loss and were performing one to two grades below their assigned grade level. They wanted to have access to progress-monitoring tools to check their progress in lower grade levels as well as their assigned grade, which was not possible with IStation.

Collaboration With Principal to Implement Procedures

It is important to highlight that this project was possible because of our collaboration with the principal, and we were invited by her to work with teachers at the school site. She was a liaison between the researchers and teachers and was instrumental in sharing student data, revising the school schedule, setting up assessment schedules, organizing the PLC meetings, and implementing the pacing guides and fidelity checklists. Table 1 presents our timeline and procedures for implementing Tier 1 reading instruction at the school.

Table 1. Timeline and Procedures for Implementing Tier 1 Reading Instruction

Dates	Procedures
June–July 2021	Principal meetings: to make note of the problem areas she recognized in the school and devise a plan to focus on Tier 1 reading instruction for the first year of the project
Aug. 2021–May 2022	PLCs with teachers: we spent the first few meetings getting a sense of what reading in their classrooms looked like, what resources they had at their disposal, and identifying the areas of need; we then worked closely with teachers to develop resources and provide support for Tier 1 reading instruction and differentiating instruction for students in their classrooms
Aug. 2021	Teachers administered the beginning of the year paper/pencil easyCBM assessment
Sept. 2021	In consultation with the principal and teachers, we increased the time spent on reading from 4 to 6 hours per week across the schedule for Grades K–6
Oct.–Dec. 2021	Developed and implemented pacing guides
Dec. 2021	Teachers administered the middle of the year paper/pencil easyCBM assessment
Jan.–Feb. 2022	Developed and implemented fidelity checklists
May 2022	Teachers administered the end of the year paper/pencil easyCBM assessment

Results

Student Outcomes: All Students

Table 2 presents the composite reading scores on the easyCBM across three assessment periods for Grades K–6. The composite scores were calculated based on the same subtests that were administered during all three time points. In Grades 4–6, the beginning of the year subtests differed from the middle of the year and end of the year subtests, so we could not get an equivalent mean score for the beginning of the year. In general, we observed that for Grades K–2, there was an increase in mean scores and percentiles from the beginning of the school year to the middle of the school year, but scores plateaued from the middle of the school year to the end of the school year. For Grades 3 and 4, scores increased from the beginning to the middle of the school year, but regressed from the middle to the end of the school year. Finally, for Grades 5 and 6, mean scores and percentiles increased from the middle to the end of the school year. In particular we observed the following increases in average percentiles from the beginning/middle to the end of the school year: (a) Kindergarten: 48th to

59th percentile; (b) Grade 1: 32nd to 48th percentile; (c) Grade 2: 59th to 70th percentile; (d) Grade 3: 37th to 44th percentile; (e) Grade 5: 40th to 45th percentile; and (f) Grade 6: 53rd to 66th percentile; showing a trend of 5–16 percentile point difference, with Grade 1 showing the most growth and Grade 5 showing the least growth. Grade 4, on the other hand, depicted a regression in percentiles from 57th to 48th from the middle to the end of the school year. In Grades K, 2, and 6, students reached a mastery level of above average at the end of the year (above the 50th percentile). In Grades 1, 3, and 5, they remained in the below average range (below 50th percentile). Students in Grade 4 regressed from above average to slightly below average at the end of the school year.

Table 2. Mean Reading Scores on EasyCBM

	Beginning of the Year (BoY)			Middle of the Year (MoY)			End of the Year (EoY)		
	Mean	SD	%tile	Mean	SD	%tile	Mean	SD	%tile
K	11.06	7.31	48.31	18.07	8.02	60.56	35.83	11.31	58.76
1	21.16	16.01	32.20	41.52	17.37	46.60	49.08	18.65	47.84
2	52.33	33.75	59.28	62.42	19.92	71.00	56.67	20.65	70.14
3	22.18	9.18	36.68	30.12	10.27	54.43	27.35	8.65	44.16
4	-	-	-	18.23	3.34	56.83	15.31	4.46	47.88
5	-	-	-	16.63	3.45	40.63	17.09	3.41	44.47
6	-	-	-	17.31	4.74	52.53	19.28	5.84	66.07

Student Outcomes: At-Risk for Reading Difficulties

Tables 3 and 4 present the classification of students on the easyCBM. In Kindergarten, three students (17.64%) achieved what would be considered clinically significant (at or below the 10th percentile) scores at the beginning of the school year, and this reduced to one student (5.88%) at the end of the school year. However, one student (5.88%) who was at-risk (at or below the 25th percentile) for reading difficulties at the beginning of the school year continued to be at-risk by the end of the school year. In Grade 1, three students (42.85%) achieved what would be considered clinically significant scores at the beginning of the year, and this number reduced to one student (14.28%) by the end of the year. Moreover, three students (42.85%) were identified as being at-risk at the beginning of the year, and this reduced to two students (28.57%) by the end of the year. In Grade 2, five students (31.25%) were classified as being clinically significant, and three students (18.75%) were classified as being at-risk at the beginning of the school year; while the former number

reduced to three students (18.75%), the latter remained the same at the end of the year. In Grade 3, we observed two students (16.66%) to be clinically significant and three students (25%) to be at-risk at the beginning of the school year, and these numbers reduced to one (8.33%) and one (8.33%), respectively, by the end of the school year. In Grade 4, we found one student (6.25%) achieved what would be considered clinically significant scores and three students (18.75%) achieved scores that classified them as being at-risk at the beginning of the school year, and this number increased to two students (12.5%) and four students (25%) by the end of the school year, respectively. In Grade 5, five students (20%) were classified as achieving clinically significant scores and seven students (28%) were classified as being at-risk at the beginning of the year, and these numbers reduced to four students (16%) for the clinically significant group but increased to eight students (32%) for the group at-risk by the end of the year. In Grade 6, one student (7.69%) was classified in the clinically significant group at the beginning of the year, which reduced to zero students at the end of the year, and two students (15.38%) classified in the at-risk group at the beginning of the year reduced to one student (7.69%) at the end of the year.

In general, we noticed a trend of fewer students classified as being clinically significant and at-risk at the end of the school year when compared to the beginning of the school year. As the grades progressed, this change represented a 66.66%, 66.67%, 40%, 50%, 20%, and 100% reduction in the number of students identified as being clinically significant from the beginning to the end of the school year for Kindergarten and Grades 1, 2, 3, 5, and 6, respectively. Conversely, for students in Grade 4, we observed a 50% increase in the number of students identified as being clinically significant from the beginning to the end of the school year. Moreover, for the at-risk group, this change represented a 33.32%, 66.68%, and 50% reduction in the number of students identified as being at-risk from the beginning to the end of the school year for Grades 1, 3, and 6, respectively. No change was recorded for students in Kindergarten and Grade 2; a 33.33% and 12.5% increase was recorded for students in Grades 4 and 5, respectively. For most grades (Grades 1–3 and 5–6) as a whole, we recorded an average of 68.86% reduction in the number of students identified as being clinically significant (at or below the 10th percentile) from the beginning to the end of the school year. Though some of these students moved to the at-risk category (at or below 25th percentile), a few of them moved to the below average category. For three grades (Grades 1, 3, and 6), we recorded an average of 50% reduction in the number of students identified as being at risk from the beginning to the end of the school year.

Table 3. Classification on the EasyCBM for Grades K–3

Percentile Cut-Off Scores	Kindergarten (n = 17)			Grade 1 (n = 7)			Grade 2 (n = 16)			Grade 3 (n = 12)		
	BoY	MoY	EoY	BoY	MoY	EoY	BoY	MoY	EoY	BoY	MoY	EoY
Clinically Significant	3 17.64%	1 5.88%	1 5.88%	3 42.85%	2 28.57%	1 14.28%	5 31.25%	4 25%	3 18.75%	2 16.66%	1 8.33%	1 8.33%
At-risk	1 5.88%	2 11.76%	1 5.88%	3 42.85%	1 14.28%	2 28.57%	3 18.75%	3 18.75%	3 18.75%	3 25%	2 16.66%	1 8.33%
Below Average	3 17.64%	4 23.52%	3 17.64%	0	1 14.28%	2 28.57%	3 18.75%	3 18.75%	4 25%	2 16.66%	5 41.66%	3 25%
Above Average	7 41.17%	5 29.41%	7 41.17%	0	2 28.57%	1 14.28%	2 12.5%	2 12.5%	3 18.75%	4 33.33%	1 8.33%	5 41.66%
Well Above Average	3 17.64%	5 29.41%	5 29.41%	1 14.28%	1 14.28%	1 14.28%	3 18.75%	4 25%	3 18.75%	1 8.33%	3 25%	2 16.66%

Notes. BoY = beginning of year; MoY = middle of year; EoY = end of year. Clinically significant = at/below 10th percentile; at-risk = between 11th to 25th percentile; below average = 26th to 50th percentile; above average = 51st to 80th percentile; well above average = 81st to 100th percentile

Table 4. Classification on the EasyCBM for Grades 4–6

Percentile Cut-Off Scores	Grade 4 (n = 16)			Grade 5 (n = 25)			Grade 6 (n = 13)		
	BoY	MoY	EoY	BoY	MoY	EoY	BoY	MoY	EoY
Clinically Significant	1 6.25%	1 6.25%	2 12.5%	5 20%	3 12%	4 16%	1 7.69%	1 7.69%	0
At-risk	3 18.75%	3 18.75%	4 25%	7 28%	4 16%	8 32%	2 15.38%	2 15.38%	1 7.69%
Below Average	5 31.25%	4 25%	4 25%	7 28%	7 28%	6 24%	4 30.77%	3 23.07%	5 38.46%
Above Average	5 31.25%	5 31.25%	2 12.5%	2 8%	5 20%	4 16%	4 30.77%	4 30.77%	3 23.07%
Well Above Average	2 12.5%	2 12.5%	3 18.75%	4 16%	6 24%	3 12%	2 15.38%	3 23.07%	4 30.77%

Notes. BoY = beginning of year; MoY = middle of year; EoY = end of year. Clinically significant = at/below 10th percentile; at-risk = between 11th to 25th percentile; below average = 26th to 50th percentile; above average = 51st to 80th percentile; well above average = 81st to 100th percentile

Discussion

At the outset, we would like to highlight that this study was undertaken as a multiyear university–school collaboration with researchers at the University of New Mexico and a principal at a rural school site in New Mexico. The principal reached out to the research team to implement a tiered RTI model in reading at her school site to improve student outcomes. The school was getting back to in-person instruction after a hiatus of one and a half years because of the COVID pandemic response. The principal mentioned that online instruction was especially hard to deliver to students from these remote, rural parts of the state because of lack of access to computers and internet service. While a few students were able to access instruction, a large majority were not. She was concerned that the learning loss that students experienced was far greater in these parts of the state in comparison to the urban areas. The growth trends in reading that we recorded must be viewed within this context. Moreover, some recommendations made by our research team, for example, grouping students by reading level instead of grade level, were not implemented because students were confined to their own classrooms to protect them from contracting the virus. Being a community-based research project, teacher voice formed the backbone of our investigation; everything we put into place was a result of requests made by teachers at the PLC meetings. We developed pacing guides and fidelity checklists to support teachers and conducted biweekly PLCs to get their feedback and modify documents as needed.

We documented our work with teachers in how it impacted student outcomes. In general, for all the grades, we recorded an average trend of percentile increases from the beginning to the end of the school year for all students, as well as an overall reduction in the number of students who were identified as being clinically significant for reading difficulties. In particular, for Grades K–2, a larger growth was recorded from the beginning to the middle of the year, and scores seemed to plateau from the middle to the end of the year. For Grades 3–4, scores increased from the beginning to the middle of the year but regressed from the middle to the end of the year. For Grades 5–6, there was a steady increase in scores from beginning to the middle of the year and again from the middle to the end of the year. Some reasons for this could be the following: (a) students in Grades K–2 were learning foundational reading skills and needed more time to acquire these skills, given that many of them had not had any schooling for a long period of time and had to adjust to being in school; (b) the Grade 4 teacher was a long-term substitute teacher who was not a licensed teacher and did not attend the PLC meetings, which could explain the regression that was noted in the Grade 4 scores; (c) students in Grades 5–6

were learning more advanced reading skills, and their trajectory reflects what would be typical in terms of consistent growth patterns from the beginning to the end of the school year. At the beginning of the school year, students across grades were performing just below the national norm at the 44th percentile, and by the end of the school year, most students were reading at the 54th percentile, which is considered above average. This finding is similar to existing literature which shows that positive academic outcomes have been associated with RTI (Burns et al., 2006; Gage et al., 2017; Poon-McBrayer, 2018; Vaughn et al., 2010; Vaughn et al., 2012).

Moreover, Tier 1 reading instruction implemented with fidelity was instrumental in reducing the number of students identified as being clinically significant for reading difficulties. These numbers indicated a positive trend with an average reduction of 57.22% of students across all grade levels, except Grade 4 where the number increased by 50%. The former finding is similar to Vellutino's (2003) finding that the reading difficulties of a large majority of pupils can be prevented if early and intensive interventions are provided. Again, the latter finding could be attributed to Grade 4 not having a permanent teacher, but rather a long-term substitute teacher for the entire school year.

Implications for Research

Firstly, New Mexico had rolled out the implementation of a MLSS model in school districts during the 2021–22 academic year but had not provided teachers with adequate guidance and support to be able to implement this model with fidelity. Our project was a first step in this direction. Secondly, it is unfortunate that state-mandated requirements do not always align with what teachers need, but this is an opportunity for researchers to take on community-based projects to build bridges between research and practice. It is paramount that we listen to teacher voice and make a genuine effort to respond to their needs as educators. For example, in our study, the state required teachers to cover grade-level standards, but did not offer any guidance about a timeline, number of minutes to be spent on each standard, and so on, which is critical information for them to be able to implement these standards in practice. Providing teachers with pacing guides and fidelity checklists helped them with a blueprint for what standards to cover, how much time to spend on each standard, and how to measure mastery. Thirdly, this project only targeted reading goals, but future projects will target math and behavior goals as well. Through this research project, it was our goal to address two important research gaps in education within our state: (a) to provide structure to the MLSS model that is being piloted by the NM-PED (NM-PED, 2021), and (b) to provide students from low-income families, English learners, and students

with disabilities better educational outcomes, in response to the consolidated lawsuit *Yazzie/Martinez v. State of New Mexico* (2018).

Implications for Practice

This paper highlighted the importance of context in implementing a program and measuring student growth and progress. In this context, we worked with a school site in a rural district right after the pandemic, with limited access to resources, including internet access during a long period of distance education. Though our study was conducted right when students were transitioning from online instruction to in-person instruction, which led to its own set of obstacles, we found that even small changes to Tier 1 reading instruction helped students make significant gains in their reading outcomes. Secondly, the district is expected to implement a RTI/MLSS system and follow state mandates without appropriate professional development. This is heightened in a rural setting where limited resources prohibit collaboration with other districts. Program implementation, thus, goes beyond technical issues and is influenced by contextual complexities that are not easily addressed, including a long-term substitute teacher who may not be as prepared as other colleagues. Thirdly, we received positive feedback from teachers and principals regarding the usefulness of programmatic support through the PLC model. It was an easy model to implement even through an online platform. Teachers responded well to it, brought a lot of experience to the table, and felt comfortable sharing their areas of need from the classroom. We would like to emphasize that it is difficult for teachers and principals to implement RTI/MLSS at their schools without appropriate professional development, and one of our future goals is to develop similar tools for other school sites that can aid in their practice of state mandates.

Limitations, Future Directions, and Conclusions

More studies are needed in rural areas to corroborate our findings. Our study targeted a sample size of over 100 students, but we need larger sample sizes to generalize findings to other rural areas in New Mexico and to other states. Moreover, we had only a small sample of English Learners (ELs) and students with disabilities, and these populations need to be studied more in these contexts to extend the extant literature in the field. Secondly, the remote area in which the school was located and the distance from the city allowed us an opportunity to connect with teachers online but not in-person. We believe we would have seen better reading outcomes if we were on the school site more often to observe students and provide timely feedback to teachers on reading assessment and instruction. Thirdly, access to resources is a problem that needs

to be addressed in the rural areas. For example, our teachers were trained in the Wilson Fundations® Reading Program[1], but it took them almost six months to receive all the materials for elementary grades to put their training into practice. Despite the limitations listed above, this article makes an important contribution to the literature by highlighting the efficacy of a tiered model of instruction for reading. When implemented with fidelity, it can improve reading outcomes for all students and reduce the number of students who are misidentified as being at-risk for learning disabilities.

Endnotes

[1]Fundations® is a structured literacy approach grounded in the science of reading that uses multisensory techniques for engaging students in reading, spelling and handwriting curricula.
[2]Wonders® is an evidence-based K-5 ELA program that allows students opportunities to assess and express themselves through reading, writing and speaking.
[3]Language Essentials for Teachers of Reading and Spelling (LETRS) ® is a comprehensive professional learning suite designed to provide early childhood and elementary educators with deep knowledge to be literacy and language experts in the science of reading.
[4]Heggerty® Phonemic Awareness curriculum provides a fast-paced and engaging way for you to teach daily phonemic awareness lessons in 12 minutes or less.
[5]FCRR is a free resource (www.fcrr.org) for educators to access the latest research in reading and a resource database that provides quick lessons in every area of reading by grade level.

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Sunaina Shenoy is an assistant professor in the Department of Special Education at the University of New Mexico. Her research interests are in assessment, early identification of reading disabilities in bilingual and multilingual populations, reading acquisition and dyslexia, reading instruction for struggling readers and students with reading disabilities, bilingual special education, second language acquisition, and international special education. Correspondence regarding this article can be sent to Dr. Sunaina Shenoy, Department of Special Education, MSC05 3045, 1 University of New Mexico, Albuquerque, NM-87131-0001, or email shenoy@unm.edu

Chris Johnson is currently enrolled at The University of New Mexico as a doctoral student in special education. His primary area of study is disproportionality in the special education identification of students of color. Chris has been a special educator for over 12 years in Texas, California, and New Mexico.

Allison Nannemann is an assistant professor in the Department of Special Education at the University of New Mexico. Before her faculty appointment, Dr. Nannemann was a special educator for many years with specialization in teaching students with visual impairments and mathematics instruction. Her current research interests focus on mathematics instruction for students with or at-risk for disabilities.

Appendix. Fidelity Checklist

Quarter: ☐ First ☐ Second ☐ Third ☐ Fourth

Grade: ☐ Kindergarten ☐ First ☐ Second ☐ Third ☐ Fourth ☐ Fifth ☐ Sixth

Dates of Instruction		Monday	Tuesday	Wednesday	Thursday	Total # of minutes
Week 1:	Time (in mins): Focus: Program/Resource:					
Week 2:	Time (in mins): Focus: Program/Resource:					
Week 3:	Time (in mins): Focus: Program/Resource:					
Week 4:	Time (in mins): Focus: Program/Resource:					
Week 5:	Time (in mins): Focus: Program/Resource:					
Week 6:	Time (in mins): Focus: Program/Resource:					

Week 7:	Time (in mins): Focus: Program/Resource:					
Week 8:	Time (in mins): Focus: Program/Resource:					

Legend:

Focus			Program/Resource
OL = Oral Language	BK = Background Knowledge	LK = Literacy Knowledge	D = Fundations
P = Phonemic Awareness	P&S = Phonics & Spelling	SW = Sight Words	L=LETTRS
F = Fluency	S = Syntax	V = Vocabulary	W=Wonders
C = Comprehension			H=Haggerty
Other: _____			F=FCRR
			Other: _____

Weeks	Standards Covered (by notation)	Student Evaluation/ Assessment (e.g., Oral, Written, CBM)	What is your goal for mastery of the task? (It should be 80% or more: e.g., 4/5 correct answers)	How many students in class/What percentage reached mastery? (e.g., 8/10 = 80% of students)	Next Steps for students who did not reach mastery (e.g., small group review, whole group review, one-on-one explicit instruction)
Week 1					
Week 2					
Week 3					
Week 4					
Week 5					
Week 6					
Week 7					
Week 8					

Students At-Risk: After 8 weeks of instruction: covering ____ standards (number of standards), students _____(student initials) seem to be at risk for reading difficulties in _____(list focus areas).