



## **The Rock 'n' Read Project**

**State Pilot—Years 4 & 5  
2019-2021**

# **Report**

**February 2021**

**To the MN Commissioner of Education and  
Minnesota Legislature Education Finance and Policy Committee  
Chairs and Ranking Minority Members**

**As required by:**

**2019 MN Special Session Laws  
SF4, Article 2, Subdivision 27**

# The Rock 'n' Read Project

## State Pilot—Years 4 & 5 2019-2021

2019 MN Special Session Laws  
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### 2019 LEGISLATIVE CHARGE

SF4, Article 2, Subdivision 27

Singing-based pilot program to improve student reading.

(a) For a grant to pilot a research-supported, computer-based educational program that uses singing to improve the reading ability of students in grades 2 through 5:

\$ 230,000 .....

(b) The commissioner of education shall award a grant to the Rock 'n' Read Project to implement a research-supported, computer-based educational program that uses singing to improve the reading ability of students in grades 2 through 5. The grantee shall be responsible for selecting participating school sites; providing any required hardware and software, including software licenses, for the duration of the grant period; providing technical support, training, and staff to install required project hardware and software; providing on-site professional development and instructional monitoring and support for school staff and students; administering preintervention and postintervention reading assessments; evaluating the impact of the intervention; and other project management services as required. To the extent practicable, the grantee must select participating schools in urban, suburban, and greater Minnesota, and give priority to schools in which a high proportion of students do not read proficiently at grade level and are eligible for free or reduced-price lunch.

(c) By February 15, 2021, the grantee must submit a report detailing expenditures and outcomes of the grant to the commissioner of education and the chairs and ranking minority members of the legislative committees with primary jurisdiction over kindergarten through grade 12 education policy and finance.

(d) Any balance in the first year does not cancel but is available in the second year.

(e) This is a onetime appropriation.

## SUMMARY

**This report chronicles remarkable results of a five-year state-funded program implementing a singing-based software reading intervention program, Tune into Reading (TiR), with more than 2000 2<sup>nd</sup> through 5<sup>th</sup> grade students at 25 schools, primarily those least proficient in reading and eligible for free/reduced-price lunch.**

**Due to disruptions in learning caused by the pandemic, this report recommends that all schools include TiR as part of their remedial plans, and the MN Legislature continue to fund TiR implementation for students with the greatest needs.**

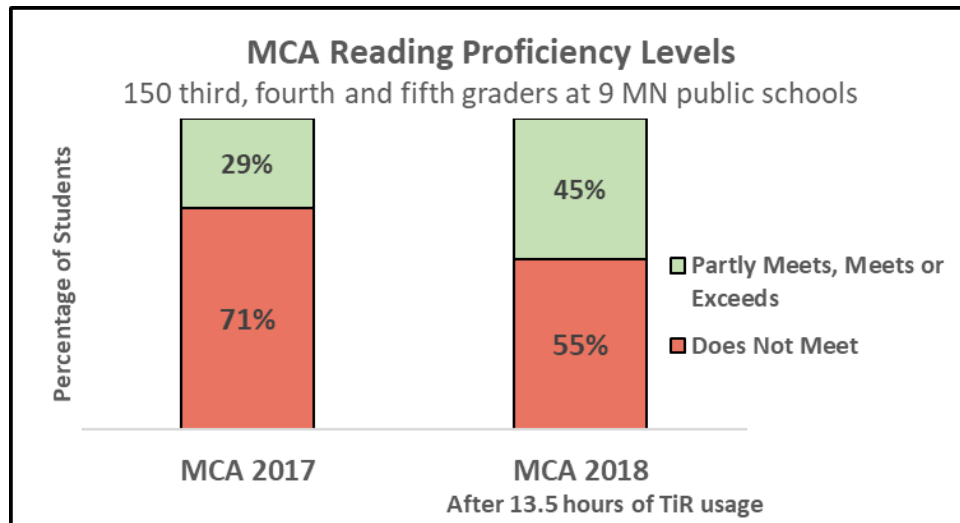
### Tune into Reading (TiR) Description

TiR is a software program used on computers or tablets at school or at home. Student licenses allow unlimited use for one calendar year. Students use TiR in groups of 20-25 students per adult. Each student is entered into the program at their reading level. The program contains over 200 songs analyzed for readability level, ranging from kindergarten through 8<sup>th</sup> grade. Using a microphone headset, each student sings to establish their vocal range, and after that, all songs are automatically pitched to be within their range. Students sing songs that progress to higher readability levels and read and reread the song lyrics while attempting to improve their singing accuracy. In this way, repeated reading is integrated into the singing program. Along with visual tracking of the words, the software provides a guideline for accurate pitch and tone, with a real time track line of the student's voice while they are singing. It captures their line so that they can see where they are in terms of pitch level. The instant feedback and built-in visual tracking system provides a fundamentally interactive experience that encourages the student to improve pitch throughout the song and during additional repeated singings (readings). Students receive rewards for singing accuracy, learn new words, and take a reading quiz after they have sung each song five times.

**Impact: More than 2000 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> grade students in 25 schools since 2016.**

### Results

1. TiR users gained one year in reading achievement (avg.) after a minimum of 13.5 hours of usage.
2. TiR users made substantial, statistically significant gains in reading.
3. Least-proficient students made the greatest gains.
4. 1/3 of students at Does Not Meet proficiency went up to Partly Meets on the MN Comprehensive Assessment (MCA) after using TiR for a minimum of 13.5 hours (see graph below).
5. More hours of usage resulted in greater reading gains.
6. TiR users made greater gains overall than did non-TiR users at the same schools.



### **Conclusions**

1. TiR is a **research-proven**, effective, efficient reading intervention.
2. TiR is **most effective with the least-proficient, greatest at-risk students**.
3. TiR is **cost-effective**. Students gain one year (avg.) in reading achievement after using TiR for a minimum of 13.5 hours. TiR can be used in groups of up to 25 students/adult.
4. TiR user's **rapid reading gains may be explained by neurological** changes in the brain. Neuroscientific research has found that music-making develops auditory perception and phonological awareness, beat synchronization (correlated with reading achievement), and can help strengthen connections between visual (symbols such as letters) and auditory (letter sounds) areas of the brain. (See Appendix B: Research Bibliography.)
5. Singing songs while reading lyrics **motivates students**.

### **Recommendations**

1. TiR be used as an intervention for all students not proficient in reading on MCAs.
2. The MN Legislature grant the estimated remainder from the 2019 grant, \$75,000, to implement TiR software in schools with large portions of students not proficient in reading and eligible for free or reduced-price lunch. Due to the pandemic, many schools that wanted to use TiR in 2020-'21 were unable to do so.
3. The MN Department of Education inform schools that singing and music-making enable brain development and reading achievement, and that TiR is a research-proven intervention that is effective and efficient.

## **INTRODUCTION**

Founded in 2014, The Rock 'n' Read Project (RnR) is a Minnesota 501(c)(3) nonprofit, dedicated to “using singing to unlock children’s potential for reading and learning.” RnR offers programs and professional development for teachers based on: 1) neuroscientific research about the effects of music-making on brain development, 2) research studies about the effects of music-making on reading achievement, and 3) research-proven singing strategies. In an effort to close Minnesota’s achievement gap, RnR partners with schools to implement a proven singing-based software program, Tune into Reading (TiR) that substantially and rapidly improves reading achievement, especially for students who are the least proficient in reading.

### **Brain Research**

Reading, unlike music and language, is not naturally “wired into” the brain. It is a skill that must be actively taught and developed. A growing accumulation of neuro-scientific evidence shows a significant correlation between early music-making and reading achievement. Music-making serves a critical purpose in childhood brain development, especially during the early years. With a growing number of students in the U.S. struggling to read, this link can no longer be ignored.

Research has found that parents who sing to their babies promote auditory neural processing, early language development, and enhanced communication. Preschoolers who can maintain a steady beat (synchronization) have more precise neural encoding of speech, and this is highly correlated with reading achievement. Conversely, children who *cannot* keep a steady beat almost always struggle with reading.

Both rhythm perception and letter-sound knowledge happen through phonological perception. Also, children who develop more accurate pitch awareness have better phonemic awareness. When children match letters to the sounds they represent, they actually grow new neural pathways between graphemic (visual) and phonemic (phonological) areas in the brain. Singing and rhythmic movement foster this growth while simultaneously motivating children to practice. (See Appendix B: Research Studies)

### **TiR Research Studies**

TiR is a research-proven, highly effective and efficient strategy to improve reading achievement, especially for least-proficient students. There have been five controlled research studies that investigated the effects of using singing-based TiR software program on reading achievement. All studies found that students made significant improvement in reading: one year gain (avg.) after 13.5 hours of usage over nine weeks. They also found that TiR was highly motivational for students. An analysis of 2005-'10 Florida Comprehensive Assessment Test (FCAT) in reading showed greater improvement for students using TiR compared with students non-TiR users. (See Appendix B: Research Studies).

Data analysis of Minnesota students on the MN Comprehensive Assessment (MCA) confirms the results of the research studies.

### **TiR Procedure**

RnR enters students’ names and reading grade levels, such as, a 5<sup>th</sup> grade student might be reading at a 2<sup>nd</sup> grade level. Using a microphone headset, each student sings from low-to-high to set their vocal range, and are given a folder of 20 songs. They choose a song (automatically pitched in their range) and listen to a female voice sing it three times while they read lyrics that

light up timed exactly with when they are sung. Students click on specific highlighted lyrics (new vocabulary words), see a picture, hear the word pronounced and listen to a definition. They sing the song with only instrumental accompaniment while reading the words and trying to match their voice—shown as a blue line in real time—with gray lines for pitch and rhythm. After each song, the student receives a star (gold, silver or bronze) based on accuracy in pitch and rhythm. After singing a song five times, a vocabulary and comprehension quiz appears. If the student answers 80% or more of the questions correctly, they are awarded points, and the song disappears from their folder. If the student scores below 80%, the song returns to the folder, and the entire process must be repeated until a score of 80% or above is achieved. When a student reaches their point goal for that level, the program moves up a grade level and provides a file of 20 new songs. If students fail to score at least 80% on three consecutive quizzes, the program automatically drops them down a level. If students score 100% on 10 quizzes, they are automatically moved up a grade level. It takes about seven hours to complete one grade level of 20 songs.



Because students are not told that they have been placed in the program at a specific reading level, there is no stigma for those who are singing songs with easier vocabulary, such as, a 3<sup>rd</sup> grader might be singing songs with 1<sup>st</sup> grade level words. Everyone is just singing songs.

TiR is personalized. Each student is tracked independently, with numerous reports available to teachers regarding completion rates, quiz scores, and how they answer different types of questions, such as comprehension, or inferential.

## RECRUITMENT AND IMPLEMENTATION

In spring and summer 2019 and 2020, RnR contacted principals of schools that met the criteria of having a large proportion of students not proficient in reading and eligible for free/reduced-price lunch. RnR presented an information session about TiR, the research and data about results, neuroscientific studies, and how TiR is used by students (on-site or virtually). RnR partnered with schools that agreed to schedule students so they would use TiR at least 13.5 hours (ideally 90 minutes per week for nine weeks) before the MCA was administered in the spring.

In the fall, RnR provided a one-hour professional development for teachers sharing research and data, and best practices and strategies for programmatic success with students. (See Appendix B: Presentation Slides). Then, teachers individually logged into TiR and practiced using it as would their students.

Each school chose which 2<sup>nd</sup>-5<sup>th</sup> graders would use TiR, and scheduled students so that they could use TiR about 90 minutes/week. RnR purchased TiR licenses, facilitated the software download, and entered students' names and reading grade levels into the program.

RnR provided an Opening Day for students and follow-up days on-site (virtually in fall 2020). RnR also trained teachers in how to access the personalized diagnostic and progress reports for each student. Throughout the school year, RnR provided support and coaching for students and teachers, sharing strategies about how to encourage reluctant singers and keep students motivated. All teachers at Stride Academy, a charter School in St. Cloud, also received a 12-hour course in how to implement singing strategies with existing curricula with all students in their classrooms, and on-site coaching. A wrap-up discussion was held at the end of the year. Pre- and post-surveys of teachers at Stride Academy indicated that teachers became much more comfortable facilitating singing with students and using singing in the classroom. Overall, staff and administrators viewed the program positively, finding that singing enlivened and motivated students. They were pleased with the attentiveness of RnR consultants and the depth of information and support provided throughout the year.

## **DATA COLLECTION AND ANALYSIS**

Each fall, all 2<sup>nd</sup>-5<sup>th</sup> grade students at the participating schools took the FastBridge aReading (or the NWEA MAP test in 2020) When TiR users had achieved a minimum of 13.5 hours of usage, all 2<sup>nd</sup>-5<sup>th</sup> graders took the FastBridge aReading test again, usually in the winter, however, students at some schools did not complete 13.5 hours until spring. RnR created an Excel spreadsheet with each individual's pre-test and post-test score and percentage change, and the average change for each classroom and grade. RnR shared the spreadsheets with principals, and with an analysis of reading gains by class, grade, and TiR users vs. non-TiR users.

In fall 2018 and fall 2019, RnR contracted with data analyst Pete Talbert to compare MCA reading score gains for 4<sup>th</sup> and 5<sup>th</sup> graders who used TiR for a minimum of 13.5 hours vs. non-TiR users. (See Appendix A: Assessment Data and Analysis for individual school results from 2018-'19). Due to the COVID-19 pandemic, schools did not administer the MCA in 2020. Thus, Rock 'n' Read was unable to analyze the reading gains of students participating in the 2019-'20 school year.

## **YEAR 1**

In May 2016, the MN Legislature allocated a \$100,000 grant to The Rock 'n' Read Project (RnR) to implement a state pilot using TiR with 3<sup>rd</sup>-5<sup>th</sup> graders at schools with a high proportion of students not reading at grade level and eligible for free/reduced-price lunch. RnR chose four schools: Bancroft Elementary (Minneapolis Public), College Prep Elementary (St. Paul charter), Jefferson Community School (Minneapolis Public), Tesfa International School (St. Paul charter). Schools chose which students would participate. English Language students comprised 40-75% of the populations at the four schools. TiR users were scheduled for three 30-minute sessions per week, amassing between 13.5 hours to 40 hours during the year.

## **Results**

Overall, TiR users made substantially more gain than non-TiR users who were reading below grade level in the fall. FastBridge aReading pre-, mid- and post-tests were used to calculate student gains. Additionally, 4<sup>th</sup> and 5<sup>th</sup> grade students at Bancroft Elementary who used TiR were found to have made significantly more reading gain (avg.) on MCAs than non-TiR users.

288 students used TiR in 2016-'17.

## **YEAR 2**

In May 2017, the Minnesota Legislature allocated a \$500,000 grant to The Rock 'n' Read Project (RnR) to continue the pilot for two more school years. The only change in Year 2 was to expand the target group from 3<sup>rd</sup>-5<sup>th</sup> to 2<sup>nd</sup>-5<sup>th</sup> graders. Ten schools were selected: Bancroft Elementary (Minneapolis Public) \*, Cityview Community School (Minneapolis Public)\*\*, Garden City (Osseo Public), LoveWorks Academy for Visual and Performing Arts (charter in Minneapolis), Mastery School (Harvest school charter in Minneapolis), NE College Prep (charter in Minneapolis), Rothsay (Rothsay, MN Public), Stonebridge World School (charter in Minneapolis), Tesfa International (charter in Columbia Heights)\*, Valley View Elementary (Columbia Heights Public).

\*2<sup>nd</sup> year in pilot. \*\*Cityview stopped using TiR in October because teachers felt overwhelmed due to a new reading curriculum and wanted more time to teach reading.

Schools chose which 2<sup>nd</sup>-5<sup>th</sup> grade students would use TiR. Four of the ten schools used TiR with all students. Unfortunately, given scheduling conflicts, days off, and absences, rarely did schools accomplish the scheduled 90 minutes/week. Thus, it took many months for students to complete the minimum 13.5 hours of usage.

748 students used TiR in 2017-'18.

## **Results**

The analysis of reading gains on both FastBridge aReading assessments and MCA showed substantial gains in reading, especially for lowest-scoring students. Overall, TiR users made statistically significant gains in MCA reading levels, and their gains were greater than those of students who did not use the program. Lowest-scoring readers made the greatest gains overall. 1/3 of 4<sup>th</sup> and 5<sup>th</sup> graders who had scored at the Does Not Meet level in reading on the 2017 MCA went up to Partly Meets on the 2018 MCA after 13.5 hours of usage. In comparison, the 4<sup>th</sup> and 5<sup>th</sup> grade non-TiR users at the nine schools did not make significant gains in proficiency levels. (See graph in Appendix A: Assessment Data and Analysis.)

## **YEAR 3**

Due to many factors documented in the Rock 'n' Read Project February 2019 report, none of the Pilot 2 Year schools continued the program. Unfortunately, their decisions were made before receiving the MCA data analysis that showed substantial gains in reading. Four schools enrolled for 2018-'19, all in greater Minnesota: Brown's Valley Elementary (Brown's Valley Public), Breckenridge Elementary (Breckenridge Public), Heron Lake-Okabena Elementary (Heron Lake-Okabena Public), and Stride Academy (charter in St. Cloud).



544 students used TiR in 2018-‘19.

## **Results**

The results of the MCA assessment comparison show that the more hours of TiR usage, the greater the achievement gain for the students. (See Appendix A for individual school analysis).

### **YEAR 4**

Four schools participated: two from the prior year, Breckenridge Elementary (Breckenridge Public) and Stride Academy (charter in St. Cloud), and two were new: Sheridan Hills (Richfield Public), STEM (Richfield Public), Stride Academy (charter in St. Cloud).

<b>School</b>	<b>Not proficient—MCAs</b>	<b>Free/reduced lunch</b>	<b>EL</b>
<b>Rounded %</b>			
Breckenridge	40%	43%	3%
Richfield STEM	58%	53%	22%
Sheridan Hills	49%	50%	28%
Stride Academy	53%	70%	51%

<b>School</b>	<b>Hispanic or Latino</b>	<b>American Indian or Alaska Native</b>	<b>Asian</b>	<b>Black or African American</b>	<b>Native Hawaiian or Other Pacific Islander</b>	<b>White</b>	<b>2 or more Races</b>
<b>Rounded %</b>							
Breckenridge	9%	2%	1%	0%	0%	80%	8%
Richfield STEM	21%	1%	8%	15%	0%	40%	14%
Sheridan Hills	24%	1%	10%	16%	0%	38%	12%
Stride Academy	1%	0%	1%	65%	0%	25%	4%

This fall, TiR was also available for use on tablets, allowing many schools that had discontinued their computer labs to use TiR. Richfield STEM and Sheridan Hills used TiR in an after-school intervention program while Breckenridge and Stride continued using it during the school day.

411 students used TiR in 2019-‘20.

RnR also provided professional development for 32 teachers at Stride Academy in how to implement singing-based strategies with existing curricula in their classrooms. This entailed 12 hours of professional development and follow-up mentoring in the classroom. From a pre- and post-survey, there was a dramatic rise in confidence regarding using these strategies.

TiR was implemented with integrity at all four schools until they closed in March due to the COVID-19 pandemic. Given the difficulty of virtual learning, schools did not continue TiR.

## **Results**

In fall 2019, the FastBridge aReading assessment was administered to all 2<sup>nd</sup>-5<sup>th</sup> graders at the four schools. Due to school closings in March in response to the COVID-19 virus, the post-program FastBridge aReading assessment and 2020 MCAs were not completed. Thus, RnR was unable to analyze reading gains. Given the fidelity of usage, RnR would expect that TiR users made similar gains in reading achievement as have students in prior years.

## YEAR 5

Many schools expressed desire to implement TiR, but due to the continuing COVID-19 pandemic, were unable to do so. One school, Stride Academy (charter in St. Cloud) continued, and two, Achieve Language Academy (charter in St. Paul), and the Boys and Girls Club at Centennial Elementary (Richfield Public) were new.

School	Not proficient—MCAs	Free/reduced lunch	EL
<b>Rounded %</b>			
Achieve Language Acad.	52%	83%	38%
BCG at Centennial	64% (2019)	79%	49%
Stride Academy	53% (2019)	70%	51%

School	Hispanic or Latino	American Indian or Alaska Native	Asian	Black or African American	Native Hawaiian or Other Pacific Islander	White	2 or more Races
<b>Rounded %</b>							
Achieve Language	44%	0%	33%	10%	1%	10%	3%
BCG at Centennial	54%	2%	4%	21%	0%	12%	7%
Stride Academy	5%	0%	0%	65%	0%	25%	4%

Sites administered either the Fast Bridge aReading or the NWEA MAP assessment in fall 2020. BCG at Centennial started some students on TiR at school and some virtually at home. Achieve and Stride students have been virtual all year. Some TiR users have logged many hours while others have slowed or stopped using TiR while attending school virtually.

At the time of this report, schools are still planning to start more students on TiR, so a final count of users is not yet available. The positive side of distance learning is that students accessing TiR at home can log as many hours as they desire.

## CHALLENGES AND SOLUTIONS

### #1 Challenge: Lack of time to schedule TiR during the school day

#### Solution:

1. Encourage schools to implement TiR in after-school or at-home programs.
2. Recruit community organizations that provide before and after-school programs.
3. Implement the new web-based TiR version for use at home.

### #2 Challenge: Principals and teachers are often skeptical that singing can be effective in raising reading achievement.

#### Solution:

1. Request the MN Department of Education inform schools that there is ample research showing music-making enables brain development and reading achievement.
2. Request that the MN Department of Education inform schools that TiR is a research-proven, effective and efficient reading intervention.
3. Continue to share brain research and music research studies, TiR research and MN student data using MCAs.

**#3 Challenge: Teachers are often unaware that TiR users are making gains.**

**Solution:**

1. Instead of only sharing the mid-year FastBridge gain analysis with principals, meet with the teachers and the principal to present and discuss the analysis of gains for TiR users, non-TiR users, class, and grade.

**#4 Challenge: Some principals and teachers do not trust that TiR users' gains are due to singing with TiR.**

**Solution:**

1. Share the MCA analysis that found that TiR users made statistically significant gains in levels—especially those who were at Does Not Meet proficiency. In comparison, the non-TiR students at those same schools did *not* make statistically significant gains in levels given the reading strategies and approaches they were given.

**#5 Challenge: Some students need other alternative interventions.**

**Solution:**

1. While TiR is an effective intervention for the majority of students, some will need other alternative interventions.

**#6 Challenge: Many teachers are uncomfortable singing**

**Solution:**

1. RnR will continue to reassure teachers that they do not have to sing; they merely facilitate students' singing with the program.
2. RnR offers professional development in how to use singing with existing curricula in the classroom.

**EXPENDITURES**

	<b>The Rock 'n' Read Project MN State Grant</b>	<b>\$230,000</b>
	<b>Expenditures July 1, 2019—June 30, 2020</b>	
110	Administrative/Supervision	57,200
366	Travel/Mileage	3,275
380	Rental Equipment	4,000
401	Supplies and Materials	2,000
404	Instructional Software Licensing	19,035
	<b>Year 4 2019-'20</b>	<b>TOTAL</b>
		<b>\$85,510</b>
	<b>Year 5 2020-'21</b>	<b>Estimate</b>
		<b>\$70,000</b>
	<b>Years 4 + 5</b>	<b>Estimate</b>
		<b>\$155,510</b>
	<b>Unused remainder of MN Legislative grant</b>	<b>\$74,490</b>

Administrative/Supervision

Administration of the grant, drafting contracts and agreements, allocating expenses, professional development, data analysis, and reporting.

### Travel/Mileage

Reimbursement for travel and mileage expense at current IRS rate for contractors.

### Hardware Rental Fee

Rental fees for hardware and headsets used to implement TiR.

### Supplies and Materials

Materials and supplies used in implementing the program.

### Instructional Software Licensing

Fees paid to Electronic Learning Products for TiR licenses.

## **COST-BENEFIT ANALYSIS**

TiR is cost-effective to implement in schools because 1) it takes only a short time—13.5 hours (avg.)—to achieve one year's gain, 2) TiR is used in groups, 20-25 students per adult, and 3) the adult can be a paraprofessional, at lower cost. In Year 4, expenses were \$85,510 for 411 TiR users, or **\$208 per student**. Adding in the cost of an adult facilitator for 13.5 hours per group, the cost per student was less than \$250.

## **CONCLUSIONS**

### **1. TiR is effective**

- Students improve substantially: one year (avg.) in 13.5 hours of usage.
- Struggling readers, often reading one or more years behind their peers, make the greatest improvement, thus narrowing the achievement gap.
- TiR improves reading achievement across all demographic levels, including race, gender, ELL, and SES.

### **2. TiR is efficient**

- Students gain one year (avg.) after 13.5 hours of usage in as little as nine weeks.

### **3. TiR is personalized**

- Each student is given songs to read at their own reading level, and the program automatically adjusts to meet individual needs.
- Each student works at their own pace.
- Students are able to monitor their own progress.
- Teachers can monitor students' progress via personalized diagnostic reports.

### **4. Singing increases motivation**

- Many struggling readers start to give up; singing-to-read is unique, fun, and motivating.
- Many students resist having to stop using TiR when a scheduled session ends. It is now possible to additionally use TiR at home.

### **5. Students gain confidence**

- Students receive immediate feedback for singing via stars on the screen.
- Students receive quiz scores immediately, and see their point total on the screen.
- Teachers and students celebrate each time a student achieves their point goal and moves up a level (takes about 7 hours). This includes a certificate, class recognition, and sometimes a book.

## **6. Singing with TiR fosters collaboration and cooperation**

- Students encourage each other by informally sharing the number of stars and points they are earning.
- When a student notices they have the identical song list as another student, they sometimes choose the same song and sing it simultaneously.
- Students help each other with new vocabulary words and song comprehension.

## **RECOMMENDATIONS**

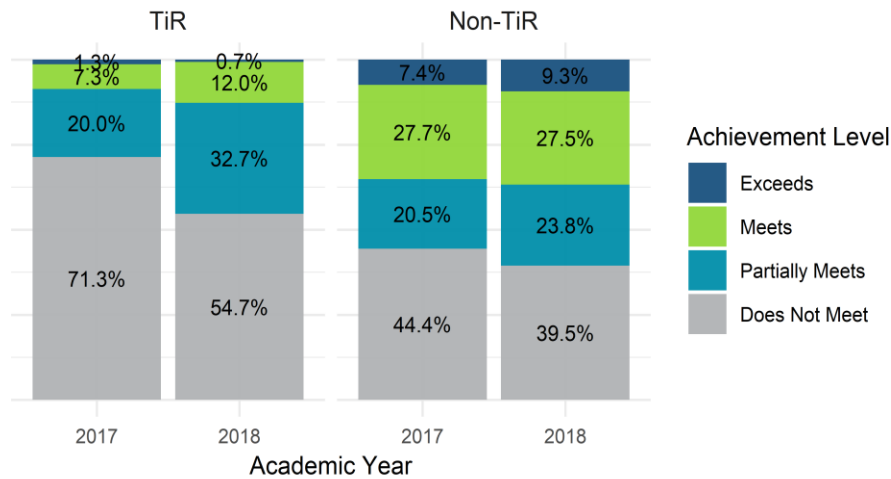
1. TiR be used as an intervention for all students not proficient in reading on MCAs.
2. The MN Legislature grant the estimated remainder from the 2019 grant, \$75,000, to implement TiR software in schools with large portions of students not proficient in reading and eligible for free or reduced-price lunch. Due to the pandemic, many schools that wanted to use TiR in 2020-'21 were unable to do so.
3. The MN Department of Education inform schools that singing and music-making enable brain development and reading achievement, and that TiR is a research-proven intervention that is effective and efficient.

## APPENDICES

### APPENDIX A: ASSESSMENT DATA AND ANALYSIS

**YEAR 2** (Individual school data and analysis was detailed in *The Rock 'n Read Project Report on the State Pilot Years 2 & 3, 2017-2019*, available upon request)

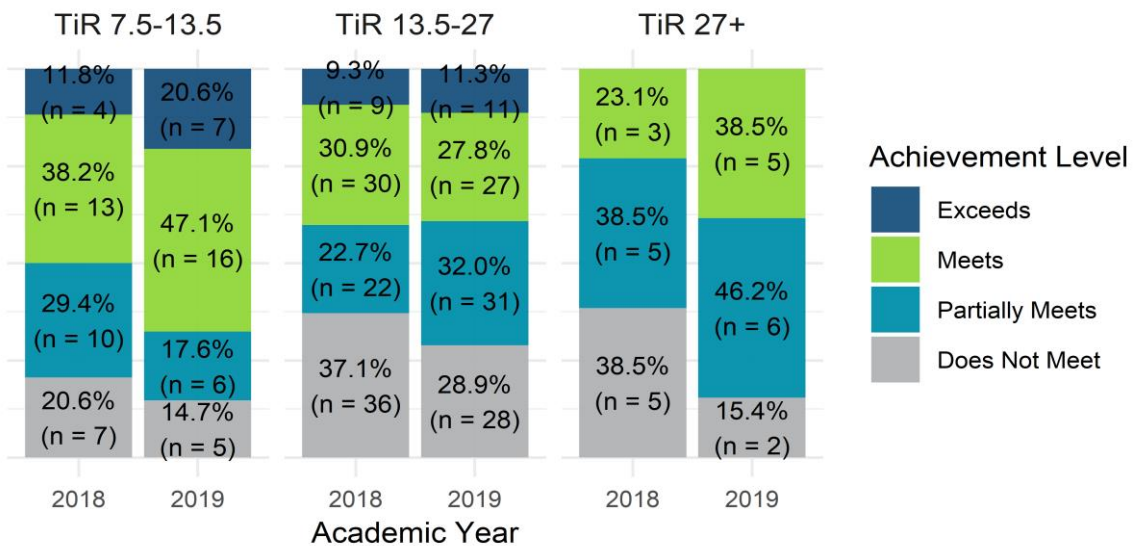
MCA Achievement Level for TiR and Non-TiR Participants



### YEAR 3

The FastBridge aReading assessment was used during school year 2018-'19 as a pre- and post-measurement of reading progress at three of the four schools. The other school used a different assessment. Given the assessment results, schools added or removed students from TiR in the winter. Data analyst Pete Talbert was contracted to analyze MCA gains.

MCA Achievement Level for TiR Participants



## Breckenridge Elementary (Breckenridge Public)

All 2<sup>nd</sup> through 5<sup>th</sup> grade students used TiR until they had achieved 13.5 hours. They then targeted specific students to continue. Unfortunately, RnR was unaware that the school used a different FastBridge assessment than aReading, so RnR did not analyze those scores. The MCA analysis for 4<sup>th</sup> and 5<sup>th</sup> graders is below.

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### *Rock 'n' Read Project - Breckenridge Elementary - 2018-2019*

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Pete Talbert  
1/20/2020

#### Introduction

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This analysis compared students at Breckenridge Elementary who participated in the Tune into Reading (TiR) program; specifically, it compared students who received different “doses” of treatments: 7.5-13.5 hours, 13.5-27 hours, and greater than 27 hours.

Overall, there were 17 students included in the analysis:

- 11 participants with 7.5-13.5 hours,
- 6 participants with 13.5-27 hours, and
- 0 participants with 27+ hours.

A number of students were excluded from the initial dataset for not having both 2018 and 2019 MCA-III reading scores.

Below is a table showing the total count of students by TiR participation and grade levels.

#### *TiR Participation by Grade*

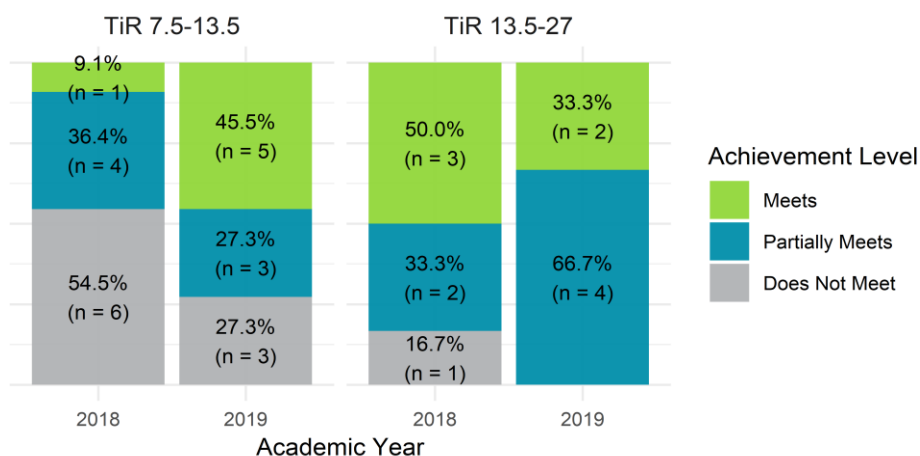
Grade Level	TiR Participant	n
3-4	TiR 13.5-27	6
4-5	TiR 7.5-13.5	11

#### Change by Achievement Level

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How did the different doses of TiR participation perform on the MCAs from 2018 to 2019? The MCA-III reading assessment has four achievement level descriptors: Does Not Meet Standards, Partially Meets Standards, Meets Standards, and Exceeds Standards.

### MCA Achievement Level for TiR Participants



### Difference in proportions of Does Not Meet

From the plot above we did see a fairly significant decrease in the number of TiR participants who scored at Does Not Meets. Is this statistically significant?

I compute separate t-tests for the differences in proportions of students who achieved Does Not Meets. The null hypothesis here is that the 2019 Does Not Meet proportion is equal to the 2018 proportion, and the alternative is that the 2019 Does Not Meet proportion is *less than* 2018. (Note: I could not perform a t-test for the 13.5-27 group because there were not students at the Does Not Meet level in 2019.)

TiR Participation	estimate1	estimate2	statistic	p.value
TiR 7.5-13.5	0.273	0.545	0.752	0.193

In the table above, *estimate1* is the proportion of TiR students who were Does Not Meet in 2019 ; *estimate2* is the proportion of TiR students who were Does Not Meet in 2018. All the statistical test is asking is whether *estimate1* is significantly less than *estimate2*. The same test is run for all levels of doses of TiR participation available. The *p.value* tells us whether the test was significant: traditionally, if it is less than .05, then the test is significant.

Here, we do not see a p-value less than .05, so we can't say any of the drops in Does Not Meet were statistically significant, although we do see promising gains for the 7.5-13.5 group. One reason for the non-significant findings may be that the sample size is too small to detect real growth in performance on the MCA.

### Browns Valley (Browns Valley Public)

All 2<sup>nd</sup> through 5<sup>th</sup> graders used TiR during the 2018-'19 school year. Unfortunately, RnR was not aware that the school was utilizing a different FastBridge assessment than the aReading, so Rock 'n' Read was unable to calculate overall yearly gain.

### Rock 'n' Read Project - Browns Valley - 2018-2019



## Introduction

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This analysis compared students at Browns Valley who participated in the Tune into Reading (TiR) program; specifically, it compared students who received different “doses” of treatments: 7.5-13.5 hours, 13.5-27 hours, and greater than 27 hours.

Overall, there were 27 students included in the analysis:

- 0 participants with 7.5-13.5 hours,
- 27 participants with 13.5-27 hours, and
- 0 participants with 27+ hours.

A number of students were excluded from the initial dataset for not having both 2018 and 2019 MCA-III reading scores.

Below is a table showing the total count of students by TiR participation and grade levels.

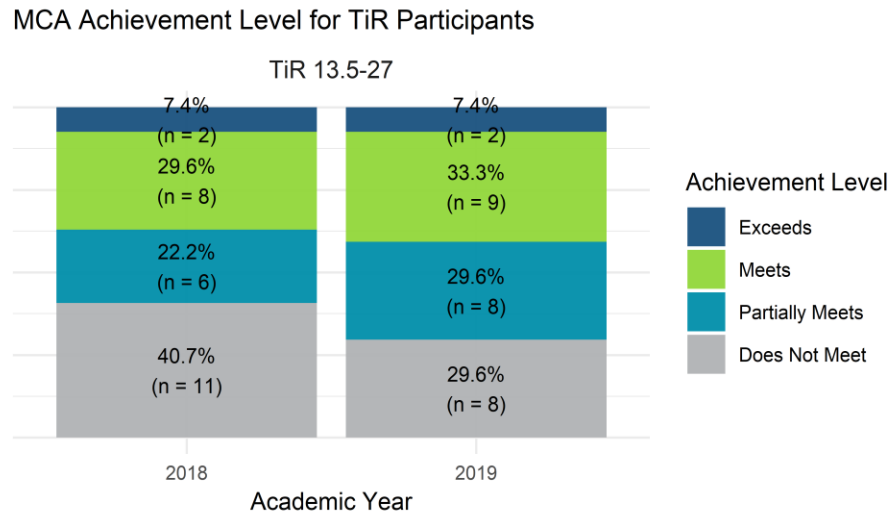
### *TiR Participation by Grade*

Grade Level	TiR Participant	n
3-4	TiR 13.5-27	12
4-5	TiR 13.5-27	15

## Change by Achievement Level

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How did the different doses of TiR participation perform on the MCAs from 2018 to 2019? The MCA-III reading assessment has four achievement level descriptors: Does Not Meet Standards, Partially Meets Standards, Meets Standards, and Exceeds Standards.



## Difference in proportions of Does Not Meet

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From the plot above we did see a fairly significant decrease in the number of TiR participants who scored at Does Not Meets. Is this statistically significant?

I compute separate t-tests for the differences in proportions of students who achieved Does Not Meets. The null hypothesis here is that the 2019 Does Not Meet proportion is equal to the 2018 proportion, and the alternative is that the 2019 Does Not Meet proportion is *less than* 2018.

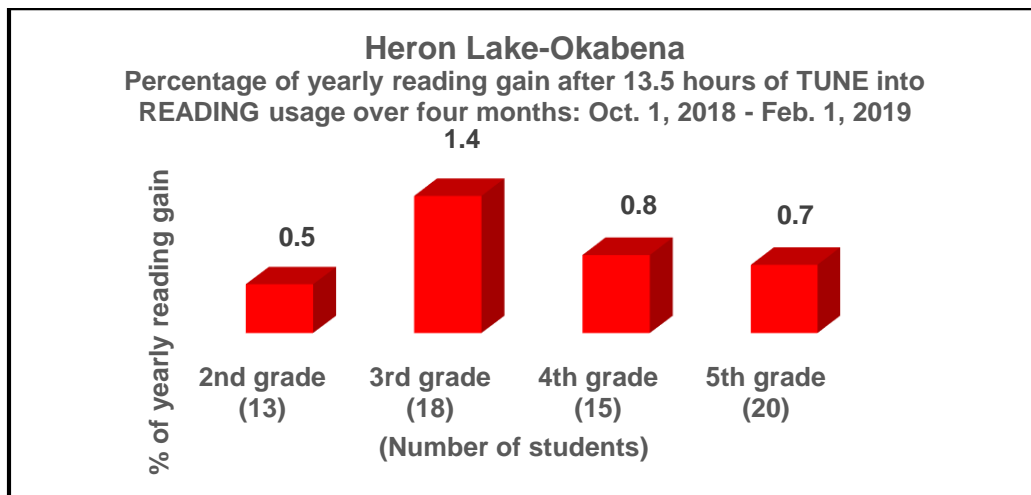
TiR Participation	estimate1	estimate2	statistic	p.value
TiR 13.5-27	0.296	0.407	0.325	0.284

In the table above, *estimate1* is the proportion of TiR students who were Does Not Meet in 2019 ; *estimate2* is the proportion of TiR students who were Does Not Meet in 2018. All the statistical test is asking is whether *estimate1* is significantly less than *estimate2*. The same test is run for all levels of doses of TiR participation available. The *p.value* tells us whether the test was significant: traditionally, if it is less than .05, then the test is significant.

Here, we do not see a p-value less than .05, so we can't say any of the drops in Does Not Meet were statistically significant, although we do see promising gains. One reason for the non-significant findings may be that the sample size is too small to detect real growth in performance on the MCA.

### Heron Lake-Okabena (Heron Lake-Okabena Public)

All 2<sup>nd</sup> through 5<sup>th</sup> grade students used TiR during the 2018-'19 school year, and obtained at least 13.5 hours on TiR over four months. These are the overall reading gains on the Fast aReading assessment:




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### Rock 'n' Read Project - Heron Lake-Okabena Elementary - 2018-2019

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Pete Talbert  
1/20/2020

## Introduction

This analysis compared students at Heron Lake-Okabena Elementary who participated in the Tune into Reading (TiR) program; specifically, it compared students who received different “doses” of treatments: 7.5-13.5 hours, 13.5-27 hours, and greater than 27 hours.

Overall, there were 31 students included in the analysis:

- 0 participants with 7.5-13.5 hours,
- 18 participants with 13.5-27 hours, and
- 13 participants with 27+ hours.

A number of students were excluded from the initial dataset for not having both 2018 and 2019 MCA-III reading scores.

Below is a table showing the total count of students by TiR participation and grade levels.

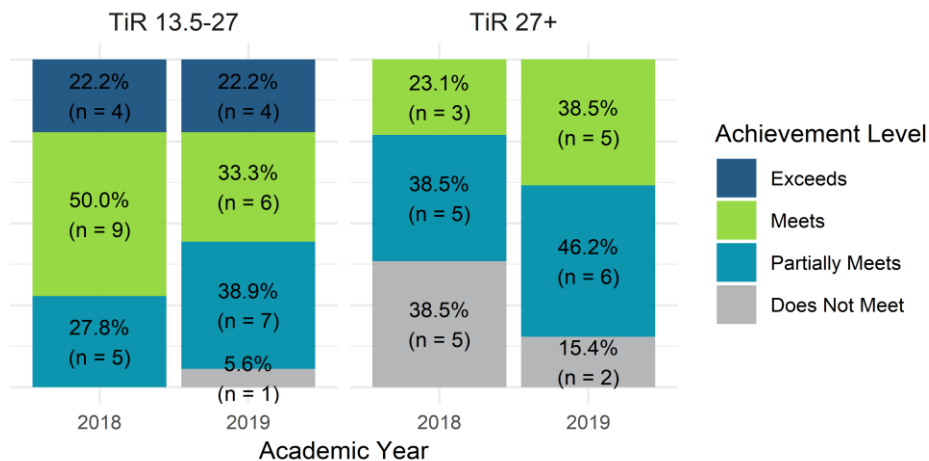
### *TiR Participation by Grade*

Grade Level	TiR Participant	n
3-4	TiR 13.5-27	15
4-5	TiR 27+	13
4-5	TiR 13.5-27	3

## Change by Achievement Level

How did the different doses of TiR participation perform on the MCAs from 2018 to 2019? The MCA-III reading assessment has four achievement level descriptors: Does Not Meet Standards, Partially Meets Standards, Meets Standards, and Exceeds Standards.

MCA Achievement Level for TiR Participants



## Difference in proportions of Does Not Meet

From the plot above we did see a fairly significant decrease in the number of TiR participants who scored at Does Not Meets who received more than 27 hours. Is this statistically significant?

I compute separate t-tests for the differences in proportions of students who achieved Does Not Meets. The null hypothesis here is that the 2019 Does Not Meet proportion is equal to the 2018 proportion, and the alternative is that the 2019 Does Not Meet proportion is *less than* 2018. (Note: I could not perform a t-test for the 13.5-27 group because there were not students at the Does Not Meet level in 2018.)

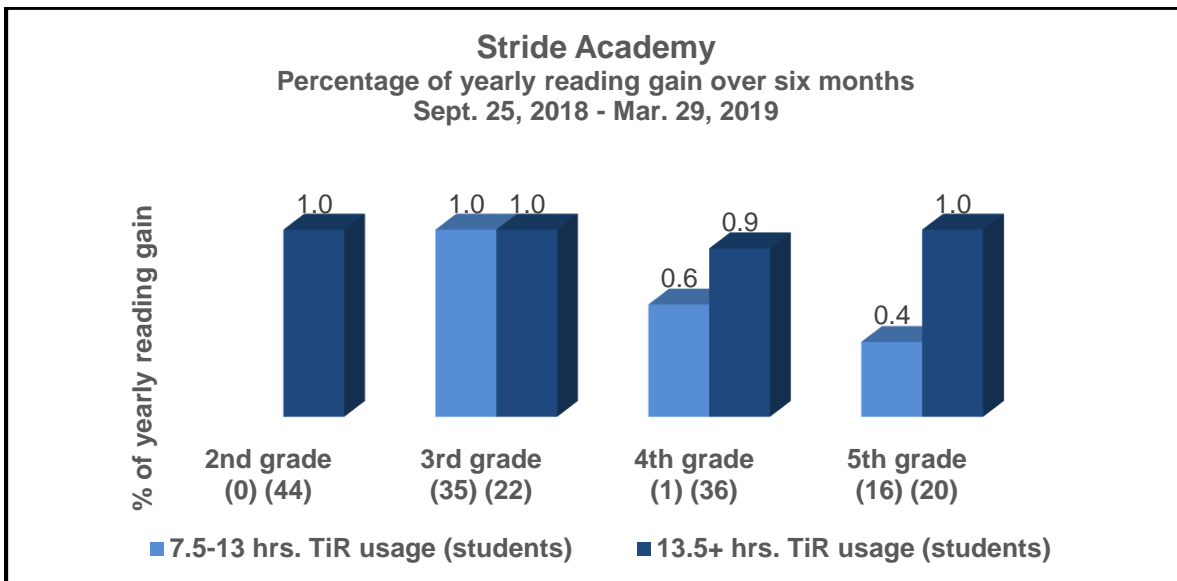
TiR Participation	estimate1	estimate2	statistic	p.value
TiR 27+	0.154	0.385	0.782	0.188

In the table above, *estimate1* is the proportion of TiR students who were Does Not Meet in 2019 ; *estimate2* is the proportion of TiR students who were Does Not Meet in 2018. All the statistical test is asking is whether *estimate1* is significantly less than *estimate2*. The same test is run for all levels of doses of TiR participation available. The *p.value* tells us whether the test was significant: traditionally, if it is less than .05, then the test is significant.

Here, we do not see a p-value less than .05, so we can't say any of the drops in Does Not Meet were statistically significant, although we do see promising gains for the 27+ group. One reason for the non-significant findings may be that the sample size is too small to detect real growth in performance on the MCA.

### Stride Academy

All 2<sup>nd</sup> through 5<sup>th</sup> grade students used TiR during the 2018-'19 school year, but given difficulties in scheduling, it took six months for the majority of students to obtain 13.5 hours on TiR. This is a comparison between students who obtained half the "minimum dose" with those who obtained at least 13.5 hours. These are their gains on the Fast aReading assessment.



Note: 3<sup>rd</sup> graders in the 7.5-13 hr. category averaged 11-12 hrs., just short of the 13.5 hour "minimum."

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## **Rock ‘n’ Read Project - STRIDE Academy - 2018-2019**

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Pete Talbert  
1/20/2020

### Introduction

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This analysis compared students at STRIDE Academy who participated in the Tune into Reading (TiR) program; specifically, it compared students who received different “doses” of treatments: 7.5-13.5 hours, 13.5-27 hours, and greater than 27 hours.

Overall, there were 69 students included in the analysis:

- 23 participants with 7.5-13.5 hours,
- 46 participants with 13.5-27 hours, and
- 0 participants with 27+ hours.

(Note: for STRIDE Academy, there were three students who were in the 27+ category; because this count was too small they are in the 13.5-27 group.)

A number of students were excluded from the initial dataset for not having both 2018 and 2019 MCA-III reading scores.

Below is a table showing the total count of students by TiR participation and grade levels.

#### *TiR Participation by Grade*

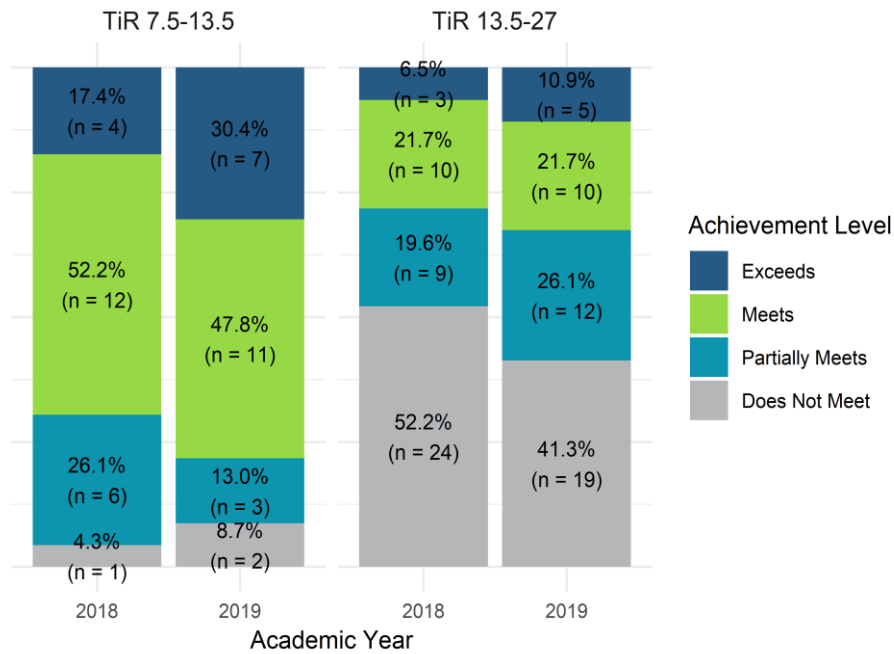
Grade Level	TiR Participant	n
3-4	TiR 13.5-27	32
3-4	TiR 7.5-13.5	1
4-5	TiR 13.5-27	14
4-5	TiR 7.5-13.5	22

### Change by Achievement Level

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How did the different doses of TiR participation perform on the MCAs from 2018 to 2019? The MCA-III reading assessment has four achievement level descriptors: Does Not Meet Standards, Partially Meets Standards, Meets Standards, and Exceeds Standards.

## MCA Achievement Level for TiR Participants



### Difference in proportions of Does Not Meet

From the plot above we did see a fairly significant decrease in the number of TiR participants who scored at Does Not Meets. Is this statistically significant?

I compute separate t-tests for the differences in proportions of students who achieved Does Not Meets. The null hypothesis here is that the 2019 Does Not Meet proportion is equal to the 2018 proportion, and the alternative is that the 2019 Does Not Meet proportion is *less than* 2018.

TiR Participation	estimate1	estimate2	statistic	p.value
TiR 7.5-13.5	0.087	0.043	0.000	0.500
TiR 13.5-27	0.413	0.522	0.699	0.202

In the table above, *estimate1* is the proportion of TiR students who were Does Not Meet in 2019 ; *estimate2* is the proportion of TiR students who were Does Not Meet in 2018. All the statistical test is asking is whether *estimate1* is significantly less than *estimate2*. The same test is run for all levels of doses of TiR participation available. The *p.value* tells us whether the test was significant: traditionally, if it is less than .05, then the test is significant.

Here, we do not see a p-value less than .05, so we can't say any of the drops in Does Not Meet were statistically significant, although we do see promising gains for the 13.5-27 group. One reason for the non-significant findings may be that the sample size is too small to detect real growth in performance on the MCA.

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## Research-Proven Programs

### 1. TUNE into READING (TiR) Software Program

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### 2. Cognitivo-Musical Training (CMT)

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### 3. Affirming Parallel Concepts (APC)

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### 4. Same-Language-Subtitling (SLS)

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