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LEARNERS & LEADERS

# Action Research Journal

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**Will Providing Parent Education and Understanding of Early Childhood Literacy Development  
Growth in the Early Reading Skills of Their Child with a Speech Sound Production Impairment?**

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**Author Note**

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**Abstract**

This action research study examined the relationships between parent education of early literacy skills to the student with speech sound production disorders to increase their literacy development. Parents were instructed on eight literacy topics through video lessons. Students were given baselines during normal therapy sessions. Parents were given a pre and post assessment to determine their growth of knowledge. Data shows all parent participants increased their rate of knowledge of early literacy skills. Data also showed students increased their development compared to non participant peers. Results suggest implementing parent education in literacy development for students with speech sound production disorders.

*Keywords:* early literacy, speech sound production disorder, parent education

**Will Providing Parent Education and Understanding of Early Childhood Literacy Development Growth in the Early Reading Skills of Their Child with a Speech Sound Production Impairment?**

Children with identified speech sound disorders (SSDs) have an increased risk of having difficulties with learning to read (Anthony et al., 2011). As members of the Oconomowoc Area School District (OASD) early childhood team, we believe that literacy development should begin with our littlest learners. Many of the students receiving early childhood speech services are between the ages of 3 and 4 years old. These students are spending the majority of their time in their home environment with their parents or in a structured daycare setting, which gives our early childhood team the perfect opportunity for partnership. With appropriate and meaningful parent and school collaboration, our team poses this question: Will providing parent education and understanding of early childhood literacy development advance the early reading skills of their child with a speech sound production impairment?

Parent communication and involvement is critical in supporting the progress that is being made in speech therapy sessions. Preschool children who participate in a speech home program are more likely to show gains in functional communication than those who complete no home program at all. This is according to data on more than 20,000 completed cases collected from 1999-2018 by American Speech-Language-Hearing Association's (ASHA's) National Outcome Measurement Systems (NOMS). As part of the speech therapy structure for OASD's early childhood learners, parents of children with SSDs receive individualized daily work to target speech sound goals for home practice. Our action research project is focused on incorporating literacy-based instruction into the already established speech home programming routine. By doing this, our hopes are that there will be increased involvement and knowledge

by parents and that a connection between speech sound production and early literacy skills will be made.

According to current data for the 2020-2021 school year, OASD students with an identified speech and language impairment have scored below average on both MAPS and FAST district-wide assessments when compared to same-age students without a disability (SwoD). According to the Winter 2020 Reading MAPS data for five-year-old Kindergarten, children with speech and language impairments scored 7.02 (SwoD= 159.25) points below children identified without an impairment. Spring 2021 Reading MAPS data for five-year-old Kindergarten, children with speech and language impairments scored 6.95 (SwoD = 166.23) points below children identified without an impairment. Reading MAPS data for first grade showed a similar pattern as the five-year-old Kindergarten data. Winter 2020 Reading MAPS data for first grade showed that children with speech and language impairments scored 13.95 (SwoD= 173.95) points below children identified without an impairment. Spring 2021 Reading MAPS data for first grade, children with speech and language impairments scored 10.23 (SwoD = 179.73) points below children identified without an impairment. See Figure 1-4 for data graphs on 2020-2021 MAPS and FAST for five year old Kindergarten and first grade.

Figure 1: 2020-2021 5K MAPS Reading

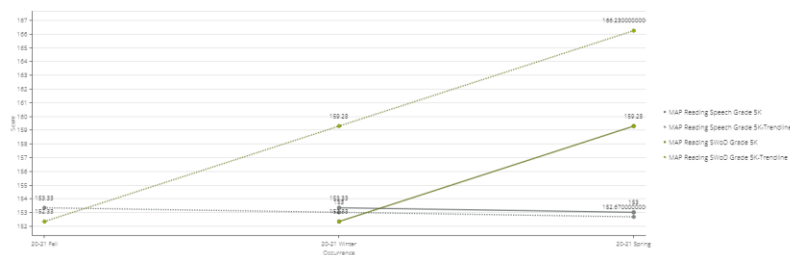


Figure 2: 2020-2021 1st Grade MAPS Reading

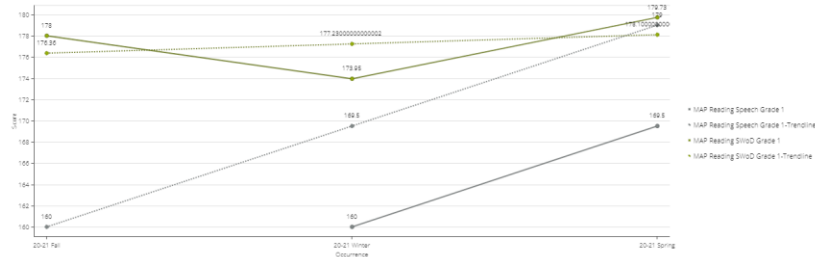


Figure 3: 2020-2021 5K FAST data

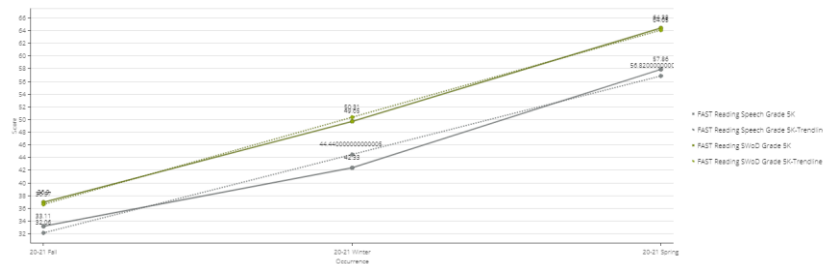
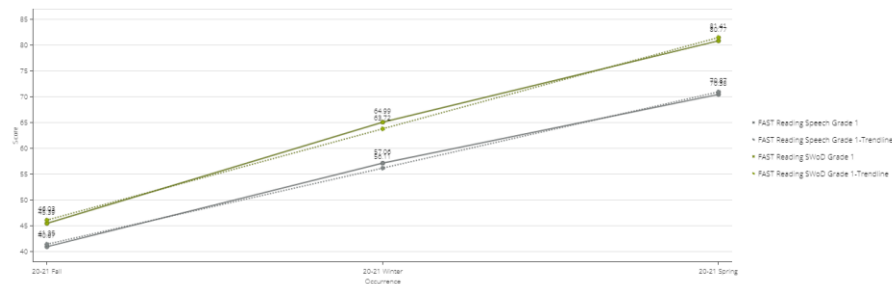


Figure 4: 2020-2021 1st Grade FAST data



Our research question aligns with the OASD district strategic plan Key Performance Objectives (KPO) by setting the foundation of literacy development success with our youngest learners and leaders. This action research project is directly targeting the subgroup of children with disabilities. More specifically, we will be empowering our parent community to build awareness surrounding literacy instruction with their speech and language-impaired child.

### Literature Review

Children with speech sound production disorders (SSDs) demonstrate delayed acquisition of developmentally appropriate speech sounds. SSD is defined in the DSM-5 (American Psychiatric Association, 2013) as ‘persistent difficulty with speech sound production that interferes with speech intelligibility or prevents verbal communication’ that cannot be explained in terms of sensory problems, motoric difficulties or other physical conditions. In clinical practice, speech sound production disorders have been referred to as articulation disorders, phonological processing disorders, and expressive phonological disorders.

There is a wealth of research at our fingertips pointing out the correlation between SSDs and literacy development in children. There is a greater likelihood of reading disorders in children with a preschool history of SSDs (Peterson, Pennington, Shriberg, & Boada, 2009). SSDs in preschool children often include immature patterns and phonological processing errors easily identified in their speech repertoire. “Fronting” (producing an alveolar sound /t/ or /d/ for a back sound like /k/ or /g/), “stopping” (producing a stop consonant /p/, /b/, /t// d/... for a sibilant or fricative sound /s/, /f/, /sh/, /z/....) and “cluster reduction” (elimination of a cluster sound /tar/ for /star/, /top/ for /stop/) are very common phonological processing errors in preschool children identified with speech impairments. These phonological processing disorders make it difficult for children not only to say their speech sounds, but it also brings many difficulties with recognizing and manipulating sounds and words within their verbal expression. The fact is well proven that phonological awareness is imperative for learning to read (Ehri, 2004). As a group, children with SSDs have difficulty with phonological awareness tasks (Bird, Bishop, & Freeman, 1995; Larrivee & Cats, 1999) therefore demonstrating future



difficulties with learning to read. The research by Bird et al. (1995) showed that children who have severe expressive phonological impairments at the time they start school are at particular risk for reading and spelling problems.

Wisconsin Model Early Learning Standards (2017) guides our learning path for developmentally appropriate teachings for children ages 3-5 years old. Along with the use of the Creative Curriculum (Heroman, 2010), there is a clear path given for planning appropriate literacy-based learning experiences. Children develop their phonological awareness through discriminating rhyming words, discriminating alliteration, units of sound. Children develop their knowledge of the alphabet through identifying letter and letter sounds. Children demonstrate their knowledge of print through using and appreciating books, using print concepts, book conversations, and retelling stories. These concepts will be the focus of instruction for our action research project. Literacy components are worked into daily activities with children with SSDs. These activities occur in the therapy space or early learning classroom. These activities include skills such as concepts of print, letter identification and letter sounds, rhyming, and retelling stories. Literacy-based activities will also be included and strategies will be given to work on the articulation sound that is being addressed individually for each student. The Creative Curriculum (Heroman, 2010) states that the objectives established in the curriculum are the most predictive of future school success and links to state early learning standards. A child's ability to demonstrate phonological sensitivity or phonological awareness is a strong predictor for future reading, writing, and spelling abilities (Heroman, 2010).

Knowing that a child's phonological awareness ability in preschool is a powerful predictor of later reading and writing success (Bradley & Bryant, 1983, Lundberg, Olofsson, &

Wall, 1980, Torgesen, Wagner & Rashotte, 1994), OASD's early childhood team members believe that they can influence the development of phonological awareness skills with even the youngest of learners in the district through parent involvement.

Parent involvement and education can positively impact a child's success in early literacy skills. The research by Neumann (2018) showed positive benefits to children's emergent literacy through a coaching model of a parent in print skills. The research also showed an increase in the parent's ability to engage in parent-child shared storybook reading and was found to be related to oral language development, vocabulary, and comprehension skill improvement (Neumann, 2018). Research performed by Hannon et al (2006) highlighted parent feelings on the success and implementation of a family literacy program that focused on oral language, writing, and book sharing. Parents shared that they changed their behaviors as a result of the program in terms of providing more opportunities for literacy activities when playing with their child (Hannon et al, 2006). Parents also reported that the program made a difference in what they did with their children when interacting in book sharing (Hannon et al, 2006). Parent involvement and education have a positive impact on children's early literacy skills (Hannon et al, 2006 & Neumann, 2018).

The passage of Public Law 99-457 in 1986 (Education of All Handicapped Children Act Amendments) as the prelude to the Individuals with Disabilities Education Improvement Act (IDEA) of 2004 emphasized the need for greater family participation in early intervention services. The focus of IDEA is on enhancing the ability of parents to become informed decision-makers as well as advocates for their children through active collaboration with professionals.

A family-centered approach for therapeutic services is considered best of practice (Crais, Poston Roy, & Free, 2006).

### **Research Design**

With appropriate and meaningful parent and school collaboration, our team poses this question: Will providing parent education and understanding of early childhood literacy development advance the early reading skills of their child with a speech sound production impairment?

### **Participants**

Students participating in this action research project currently have an Individualized Education Plans (IEP) and are already identified as having SSDs. These children will be between the ages of 3 and 5 years old and receive speech therapy services by “walk-in” appointments and/or therapy delivered in an early learning environment (i.e. daycare setting).

### **Procedures**

Our research begins with receiving consent from parents to complete the study. This will be collected through the use of a google form. Parents will be given an incentive to participate in the study with two books that includes literacy based activities associated with the learned topics, and one parent, selected at random. will be given a Books and Company gift card. Once a parent gives consent for the study, they will be given a pre-assessment/baseline of parent knowledge of developmentally appropriate practices in early literacy skills. The participating students will also be given a pre-assessment/baseline of emerging literacy skills. Over the course of ten weeks, the parents will receive correspondence from the researchers weekly about literacy-based coaching, activities, and resources.

Every week the researchers will send home, through email, short coaching videos on how to implement the activities at home and the importance of each targeted literacy skill, and also additional resources for the parents to explore related to the weekly topic.

Week one will consist of an introduction to the study, outlining the importance of parent involvement in early literacy development for their child with a speech sound production delay. A pre-assessment will also be given to the parents during the first week. Week two will focus on the early literacy skill of rhyming. Week three is on alliteration. Week four is sound discrimination. Week five is identifying letter and letter names. Week six is letter sounds. Week seven is concept of print. Week eight is book conversations and retelling stories. Week nine is building emergent reading skills. Finally, week ten is a wrap-up. This will include a post-assessment to be completed by both the parents and students, individually.

Throughout the ten weeks of correspondence with the participating families, the researchers will provide opportunities for individualized question and answering sessions four times, over the course of the whole school year. This will equal two sessions per semester. Parents will be able to sign up for 30-minute time slots per session. This time will allow parents to seek our answers to questions, expand on their current work and knowledge, or to get more ideas for activities at home.

### **Data collection**

Data will be collected for this study through a pre and post-assessment given to parents and students on week one and week ten. The parents will be completing open-ended and short answer questions. The questions that will be asked are in regard to parent understanding and knowledge of what is developmentally appropriate literacy skills for a child of their own child's

age. Questions will cover the eight literacy areas of focus in correspondence with Wisconsin Model Early Learning Standards and Creative Curriculum. The students' pre and post-assessment will include basic testing of emerging literacy skills appropriate for their age.

### **Data analysis**

Data will be collected and analyzed through the use of a line graph, detailing the progression of parent understanding and knowledge of early literacy skills throughout the study. This line graph will compare the pre and post-assessment scores. The vertical axis will be labeled the rate of knowledge (score). The horizontal axis will be labeled for each parent. We will analyze the data by looking at the graph for patterns in parents' understanding.

Data will be collected and analyzed through the use of a line graph, detailing the progression of knowledge with early literacy skills throughout the study. The line graph will compare pre and post-assessment scores. The vertical axis will be labeled rate of knowledge (score). The horizontal axis will be labeled for each participant. We will analyze the data by looking at the graph for patterns in the students' progression of knowledge.

### **Results**

Seven families of early childhood students with speech sound disorders participated in the study. A total of six out of seven families completed all aspects of the research project with completion of the pre and post assessment. Six families indicated an increase in their knowledge by at least 3 points (Figure 5 and Table 1). The highest growth of knowledge was ten points, indicated by two families.

All participating students increased their knowledge by at least seven points (Figure 5 and Table 2). This was indicated by a pre and post test completed by the researchers at the beginning of the year and also at completion of the study.

Our data found that the greatest area of growth of knowledge indicated by family participants was in the topic of alliteration and letter sound correspondence which increased overall by nine points in alliteration and eight points in letter sounds. Research on student progression of knowledge data found that the greatest area of growth was in alliteration, rhyming, and letter identification which all increased by ten points (See Appendix 1 and 2).

Table 1: Parent Education Test Results

	Pre-Assessment	Post-Assessment	Growth of Knowledge
Parent A	25/32	28/32	+3
Parent B	16/32	26/32	+10
Parent C	20/32	30/32	+10
Parent D	25/32	29/32	+4
Parent E	18/32	26/32	+8
Parent F	19/32	25/32	+6
Parent G	16/32	Did not complete	

Table 2: Student Test results

	Baseline Assessment	Post-Assessment	Growth of Knowledge
Student A	18/32	26/32	+8
Student B	14/32	25/32	+11
Student C	17/32	24/32	+7
Student D	12/32	23/32	+11
Student E	16/32	26/32	+10
Student F	14/32	24/32	+10
Student G	16/32	26/32	+10

Figure 5: Parent Education Growth

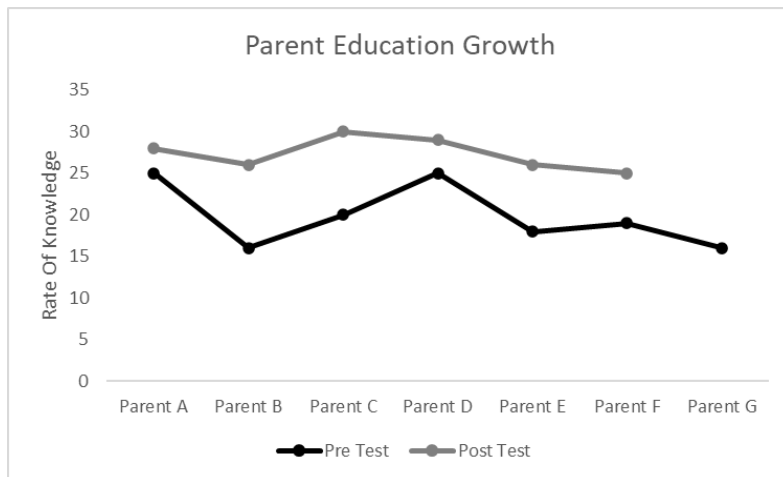
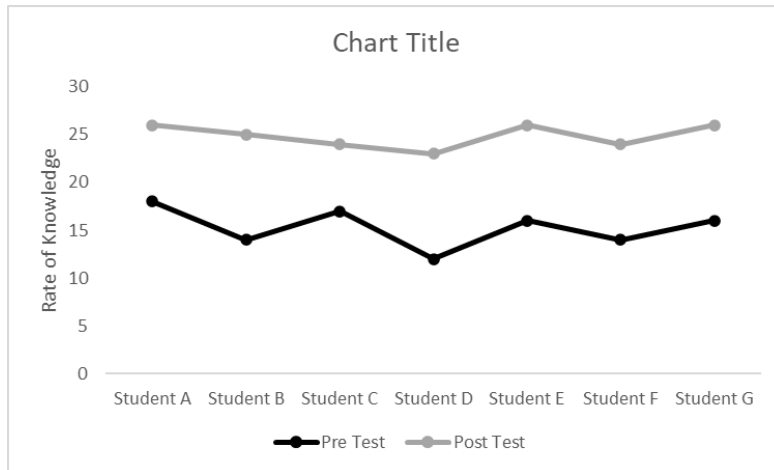


Figure 6: Student Knowledge Growth



### Discussion

This study addresses an important topic of early literacy development in children with speech sound production impairments. Our research question “Will providing parent education and understanding of early childhood literacy development growth in the early reading skills of their child with a speech sound production impairment?” was confirmed through the collection of our data.

Results indicated that all participating families increased their knowledge in early literacy learning skills (alliteration, rhyming, concepts of print, sound discrimination, letter sounds, letter identification, book conversations and emergent reading). Our results also indicated that participating students increased their knowledge in early literacy skills as well. Compared to peers not participating in the research group, participating students increased their knowledge by  $M=9.4$  compared to  $M=6.7$  of non-participating students.

We conclude that through parent education and coaching of early literacy skills, both parents and students benefit in improved early literacy development. This is especially



important in our population of speech sound impaired children. Based on these findings, we will continue to include parent education of early literacy skills into our speech therapy instruction. Although there is not a direct data link at this time between current research and MAP score, this research proves a direct correlation between student growth in literacy development based on parent knowledge of literacy skills. Future educators of students with speech sound production disorders can utilize this research to implement additional parent coaching in advancing literacy skills and topics. The researchers of this project will continue to provide parent coaching and instruction for parents.

### **Implications for Practice**

This study guides teaching and learning by providing data for future educators of students with speech sound production disorders. Researchers recommend that speech and language pathologists working with students that have a speech sound production disorder utilize parent coaching and instruction as a means to support their students' early literacy development. Speech and language pathologists can better gauge early literacy development and properly document a student's early reading skills. These evidence based practices are necessary in the development of Individual Education Plan (IEP), especially when documenting whether or not speech and language impairments are adversely affecting reading in the general education curriculum.

### **Limitations and Future Study**

The study is limited by the amount of participants in the study. A larger group of families would show a greater section of knowledge growth. An additional limitation to this study is the inability to see direct comparison with future MAP score growth. Future studies could be

conducted at an upper grade level to determine long term effects of parent education in literacy skills. Finally, the study is limited by the ability to see if parents will continue to utilize the newly learned skills with their child. Based on parent feedback, families are engaging in the suggested literacy activities, but it is undetermined if the engagement continues past the study.

Future research should address conducting this study with students that are currently taking MAP testing for a direct comparison of improvement. Researchers plan to repeat research with new families to see comparable results. Follow-up with students advancing to 4K to see if growth continues and more parent education required for new developmental skills. Future research should address requirements for parents to show proof of implementation of new learned skills at home.

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Appendix A

Parent Data Graph

	1		2		3		4		5		6		7		8		Final Growth
Parent A	3	3	0	3	3	0	3	3	3	0	4	4	3	4	4	0	+3 Pre - 25/32 Post - 28/32
Parent B	0	3	3	0	3	2	1	3	2	4	4	0	4	4	3	-1	+10 Pre - 16/32 Post - 26/32
Parent C	3	4	1	2	4	2	2	4	2	4	2	3	4	4	3	0	+10 Pre - 20/32 Post - 30/32
Parent D	2	3	1	3	3	0	3	3	2	4	4	0	4	4	3	1	+4 Pre - 25/32 Post - 29/32
Parent E	2	2	0	1	3	2	1	3	2	3	3	4	3	4	1	1	+8 Pre - 18/32 Post - 26/32
Parent F	2	3	1	1	3	2	2	0	2	3	4	0	4	4	0	0	+6 Pre - 19/32 Post - 25/32
Parent G	1			1			2			3			3				---
			6			9				8		2			3	1	M=6.8

Appendix B

Student Data Graph

	1		2		3		4		5		6		7		8		Final Growth
Student A	2	3	1	2	3	1	3	2	1	2	1	3	4	4	4	0	+8 pre-18/32 post-26/32
Student B	1	3	2	1	3	0	2	1	1	2	1	3	4	2	4	2	+11 pre-14/32 post-25/32
Student C	2	3	1	2	3	1	3	2	1	2	1	2	3	4	3	0	+7 pre-17/32 post-24/32
Student D	1	2	1	2	3	1	3	2	1	2	1	2	3	2	4	2	+10 pre-12/32 Post - 23/32
Student E	1	3	2	1	3	2	3	1	2	3	1	3	3	2	3	1	+10 Pre -16/32 Post - 26/32
Student F	1	3	1	3	4	1	2	1	0	1	1	3	4	1	3	2	+10 pre-14/32 post-24/32
Student G	2	3	1	1	3	2	3	1	2	3	1	3	4	1	4	1	+10 pre-16/32 post-26/32
			10			9		10			7					8	M=9.4

# OASD TECHNOLOGY INTERNS

Laura Schoenike | Leaders & Learners 2021-22

## WHAT'S A TECHNOLOGY INTERN?

Employability skills are fundamental to a person's career, college, and life readiness. They provide a means for students to develop competencies used in all three disciplines, such as communication, problem solving, and teamwork. Most importantly, though, they bridge the gap from academic to professional experiences by directly correlating the knowledge and skills gained in the classroom to applicable future-focused abilities.

The Tech Intern Leaders & Learners project aimed to create a Technology Internship program for students interested in pursuing computing pathways post-high school. This supports the OASD District Quality Indicator that "100% of graduating seniors will have post-graduate intentions consistent with their Academic and Career Plan" by creating opportunities in a currently underserved career field.



Work-based learning opportunities "have been shown to help students build critical workplace and soft skills, along with increasing GPA and school attendance" (Alfed, et. al 2013)



Technology interns would be taking on "challenging real-life tasks under supervision of adult professionals and requires mastery before....advanc[ing] to independent work roles," a characteristic that has been identified as a hallmark of successful youth apprenticeship programs (Rosenbaum, 1992).



American University Professor Emeritus Robert Lerman describes apprenticeships as "a time-honored, cost-effective training program that increases productivity by combining serious work-based learning and classroom instruction" (Lerman, 2015).

## METHOD

**Research Question:** To what extent does participating in a concentrated semester-long computing career-based experience impact individual high school student Academic Career Planning success?

### Sub-question 1:

What are the specific technology career skill sets needed both within our district and within the computing industry?

### Sub-question 2:

What are the qualities of a rigorous and effective technician training program?

### Sub-question 3:

How can a school-based computing career program build soft skills?

### Participants

6 high school students currently enrolled in an Independent Study to build technician and computing skills.

### Data Collection

*Hard Data:* Industry certification scores, DPI Skills Evaluations, Ticket Metrics

*Soft Data:* Interviews with industry professionals (hiring standards, skill requirements), intern exit interviews

### Data Analysis

To evaluate success, researchers evaluate the pass rate of students' industry certifications as well as their growth on the DPI Employability Skills checklist.

Baseline data on tickets will be used to track progress of tech intern program.

# OASD TECHNOLOGY INTERNS

Laura Schoenike | Leaders & Learners 2021-22

## RESULTS

### Sub-question 1:

What are the specific technology career skill sets needed both within our district and within the computing industry?

### DPI Employability Skills Checklist

This certification encompasses a list of 13 skills applicable to all employment opportunities. These include: maintaining composure under pressure, communicating and collaborating effectively, and others. See link for full details.



6/6 (100%) of interns earned the DPI Employability Skills certificate (documentation of 13 skills along with 90+ hours experience)

### DPI Information Technology Skills Checklist

Found to be too specific to accommodate differing needs and goals of interns.

### Technical Skills

*District:* Troubleshooting, Chromebook repair, Printing help, Learning resources access and use (Canvas)

*Industry:* Troubleshooting, digital literacy, problem analysis

Note: Industry and district partners both reflected that specific methods *have* to be taught on the job, but general technology experience and knowledge is key.

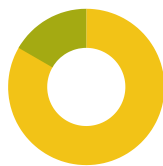
# 126

Interns completed 126 walk-up tickets during Terms 3 and 4.

### Sub-question 2:

What are the qualities of a rigorous and effective technician training program?

### Industry Certifications



6/6 (100%) of interns earned an industry certification.  
■ IC3 Digital Literacy Levels 1, 2, and 3 (5 interns)  
■ Google IT Professional Certification (through Coursera) (1 intern)

### Intentionally Build Soft Skills

Interns completed reflective journals connecting their work as a tech intern to the 13 Employability Skills included in the DPI checklist. [Journals](#)  
[Templates](#) [Google Folder](#)

### Hands-on Training

Scenario-based training through collaboration with Tech Department. This included:

- Break/Fix (collaborate with Angie Stevenson)
- Screen repair (Dana Miller and Stacie Wegner)
- Demonstrations and examples with TRA/itSavvy (Eric Rivera)
- Authentic school-based projects (school maps project, badging investigation, REC Kiosk work, ViewSonic training, assisting with Chromebook and charger collection, etc.)

# 125

Interns repaired 125 Chromebook screens (after being trained by Dana and Stacie)

### Sub-question 3:

How can a school-based computing career program build soft skills?

### Training Role Plays

Utilize role plays during initial training *and* follow-up meetings. Some example scenarios include:

- "Canvas isn't working!"
- "I can't print!"
- Projection not functioning

### Mock Interviews

Technology Team interviewed summer position students, but this could be a beneficial practice for all interns.

### Reflection through Journals and One-on-One Meetings

Facilitate reflection on soft skills through journals and one-on-one meetings with instructor.

### Soft Skills are Built through Experience

A resounding theme in both research and practice was that soft skills absolutely *must* be built through experience. Practice and reflection is the most effective method



# OASD TECHNOLOGY INTERNS

Laura Schoenike | Leaders & Learners 2021-22

## DISCUSSION

### What the Data Tells Us

*Preparing Effective Training*

*Additional Research*

- *Training can and should occur in imperfect environments, because execution will always occur in imperfect environments (Kroonenburg, 2021)*
- *Training must use actual materials and supplies, not just simulations or demonstrations (Sisson, 2001)*
- *Awareness of achievement is vital: skills checklists and points systems are motivating for learners to achieve increasing levels of proficiency (Sisson, 2001)*

*Industry Certifications and DPI Employability Skills Certifications:* This data informs researchers that the Tech Intern program is effective in developing professional technology and employability skills in interns. 100% of interns achieved both.

*Ticket Data:* Students' work in completing 126 walk-up tickets and repairing 125 Chromebook screens along with numerous other projects (school maps project, Chromebook and charger collection, graduation technology set up, etc.) demonstrates value added for the district as well as interns professional development. The relationship is mutually beneficial.

### Implications for Practice

Where there's a will, there's a way! The OASD Technology Intern project best demonstrates creative problem solving to launch a high-value project on a quick time table. Successful strategies include:

- *Independent Studies:* Make use of independent studies for students to pursue professional passion projects currently outside the scope of available Oconomowoc courses
- *"End of the List":* In any organization, there is a never-ending wish list of projects to accomplish. Utilize students earning independent credit to work on the projects outside the feasible scope of the organization

## LIMITATIONS & FUTURE PLANS

### Limitations

- *Small scope:* Although a successful first launch, six interns is not a large enough scale to fully develop and test a Tech Intern program.
- *Resources:* Given as the Tech Intern program was launched mid-year with whatever supplies and resources were available, a limitation of the program was knowing exactly *what* would be most beneficial. Experience and repetition will improve this limitation.

### Future Plans



Bi-weekly journals (4-5/term) to focus more on reflection and processing of skills/knowledge rather than reporting in on tasks/progress.



Intern Meetings: Request interns every other week during Pride for updates, individual check ins, and continued training.

# OASD TECHNOLOGY INTERNS

Laura Schoenike | Leaders & Learners 2021-22

## LIMITATIONS & FUTURE PLANS, CONT.



Certification: Transition to Information Technology Specialist certifications, available through Certiport. Students will complete 1 exam per 0.5 credit enrolled in Tech Intern. See link for full list of exam options. Some examples include: Artificial Intelligence, Cybersecurity, Network Security, Software Development, and others.

Plans to coordinate with Kyla Stefan to also make ITS certifications available for Post-AP curriculum in AP CSA (Java certification) and AP CSP (JavaScript certification).



Assessment Strategies:

- Formative: Journals (4-5/term)
- Summative: Tickets (tracked digitally via Google Form) and Tech Tip Tuesday (1/0.5 credit)
- Final Exam: Certification (1/0.5 credit)



Course Creation: A course with flexible scheduling and credit weighting was developed for official launch in the 2022-23 school year. (Note: Independent studies were used as a trial basis this year).



Summer Training: Train interns during a summer school workshop session (August 1-4, 2022), with a qualifying assessment at end to verify they're ready to go on September 1!

- 4-5 role play scenarios (targeting both technical skills (i.e. break/fix) and customer service skills)
- Written assessment: objective test assessing students' knowledge and skills (open to reference materials)



Tech Tip Tuesday: Interns prepare a "tech tip" to be presented on RCC. Recommendation from Ryan Altschwager to encourage students hearing information from interns rather than always from staff.

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The Knowledge Gap : Unlocking the potential of our at-risk learners through knowledge and integrated  
writing

Jim Mueller, Ashley Demark

Oconomowoc Area School District

June 30, 2022

**Author Note**

This action research study was supported by an OASD Learners and Leaders research grant.

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### **Abstract**

This study examined the effects of increasing the percentage of knowledge based (non-fiction) reading instruction with integrated writing of this knowledge to help vulnerable student populations accelerate their progress in reading to allow this subgroup of learners to meet key district reading objectives. A variety of benchmark reading assessments were administered and analyzed over the course of the school year. On average, students showed improvement in CBM reading fluency, F&P reading levels. The results suggest the use of a higher percentage of knowledge based curriculum in tier 1 and tier 3 instruction can benefit young readers who are trying to close the achievement gap. Future research should be geared to finding out what specific gaps in knowledge areas students are missing. The identification of these gaps will allow planning and instruction to be fine tuned to prepare students for the new curriculum.

*Keywords:* knowledge gap, integrated writing, knowledge based reading  
ACTION RESEARCH REPORT TEMPLATE 3

### **OASD Action Research Report**

Despite massive efforts, the gap between students at the top and the bottom of the socioeconomic scale hasn't narrowed in 50 years - and may have increased significantly (National Council for Social Studies) Elementary schools spend hours every week on decontextualized reading comprehension "skills," like "finding the main idea," leaving little or no time for social studies and science—especially in schools where test scores are low. But evidence from cognitive science shows that reading comprehension depends far more on how much knowledge the reader has about the topic than on abstract skills. The more general knowledge you have, the better you do on reading tests—and often, in life. Hence the phenomenon we've come to call the achievement gap: students who acquire more knowledge about the world—usually outside school, from their better-educated and higher-income

families—have an advantage on the tests.

All children, especially children from low income families need to be immersed in content rich subjects from the time they walk into the elementary school doors. This curriculum needs to start in kindergarten. Students also need an opportunity to write about the knowledge they are building to cement in the information they learn. This is the exact opposite of what schools have been implementing. There has been a focus on fiction reading and reading skills that don't necessarily progress children in the reading achievement.

It is important to take another approach to close the achievement gap. The most fragile readers need their knowledge base widened through immersion in nonfiction texts. Students need an opportunity to master this knowledge through writing about these topics. The integration of knowledge into the reading curriculum will allow at-risk children to close the achievement gap that has hindered students for the past 50 years and probably longer (Wexler).

This research relates to the District Key Performance Objectives in terms of striving to advance students of the subgroup of at-risk students who have delayed reading progress, poverty and reading

#### ACTION RESEARCH REPORT TEMPLATE 4

disabilities to increase their performance on the Wisconsin Forward Exam and MAP tests until their test performance matches the overall test population. This progress will help with the OASD district goal of making OASD among the top 3 districts in Waukesha county at each grade level.

#### **Literature Review**

As far back as 1977, early elementary teachers spent twice as much time on reading as on science and social studies combined. This trend continued in the upper elementary grades, when students have presumably already acquired basic reading skills, teachers spent twice as much time

on reading as on either science or social studies alone.

The focus on reading instruction only intensified when the No Child Left Behind (NCLB) legislation was passed in 2001. NCLB threatened major consequences for schools who failed to have students at 100 percent proficiency. This legislation drove a greater focus on reading instruction to prepare students for standardized tests. Literacy instruction focused on reading skills and neglected knowledge of content areas.

By 2012, early elementary teachers reported spending an average of only 16 minutes a day on social studies and science (Wexler, pg. 7). This content area is usually taught at the end of the day when students are tired.

Stagnation of reading scores has a much greater effect on our educational landscape. On a recent nationwide test of eight graders, only 18 percent scored proficient or above in US history, as did only 23 percent of civics and 27 percent in geography (Wexler pg. 9). These are the lowest scores on national tests in any core subject area.

The current idea behind reading instruction is to divide children into small groups or 1:1 conferences to give more individualized attention. The majority of the class will not be able to work independently

for extended periods of time. There is a cancellation effect in this model. The benefits

#### ACTION RESEARCH REPORT TEMPLATE 5

derived from this small group format of guided reading are generally canceled out by the lack of learning in the rest of the classroom (Wexler pg. 14).

A 2007 study found that about half the children in schools serving students who were middle class or above were subjected to repetitive instruction in basic skills, but in schools serving low-income children, the proportion soared to 91 percent. It can be seen that students who are economically disadvantaged or struggle academically will be given more skill based reading instruction.

The core of the problem is not a lack of reading skills, but a lack of knowledge. These students are not familiar with the content and vocabulary due to their lack of understanding from their home life and school experience. These students are lacking major amounts of background knowledge which would help them understand what they are reading and how to respond to that text.

This action research project is designed to study the effects of increasing the percentage of knowledge based (nonfiction) reading instruction. The project used instructional designs which will progress vulnerable student populations at an accelerated rate that will allow this subgroup of learners to meet District Key Objectives. These students will study knowledge based text at a ratio of 30/70 of fiction to nonfiction ratio and write to cement this knowledge. These students are slated to read at a 67/33 ratio of fiction vs. nonfiction in 3rd grade and a 50/50 ratio of fiction vs. nonfiction in 4th grade.

The students will be exposed to content based integrated concepts and content in their reading, writing and reading intervention time. The content of the reading will be used to advance their reading progress and close the achievement gap with the knowledge they gain.

### **Method**

During the 2021-22 school year, 3rd and 4th grade regular education and special education staff worked across grade levels at Ixonia Elementary School. Both grade levels used integrated content based reading instruction, reading intervention and writing about the content areas to fully master concepts of reading. The instruction involved the use of knowledge building content that is used in the classroom as

ACTION RESEARCH REPORT TEMPLATE 6

well as during reading intervention. The use of inquiry based methods, research on topics will be used in partnership with writing about the content areas to cement knowledge. Reading data was collected using a variety of assessments during the school year. The following questions will be answered.

1. Will the use of knowledge based reading instruction close the achievement gap in reading for at risk and special education students at Ixonia Elementary?

2. Will the use of writing with the knowledge based reading instruction allow students to cement knowledge by processing the information and increase student reading achievement? **Participants**

A total of 12 students will be involved in the study. These students are at-risk on their reading assessment benchmarks. They have been identified through the RTI(Response to Intervention) school wide screening system or special education evaluations. 7 of the students are coming from 3rd grade and 5 students from 4th grade will be involved in the study.

### **Data Collection and Analysis**

The study measured growth in reading fluency, reading levels and reading screening/achievement assessments over the course of 2 years for 4th graders and 1 year for 3rd graders. The Fountas and Pinnell (F&P) benchmark reading assessment was administered to each student 2-3 times a year. Reading fluency growth was also measured using the FastBridge CBM reading assessment. The assessment was given 3 times a year. The MAP reading assessment and the State of Wisconsin FORWARD reading assessment was also analyzed to ensure reading growth. The regular education and special education staff worked to analyze data for each student and adjusted and individualized instruction as needed.

### **Results and Data Analysis**

#### **ACTION RESEARCH REPORT TEMPLATE 7**

A total of 12 students from 3rd and 4th grade participated in this study. All of the students in 3rd and 4th grades were considered at-risk in their reading achievement based on school wide academic screening assessments for reading. These students have been identified with school wide academic screening assessments for extra support or special education services.

Reading fluency, as measured by the Fast CBM assessment, showed improvement over the school year (Table 1). Students increased their reading fluency on this assessment. Mean reading fluency in 3rd grade went from 59 words per minute to 96 words per minute resulting in a positive



effect size (ES=+3.13). Similarly in 4th grade, fluency rose from 51 wpm on average to 79 wpm resulting in a positive effect (ES=+1.41).

In specific students, there was significant growth in their fluency in both 3rd and 4th grades. One 3rd grade student grew from 48 wpm to 111 wpm. This amounted to a 1.75 word per week growth. Aggressive growth according to Fast CBM is 1.18 words per week. Strong growth also occurred in a 4th grade student. This student progressed from 18 wpm to 70 wpm. This growth was 1.4 words a week. An aggressive growth for a student in 4th grade is 1.1 words a week.

Growth also happened in the Fountas and Pinnell reading assessment. In order to close the achievement gap, students need to gain 4 levels a year. The average student gains 3 levels a year in 3rd and 4th grade.

In 3rd grade, students gained an average of +3.42 reading levels in the year. In 4th grade students gained an average of +4.2 reading levels on the Fountas and Pinnell reading assessment. Students made strong growth on both their fluency and individualized reading assessments. MAP (Measure of Academic Progress) reading assessment showed that 57% of the 3rd grade students made their growth on the assessment between fall and winter. 40% of 4th grade students made their expected growth on the MAP reading assessment from fall to winter.

#### ACTION RESEARCH REPORT TEMPLATE 8

The FORWARD test results showed that 60% of the 4th graders made growth of 12-16% points. 60% of the 3rd graders came out at the basic level. 14% of 3rd grade students came out as proficient. It can be seen that there was a positive effect on FORWARD testing scores. Wexler states in her book that it would take several years to show a large-scale impact. But it can be seen that the implementation of a knowledge based curriculum will have a positive effect on student achievement. The goal of the project is to ultimately increase the scores of these students with the changes in curriculum. The project started to show how these changes in curriculum can influence student growth in a positive way. According to

Wexler, "Building knowledge takes years, it will take 3, 4 or 5 years before we start to pay off teaching Core Knowledge".

Thus there is particular cause for optimism at the elementary level, where content focused knowledge instruction has the best chance of narrowing the knowledge gaps. This work needs to continue to help the learners who have and are falling behind their peers.

### **Results by Research Questions**

1. Will the use of knowledge based reading instruction close the achievement gap in reading for at risk students at Ixonia Elementary?

The implementation of the instructional changes closed the achievement gap in reading for at-risk students. The changes had strong effects on all students in the project. A couple of select students have made much greater gains from the shift in instruction. Overall there has been a positive movement in fluency and F&P assessments. Student growth was evident. Teachers dedication to utilizing and integrating knowledge based curriculum writing made a significant improvement in student engagement and motivation to learn. This has allowed the students to make gains in their word knowledge and decoding skills. Students strived to acquire information and more importantly utilize the information to express and understand further through writing.

### **ACTION RESEARCH REPORT TEMPLATE 9**

2. Will the use of writing with the knowledge based reading instruction allow students to cement knowledge by processing the information and increase student reading achievement? Writing clearly was fully integrated with the reading process. Students were able to cement their knowledge. This was really a way for students to utilize their knowledge. They were forced to use the words to process what they learned. The writing made the acquisition of knowledge engaging and injected the

knowledge into the student's writing.

### **Discussion**

This study has addressed an important topic that has been plaguing educational reform. There has been a hidden explanation of why our schools have not been able to reach all learners. The intense focus on decontextualized reading comprehension skills at the expense of actual knowledge has not helped at-risk students close the achievement gap.

Classroom instruction has changed to focus on skills based reading instruction in reaction to legislative initiatives like NCLB of 2001. The skill based reading instruction continues to create achievement gaps between students at the top and bottom of the socioeconomic scale. While instruction in the early grades has focused on "learning to read" rather than "reading to learn", educators have overlooked the fact that part of "learning to read" is acquiring knowledge (Wexler pg. 32). Our most at-risk students often are lacking key background knowledge. We live in the information age and the lack of information has created an achievement gap.

The bottom line is that the test-score gap is, at its heart, a knowledge gap (Wexler pg. 31). The knowledge gap generally appears in 3rd and 4th grade when students encounter nonfiction and content based fictional texts with complex vocabulary.

#### **ACTION RESEARCH REPORT TEMPLATE 10**

Results indicated that knowledge based instruction has a positive outcome on the progression in reading for our at-risk readers. The data has shown that allowing students to broaden their knowledge base will increase a student's chance of closing the achievement gap in their reading level in both 3rd and 4th grade.

The curriculum changes were able to reach many types of learners. Students who did not write in the past years were drawn to write about what they learned. The engagement with interesting

content areas has engaged the most reluctant readers and learners in this project.

We conclude from our research that an increased exposure and focus on integrated knowledge accompanied by writing about the reading has a positive correlation with student achievement in fluency and increased reading levels. The growth seen is a strong indicator that knowledge based integrated reading curriculum is important to the growth of reading achievement for at-risk students. Teachers could improve the reading progress of at-risk students by integrating and increasing the amount of knowledge based curriculum.

### **Implications for Practice**

The power of knowledge is vital to closing the achievement gap. Data from this study informs teaching and learning in several ways to help teachers fundamentally change their instruction to focus on content, have students read more complex text and nonfiction and build the type of vocabulary that crops up in text in 3rd and 4th grade.

Students in the future will need to have access to this knowledge based curriculum with writing. Teachers can improve their at-risk students' reading achievement by expanding knowledge and vocabulary. The more knowledge a child starts with, the more likely the children will acquire more knowledge. Teachers will hopefully find that their students don't lack the ability to read but the background information to understand what they are reading.

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### **Limitations and Future Study**

This study is limited by the fact that students in this study were only given the knowledge based reading and writing instruction for two years for 4th graders and 1 year for 3rd graders. Students in the lower grades, kindergarten to 2nd grade, are still being instructed in the "learning to read" model. These students are not getting the variety of content based knowledge and writing needed to close the

knowledge gap. This rings true especially for students from poverty, students with disabilities or students with trauma.

The study is also limited to having teachers and paraprofessionals trained in the method to keep it to a high level of fidelity. Often if teachers are not trained properly, they will default to skills based teaching methods.

Future research needs to analyze what types of knowledge these at-risk groups are lacking. Planning needs to start at the kindergarten level to infuse content knowledge that will build and prepare students for more complex topics as these students enter the upper elementary grades. Students need to have access to online resources and text that will allow them to gain these knowledge gaps.

Also, future research needs to study the impact of 1:1 technology initiative for students who are at-risk for academic failure. Due to the pandemic and lowered cost of technology devices, devices have become commonplace in the classroom. A study needs to analyze the effectiveness of technology in closing the knowledge gap of students at-risk.

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**Table 1**

*Reading Data Summary: F&P, FAST CBM, MAP, Forward*

	<i>F&amp;P</i>	<i>F&amp;P</i>	<i>Growth</i>	<i>FAST</i> <i>FAST</i> <i>Growth MAP MAP Forward</i> <i>3rd</i> <i>CBM</i> <i>CBM</i> <i>Grade</i>	<i>Forward</i>
<i>Student</i>	<i>Fall</i>	<i>Winter</i>		<i>Fall Spring Fall Winter Baseline Score</i>	<i>Growth from 3rd to 4th grade</i>
<i>1-3rd</i>	<i>G</i>	<i>J</i>	<i>+3</i>	<i>16 44 +28 182 182 32%</i>	
<i>2-3rd</i>	<i>H</i>	<i>M</i>	<i>+5</i>	<i>28 60 +32 176 191 42%</i>	
<i>3-3rd</i>	<i>N</i>	<i>Q</i>	<i>+3</i>	<i>129 155 +26 205 207 48%</i>	
<i>4-3rd</i>	<i>J</i>	<i>M</i>	<i>+3</i>	<i>67 96 +29 159 172 15%</i>	
<i>5-3rd</i>	<i>L</i>	<i>O</i>	<i>+3</i>	<i>74 114 +40 184 195 86%</i>	
<i>6-3rd</i>	<i>K</i>	<i>O</i>	<i>+4</i>	<i>48 111 +63 184 192 47% 55 89 +34 182 189 16%</i>	<i>-6%</i>
<i>7-3rd</i>	<i>M</i>	<i>O</i>	<i>+2</i>	<i>68 93 +25 160 174</i>	
<i>1-4th</i>	<i>J</i>	<i>O</i>	<i>+5</i>		
<i>2-4th</i>	<i>J</i>	<i>P</i>	<i>+5</i>	<i>75 110 +35 194 190</i>	<i>+12%</i>
<i>3-4th</i>	<i>G</i>	<i>K</i>	<i>+4</i>	<i>18 70 +52 183 172</i>	<i>+16%</i>

4-4th	L	N	+3	44 65 +21 187 193	-6%
5-4th	K	O	+4	38 73 +35 177 185	+12%
			3rd = +3.28 4th= +4.2  3rd SD= 11.82  4th SD=	3rd =  3rd =  3rd = 59  79  +36  4th = 49  4th = 96  4th= +33.6	Overall Increase of 6%  60% of at- risk stude nts made growt h

ACTIONRESEARCHREPORTTEMPLATE15

			19.75  3rd ES= 3.13  4th ES= 1.41		
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ACTION RESEARCH REPORT TEMPLATE 16

**Phonics Learners and Leaders Research Project**  
**2021-2022**  
**Phonics Integration, Across the Curriculum and School Day**

Lead Researcher-Dee Price, 2nd Grade Teacher  
Research Implementation Peer- Marcy Theisen, 2nd Grade Teacher; Julie LoDuca, Literacy Coach

**Abstract**

This study examined the relationship between phonics and integration and spelling achievement among second grade students. Multiple assessments were administered and analyzed throughout the year to determine growth and success. The data from these assessments showed growth in spelling, as well as growth in reading, specifically reading accuracy. The result shows that making phonics connections throughout their school day benefited students.

**Introduction**

Phonics instruction has been at the forefront of new learning for K-2nd grade this past year. With a new Phonics Curriculum that Mrs. Price and Mrs. Theisen had implemented, they noticed reading and writing growth in their students. One observation the teachers reflected on was the need for connections in phonics across all subject areas. Phonics is a part of our everyday lives and it is essential for students to have their knowledge in phonics transferred across the curriculum and throughout the day. Providing multiple opportunities for students to be exposed and practice phonics skills aligns with the District Strategic plan; all learners will be held to high expectations, all learners will succeed, all teachers will collaborate to strengthen



each other's effectiveness and that all teachers will teach all learners and that all teachers will design instruction by knowing each individual student.

## **Literature Review**

Students need direct phonics instruction in the classroom. Phonics is the building block of students' foundational skills. According to John Hattie, *Visible Learning for Teachers Maximizing Impact on Learning* (2012), 38 studies conducted by the National Reading panel in phonics instruction had an effect size of 0.66, mean 0.44. This suggests that providing direct phonic instruction is an important influence when teaching readers.. When referring to John Hattie's influence on achievement, phonics instruction was ranked number 36 out of 150 influences. This determined the importance of phonics instruction in the second grade classroom. Students need to apply their phonics knowledge with the practice of spelling, reading and writing. The goal for teaching phonics is to help students learn about the alphabetic principle (National Institute for Literacy, 2019). The relationship between letter sounds and patterns helps students recognize familiar words accurately due to learning the rules of the language. In the beginning stages of reading, phonemic awareness is one of the most important skills to learn to help reading success. As students progress through the grade levels, phonics strategies become important to learn while learning to read and write (Gambrell & Morrow, 2015). The Common Core State Standards for English Language Arts stresses the importance in phonemic awareness and phonics instruction focusing on the Reading Foundations strand of the Common Core State Standards. Research suggests that teaching phonics using a direct

systematic phonics approach is important to the success and transfer in reading and writing (Mesmer & Griffith, 2005). A successful phonics program provides a variety of practice involving reading words containing the letter–sound relationships that are taught (Duffy-Hester, Stahl 2006). Allowing time for students to learn and manipulate word parts helps students achieve phonics success. Phonics instruction helps children learn the relationships between the letters of written language and the sounds of spoken language. Phonics instruction is important because it leads to an understanding of the alphabetic principle—the systematic and predictable relationships between written letters and spoken sounds. Programs of phonics instruction are effective when they are systematic—the plan of instruction includes a carefully selected set of letter-sound relationships that are organized into a logical sequence, explicit—the programs provide teachers with precise directions for the teaching of these relationships. Effective phonics programs provide ample opportunities for children to apply what they are learning about letters and sounds to the reading of words, sentences, and stories. R. Malatesha Joshi suggests a systemic approach to teaching phonics. He suggests teaching phonics while encouraging students to recognize patterns in systematic instruction will help develop and recognize the patterns in words. This approach to teaching is to develop the students with a deep understanding of the words that were being taught and then being able to break apart the words to identify. One of the greatest realizations from literacy research is the well-established finding that phonological awareness, the ability to think about and manipulate the sounds of one's language, is one of the best predictors of literacy outcomes (Henbest & Apel, 2017). Once students identify the parts in the word, such as the beginning or middle or end of the word, the students will then be able to manipulate these word parts. This type of approach

helped strengthen the student's awareness of sounds in words while identifying the patterns that are formed. His research suggests that using a direct, systematic approach helps to develop strong literacy skills (Joshi, 2009). Using The Units of Study of Phonics 2nd Grade Units, the second grade team wondered how to not only teach phonics in a systematic way but also develop strategies to teach the phonic skills in conjunction with other subjects such as Science and Social Studies. Not only are these lessons going to be purposely planned but how else could the phonics skills be taught in a purposeful way in other areas such as Art and Physical Education. Research suggests that purposeful planning and using a systematic approach to phonics will increase reading accuracy and fluency. Increasing the level of planning and collaboration with the team in conjunction with phonics instruction will increase student reading levels and achievement.

### **Question**

Using *The Phonics Units of Study* curriculum, while integrating instruction and with collaboration with the Literacy Coach at Ixonia and the Second Grade teachers, *to what extent does integrating The Phonics Units of Study across the second-grade curriculum impact student reading growth and achievement?*

During the 2021-22 school year, a team of teachers, Mrs. Price (2nd Grade Classroom Teacher), Mrs. Theisen (2nd Grade Classroom teacher) and Mrs. LoDuca (Literacy Coach) will collaborate on the integration of phonics throughout the school day.

## **Research Plan:**

This project investigates how the integration of phonics throughout the school day, not just in the classroom, will grow students phonological knowledge. With the integration of phonics in all subject areas, students will recognize and demonstrate how phonics is used in every part of the day and not just in isolation. Mrs. Price, Mrs. Theisen and Mrs. Loduca will first plan out the year and be intentional about where to integrate phonics lessons throughout the day. The plan is to have phonics be taught in all subjects.

Formal assessments use Units of Study in Phonics Spelling Assessment four times during the school year to show student progress. A pretest will be given at the beginning of September using, The Tall Slide (G2 2019 L. Calkins) Grade 2 spelling assessment. After teaching the second Phonics Unit of Study in December the teacher will readminister, The Tall Slide to compare growth for each student. They will also be using this data to guide small group phonics instruction. Since phonics will be incorporated throughout all subjects in the classroom, Mrs. Price and Mrs. Theisen can do these groups throughout the day instead of just during “Phonics Time”. This will support the application and transfer of phonics knowledge and skills. Mrs. Price and Mrs. Theisen will also use Fountas and Pinnell Reading Assessment. To ensure that phonics is being applied and transferred using the phonics features that were taught in the Units. We will also be selecting writing samples from math, social studies and science.

## **Results**

At the start of the year, twenty-two (23) students from Ixonia Elementary School participated in the study. At the end of the year, twenty-one (21) students completed the

study. Each ending assessment students showed growth. The most growth was shown in the final assessment “The Butterfly Effect.” This was due to the fact that teachers focused on the syllable type that they saw was a deficit from previous assessments.

Another area in which students exhibited an improvement was their accuracy on the Fountas and Pinnell assessment. 86% of the students had an accuracy rate of 97% and above on their final Fountas and Pinnell reading assessment that was given in May. 13% of students had an accuracy rate between 96%-91%. This rate is significantly higher than 61% of students who had an accuracy rate of 97% or above in the Fall.

During Ixonia’s Building Leadership Team meetings, staff created goals for the school year. Our building goal of 80% of students achieving in the lowest 25% will exceed their RIT growth as measured by the MAP assessment was also reached. Second grade went from 50% to 82%, which was one of the biggest growth in our school.

### **Implications for Practice**

This study showed the impact of phonics instruction integrated in multiple subjects throughout the day. The teacher, after viewing data, changed lessons and retaught lessons based on the data collected. This curriculum has minimal opportunity for students to go back and master what they have been taught. Due to this, teachers were reteaching students as a whole group as well as meeting in small group instruction.

The teacher also implemented a “sound wall” in which students were explicitly taught the different spelling patterns of sounds. This wall was left up and added to as each pattern and

syllable type was introduced. Students often referred to this to help them spell throughout the day.

Teachers used different spelling samples from all subjects to ensure growth in phonics across the curriculum. Teachers analyzed these samples during PLC times. They looked for spelling patterns based on the 6 syllable types and more specifically focused on the assessment data from the Developmental Spelling Assessment.

### **Limitations and Future Study**

Future research should explore the effectiveness of integration throughout the school day. Future research should also be done on what more needs to be supplemented to ensure student growth?

This current group of students also have not had uninterrupted instruction due to COVID. When these students were in Kindergarten, their school year was interrupted due to school closures. When they were in First Grade students could have had multiple quarantines that also interrupted instruction. This all means that students have not had two years of phonics instruction prior to Second Grade.

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# **Social Emotional Themed Read Alouds: The Significant Impact in Kindergarten**

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## **Author Note**

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### **Abstract**

Students who have studied and practiced academics paired with social emotional learning have an impact both academically and emotionally at an early age. This study investigated whether integrating the academic and social emotional teaching in an organized, sequential method would make a difference in both areas. Students in this study were assessed using both NWEA ELA MAPS and DESSA (Devereaux Student Strengths Assessment) to monitor progress in both areas. Students showed significant gains in both areas when fall to spring growth was compared.

*Keywords:* self-awareness, self-management, relationship skills, social awareness, responsible decision making

### **Social Emotional Themed Read Alouds: The Significant Impact in Kindergarten**

As a veteran teacher, fostering foundational success in Kindergarten students in academics and social-emotional understanding is the ultimate goal year after year. Action research involving both is important because the scaffolded approach within Webb's Depth of Knowledge is the means in which all students will learn at a high level with content knowledge, vocabulary, responding, and application of skills in Kindergarten while learning more about social emotional topics that are necessary and at the forefront today.

This study relates to the OASD strategic plan in that rigor is a focus area of our OASD 2019-2024 Strategic Plan. Providing content that is diverse and rigorous will equip our students for emotional balance in life, college, and work.

#### **Literature Review**

Would integrating the academic and social teaching in an organized method show growth in the whole child? Research has shown that students receiving comprehensive social emotional learning scored higher on achievement tests in reading and math than students receiving no social emotional programming. Interactive read aloud involving an engaging, relevant, equitable text is appropriate as a teaching tool at all grade levels. Interactive read aloud focusing on the CASEL Competencies, coupled with Webb's Depth of Knowledge Framework using techniques to understand vocabulary, thought provoking questions and comprehension strategies, is the next logical step in robust learning and generalization of what has been taught and discussed.

Social and Emotional Learning is the process through which children and adults acquire and apply knowledge, attitudes, and skills used to understand and manage their emotions, to set

and reach goals, to feel and show empathy to others, create and sustain positive relationships, and make responsible decisions. \

The Casel SEL Framework addresses five broad areas of competence. They are taught through various stages from childhood through adulthood. They articulate what students should know or be able to do for academic success, school and civic engagement, health, and wellness, and career fulfillment. In order to succeed with social emotional programming, a developmental approach is a must. The competencies include:

*Self Awareness:* The abilities to understand one's own emotions, thoughts, and values and how they influence behavior.

*Social Awareness:* The abilities to understand the perspectives of and empathize with others, including those with diverse backgrounds, cultures, and contexts.

*Responsible Decision-Making:* The abilities to make caring and constructive choices about personal behavior and social interaction across diverse situations.

*Self-Management:* The abilities to manage one's emotions, thoughts, and behaviors effectively in different situations and to achieve goals and aspirations.

*Relationship Skills:* The abilities to establish and maintain healthy and supportive relationships and to effectively navigate settings with diverse individuals and groups.

Modeling reading is an important component of all literacy instruction. Modeling is the primary way through which teachers can demonstrate for their students how readers can interact with text. (Fisher D., Frey N., Lapp D., 2008) In order to model fluency, tone, and comprehension

strategies many teachers choose Interactive Read Aloud. The Early Childhood Longitudinal Study found that beginning kindergarteners who had been read to at least three times a week had a greater ability to decode words compared to children who were read to less often, and were almost twice as likely to score in the top 25% in reading readiness. (Futterman, 2016)

What is Interactive Read Aloud? Interactive read-aloud is a whole-group instructional context in which you read aloud a selected text to the whole class, occasionally and selectively pausing for conversation. Students think about, talk about, and respond to the text as a whole group in pairs, triads, or quads. Both readers and listeners actively process the language, ideas, and meaning of the text. (Fountas & Pinnell Literacy Team, 2019) Interactive Read Aloud is a purposeful demonstration of equal access to literature and comprehension strategies that will benefit all students. Building all student's capacities to read and comprehend complex text is essential. The reason is simple: what we read influences, what we learn, and will influence understanding of social emotional learning as well. The language in books is very rich, and in books there are complete sentences. In books, newspapers, and magazines, the language is more complicated, more sophisticated. A child who hears more sophisticated words has a giant advantage over a child who hasn't heard those words. (Matthiessen C., 2015).

Why use Webb's Depth of Knowledge with Interactive Read Aloud in the classroom? Depth of Knowledge is a Framework used to represent higher order thinking. The levels are as follows:

- *Level 1. Recall and Reproduction:* Tasks at this level require recall of facts or rote application of simple procedures. The task does not require any cognitive effort beyond

remembering the right response or formula. Copying, computing, defining, and recognizing are typical Level 1 tasks.

- *Level 2. Skills and Concepts:* At this level, a student must make some decisions about his or her approach. Tasks with more than one mental step, such as comparing, organizing, summarizing, predicting, and estimating, are usually Level 2.
- *Level 3. Strategic Thinking:* At this level of complexity, students must use planning and evidence, and thinking is more abstract. A task with multiple valid responses, where students must justify their choices, would be Level 3. Examples include solving non-routine problems, designing an experiment, or analyzing characteristics of a genre.
- *Level 4. Extended Thinking:* Level 4 tasks require the most complex cognitive effort. Students synthesize information from multiple sources, often over an extended period of time, or transfer knowledge from one domain to solve problems in another. Designing a survey and interpreting the results, analyzing multiple texts to extract themes, or writing an original myth in an ancient style would all be examples of Level 4. (Aungst, 2014)

While other frameworks are often followed when providing rigorous content, Webb's establishes the context – the scenario, the setting, or the situation – which students will express and share the depth and extent of their learning. (ASCD Guest Blogger, 2017)

Depth of Knowledge (DOK) helps us conceptualize cognitive rigor by breaking down and categorizing the different thought processes needed to correctly solve a problem.

DOK levels range from 1 to 4. Level 1 could include any question that asks students to recall or identify something. This type of question requires one mental step – to remember or identify the content. On the other end of the spectrum, level 4 questions could involve taking information, interpreting it, and forming a model or plan that applies the original information in an entirely new, yet logical and sometimes creative way. There may be levels of complexity in a DOK 4 question. (Betancourt, 2017) This scaffolded approach is very appropriate for Kindergarten in that the daily rereading of the engaging text, and asking low to high level questions, allow for all students to participate, learn from each other, and respond to as they grow through the year.

Rigor is the focus area of our OASD 2019-2024 Strategic Plan. Providing content that is diverse and rigorous will ready our students for emotional balance, life, college, and work. The scaffolded approach within Webb’s Depth of Knowledge is the means in which all students will learn at a high level with content knowledge, vocabulary, responding, and application of skills in Kindergarten while learning more about social emotional topics that are at the forefront today.

Many educators work hard to expand their students’ knowledge and get them to think in various ways every day. Short of increasing homework assignments and forcing longer school hours, how can educators increase rigor in their students? Teachers often turn to educational models to develop their lessons, classroom activities, and teaching tools to get their students working at a deeper level of understanding. (Hammer, 2018) Webb’s Depth of Knowledge is the

Framework for expanding social and academic thinking. The wider your world, the more you understand and the more you can empathize. (Matthiessen C., 2015).

## Method

Using an interactive read aloud 4 day model, this researcher incorporated Webb's Depth of Knowledge questioning with monthly Social Emotional Themed read alouds. The read aloud themes are as follows:

- September – Friendship: (CASEL Competency - Relationship Skills)
  - Using your words and actions to show others you care. I can make and keep friends.
- October – Creativity: (CASEL Competency - Responsible Decision-Making)
  - Using your imagination to do something unique. I can dream and imagine.
- November – Gratitude: (CASEL Competency - Self-Awareness)
  - Letting others know you see how they've helped you. I can say thank you.
- December – Generosity: (CASEL Competency - Self-Awareness)
  - Making someone's day by giving something away. I can give.
- January – Commitment: (CASEL Competency - Self-Management)
  - Making a plan and putting it into practice. I can keep my promise.
- February – Kindness: (CASEL Competency - Relationship Skills)
  - Showing others they are valuable by how you treat them. I can care for others.
- March – Patience: (CASEL Competency - Self-Management)
  - Waiting until later for what you want now. I can wait.

- April – Peace: (CASEL Competency - Social - Awareness)
  - Proving you care more about each other than winning an argument. I can share.
- May – Honesty: (CASEL Competency - Self-Awareness)
  - Choosing to be truthful in whatever you say and do. I can tell the truth.

Given the Depth of Knowledge levels 3 and 4, application and augmentation, growth in Social, Academic, and Emotional Behavior as assessed by the DESSA, and increased RIT scores as compared to control group, was anticipated.

1. Given read aloud instruction using Webb's Depth of Knowledge combined with Social Emotional Competencies, will the selected students increase their Social Emotional Composite score (DESSA) from an area of need to an area of typicality or strength?
2. Given read aloud instruction using Webb's Depth of Knowledge combined with Social Emotional Competencies, will the selected students increase their NWEA MAP Reading RIT score at a greater incidence than other Kindergarten students, previous years?

### **Participants**

The Oconomowoc Area School District is a medium sized Wisconsin public school system serving students in grades kindergarten through grade 12. There are five elementary schools, two intermediate schools, and a high school. Ixonia Elementary is located here with a population of 275 students, kindergarten through fourth grade. A total of 17 students were initially evaluated for this study. Five of the seventeen were assessed with the full deSSA screener, and scored in the needs range.



### Data Collection and Analysis

Baseline data was collected for 5KB Kindergarten class in September 2021 using DESSA SEL Screener by this researcher. DESSA assesses eight social and emotional competencies and is intended to help educators plan instruction, document students' strengths and areas of need, inform progress monitoring, and evaluate program outcomes. Progress will be monitored in Winter 2022 and assessed finally in May 2022.

NWEA ELA MAP assessment data was gathered in January 2022 and May 2022. DESSA information is unavailable for the control group. MAP data was collected January 2021 and May 2021 for the control group.

	DESSA COMPOSITE OCT 2021	DESSA COMPOSITE FEB 2022	DESSA COMPOSITE MAY 2022	ELA MAP RIT/GOAL JAN 2022	ELA MAP RIT MAY 2022	MEDIAN COND. GROWTH PERC.
AW	31	60	70	146/153	163	98
ES	33	48	59	141/148	162	99
JP	36	48	54	150/157	169	99
FE	39	54	58	153/159	161	63
CG	42	48	59	147/154	158	80
CONTROL GROUP 20/21						71

### Data Analysis

Anecdotal teacher logs were analyzed, noting changes in student academic performance and social interactions early in September of the school year. Children began independently using

sentence starters or sentence stems readily throughout the day, not only at read aloud time. Students were noted rephrasing their answers when prompted with the use of prewritten sentence strips during read aloud instruction. Seesaw activities were used beginning in November 2021 with DOK 4 questioning for increased engagement and understanding. With the October DESSA pretest, four students were identified for SAIG (Social Academic Instructional Group) and received this through February 2022. An additional SEL curriculum was added starting on January 24, 2022 as the class was part of *Second Step* pilot program. With this curriculum addition, generalization and awareness of discussion topics throughout the week was noted.

## **Results**

### **Research Question #1**

Given read aloud instruction using Webb's Depth of Knowledge combined with Social Emotional Competencies, will the selected students increase their Social Emotional Composite score (DESSA) from an area of need to an area of typicality or strength? The data suggests yes.

The five students who scored in the needs area of the DESSA screener in October made gains throughout the school year. All five increased their composite score to the typical or strength range by the Winter screener, while the subtests of self-management and personal responsibility remained in the needs area for CG. The May DESSA screener indicates that all five students had an increasing trend line and their composite scores continued to increase. The composite scores were considered typical or strength.

**Research Question #2**

Given read aloud instruction using Webb's Depth of Knowledge combined with Social Emotional Competencies, will the selected students increase their NWEA MAP Reading RIT score at a greater incidence than other Kindergarten students, previous years? The data suggests yes.

The 2020-2021 5KB Kindergarten class had a mean conditional growth percentage of 71. The students in 2021-2022 5KB Kindergarten class had a mean conditional growth percentage of 94.

The five students assessed with DESSA exceeded their RIT growth and their median conditional growth ranged from 63-99.

**Discussion**

This study addressed an important topic. Firstly, can read aloud instruction, a highly engaging interactive experience in a primary classroom when focused on teaching specific skills using a researched method for questioning, show improved social and academic data. Results indicate yes. Supplemental social emotional teaching with SAIG and Second Step curriculum, enhance what is happening at the tier 1 level, in the classroom. Secondly, the use of higher order questioning, always prompting for the use of sentence stems, increased the growth made in the Language Arts as measured by NWEA MAP. In conclusion, structured read aloud instruction can increase social emotional and academic growth.

**Implications for Practice**

Data from this study informs teaching and learning in several ways. Read alouds are integrated and used as teaching tools across grade levels and subject areas with engagement and impactful success. Planfully using read alouds as tools with Webb's Depth of Knowledge as

an organized methodology for questioning can raise the level of understanding of the content knowledge, vocabulary, responding, and application of skills, no matter the grade or subject.

### **Limitations and Future Study**

This study is limited in that it involved a small sample of kindergarten students to collect DESSA data. It is also limited in that the control group did not have the DESSA data available

Future research should address continued comparison of students monitored in the needs level per the DESSA assessment, also gathering their MAP data.

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## Appendix A

### Monthly Outline

- September – **Friendship: (CASEL Competency - Relationship Skills)**
  - Using your words and actions to show others you care. I can make and keep friends.
  - Our Class is a Family>
  - Chrysanthemum>
  - The Snail and the Whale>
  - Leonardo the Terrible Monster>
  - Tomorrow I'll Be Kind> (seesaw)
- \*\*October – **Creativity: (CASEL Competency - Responsible Decision-Making)**
  - Using your imagination to do something unique. I can dream and imagine.
  - The Most Magnificent Thing>(seesaw)
  - Harold and the Purple Crayon>
  - The Gruffalo>
  - The Boy Who Grew Flowers> (maybe)>
- November – **Gratitude: (CASEL Competency Self-Awareness)**
  - Letting others know you see how they've helped you. I can say thank you.
  - Those Shoes>
  - Otis Gives Thanks>
  - Spoon>
  - Sylvester and the Magic Pebble>

- December – **Generosity**: (CASEL Competency Self-Awareness)
  - Making someone’s day by giving something away. I can give.
  - Extra Yarn>
  - Thank You Omu!>
  - The Invisible Boy>
  - The Gift Inside the Box>
  
- January – **Commitment**: (CASEL Competency - Self-Management)
  - Making a plan and putting it into practice. I can keep my promise.
  - A Sick Day for Amos McGee>
  - I Can Do Hard Things>
  - I Promise
  - The Thing Lou Couldn’t Do>
  
- February – **Kindness**: (CASEL Competency - Relationship Skills)
  - Showing others they are valuable by how you treat them. I can care for others.
  - The Wish Tree>
  - The story of Ferdinand>?
  - Last Stop on Market Street>
  - The Bench>?
  - Come With Me>



- March – **Patience**: (CASEL Competency - Self-Management)

- Waiting until later for what you want now. I can wait.
- We Don't Eat Our Classmates>
- Saturday>
- Hair Love>
- A Little Spot of Patience>

- April – **Peace**: (CASEL Competency - Social Awareness)

- Proving you care more about each other than winning an argument. I can share.
- Swimmy>
- Malala's Magic Pencil>
- Strictly No Elephants>
- Big Mean Mike>

May – **Honesty**: (CASEL Competency - Self-Awareness)

- Choosing to be truthful in whatever you say and do. I can tell the truth.
- Ruthie and the Not So Teeny Tiny Lie>
- Edwurd Fudwupper Fibbed Big>
- This is Not My Hat>

The following is a sample of a four day outline using a book themed in peace and kindness,  
 Casel Competency Social-Awareness, Strictly No Elephants.

Day 1:

- Vocabulary Word study-strictly, allow, thoughtful

Day 2:

DOK 2: How is the boy different from other children? How are they similar?

- DOK 1: How is the boy feeling at the beginning of this book?

Day 3:

- DOK 3: The boy begins to feel a connection to someone else in this book. Who does he feel a connection with?

(Model) He feels a connection with \_\_\_\_\_ because \_\_\_\_\_

- DOK 3: How could you retell the events of this story using your hand?

First \_\_\_\_\_

Then \_\_\_\_\_

Then \_\_\_\_\_

Then \_\_\_\_\_, and

Finally \_\_\_\_\_

Day 4:

- DOK 4: What would have been the impact of allowing all animals in the pet club from the beginning?
- DOK 4: Social -Awareness is having an understanding of the perspective of others. Understanding others and “being in their shoes” is called empathy. When have you

shown empathy toward another person?

**Table 1**

**DESSA DATA PARTICIPANTS**

Composite scores were collected using DESSA in October, February, and May

Social-Emotional Composite	Self-Awareness	Self-Management	Social Awareness	Relationship Skills	Goal-Directed Behavior	Personal Responsibility	Decision Making	Optimistic Thinking
31	29	38	32	37	31	36	32	35
33	35	35	32	33	31	39	32	42
36	30	34	49	35	35	35	37	43
39	35	39	31	45	38	41	34	53
42	41	40	43	59	35	40	39	43

**Table 2**

October: This table demonstrates baseline data for students AW, ES, JP, FE, & CG (respectfully).

These five students were chosen as the research group as their initial DESSA scores fell in the needs range.

SEC	SA	SM	SO	RS	GB	PR	DM	OT
48	50	45	44	47	46	50	46	57
48	55	39	41	59	53	39	50	47
48	41	46	52	50	45	47	52	53
54	44	53	49	60	61	54	52	55
60	59	64	60	72	62	54	59	55

■ Need for Instruction ■ Typical ■ Strength

This table demonstrates February, mid year data for students ES, CG, JP, FE & AW (respectfully).

Table 3

2020-2021 class

**Student Status and Growth Summary Report**

<b>STY M.</b>	<b>Term Tested:</b> Spring 2020-2021	<b>Norms Reference Data:</b> 2020 Norms.
Language Art - BURTON - 00	<b>Term Rostered:</b> Spring 2020-2021	<b>Growth Comparison Period:</b> Winter 2021 - Spring 2021
	<b>District:</b> Oconomowoc Area School District	<b>Weeks of Instruction:</b> Start - 20 (Winter 2021)
	<b>School:</b> Ixonia	End - 32 (Spring 2021)
		<b>Optional Grouping:</b> None
		<b>Small Group Display:</b> No

SP21 Grade	SP21 Date	Achievement Status				Growth							
		Winter 2021		Spring 2021		Student					Comparative		
		RIT Score Range	Achievement Percentile Range	RIT Score Range	Achievement Percentile Range	Projected RIT Score	Projected Growth	Observed Growth	Observed Growth SE	Growth Index	Met Projected Growth	Conditional Growth Index	Conditional Growth Percentile
K	5/11/21	155-158-161	77-84-90	173-176-179	95-97-99	164	6	18	4.6	12	Yes	2.33	99
K	5/11/21	154-157-160	74-82-88	172-175-178	94-97-98	163	6	18	4.6	12	Yes	2.33	99
K	5/11/21	147-150-153	51-62-72	156-159-163	58-69-78	157	7	9	4.8	2	Yes ‡	0.46	68
K	5/11/21	132-135-138	11-17-25	139-142-145	12-18-26	143	8	7	4.6	-1	No ‡	-0.12	45
K	5/11/21	146-149-152	48-59-69	151-154-157	42-53-63	156	7	5	4.5	-2	No ‡	-0.32	38
K	5/11/21	143-146-149	39-49-60	152-155-158	46-56-66	153	7	9	4.4	2	Yes ‡	0.43	67
K	5/11/21	156-159-162	79-86-91	160-163-166	71-80-86	165	6	4	4.5	-2	No ‡	-0.36	36
K	5/11/21	146-149-152	48-59-70	156-159-162	59-69-78	156	7	10	4.6	3	Yes ‡	0.66	74
K	5/11/21	142-145-148	35-46-57	155-158-161	55-66-75	152	7	13	4.7	6	Yes	1.15	88
K	5/11/21	148-151-154	55-66-75	155-158-161	56-66-75	157	6	7	4.4	1	Yes ‡	0.1	54
K	5/11/21	153-156-159	71-80-86	155-158-161	56-66-75	162	6	2	4.5	-4	No ‡	-0.8	21
K	5/11/21	140-143-146	29-39-50	157-160-163	62-72-80	150	7	17	4.5	10	Yes	1.95	97
K	5/11/21	160-163-166	87-92-96	169-172-175	91-94-97	169	6	9	4.5	3	Yes ‡	0.68	75
K	5/11/21	160-163-166	88-92-95	174-177-180	96-98-99	169	6	14	4.5	8	Yes	1.64	95

<b>Summary for: Reading</b>	Percentage of Students who Met or Exceeded their Projected RIT Score	71.4%
	Percent of Projected Growth Met	154.3%
	Count of Students with Growth Projection Available and Valid Beginning and Ending Term Scores	14
	Count of Students who Met or Exceeded their Projected RIT	10
	Median Conditional Growth Percentile	71

Table 4 2021-2022 class, red dot indicates student in study

**Student Achievement Status and Growth Summary Report**

<b>IISTY M.</b> Language Art - BURTON - 00	<b>Term Tested:</b> Spring 2021-2022 <b>Term Rostered:</b> Spring 2021-2022 <b>District:</b> Oconomowoc Area School District <b>School:</b> Ixonia	<b>Norms Reference Data:</b> 2020 Norms. <b>Growth Comparison Period:</b> Winter 2022 - Spring 2022 <b>Weeks of Instruction:</b> Start - 20 (Winter 2022) End - 32 (Spring 2022) <b>Optional Grouping:</b> None <b>Small Group Display:</b> No
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SP22 Grade	SP22 Date	Achievement Status				Growth						Comparative	
		Winter 2022		Spring 2022		Student			Met Projected Growth			Conditional Growth Index	Conditional Growth Percentile
		RIT Score Range	Achievement Percentile Range	RIT Score Range	Achievement Percentile Range	Projected RIT Score	Projected Growth	Observed Growth	Observed Growth SE	Growth Index	Met Projected Growth		
K	5/10/22	123-126-129	2-4-7	157-160-163	62-72-80	134	8	34	4.6	26	Yes	4.97	99
K	5/10/22	132-135-138	11-17-24	149-152-155	36-46-57	143	8	17	4.4	9	Yes	1.87	97
K	5/10/22	161-164-167	89-93-96	169-172-175	90-94-97	170	6	8	4.5	2	Yes †	0.49	69
K	5/10/22	150-153-156	62-72-80	158-161-164	65-74-82	159	6	8	4.6	2	Yes †	0.33	63
K	5/16/22	♦141-144-147	32-42-53	157-160-163	62-72-80	151	7	16	4.5	9	Yes	1.76	96
K	5/10/22	♦144-147-150	42-52-63	155-158-161	56-66-75	154	7	11	4.5	4	Yes †	0.83	80
K	5/10/22	143-146-149	38-49-60	159-162-165	68-77-84	153	7	16	4.6	9	Yes	1.76	96
K	5/10/22	163-166-169	92-95-97	174-177-180	96-98-99	171	5	11	4.6	6	Yes	1.08	86
K	5/10/22	139-142-145	26-36-47	158-161-164	65-74-82	149	7	19	4.6	12	Yes	2.3	99
K	5/10/22	157-160-163	81-88-93	173-176-179	95-97-99	166	6	16	4.6	10	Yes	1.97	98
K	5/10/22	♦147-150-153	52-62-72	166-169-172	85-91-94	157	7	19	4.6	12	Yes	2.42	99
K	5/10/22	153-156-159	71-80-86	162-165-168	77-84-89	162	6	9	4.5	3	Yes †	0.57	72
K	5/10/22	151-154-157	65-74-82	164-167-170	81-88-92	160	6	13	4.5	7	Yes	1.32	91
K	5/10/22	♦138-141-144	24-33-43	159-162-165	68-77-85	148	7	21	4.6	14	Yes	2.65	99
K	5/10/22	161-164-167	89-93-96	162-166-170	78-86-91	169	5	2	4.8	-3	No †	-0.64	26
K	5/10/22	♦143-146-149	38-49-60	160-163-166	71-79-86	153	7	17	4.6	10	Yes	1.98	98
K	5/10/22	147-150-153	52-62-72	162-165-168	77-84-90	157	7	15	4.5	8	Yes	1.66	95

†Indicates that projected growth falls within standard error of observed growth.  
[Click here for more information on Met Projected Growth.](#)

**Student Achievement Status and Growth Summary Report**

<b>IISTY M.</b> Language Art - BURTON - 00	<b>Term Tested:</b> Spring 2021-2022 <b>Term Rostered:</b> Spring 2021-2022 <b>District:</b> Oconomowoc Area School District <b>School:</b> Ixonia	<b>Norms Reference Data:</b> 2020 Norms. <b>Growth Comparison Period:</b> Winter 2022 - Spring 2022 <b>Weeks of Instruction:</b> Start - 20 (Winter 2022) End - 32 (Spring 2022) <b>Optional Grouping:</b> None <b>Small Group Display:</b> No
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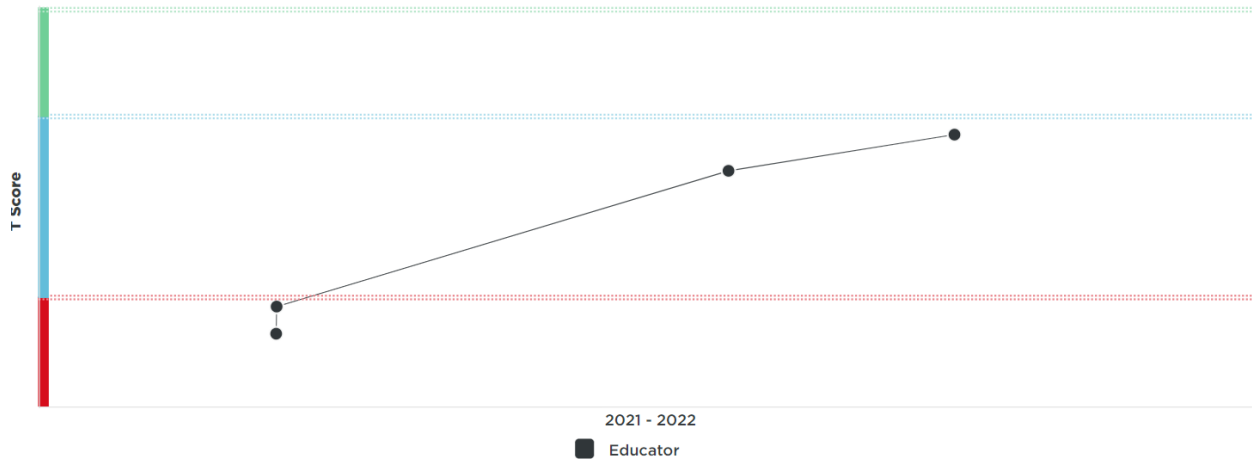
	Achievement Status		Growth	
	Winter 2022	Spring 2022	Student	Comparative
<b>Summary for: Reading</b>				
	Percentage of Students who Met or Exceeded their Projected RIT Score			94.1%
	Percent of Projected Growth Met			225.0%
	Count of Students with Growth Projection Available and Valid Beginning and Ending Term Scores			17
	Count of Students who Met or Exceeded their Projected RIT			16
	Median Conditional Growth Percentile			96

**Figure 1**

The following graphs and charts show the data changes from pre to post DESSA.

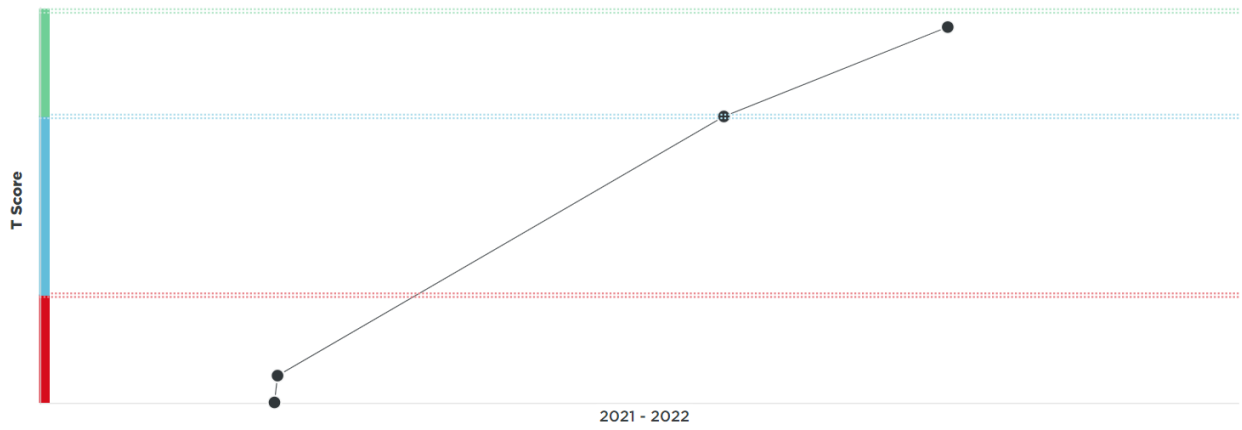
FE

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Rating Date	Rating Window	Descriptive Range	T-Score	Percentile	Form	Grade	Rater	
10/11/2021	21-22 Pre	Need	36	8th	DESSA-mini Form 1	Kindergarten	MISTY BURTON	<a href="#">View</a>
10/11/2021	21-22 Pre	Need	39	14th	DESSA	Kindergarten	MISTY BURTON	<a href="#">View</a>
02/24/2022	21-22 Post	Typical	54	66th	DESSA	Kindergarten	MISTY BURTON	<a href="#">View</a>
05/03/2022	Progress Monitoring	Typical	58	79th	DESSA	Kindergarten	MISTY BURTON	<a href="#">View</a>

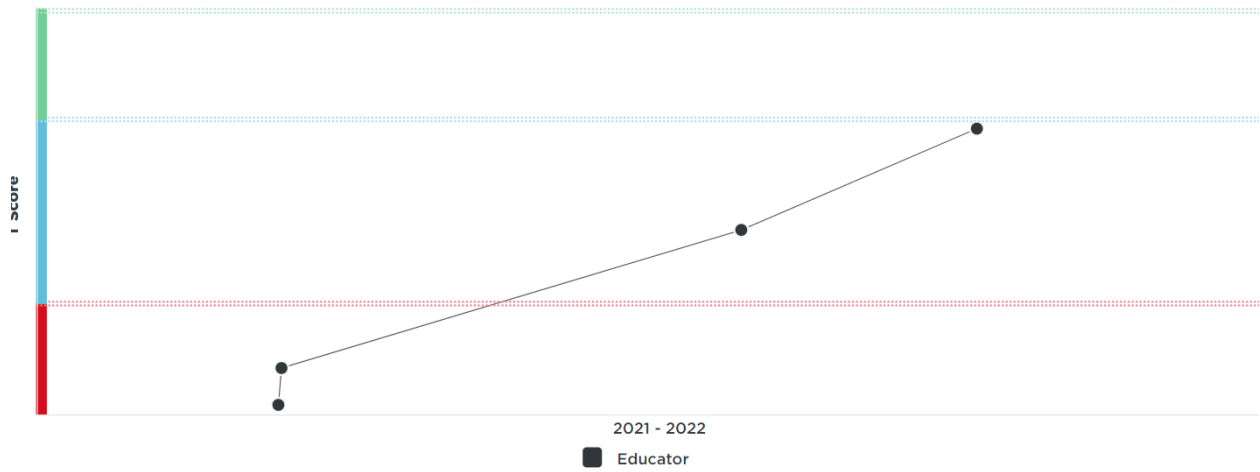
AW



Rating Date	Rating Window	Descriptive Range	T-Score	Percentile	Form	Grade	Rater	
10/11/2021	21-22 Pre	Need	28	1st	DESSA-mini Form 1	Kindergarten	MISTY BURTON	
10/12/2021	21-22 Pre	Need	31	3rd	DESSA	Kindergarten	MISTY BURTON	
02/25/2022	21-22 Post	Strength	60	84th	DESSA	Kindergarten	MISTY BURTON	
05/04/2022	Progress Monitoring	Strength	70	98th	DESSA	Kindergarten	MISTY BURTON	

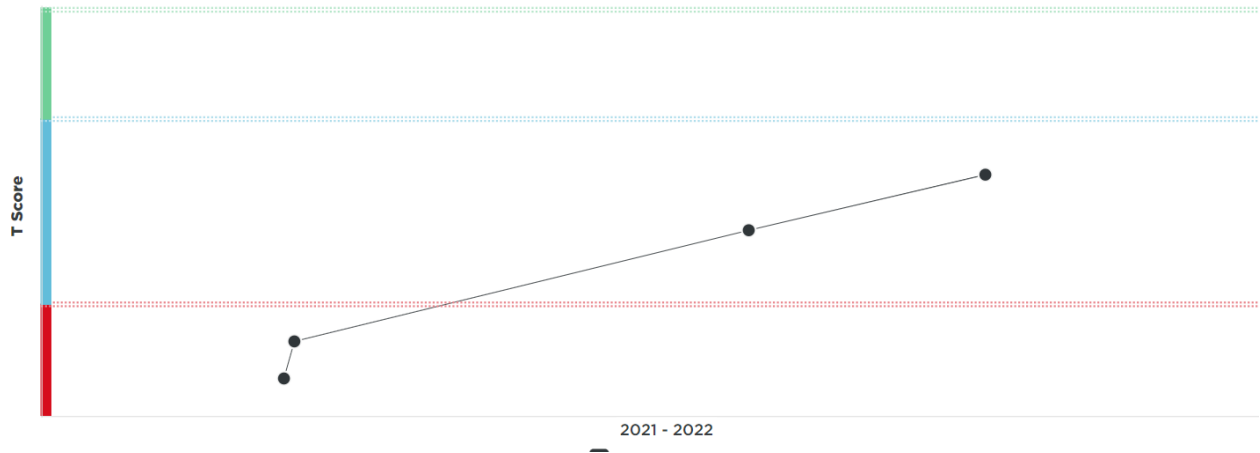


ES



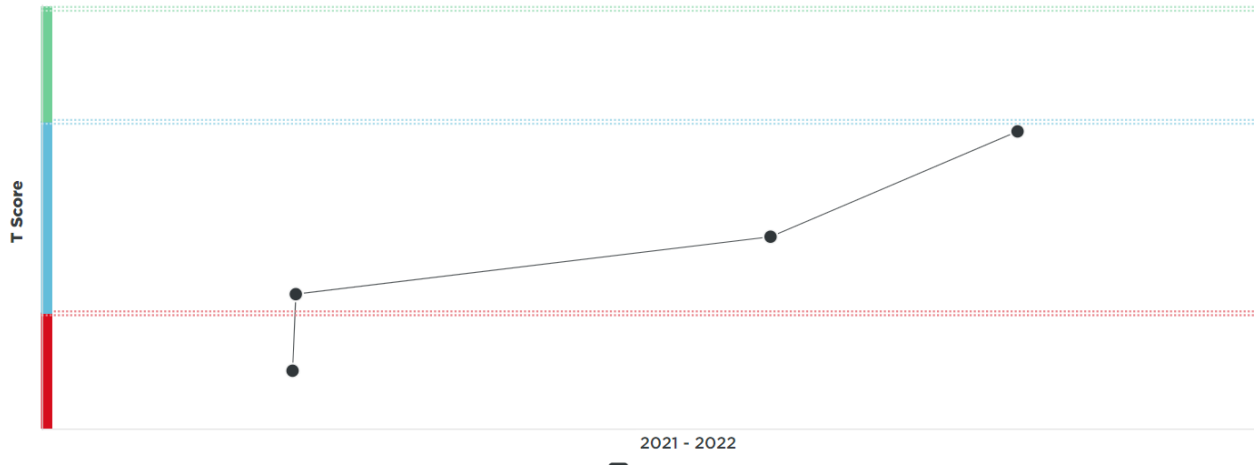
Rating Date	Rating Window	Descriptive Range	T-Score	Percentile	Form	Grade	Rater
10/11/2021	21-22 Pre	Need	29	1st	DESSA-mini Form 1	Kindergarten	MISTY BURTON
10/12/2021	21-22 Pre	Need	33	4th	DESSA	Kindergarten	MISTY BURTON
02/25/2022	21-22 Post	Typical	48	42nd	DESSA	Kindergarten	MISTY BURTON
05/05/2022	Progress Monitoring	Typical	59	82nd	DESSA	Kindergarten	MISTY BURTON

JP



Rating Date	Rating Window	Descriptive Range	T-Score	Percentile	Form	Grade	Rater
10/11/2021	21-22 Pre	Need	32	4th	DESSA-mini Form 1	Kindergarten	MISTY BURTON
10/14/2021	21-22 Pre	Need	36	8th	DESSA	Kindergarten	MISTY BURTON
02/25/2022	21-22 Post	Typical	48	42nd	DESSA	Kindergarten	MISTY BURTON
05/05/2022	Progress Monitoring	Typical	54	66th	DESSA	Kindergarten	MISTY BURTON

CG



Rating Date	Rating Window	Descriptive Range	T-Score	Percentile	Form	Grade	Rater
10/11/2021	21-22 Pre	Need	34	5th	DESSA-mini Form 1	Kindergarten	MISTY BURTON
10/12/2021	21-22 Pre	Typical	42	21st	DESSA	Kindergarten	MISTY BURTON
02/24/2022	21-22 Post	Typical	48	42nd	DESSA	Kindergarten	MISTY BURTON
05/05/2022	Progress Monitoring	Typical	59	82nd	DESSA	Kindergarten	MISTY BURTON

## **OASD Action Research Report**

### **Student Centered Coaching Strategies and the Impact of Scaffolding and Regrouping on Student Achievement and Math Identity**

Megan Kean, Tina Heinecke-Kurtz

Oconomowoc Area School District

June 30, 2022

#### **Author Note**

This action research study was supported by an OASD Learners and Leaders research grant. Correspondence concerning this research should be addressed to Megan Kean and Tina Heinecke-Kurtz, Silver Lake Intermediate School, 555 Oconomowoc Parkway Oconomowoc,

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### **Abstract**

The purpose of this study was to determine if using a student-centered coaching model would result in an increase in common assessment scores for students performing below 25% on the winter diagnostic given in math classes. The focus of this model was to increase teacher capacity in meeting the needs of students by researching specific strategies to impact learning. Problem solving and abstract thinking that is acquired as students build mathematical understanding is essential for academic success. Students must be taught procedural fluency based on conceptual understanding by highly skilled educators who command a strong math identity. The student centered coaching model contained in this research focused on helping improve student learning through educators focusing on data and fluidly implementing researched based teaching strategies. Student instruction focused both on conceptual understanding and procedural fluency. Implications of the work demonstrate the need to use strategies such as dynamic data informed regrouping and scaffolding to build upon conceptual understanding through productive struggle while being supported by highly skilled professional instructors.

## Introduction

Oconomowoc Area School District (OASD) encourages teachers to be leaders inside and outside of the classroom with the belief that teachers will impact and improve student achievement. The district has a few key performance objectives that we continue to focus on with our work. The proposal aligns with the objective of “the district and all individual schools will attain a ranking that significantly exceeds expectations on the state report card” in the area of mathematics. In addition, the OASD math design team focused on the areas of 6th through 8th grade FORWARD proficiency data and pathways achievement following a similar trajectory of improvement. Moreover, this proposal also focused on increasing equity and access with an inclusive purpose while it maintained a higher level of educational quality in math classrooms. The strategic plan for the district to increase math scores needs has been elevated to now incorporate math coaches. Furthermore, student-centered mathematics coaching was an avenue that could increase building strategies to meet the needs of the students.

Not just in Oconomowoc, but everywhere problem solving, critical and abstract thinking that is learned as students develop mathematical understanding, is a critical component of a young person's academic development. In this vein, it is important that students develop procedural fluency based on conceptual understanding as they progress through their math courses. According to the National Assessment of Educational Progress Assessment which “found that the United States is flat lining in growth and falling short compared to other countries. One of the reasons is due to the focus on procedures and formulas versus understanding the concepts” (Richards, 2020, p. 1). Despite this awareness, and a teacher’s best efforts, there is historically a group of students that struggle to meet grade-level content expectations. This year, at the researcher’s school, the number of students that scored in the

below basic category, which is below twenty-fifth percentile compared to their peers, was alarmingly large at a rate of 16.09%. A student that scores below the twenty-fifth percentile on standardized testing is considered a low performing student. Therefore, the need to implement researched-based best practices that support the low-performing populations is essential.

Students that perform below their peers on common assessments frequently have an issue with their mindset towards math and school in general. A math identity is an important factor for all students but especially vital to focus on with students that are in the low-performing categories. If a student does not believe he or she can do math or learn math, then it is challenging to help a student grow academically. Fortunately, there are strategies that help students grow in math identity and confidence, one of these being reflection of learning. Furthermore, connecting the two pieces of math identity and confidence with the importance of learning mathematics, is crucial for student learning.

The National Council for Teachers of Mathematics (NCTM) has researched the importance of learning mathematics and how it impacts active participation in society. NCTM has developed the standards of mathematical practice, a list of eight areas of expertise that all students need to develop as they learn to critically think, analyze, and problem solve logically. If students fail to develop in these mathematical areas, then they will struggle to be college and/or career-ready when they graduate. NCTM also states in *Principles to Action* that “Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems” (2014 p. 42). It is essential that students get access to high-quality mathematics with teachers that can support them and help nurture in these critical areas.

Any teacher who has been at this work for a time has realized that there have always been students that fall into the category of low-performing and struggle to meet grade-level content expectations. Although teachers do their best to try to meet the needs of all learners, there are still students that fall short. The number of students that are falling below grade level on standardized assessments, common assessments, and classroom performance also tend to be a group of students that do not move out of the below basic category on any assessment. The students continue to struggle each year. The present is no different. Schools recognize the existence of this group of students and work hard to meet the needs of these learners, but often find themselves unsuccessful in helping them grow academically. In the researcher's school, the level of student achievement of a broad set of mathematical skills was collected by two different assessment tools. The first is the universal screener, given in the fall, winter, and spring, and the second is the statewide mathematics assessment, given in the spring. Currently, according to the universal screener that was taken by students, more than 25% of the 7th-grade students at the Silver Lake Intermediate (SLI) projected to perform "below basic" on the statewide assessment. This was an abnormally large number when compared to other cohorts historically.

At Silver Lake Intermediate, the number of students projected to fall into the below basic category, unfortunately, increased. Last year, as sixth graders, the below basic category was 16.06% of the population. According to this year's projections, the below basic category could increase to approximately 26.09%. In the past, the universal screener has been statistically accurate, according to the district's Director of Assessment, in predicting student achievement outcomes on the statewide mathematics assessment. Another cause for concern when identifying and analyzing the low-performing population of 7th graders is that these same students continued



to fail to achieve grade-level performance on a daily and weekly basis. These students are not only struggling on achievement tests but also with classroom performance.

Therefore the need to focus on inclusive strategies. The data was analyzed at a deeper level that identified students that needed the support in the classrooms that have multiple adults. Educlimber was used to identify students with needs that were focused on and engaged in scaffolding and regrouping strategies to improve student achievement. Currently, the group of low performing students has been growing, therefore we needed to improve the instruction to meet the needs of the students. The unique scenario was having multiple teachers, including a math specialist, that helped identify barriers using a UDL lens.

In conclusion, the action research identified the strategies of regrouping and scaffolding to support students that struggle in the math classroom. As with new roles, especially a coaching role, it could take multiple cycles of observation and collection of data to determine growth. Therefore, the proposal included multiple assessments to identify the growth of student achievement.

## Literature Review

There is an art to teaching academics and increasing student achievement in any content area. Teaching mathematics is no different. John Hattie (2017) in his book, *Visible Learning for Mathematics* “has identified different factors that influence student learning. Hattie describes the factors as “effect sizes.” An effect size gives a description on the influence that a strategy has on student achievement”(p.1). However, there are a wide array of strategies that can be used to help meet the needs of student. Three of the factors that were studied were scaffolding, regrouping and student reflection.

It is important to note that the strategies used, regrouping, scaffolding and reflection, were used after each common assessment was given to the students and analyzed by the teachers. A common assessment is a tool that is given to all students in the classroom(s). It is one that is developed by the professional learning community (PLC). In *Making Sense of Mathematics*, “The formative assessment process is what allows teachers to provide necessary, individualized support to their students. Teachers should use it to collect data for determining whom they should pull into the small group, as well as to deepen student understanding during small-group instructional time” (Dixon, 2018, p. 2). When implementing a new strategy, there should be data to back up the needs and the information to help support the educator and the students.

### Student-Centered Coaching Model

Education has evolved throughout the years and a new buzz word is “coaching.” It is an instructional approach that a school may use to help impact student learning. Coaching can be done for improvement with the teacher, instruction or with students. There are a variety of methods and approaches with coaching. A student-centered coaching model

“is an evidence-based instructional coaching model that shifts the focus from ‘fixing’ teachers to collaborating with them to design instruction that targets student outcomes. Taking a data-driven approach increases the learning and efficacy of teachers, coaches, and most importantly our students” (Sweeney, 2021, p.1).

A student-centered coaching model is focused on helping improve student learning through analyzing student data and research-based strategies. It is important to note that the focus on student data will also help reach the needs of a variety of learners. Teachers are being informed on strategies, such as regrouping and scaffolding, that will help all students but specifically will target students that need different instruction to grow academically.

### **Regrouping Strategy for Learners**

John Hattie states, “An effect size represents the magnitude of the impact that a given approach has” (2017, p.20). One approach he has studied is the regrouping and re-teaching of students. It has been shown that this strategy of regrouping with focusing on a single skill impacts students at a level of 0.88. An effect size of 0.4 is to be known for an approach that has average impact. A 0.6 is known to have more of a significant impact on student learning. Therefore, regrouping is one of the strongest approaches. If teachers are “using the results of a pre-test, feedback, or formative or summative assessment, then teachers can identify patterns in the student work. Students can then be organized into two or more groups for ungraded learning” (Vanderott, 2015, p. 60). A regrouping approach is a strategy to help meet the needs of students in a smaller environment based on clusters that were identified with common assessments. In addition, “creative scheduling can also give teachers the freedom to share students for re-teaching. With multiple teachers teaching the same course at the same time, teachers can work

together to regroup students for re-teaching on specific concepts” (Vanderott, 2015, p 85). Furthermore, “The students’ needs should determine the necessity of pulled small-group instruction, rather than an expectation that you incorporate small groups into mathematics instruction each and every day” (Dixon, 2018, p. 3). Student need for learning is imperative to be focused on rather than a routine each day. However, regrouping can be used each day, if purposeful.

A regrouping strategy can also be used in a variety of ways. It can be used to help group students with similar gaps, but it can also be used to extend student learning. Most of the time, teachers have only used strategy groups for students that struggle and need intervention, but it should be and could be used for students that could benefit from enrichment. “It is extremely important that this approach is used in a specific format with much of the work with selecting appropriate tasks and activities, supporting the students during the instruction, and engaging the students in productive struggle through discussion” (Dixon, 2018, p.5). Additionally, the work needs to be based on data and evidence. This means that by using a regrouping approach with re-teaching, the impact on student learning is greater than average teaching strategies. Therefore, delivering differentiated instruction based on data and putting students into small groups is beneficial to student learning.

The instruction should be focused on both conceptual understanding and procedural fluency. This is a math teaching practice standard with the National Council of Teaching Mathematics (NCTM). Teaching mathematics needs to include procedural fluency and should be derived from conceptual understanding. Jeremy Kilpatrick (2001) in his book *Adding it Up* states “Conceptual understanding as comprehension of mathematical concepts, operations, and relations. And procedural fluency as a skill in carrying out procedures flexibly, accurately,

efficiently, and appropriately” (p.137). With that said, *Adding It Up* states that if teachers use this mindset, then “Learning with understanding is more powerful than simply memorizing because the organization improves retention, promotes fluency, and facilitates learning related material” (p. 118). To use a regrouping strategy and impact student learning, we must meet the students where they currently are in their learning progression and not where they should be. Teachers need to use data to drive decisions and not what they believe to be true about their students. In addition, teachers can get defensive if a student does not perform the same way that the teacher believes would happen. Therefore, data is extremely important for this strategy to be impactful.

### **Scaffolding Strategy for Learners**

An approach that can help focus on student needs during the regrouping strategy is scaffolding. Scaffolding does not reduce the rigor of the content but rather provides supports for students to access the material. Juli Dixon (2018) in *Making Sense of Mathematics for Instruction of Small Groups* states, “Scaffolding refers to providing tailored support for students based on their current level of understanding in the learning progression, with the ultimate goal of advancing their learning along the progression” (p. 11). As valuable as regrouping students can be, a teacher must use professional knowledge to meet the students at their level in order to support need. Dixon (2018) continues with,

Teachers need to provide this scaffolding just in time to support students to make sense of the mathematics, make connections, and engage in a productive struggle. By encouraging students to problem solve and reason about the mathematics, teachers are able to see what students already know (p. 11).

Productive struggle is a buzz word in the math teaching world. Scaffolding is a strategy to ensure that productive struggle will meet the students where they are currently at in their classroom and continue their learning. For students to learn, they need to be motivated and engaged. Therefore, teachers need to use strategies such as regrouping and scaffolding which builds upon conceptual understanding through productive struggle.

### **Student Math Identity**

In middle school, many students will say “I’m not good at math.” A teacher must always be mindful of this mindset. A student’s mindset about themselves identifies a student’s math identity. Students identify as either a math student or not a math student. There are rarely students that fall in between. John Hattie (2009) states that “One of the most important influences on student achievement is the relationship between the teacher and students” (p. 3). A powerful action that a teacher can do, and show is their belief in his or her students. Ceri Dean (2012) in *Classroom Instruction that Works* states, “Students’ beliefs about their own competence and whether they have any control over the outcome of a task, as well as their interest in the task and the reason why they are interested, also influence student engagement and persistence” (p. 42). Therefore, as much as we can find strategies that influence and impact student achievement, we must be mindful of their math identity. Dean continues with, “teachers must understand the relationship between effort and achievement and the importance of consistently exposing students to information related to effort” (Dean, 2012, p. 44). It is imperative to be mindful of our students and their mindset with any strategy or teaching that he or she interacts with in the classroom.

In an article released by NCTM, Jessica Bishop (2012) states,

Who we believe ourselves to be is a powerful influence on how we interact, engage, behave, and learn. Identities are important because they affect whether and how we engage in activities, both mathematical and otherwise, and because they play a fundamental role in enhancing (or detracting from) our attitudes, dispositions, emotional development, and a general sense of self (p. 3).

Teachers must continue to learn and understand student identity and how it impacts their confidence and engagement at school. “In the seminal book *Adding it Up*, the National Research Council recognized the affective component of learning mathematics, saying “students’ disposition (student identity) toward mathematics is a major factor in determining their educational success” (Kilpatrick, 2001, p.121).

Strategies and math identity are an important part of the math classroom. A successful classroom intertwines the two concepts together and understand that they are both important. Teachers need to meet the students where they are academically but also with their mindset in engaging with mathematics and activities. A student-centered coaching model helps bridge the two ideas together. With support, knowledge, and resources to help impact student achievement, all parties can be pushed to help students at a higher level. If teachers continue to work on finding strategies that are inclusive and engaging, then teachers will see an increase in math identity and achievement for the students. Finally, it is important to continue to formatively assess the students on their academics and identify which strategies were the most influential of student learning.

## Methods

### Research Questions

1. What is the difference in math achievement scores of low-performing 7<sup>th</sup> grade math students taught by using strategies: regrouping or scaffolding?
2. What is the impact of regrouping and scaffolding on math identity of low-performing 7<sup>th</sup> grade math students?
3. What is the level of correlation between low-performing 7<sup>th</sup> grade math students with math achievement scores and their math identity by using reflection?

### Design

This study included both qualitative and quantitative data collections. The qualitative data was informal conversations with teachers and participants, teacher observations, and surveys for the participants that were involved. The quantitative data was common assessments given by the teachers in the study that will include all students and the universal screener scores Measures of Academic Progress (MAPs). The focus of the data was on the low-performing students on common assessments and the universal screener. The study included comparing a variety of data to see the impact of the strategies used.

### Setting

Oconomowoc Area School District (OASD) has 5,000 students. The district is a suburban school district. The district has five elementary schools, two intermediate schools and one high school. The school district has 20% of the population that are free/reduced lunch and 11% of students with IEP's (individualized education plan). The ethnicities are: 89% Caucasian, 6%



Hispanic, 2% African American and 3% that are two or more ethnicities. The study was at an intermediate level school that has 600 students in 5<sup>th</sup> through 8<sup>th</sup> grade. The class sizes range from 17 students to 24 students. There were five classrooms in this study. The classrooms were in an inclusive setting where there are students with special needs in the classrooms. The common assessments were given to all the learners, but the students were regrouped based on the results. There were at least two educators in the rooms during the study that were working with the participants. Given the number of educators in the room, the researcher was able to regroup and support different learners depending on their needs. The study maintained equality by all students have been assessed to show their knowledge on the concepts and therefore students are not always grouped together but rather a fluid grouping system. However, the study focused on and followed a specific group of students and their data. It took place in five different classrooms with three different teachers teaching the same content and learning goals. Two of the classrooms used scaffolding and the other three classrooms used regrouping strategies.

### **Subject Selection**

The population of this study were the students that have been identified by the universal screener, MAPs. The sample in this study were 18 students that have been identified by a triangulation method of MAPs scores, common assessments, and teacher observations. The students were selected into the groups based on what block the students had math. The students were 12- and 13-year-old children. There were seven students with special IEP's (Individualized Education Plan). There were nine females and nine males. Each classroom had a minimum of two students with IEP's. In addition, there were three students that qualify for Title One services and one student that qualified for English language learner (ELL) services. A Title One service provided the school district with monies that support students that fall into the free/reduced lunch

category that do not receive IEP supports. The students were in a required standard level math classroom at the researcher's school.

## **Procedures**

The study took place in a six-week cycle that is like the Response to Intervention (RtI) process. It is a process which frequently looks at data to help meet the needs and gaps of students using researched based programs. The study used a similar process to identify student need by using data to identify mathematical misconceptions. Teachers continued to review the work and adjust the groups and support necessary based on pre and post assessment data. The data is from common assessments. Common assessments were teacher created assessments by the researcher's Professional Learning Community (PLC). A PLC is a group of teachers that currently teach the same concepts to the students.

### ***Strategy #1: Regrouping.***

Regrouping of students was based on common assessments. The PLC met each Wednesday and examined common assessments and analyzed data to regroup students. Teachers used a rubric to help identify students that do not meet grade level expectations and score a level one on the rubric. A level one on the rubric was a student that is emerging in the math skills, both conceptually and procedurally. The following levels were developing, proficient and advanced for their thinking and reasoning. Students were given common assessments in the form of exit tickets, homework quizzes and teacher created end of unit assessment.

### ***Strategy #2: Scaffolding instruction.***

Students that were in the sample received scaffolding work during class instruction. This included teacher created resource pages and adjusted mixed spaced practice to meet the needs of

the students. The mixed spaced practice work was developed based on common assessments. Mixed spaced practice was math problems that spiral so that the students are working with the math concepts on more than one day.

### **Instrumentation**

The instruments that were used during the study were teacher-created common assessments, teacher created rubrics, teacher created scaffolds and teacher created surveys. For regrouping, teachers analyzed data based on common assessments given to all students and used a rubric to help guide the analysis. Teachers gave the researcher qualitative observational data of their students and what the daily needs were for the students. For scaffolding, the students received teacher-created scaffolds to support needs based on their common assessments and 7th grade major cluster standards based on the Common Core State Standards (CCSS). The survey for the students was given two different times throughout the course of the six weeks. The reflections that the students completed included a four-point rubric with an explanation of their score. The survey was given at the beginning and the end to see the student's observation of their confidence level. All of the students were actively involved in either regrouping or scaffolding work.

### **Data Collection**

The study collected data on common math assessments. The common math assessments were given two times a week on daily work, every two weeks on formative work and every four weeks on end unit assessments. The students reflected on each of the common assessments. The study collected teacher observations. Additionally, the students gave observations of their learning. The study collected pre and post common assessment data. The study collected data

from MAPs. MAPs is the school's universal screener that helps identify low-performing students compared to their peers on the same assessment. The data was quantitative and qualitative in nature.

### **Data Analysis**

The study analyzed growth in a variety of ways. The analysis compared like assessments. The comparisons contained average standardized tests scores and average of common assessment scores. First comparison was between average standardized test scores and the difference with regrouping and scaffolding. In addition, the analysis compared student math identity score from student perception and the standardized test final score. The math identity data was quantitative and qualitative that focused on their own math perception score and with comments on the student reflections. The study focused on the number of students and the difference in scores. The study focused on the difference with regrouping versus scaffolding strategies. The sub-groups were based on students with IEP's, 504's, ELL and Title One support and gender. The study also measured the amount, if any, that the students increased. The study considered central measures of tendencies to identify trends with the common assessments.

## Discussion

The purpose of this study was to identify if there were differences in achievement and confidence when using regrouping or scaffolding strategies with low performing 7<sup>th</sup> grade students. The research design was both experimental and survey based.

This research study was focused on student-centered coaching strategies. This was done by looking at research practices that helped address the students that struggle in the math classroom compared to their peers. The two different strategies that were a focus during this study was scaffolding the material and regrouping of students. This addressed specific needs and gaps in learning that was identified by the data collected from common assessments.

The subjects for this study were seventh grade students who were a part of five math classrooms at the researcher's school. The subjects scored below the twenty fifth percentile on their standardized math assessment. There were 18 twelve- and thirteen-year-old students that met this criterion. There were seven students with IEP's. There were nine females and nine males. Each classroom had a minimum of two students with IEP's. Three classrooms used the scaffolding whereas the other two classrooms used regrouping strategies. Five students were taught with scaffolding. Three of the students have IEP's, one student with ELL support and one student with no extra services provided. There were three males and two females who used this strategy. There were thirteen students who were taught with regrouping. Four students have IEP's, three students with Title One support, five students with no extra services and one student with ELL support. There were six males and seven females who used the strategy. All students were in a required standard level math classroom at the researcher's school.

### Table 1

*Research Participants*


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Student #	Gender	Strategy	Intervention	Services
1	Female	Scaffolding	IEP Goal Work	IEP
2	Female	Scaffolding	IEP Goal Work	IEP
3	Male	Regrouping	Reading	IEP
4	Female	Regrouping	Math	IEP
5	Male	Regrouping	Math	Title One
6	Female	Regrouping	Math	Title One
7	Female	Regrouping	Math	None
8	Male	Regrouping	Reading	None
9	Female	Regrouping	Reading	None
10	Male	Regrouping	Reading	ELL
11	Male	Scaffolding	Math	IEP
12	Male	Scaffolding	Math	ELL
13	Male	Regrouping	Reading	IEP
14	Female	Regrouping	Math	Title One
15	Female	Regrouping	Tier One Math	None

16	Female	Regrouping	Tier One Math	None
17	Male	Scaffolding	Tier One Math	None
18	Male	Regrouping	Tier One Math	IEP

The table represents the participants. There are more students that were in regrouping than scaffolding. Each of the students with the IEP have a specific math goal and were in a special education teacher supported classroom with full inclusion of all students. It is also interesting to note that only 33% of the participants did not have any extra services to support their learning in the classroom. Finally, the participant pool was 55% female and 45% male.

### **Academic Achievement**

The first research question of this study was, what is the difference in math achievement scores of low performing 7<sup>th</sup> grade math students taught by using strategies: regrouping or scaffolding? Scaffolding is a researched based practice where it allows universal access to grade level material which addresses the gaps in learning of the students. It is a method that does not reduce the rigor of the material but rather provides supports to achieve the learning target of the lesson. The data was collected with formative and summative common assessments. This was in the form of exit tickets, quizzes, and end unit assessments. The research study focused on grade level clusters of standards: operations with fractions and integers, unit rate, area and perimeter, proportions, fractions, decimals, percents and probability. There was more content that was taught but at the researcher's school the concepts that were focused on were topics identified with the most need based on common assessment data.

Regrouping is a research-based strategy that teachers use to help group students to relearn a skill based on data. It is a flexible method that addresses student needs. Students worked with a teacher in a small group setting to focus on misconceptions about the learning targets.

Regrouping is centered around collecting formative data and assessing each student individually.

After the completion of the study, the participants took a second standardized test. According to the growth reports, a student should grow an average of 3 points on their tests. The data in Appendix A and B show their baseline score and then their final score with a column on the difference in growth. Students that were in the scaffolding strategy had an average of 10 or average 1.66 on the score. The females had an average score of 22.5 growth whereas the males had a 6.3 growth. Regrouping strategy had an average of 6.2 growth. The males had an average of 9 points whereas the females had a 3.7-point growth. Also, there were three students who dropped in scores, two males and one female, all of which do not have IEP's or other services. Two of the students were in the regrouping strategy and one in the scaffolding. Finally, scaffolding for females had the highest average growth whereas regrouping had the most growth for males. There are many ways to analyze the data with subgroups, but the study focused on services and gender with standardized test scores, common assessment scores and math identity scores.

**Table 2**

*Comparison of Average Standardized Test Scores in Regrouping and Scaffolding*

Method	Baseline Average	Final Average	Average of Difference
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Regrouping	201.5	208.8	+7.2
Scaffolding	181.8	191.8	+10.0

Table 2 is summary data of the scores that were measured and found the average for the different strategies with their standardized test score. It is important to note that although the regrouping had higher scores, the difference with scaffolding for students was a larger gain. This is logical because they did start at a lower score. There were outliers in the data that had the scaffolding data skewed. If two of the students were not included in the average, the average would only be 1.67 points. Additionally, the two students that grew significantly have a cognitive disability and got direct support during the assessment.

**Table 3**

*Comparison of Average Common Assessment Scores in Regrouping or Scaffolding*

Method	Baseline Average	Final Average	Average of Difference
Regrouping	1.10	2.43	1.33
Scaffolding	1	2	0.658

Table 3 is showing the results of the common assessments created by the PLC team of teachers. The data shows 6 weeks of data. Most students started at a score of one. Remembering that a score of one was for students that are emerging in their math skills but needed a lot of guidance and support. It is important to note that 22% of students did not score above a score of one in any

of the skills at the beginning of the study. At the end of the study, only 27% of students still scored in the one category. Additionally, 55% of students scored a three or more in at least one category of the assessments. A score of three is for students that demonstrated a proficient level of understanding, both procedural and conceptual. Students that scored a three or higher is at the same level as their peers.

### **Math Identity**

The second research question was, what is the impact of regrouping and scaffolding on math identity of low performing 7<sup>th</sup> grade math students? Reflection is used with students with each formative assessment as the students are learning new material. A student reflection helped a teacher understand the implication of the student view of their learning for the day. In turn, the reflection showed trends of student identity and confidence in their math learning. Students took survey at the beginning and at the end of the action research. In addition, the students did a daily reflection on specific skills that are taught during the regrouping strategy.

**Table 4**

*Comparison of Math Achievement Increase and Math Identity Scores in Regrouping or Scaffolding*

Method	Math Score Increase	Perception Increase	Correlation in Change
Regrouping	7.20	1.53	0.00
Scaffolding	10.00	1.40	-0.28

Table 4 is representing the correlation between student's math score increase and their perception of their math identity. The data appears to have no correlation or connection between their math score increase and their confidence in the math classroom. Students, overall, shared that their math experience increased this year with their teachers from worse to at least same as last year or better than last year.

**Table 5**

*Comparison of Math Identity Scores in Regrouping or Scaffolding*

Method	Baseline Average	Final Average	Average of Difference
Regrouping	1.78	3.31	1.53
Scaffolding	1.50	2.90	1.40

Students took a survey on their current math identity. The survey is in Appendix E. The survey consisted of questions on how the students viewed themselves as mathematicians currently and in previous years. Students were also given the ability to share with the teacher their mindset and what can help them succeed. The information was given to the teachers to use during the study. Many of the students shared that small groups tend to help the students gain success in the classroom. It is important to note that gender did not play a factor in their math identity. Generally speaking, the raw data showed that the students with the highest math identity score were females.

### **Academic Achievement and Math Identify**

The third research question, what is the level of correlation between low-performing 7<sup>th</sup> grade math students with math achievement scores and their math identity by using scaffolding or regrouping?

It is important to note that at the beginning of the study 27.8% of students shared that this year was worse mathematically for them versus previous years. At the conclusion of the study, there were 0% of students that selected the option of worse. In addition, 22.2% of students that shared it was better at the beginning of the study grew to 66.7% of students at the conclusion of the study.

Appendix F shared information on the connection between teacher observation of student identity and confidence in the classroom with their growth on standardized tests. Teachers scored the students on a scale of 1-10 with one being not engaged in the classroom and a ten being fully engaged and growing as a math student.

## **Conclusion and Recommendations**

The purpose of this study was to determine if using the student-centered coaching model of scaffolding and regrouping would result in an increase in standardized tests scores and common assessments scores for students who are low performing compared to their peers. More specifically, the study focused on strategies of scaffolding for students and regrouping of students. In addition, the study focused on identifying what, if any, was the correlation between their math scores and their math identity.

### **Research Questions**

- What was the difference in math achievement scores of low performing 7<sup>th</sup> grade math students taught by using strategies: regrouping or scaffolding?
- What was the impact of regrouping and scaffolding on math identity scores of low performing 7<sup>th</sup> grade math students?
- What is the level of correlation between low-performing 7<sup>th</sup> grade math students with math achievement scores and their math identity by using scaffolding and reflection?

The subjects for this line of inquiry were seventh grade math students. in a standard level math classroom. The students were low-performing math students on both standardized tests and common assessments compared to their peers. The study employed a qualitative and quantitative design collecting a variety of data. The data includes assessment scores, student identity scores, survey results and informal teacher conversations. Students were asked to participate in small groups during their class period and complete common assessments. Students completed a standardized test at the beginning and end of the study. Students completed biweekly assessments that had a section on self-reflection. The self-reflection was a student rating

themselves using a rubric and explaining their rationale. On the common assessment in the form of an exit ticket, students completed two different math problems that were associated with the math content of that day. In addition, students completed a survey that was focused on student reflection of their math identity in the classroom.

As Diane Sweeny (2021) stated, “taking a data-driven approach increases the learning and efficacy of teachers, coaches, and most importantly our students” (p.1). The data was analyzed that used averages, comparisons, differences, and correlations. After further investigation, there were surprises with the data that was collected. The data showed an increase in academic scores with assessments but not in math identity with math scores. The study primarily focused on identifying any connections between the strategies and assessment scores. As a PLC, the researcher’s team was focused on data for all decisions in regrouping and scaffolding on a weekly basis. Furthermore, as a team it was necessary to implement data collection tools to better understand the current comprehension of math concepts. Data was important to help the PLC develop strategies to help students increase proficiency in the current 7<sup>th</sup> grade skills.

The PLC focused on frequent common assessments and daily student work to fluidly regroup students and understand what scaffolds are needed to put in place to help students achieve success. Diane Sweeny (2021) states, “if we collect actual evidence – even if it’s anecdotal – we can look through it together to find trends and needs that we might not otherwise be able to catch” (p. 2). The PLC was able to work together on a weekly basis to analyze student data in a variety of ways which helped the team focus on supporting the immediate student need and the team tried to take a proactive approach. In addition, “Having multiple sets of eyes on the same set of student work really creates some rich learning opportunities for everyone and helps

us calibrate our understandings and expectations as a team of what success looks like and how to meet students' needs" (Sweeny, 2021, p.3). A student-centered coaching model that focused primarily on strategies such as regrouping and scaffolding on student need helped all teachers reach students in a more purposeful and seemingly promising manner.

### **Limitations**

The study is limited due to having 18 students that had other supports in place before the study began with IEP's, Title One and ELL services. Additionally, half of the students received math intervention at another period during the school day. It is also limited due to the length of the standardized test. The test itself is 53 questions and can take students over an hour to finish. Furthermore, the study is limited due to 4 different teachers delivering the grade level content to the students at different times of the school day.

Scaffolding and regrouping may have helped students increase their math scores in both common assessments and standardized test scores. However, because of the population of the students in the study, there is no definite determination if this would work for students that are not low-performing students. Rather, they are strategies that can helpful and be employed to help students that are performing below their grade level peers and still being exposed to grade level content. Vanderott (2015) discussed in her book that using data will identify patterns in student work. It is valuable to do the regrouping and strategy with data that is not graded. This study focused primarily on formative data, but the summative assessments were graded at the end of the study.

This means that the generalizability cannot compare with a different group of students with similar demographics due to the variability of the environments in which the students

learned. However, the study showed that the strategies are supportive in learning and could be used with a wide array of students. In addition, helpful for teachers to meet the needs of a variety of students. The reliability of this was decreased due to the different needs of the students with IEP's. It is not certain that this study can be used with the same consistency in the future. The validity of the study is accurate. The study represented the information on the student's math ability by using different assessments to measure progress.

## **Conclusions**

Based on the findings of this study, the following conclusions can be made:

- It was important to have flexible groups based on data to effectively apply the regrouping strategy.
- Scaffolding was a strategy that could help many students meet the grade level content with support of the teacher.
- Teachers need to develop and analyze frequent formative assessments to gauge student achievement.
- It does not appear to have a definitive correlation between math assessment scores and math identity.

## **Recommendations and Implications**

Based on the findings of this study, the following recommendations and implication for future practice should include:

- PLC's should have weekly meetings of analyzing data so that it is timely for regrouping of students.



- To ensure best practice with scaffolding, it needs to meet the needs of the variety of student mathematical backgrounds. A one size fits all for scaffolding does not always support student learning.
- It is recommended to continue using data to support all students in the classroom with regrouping and scaffolding at all ends of the learning spectrum of students. Students that are not in this specific population of students may also benefit from the two strategies to support their learning.

In summary, the study was able to see the importance of data collection to support students' misconceptions in mathematics. Teachers need to use data to help comprehend the current understanding of students compared to their peers. Using data, teachers were able to take out their opinions on if they believed a student understood or not based on their behavior in the classroom. Finally, the PLC team realized how important it is to use data from the start of the school year to help support students from the beginning and that formative assessments should be used frequently and analyzed often.

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**Appendix A: Standardized Test Scores (MAP)***Comparison of Standardized Test Scores with Regrouping*

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Student #	Baseline Score	Final Score	Difference
3	193	225	+32
4	197	209	+12
5	197	188	-9
6	198	203	+5
7	199	202	+3
8	199	211	+12
9	201	211	+10
12	203	209	+6
13	206	226	+20
14	206	200	-6

15	206	207	+1
16	207	208	+1
18	208	215	+7

**Appendix B: Standardized Test Scores (MAP)***Comparison of Standardized Test Scores of Students with Scaffolding*

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Student #	Baseline Score	Final Score	Difference
1	134	161	+27
2	163	181	+18
10	202	194	-8
11	202	206	+4
17	208	217	+9

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**Appendix C: Common Assessments***Common Assessments in Regrouping Group*

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Student #	Baseline Score	Final Score	Difference
3	1	2.29	1.29
4	1	2.43	1.43
5	1	2	1
6	1	1.71	0.71
7	1	2	1
8	1	2	1
9	1	2.43	1.43
12	1	2.71	1.71
13	1	3	2
14	1.41	2.71	1.30

15	1	2.43	1.43
16	1.43	2.86	1.43
18	1.43	3	1.57



**Appendix D: Common Assessments***Common Assessments in Scaffolding Group*

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Student #	Baseline Score	Final Score	Difference
1	1	1	0
2	1	1.29	0.29
10	1	2	1
11	1	1.71	0.71
17	1.71	3	1.29

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## Appendix E: Survey

*Survey that was Given at the Beginning and Completion of the Study*

### Math Survey

Your teachers care about you as a human and as a math student. Part of growing in the math classroom is identifying pieces of your mindset in math. Please answer the following questions honestly.

- 1 - Strongly disagree
- 2 - Partially disagree
- 3 - Neutral
- 4 - Partially agree
- 5 - Strongly agree

---

\* Required

1. Name \*

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2. Math Teacher \*

*Mark only one oval.*

3. Block \*

*Mark only one oval.*

A

C

D

4. On a scale of 1 to 5, how much do you agree with this statement "I feel I am never good at math." \*

*Mark only one oval.*

	1	2	3	4	5	
Not Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Completely agree

5. On a scale of 1 to 5, how much do you agree with this statement "I feel I can do math with the support of my teacher." \*

*Mark only one oval.*

	1	2	3	4	5	
Not Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Completely Agree

6. On a scale of 1 to 5, how much do you agree with this statement "I feel I can do math with the support of my teammates." \*

*Mark only one oval.*

	1	2	3	4	5	
Not Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Completely Agree

7. On a scale of 1 to 5, how much do you agree with this statement "I feel I can do the math and help out others in the classroom." \*

*Mark only one oval.*

	1	2	3	4	5	
Not Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Completely Agree

8. How are your feelings towards math, generally speaking, this year versus previous years? \*

*Mark only one oval.*

- Same
- Worse
- Better

9. Please explain your answer to the previous question. \*

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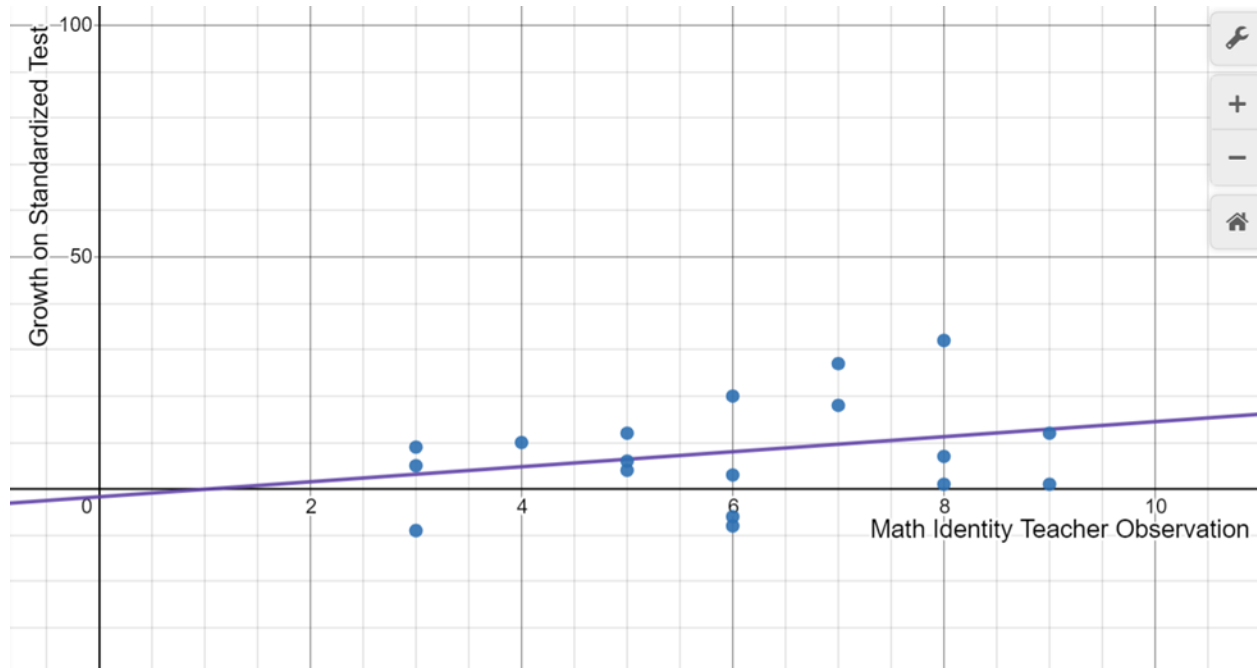
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## Appendix F: Comparison of Math Identity and Growth on Standardized Test

*Graph of Math Identity Teacher Observation and Growth on Standardized Test*



Note. The linear regression graph represents the comparison between teacher observation of math identity of students and their growth on their standardized test score after the completion of the study. The correlation for both regrouping and scaffolding was 0.2866.