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FIFTH GRADE RESILIENCY: THE INTENTIONAL, TARGETED INSTRUCTION OF COPING STRATEGIES

Cindy L. Bourdo, Stephanie M. Fazio, Kristin S. Harper, and Michelle M. Sindic

Silver Lake Intermediate School, Oconomowoc Area School District

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This action research study was supported by an OASD Learners and Leaders research grant. Correspondence concerning this research should be addressed to Cindy Bourdo, Silver Lake Intermediate School, 555 Oconomowoc Parkway Oconomowoc, WI 53066. Email: BourdoC@oasd.org

ABSTRACT

Students who are equipped to handle academic and social challenges are better positioned for school success. This study investigated whether the intentional instruction of effective coping strategies has a positive impact on students' resilience. Students completed a self-assessment before receiving a series of lessons on problem solving, overcoming adversity, and risk taking. Students then completed the same assessment after instruction. Standardized mean gain scores ranging from +0.46 to +1.36 indicate substantive improvement in coping skills. Anecdotal data also showed a positive influence of intentional instruction of effective coping strategies on student resiliency.

Keywords: resiliency, coping strategies, problem solving, risk taking, social and emotional learning

FIFTH GRADE RESILIENCY: THE INTENTIONAL, TARGETED INSTRUCTION OF COPING STRATEGIES

As experienced educators, we have seen that the students who are most successful in our classrooms are those who have the resiliency and coping skills to handle social and academic challenges. Some students come to our classrooms ready to go, with a toolbox of strategies to draw on when the academic work gets tough, while others may be able to handle tricky social situations with ease. Some children are naturally resilient and have the innate ability to adapt and persevere in challenging situations while others may have had the fortune of being taught these coping skills at home by their parents or possibly a counselor or therapist. When they enter our classrooms, these students may stand out as easy-going and hard-working, and many times growing into leaders within a school setting. Unfortunately, far too many students do not come to school with these skills and adding to that is the trauma and emotional baggage that many students carry around, oftentimes entering our classrooms lacking the tools they need to face the many challenges that academics and a classroom full of peers may present.

We know that without coping strategies and the ability to problem solve and be resilient, school can be a challenge. We value the importance of Social Emotional Learning (SEL) in our classrooms and as educators; we understand the positive impact that SEL and Resiliency can have on relationships and academics. Furthermore, SEL is becoming a priority at the state and local level. The Wisconsin Department of Public Instruction has designed the Wisconsin PK-Adult Social and Emotional Learning competencies, a comprehensive guide for schools and educators diving into SEL. Additionally, one of the focus areas in the Oconomowoc Area School District's strategic plan states, "We will support all students, in collaboration with families and the community, to develop their social and emotional wellness and resilience," demonstrating that SEL is equally as important as our core academic subjects here in the Oconomowoc Area School District (OASD).

Usually, we intermittently incorporate mindfulness activities, growth mindset lessons, brief meditation and even lessons on self-talk and grit in our classrooms, and we have seen students put many of these practices into use throughout their school day. We assume these strategies are helping students, and our classroom observations are motivation for this action research. We planned a more systematic, research-based approach to answer the following question: Does the intentional instruction of effective coping strategies have a positive impact on students' resilience, resulting in the ability to problem-solve, face challenges, and take risks?

Literature Review

As stated above, we intend to investigate the effects on student resiliency when we purposefully instruct specific strategies that support social-emotional learning. Does the intentional instruction of effective coping strategies have a positive impact on students' resilience, resulting in the ability to problem-solve, face challenges, and take risks? If students are exposed to, and encouraged to use, a set of specifically chosen coping skills, will their resilience within the academic day increase? We intend to utilize an instructional program by Lynn Namka, provided in her book titled *Lesson Plans for Teaching Resilience in Children* (2014), that encourages students to work through a different coping strategy each week; specifically, we will directly teach a skill each Tuesday, and revisit it on Thursday. Students will be encouraged to engage with and apply each new strategy into their academic day.

To gain insight into our action research question, we reviewed professional articles that addressed social-emotional teaching, learning, and resulting outcomes. First off, we looked to define what exactly a resilient person looks like. According to researchers Lowenthal (2001), Lynch et al. (2004), and Rockwell (2006), "a resilient person will retain a positive self-concept, a sense of optimism, and a feeling of control over his or her environment even in the face of unstable or negative conditions" (as cited in Ferrin, 2013, p. 8). To us, as educators who teach the "whole child," these characteristics are what we desire to see more of in our students. Upon further investigation, we quickly realized that researchers see the importance of, and the implications of, social-emotional learning as far-reaching; according to Hromek and Roffey (2009), "social and emotional understandings and skills...work to underpin both personal resilience and healthy relationships" (as cited in Cahill et al., 2014, p. 34). In addition, Price-Mitchell (2015) asserts children who develop resilience are better able to face disappointment, learn from failure, cope with loss, and adapt to change. We recognize resilience in children when we observe their determination, grit, and perseverance to tackle problems and cope with the emotional challenges of school and life. (as cited in Tocino-Smith, 2020, para. 35)

To build upon the importance of this SEL work, there is also a time-component to it; we are teaching late-elementary students who are transitioning into full-blown middle school students. Research from about 15 developmental studies concluded that coping strategies improve throughout elementary school, but then drop off during middle school transitions (Skinner & Saxton., 2019, as cited in Skinner et al., 2019, p. 4). Knowing that there is impending change about to occur in our students, we feel an urgency to teach strategies and skills that they can practice within the confines of our classrooms.

Within the school day, we have an opportunity to do more than solely teach academics. According to Boorn et al. (2010), “the school environment is the most significant context outside of family to promote opportunities in maintaining emotional and social well-being” and primary grades can be an effective setting in which to focus this attention (as cited in Ferrin, 2013, p. 12). What an opportunity we have! We can provide an environment full of encouragement, strategies, and structure that provides for social and emotional learning and growth. In the end, “[w]hen students believe that they are worthy and capable of overcoming challenges, they become resilient” (Tocino- Smith, 2020, para. 4). To build on this idea of increasing student resiliency, Bernard (2004) found higher resilience linked to an increased likelihood of thriving in one’s learning, having better social interactions and problem solving skills, as well as increased “independence, responsibility, and confidence” (as cited in Cahill et al., 2014, p. 14 and p. 16).

To be effective, SEL programs taught in the classroom need to have certain basic components. First, programs should provide opportunities for students to make positive connections with other students and teachers, all within a consistent, safe, and structured environment (Ferrin, 2013). Second, within this same environment, teachers should provide opportunities for skill-building, planning, and decision-making (Tocino-Smith, 2020), as well as self-regulation/coping strategies and emotional-reactivity reduction strategies (Skinner et al., 2019). Third, SEL instruction should have very clear learning goals; Durlak et al. (2011) found these clear goals correlated with producing a larger number of positive outcomes like: using skills that were taught, better attitudes, reduced behavior problems, and better social and academic behavior (as cited in Cahill et al., 2014). Finally, and perhaps most interestingly, researchers suggest that “[s]tudents should not be protected from everyday academic stressors and demands; instead, teachers can intentionally ‘dose’ them with just-manageable challenges while providing the kinds of pedagogical and interpersonal supports that allow students to figure out how to box their way through” (Cahill et al., 2014, p. 9). It’s exciting to think about the positive influences we can provide within our classrooms for all students!

Within the educational arena, as well as specifically here in OASD, we know that there are best practices to be followed and “non-negotiables” to be honored. In our minds, these items together: best practices, Universal Design for Learning (UDL), OASD’s non-negotiables, OASD’s 2020-2021 Strategic Plan, and the direct instruction of coping strategies to raise resiliency. According to Ferrin (2013), students who are educated in environments that provide positive adult relationships, caring communities, and opportunities to practice decision-making and self-expression will possess more characteristics associated with resilience (p. 43). It is our goal, through the direct teaching of coping strategies to our fifth-grade students, to raise their resilience. And, by doing this, we will be directly supporting part of OASD’s Strategic

Plan: “we will support all students, in collaboration with families and the community, to develop their social and emotional wellness and resilience” (Oconomowoc Area School District, 2020).

METHOD

Using the Action Research Cycle, we know that “[a]ction research is a continuous spiral of reflecting, planning and acting” (Stubeck, 2015, p. 31). We have begun this journey reflecting on student needs in an ever-changing educational environment that we live in today; we began with taking the time to learn and reflect about the importance of resiliency in students’ lives as demonstrated by our literature review outlined above.

Participants

The Oconomowoc Area School District is a medium-sized (N=5,250) Wisconsin public school system serving students in kindergarten to grade 12. The student population (90% White, 6% Hispanic/Latino, 18% Economically Disadvantaged, 11% Disabilities) is served by a highly qualified teaching and support staff. There are five elementary schools, two intermediate schools and a high school. A total of 47 fifth-grade students from two classes participated in this action research study.

Data Collection and Analysis

In order to best meet the needs of the fifth-grade students we work with; we developed a student coping strategies self-assessment (Table 1). We used this tool to establish a baseline of student-understanding and application of coping strategies in order to help themselves problem solve, face challenges, and take risks.

We administered this self-assessment in a standardized manner, taking into consideration accommodations needed to meet the needs of all learners. Accommodations for students with disabilities were provided based on Individualized Education Plans for district and state standardized testing procedures.

Table 1

Student Self-Assessment of Coping Strategies: Problem Solving, Overcoming Adversity, Risk Taking

Not at all/never (1), Hardly ever (2), Some of the time (3), Most of the time (4), Always (5)

Problem Solving

1. I see a problem as an opportunity.
2. When I see a problem, I try to understand it before I try to solve it.
3. I break problems down into smaller steps.
4. When I look at a problem, I try to think of more than 1 way to solve it.
5. When someone else has a problem, I try to think of it from their point of view.
6. When there is a problem that involves other people, I look for ways to compromise.
7. After I have solved a problem, I think about what could have been done better or differently.

Overcoming Adversity

1. I approach my day with optimism.
2. I ask "why" about problems that I'm facing.
3. I "do" more than I "think about doing".
4. I keep going on a project or problem.
5. I set goals and then I aim for them.
6. The words I say to myself are positive.
7. When things go wrong, I am calm.

Risk Taking

1. Learning new things doesn't make me nervous or scared.
 2. I like to think creatively.
 3. I am curious about why things are the way they are.
 4. It's ok if I'm not always successful.
 5. I am willing to take risks.
 6. When I put my mind to something, I get it done.
 7. Failure is ok.
-

After identifying the needs and trends of our population, we reviewed Lynn Namka’s online book titled *Lesson Plans for Teaching Resilience in Children (2014)*. Review of these lessons helped us construct an intentional, structured approach to create and implement a cohesive instructional plan to implement as part of our action research. Ten lessons were specifically chosen and designed to meet the needs of the fifth-grade students. The lessons were taught and practiced on Tuesdays each week with a follow up reflection and discussion of student application of taught strategy on Thursdays (see Appendix). At the end of the ten weeks the self-assessment was readministered to assess the effectiveness of the teaching strategies.

Our research team analyzed the self-assessment data using descriptive statistics like frequencies, percentages, means, and variance. Pre-post standardized mean gain scores were used to qualify the magnitude of change in student coping strategies as it related to our research question: Does the intentional instruction of effective coping strategies have a positive impact on students’ resilience, resulting in the ability to problem-solve, face challenges, and take risks? These data provide us with current needs and trends of this specific population. Table 2 shows the data collection and analysis timeline.

Table 2

Data Collection and Analysis Timeline

Second Semester (2020-2021)

January 11-22	Self-assessment research development, adoption, or purchase
January 25	Administration of pre assessment to fifth grade classes
February 1 -8	Analysis of self-assessment data for lesson planning
February 15 - May 24	Teaching one lesson per week
May 31	Post-assessment and analysis of results

RESULTS

Resiliency and social emotional learning encompass a wide variety of strategies and skills. Knowing that our time was limited and the lessons needed to be intentional, we strategically narrowed our scope to three main areas: problem solving, overcoming adversity and risk taking. These three headings continued to appear during our research, therefore leading us to a format for our assessment and lessons. The first step was to find an assessment organized around these three topics which would highlight for us the skills that kids possessed at the beginning of the study. Since we could not find one assessment that fit with this structure, we decided to create our own. The assessment we created was organized into the three categories with seven questions under each heading ([Resiliency Pre-Assessment](#)). The assessment was administered to the whole class and we talked through each question so that kids knew exactly what the question was asking.

To begin our data analysis, we calculated the total percentage of students who answered, “Some of the time, most of the time or always” for each question (Table 3). Through further data analysis we identified the three lowest scoring areas in each category, leading us to nine targeted teaching points. Initially we planned on using Lynn Namka’s online book titled *Lesson Plans for Teaching Resilience in Children (2014)* as a resource to find or design our lessons; however, after further review, we decided creating our own lessons would help us to better meet the needs of our students and the resilience skills they were lacking as shown in the pre-assessment.

As a team, we designed nine lessons. Each lesson included one teaching point, direct instruction, practice, discussion, and application. The lessons were delivered in a whole class format through a teacher-led slideshow ([5th Grade SEL/ Resiliency slideshow](#)). Lessons were taught on Tuesday and put into applied practice on Thursdays, and were easily modified for students as needed. In addition, the teaching points were displayed on a classroom bulletin board for students and teachers to easily refer to throughout the day when appropriate. Students kept a folder with any papers or notes used in lessons which were used as a reference throughout the nine weeks.

When the lessons were complete, we administered the post-assessment to the whole class and we talked through each question so that kids knew exactly what the question was asking. The standardized mean gain scores ranged from +0.46 to +1.36 suggesting a positive instructional impact especially for risk taking. Tables 4 and 5 show a summary of responses.

Table 3
Student Coping Strategies Before Instruction

Coping Strategy	Not at all/ never (1)		Hardly ever (2)		Some of the time (3)		Most of the time (4)		Always (5)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Problem solving										
1. I see a problem as an opportunity.	3	6.4	16	34.0	14	29.8	14	29.8	0	0.0
2. When I see a problem, I try to understand it before I try to solve it.	2	4.3	3	6.4	17	36.2	19	40.4	6	12.8
3. I break problems down into smaller steps.	6	12.8	11	23.4	16	34.0	12	25.5	2	4.3
4. When I look at a problem, I try to think of more than one way to solve it.	4	8.5	4	8.5	22	46.8	13	27.7	4	8.5
5. When someone else has a problem, I try to think of it from their point of view.	6	12.8	11	23.4	12	25.5	12	25.5	6	12.8
6. When there is a problem that involves other people, I look for ways to compromise.	1	2.1	6	12.8	15	31.9	19	40.4	6	12.8
7. After I have solved a problem, I think about what could have been done better or differently.	7	14.9	15	31.9	15	31.9	7	14.9	3	6.4
Overcoming adversity										
1. I approach my day with optimism.	5	10.6	4	8.5	17	36.2	13	27.7	8	17.0
2. I ask "why" about problems that I'm facing.	8	17.0	11	23.4	15	31.9	7	14.9	6	12.8
3. I "do" more than I "think about doing".	4	8.5	11	23.4	13	27.7	17	36.2	2	4.3
4. I keep going on a project or problem.	0	0.0	3	6.4	22	46.8	14	29.8	8	17.0
5. I set goals and then I aim for them.	1	2.1	9	19.1	17	36.2	16	34.0	4	8.5
6. The words I say to myself are positive.	1	2.1	3	6.4	17	36.2	18	38.3	8	17.0
7. When things go wrong, I am calm.	3	6.4	14	29.8	19	40.4	8	17.0	3	6.4
Risk taking										
1. Learning new things doesn't make me nervous or scared.	2	4.3	10	21.3	10	21.3	13	27.7	12	25.5
2. I like to think creatively.	2	4.3	3	6.4	13	27.7	10	21.3	19	40.4
3. I am curious about why things are the way they are.	4	8.5	6	12.8	10	21.3	14	29.8	13	27.7
4. It's ok if I'm not always successful.	4	8.5	4	8.5	12	25.5	13	27.7	14	29.8
5. I am willing to take risks.	2	4.3	10	21.3	13	27.7	14	29.8	8	17.0
6. When I put my mind to something, I get it done.	1	2.1	5	10.6	22	46.8	17	36.2	2	4.3
7. Failure is ok.	5	10.6	1	2.1	16	34.0	7	14.9	18	38.3

Note. *N* = 47. Problem solving scale *M* = 3.08, *SD* = 0.33, Cronbach's alpha = .78. Overcoming adversity scale *M* = 3.22, *SD* = 0.32, Cronbach's alpha = .72. Risk taking scale *M* = 3.55, *SD* = 0.19, Cronbach's alpha = .71.

Table 4
Student Coping Strategies After Instruction

Coping Strategy	Not at all/ never (1)		Hardly ever (2)		Some of the time (3)		Most of the time (4)		Always (5)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Problem solving										
1. I see a problem as an opportunity.	2	4.5	4	9.1	24	54.5	13	29.5	1	2.3
2. When I see a problem, I try to understand it before I try to solve it.	1	2.3	9	20.5	11	25.0	18	40.9	5	11.4
3. I break problems down into smaller steps.	2	4.5	12	27.3	13	29.5	10	22.7	7	15.9
4. When I look at a problem, I try to think of more than one way to solve it.	3	6.8	6	13.6	16	36.4	14	31.8	5	11.4
5. When someone else has a problem, I try to think of it from their point of view.	4	9.1	13	29.5	10	22.7	13	29.5	4	9.1
6. When there is a problem that involves other people, I look for ways to compromise.	1	2.3	4	9.1	19	43.2	17	38.6	3	6.8
7. After I have solved a problem, I think about what could have been done better or differently.	7	15.9	6	13.6	16	36.4	9	20.5	6	13.6
Overcoming adversity										
1. I approach my day with optimism.	2	4.5	4	9.1	12	27.3	17	38.6	9	20.5
2. I ask "why" about problems that I'm facing.	4	9.1	13	29.5	13	29.5	10	22.7	4	9.1
3. I "do" more than I "think about doing".	2	4.5	6	13.6	17	38.6	16	36.4	3	6.8
4. I keep going on a project or problem.	0	0.0	2	4.5	15	34.1	18	40.9	9	20.5
5. I set goals and then I aim for them.	1	2.3	6	13.6	12	27.3	19	43.2	6	13.6
6. The words I say to myself are positive.	0	0.0	3	6.8	12	27.3	26	59.1	3	6.8
7. When things go wrong, I am calm.	1	2.3	4	9.1	21	47.7	15	34.1	3	6.8
Risk taking										
1. Learning new things doesn't make me nervous or scared.	0	0.0	4	9.1	12	27.3	14	31.8	14	31.8
2. I like to think creatively.	0	0.0	2	4.5	10	22.7	13	29.5	19	43.2
3. I am curious about why things are the way they are.	2	4.5	3	6.8	13	29.5	14	31.8	12	27.3
4. It's ok if I'm not always successful.	2	4.5	2	4.5	15	34.1	15	34.1	10	22.7
5. I am willing to take risks.	0	0.0	4	9.1	11	25.0	23	52.3	6	13.6
6. When I put my mind to something, I get it done.	0	0.0	3	6.8	13	29.5	22	50.0	6	13.6
7. Failure is ok.	2	4.5	5	11.4	10	22.7	11	25.0	16	36.4

Note. $N = 44$. Problem solving scale $M = 3.20$, $SD = 0.16$, Cronbach's alpha = .84. Overcoming adversity scale $M = 3.45$, $SD = 0.29$, Cronbach's alpha = .72. Risk taking scale $M = 3.79$, $SD = 0.16$, Cronbach's alpha = .72.

Table 5

Standardized Mean Gain Score

Coping Strategy Scale	Pre-Instruction ^a		Post-Instruction ^b		Standardized Mean Gain Score	95% CI	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Problem solving	3.08	0.33	3.20	0.16	0.46	0.04	0.87
Overcoming adversity	3.22	0.32	3.45	0.29	0.75	0.33	1.18
Risk taking	3.55	0.19	3.79	0.16	1.36	0.91	1.82

Note. ^aN = 47. ^bN = 44.

DISCUSSION

Since the pre- and post-assessments were exactly the same, it was easy to see if students grew in particular areas as a result of the instruction and activities. We took time to analyze each question, once again calculating a total percentage of students that responded, “All of the time, some of the time and most of the time”. We compared the percentage for each question in the pre-assessment to the post-assessment. In our first analysis we looked at the questions based on the nine teaching points that were directly taught in the unit. All nine items were greater, showing our instruction was correlated with student growth.

Deeper investigation showed that the greatest growth was in the first lesson, “I see a problem as an opportunity.” In the pre- assessment, 59.6% of students in the study replied, “Some of the time, most of the time or always” while in the post-assessment 86.3% of students responded in the same way showing an increase of 26.7%. We were pleased to notice that even the assessment items that were not taught directly through our nine lessons increased. There were twelve additional assessment questions and out of these twelve, seven items showed student growth.

Next, we looked at the data from a different perspective and calculated the totals for students who responded to assessment questions with “Never” (“I never use this strategy”). This data also showed improvement when we compared the pre-assessment to the post-assessment. In the post assessment, 86% of the questions had fewer kids respond with an absolute negative - “Never” (“I never use this strategy”) compared to their pre-assessment response.

This shows that following our instruction, students were using these strategies at times and possibly more frequently rather than never at all.

Anecdotal data also showed positive results. Following our post-assessment, we administered a student survey to generate feedback and anecdotal data. Through the survey, students identified strategies that they found to be helpful. One student commented, "After learning about seeing problems as opportunities, I have been doing better in school and outside of school. I solve things and see things I didn't used to see." Another student noted, "I always remember the Get-It-Done-Plan because it helps me break big stuff I have to do into smaller pieces."

Students also explained how resiliency work has helped them. One fifth-grader stated, "It has taken a lot of stress off of me" while another said, "Yes it helped me. When I get stressed from many things I will think back on what we did in the morning and I will try to walk away for 5 min, do one of the strategies and then go back and finish what I was doing."

As teachers we felt like nine weeks was an appropriate amount of time to teach this unit. We felt that if it had been longer the students may have lost interest. Throughout the unit we noticed that students were very engaged and student participation was high. The topics would naturally lend themselves to various situations happening at school and at home; this turned into a good time to work as a class to help each other solve different problems, fostering a classroom community that is safe and respectful. We liked having the lessons in slideshow format so that it was easy to access and refer to previous lessons. The bulletin board served as an easy reference point when we needed to refer to specific lessons during the day. Most importantly, this unit served as a powerful teaching tool to support kids during the pandemic. Many kids were experiencing stressful home situations, as well as dealing with virtual learning and other uncertainties that developed as a result of the pandemic. We often found ourselves referring to challenges related to the pandemic as we taught the lessons.

CONCLUSION

Reflecting on our practice is essential to growing as an educator. This action research provided a powerful tool to do so. As experienced educators we have always known the importance of Social Emotional Learning and Resiliency and the essential role it plays in students' lives, however, we also knew that this instruction would be much more impactful when conducted in an intentional manner rather than intermittently fit in throughout the school year. Combining research with the student data helped us to understand how this process can work and how successful intentional instruction of effective coping strategies can be.

In conclusion, it is clear through the quantitative and anecdotal data that intentional instruction of effective coping strategies has a positive impact on students' resilience, resulting in students' ability to problem-solve, face challenges, and take risks. We owe it to our students to continue with this work and to make it an integral part of our school year. With that said, we recommend that OASD teachers work with their grade-level team or content-level team to identify systematic and authentic lessons to teach coping strategies and resiliency. As we incorporate systematic lessons into classrooms, a district-wide repertoire of lessons will emerge that can be used to meet the needs of students at all grade levels.

Limitations and Future Research

Reflecting on the unit, we felt that there was only one drawback: there were other SEL types of activities and lessons that were taught to students this year such as Cyclone Circle, guidance classes, GALS on the Go Workshop, and Character Strong. These seemed to naturally blend together for students, covering the same or similar topics and may have caused some confusion during the assessments. This may have also resulted in an abundance of SEL/Resiliency instruction and possibly making it less effective. In the future, using only one form of SEL instruction is recommended. Future research should explore the connection between student resiliency and academic achievement.

REFERENCES

- Bernard, B. (2004). *Resiliency: What we have learned*. San Francisco, CA: WestEd.
- Boorn, C., Hopkins Dunn, P., & Page, C. (2010). Growing a nurturing classroom. *Emotional & Behavioural Difficulties*, 15(4), 311–321.
- Cahill, H., Beadle, S., Farrelly, A., Forster, R., & Smith, K. (2014). *Building resilience in children and young people: A literature review for the department of education and early childhood development (DEECD)*.
<https://www.education.vic.gov.au/Documents/about/department/resiliencelitreview.pdf>
- Durlak, J., Weissberg, R., Dymnicki, A., Taylor, R., & Schellinger, K. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1), 405-432.
- Ferrin, E. (2013, May 15). *Developing resilience in the elementary school classroom*. Bank Street College of Education.
<https://educate.bankstreet.edu/cgi/viewcontent.cgi?article=1078&context=independent-studies>
- Hromek, R., & Roffey, S. (2009). Promoting social and emotional learning with games: "It's fun and we learn things". *Simulation and Gaming*, 40, 626-644.
- Lowenthal, B. (2001). Teaching resilience to maltreated children. *Reclaiming Children and Youth*, 10(3), 169–173.
- Lynch, K., Geller, S., & Schmidt, M. (2004). Multi-year evaluation of effectiveness of a resilience-based prevention program for young children. *The Journal of Primary Prevention*, 24(3), 335–353.
- Namka, L. (2014). *Lesson plans for teaching resilience to children*. Tucson, AZ: Talk, Trust and Feel Therapeutics.
<http://lynnenamka.com/resilience.pdf>
- Oconomowoc Area School District. (2020, December 26). *Strategic Plan*. www.oasd.org
- Price-Mitchell, M. (2015). *Does your classroom cultivate student resilience?* <https://www.edutopia.org/blog/8-pathways-cultivate-student-resilience-marilyn-price-mitchell>
- Rockwell, S. (2006). Facilitating the fourth R: Resilience. *Kappa Delta Pi Record*, 43(1), 14–19.
- Skinner, E., Pitzer Graham, J., Brule, H., Rickert, N., & Kindermann, T. (2019, September). "I get knocked up but I get up again:" Integrative frameworks for studying the development of motivational resilience in school. *International Journal for Behavioral Development*.
https://www.researchgate.net/publication/341115475_I_get_knocked_down_but_I_get_up_again_Integrative_frameworks_for_studying_the_development_of_motivational_resilience_in_school
- Skinner, E., & Saxton, E. (2019, September). The development of academic coping in children and youth: A comprehensive review and critique. *Developmental Review*, 53, 100870.
- Stubeck, C. (2015, January/February). *Enabling inquiry learning in fixed-schedule libraries: An evidence-based approach*. Knowledge Quest. <https://files.eric.ed.gov/fulltext/EJ1049071.pdf>
- Tocino-Smith, J. (2020, January 9). *Teaching resilience in schools and fostering resilient learners*. Positive Psychology.
<https://positivepsychology.com/teaching-resilience/>

APPENDIX A

Problem Solving Lessons

Lesson 1. I see a problem as an opportunity.

Day 1. Today I am going to teach you that you can think of a problem as an opportunity.

Today we are going to read the book [Emmanuel's Dream](#). Listen and think about his problems.

1. How did he respond to his problems?
2. How did others respond to his problems?
3. What opportunities did he create?

Day 2. Let's try this!!

1. Think of a difficult problem you have in your life right now. (That wasn't hard, was it?!)
2. Imagine this problem is happening, and no one cares about your problem. How does that feel?
3. Now think of the same problem as a challenge or opportunity for you and people care and know that you can face it. How does that feel?
4. [Turn Your Problems into Opportunities – Worksheet Plan](#)

Lesson 2. I break problems down into smaller steps.

Day 1. Today I am going to teach you that you can view problems with a positive mindset and by breaking things down into smaller steps you accomplish your goal. When we approach problems with a YET mindset we are able to move forward to take steps to meeting our goal. One way we can do this by breaking our problems / challenges into smaller steps.

1. [Power of Yet](#)
2. Power of Yet Worksheet: a. Think of something you haven't learned how to do yet. b. Plan of how you're going to learn it. c. Write down the steps you will take on each rung of the Yet Ladder starting from the bottom.

Day 2. Let's try this!!

1. [Review - Power of Yet song](#).
2. Complete the Power of Yet worksheet.
3. Why is the "Power of Yet" important? How are you or could you use it in your life?
4. Let's finish and share "Power of Yet" worksheet.

Lesson 3. After I've solved a problem, I think about what could have been done better or differently.

Day 1. Today I am going to teach you that it is important to use self-reflection when we solve problems.

1. What is self - reflection? Self-reflection is serious thought to your behaviors, thoughts, attitudes, motivations, and actions.
2. Why is self - reflection important? Without self-reflection, we simply go through life without thinking, moving from one thing to the next without making time to evaluate whether things are actually going well. We don't pause to think. To analyze. To determine what is going well and what isn't working. The unfortunate result is that we often get stuck.
3. Teacher Example:
4. Student opportunity to share:
5. Practice - Small groups with [Self - reflection cards](#).
6. Whole group share: Does anyone want to share something from their group?

Day 2. Let's review and learn a new strategy.

1. Power of Yet Worksheet check in: How are you doing? What step are you at?
2. I Felt, I Did, I Thought, I Learned Strategy; I Felt, I Did, I Thought, I Learned
3. Review questions from self-assessment using fist to five.
 - a. I see a problem as an opportunity.
 - b. I break problems down into smaller steps.
 - c. After I have solved a problem, I think about what could have been done better or differently.

APPENDIX B

Overcoming Adversity Lessons

Lesson 1. I ask “why” about problems that I’m facing.

Day 1. Perseverance is the ability to keep working and finish a task even when challenges come up.

1. Ask yourself ‘why?’ when facing problems like working through a tough math test, completing a long-term project, even it is overwhelming at first, working through an assignment, even if you don’t know all the answers and trying a different way to solve a problem when you’re unsure of the answer.
2. [Watch the Story of Ezra Frech](#)

Day 2. Let’s try it!

1. Write down or share: What are some ways that you have shown perseverance this week? Why do you think perseverance is important in your life?
2. Practicing Perseverance

Lesson 2. When things go wrong, I am calm.

Day 1. Big, Medium, Little Problems

1. Let’s try some strategies! [Breathing exercises](#)
2. I CAN Make a Choice

Day 2. Let’s try it!

1. Calm Bodies=Calm Choices: Breathing Strategies, Positive Self-Talk, Calm Bodies
2. Complete the I CAN Make a Choice Sheet

Lesson 3. I “do” more than I “think about doing”.

Day 1. Instead of just thinking about doing something, you make a plan and take action.

1. [Watch the story of how Legos were invented.](#) Fascinating!

Day 2. Let’s try it!

1. We just think about doing / We do the action (action steps)
 - Having a new friend over
 - Trying a new instrument
 - Joining a game of kickball at recess
 - Try a new math strategy that seems hard
2. Review questions from self-assessment using fist to five.
 - I ask “why” about problems that I’m facing.
 - When things go wrong, I am calm.
 - I “do” more than I “think about doing”

APPENDIX C

Risk Taking Lessons

Lesson 1. Learning new things doesn't make me scared or nervous.

Day 1. Today I'm going to teach you some things that you can do to help yourself feel good about learning new things. Sometimes learning something new or encountering a new situation can be very scary. We can get nervous and anxious. Let me tell you about a time this happened to me (model a time you were learning something new) and I felt very nervous. My palms were sweaty, I felt sick to my stomach and I was pretty sure I was not going to be successful. I remember this was an unpleasant experience.

1. Class discussion: Think about a time this has happened to you. What was the situation? How did you feel? What types of things were you telling yourself?
2. It is important to recognize that you are feeling scared or nervous and acknowledge why that is. Is it because you are learning a new math strategy? Is it because you are starting a new writing unit or a new foreign language class? Once you can identify that you are feeling scared or nervous and why that is, you can put some strategies in place to help yourself. Here are some tips:
 - a. Change your mindset. Instead of thinking, "I am never going to be able to do this" think to yourself, "I am going to give this a try!"
 - b. Break it down into smaller steps. Listen closely to the directions and try each step out. Cheer for yourself after each successful step!
 - c. Ask for help if you need it.
 - d. If you find yourself getting scared or anxious try some slow breathing, positive self-talk or take a break.
 - e. Give yourself grace and remember that everyone feels nervous when they learn something new.

Day 2. Let's try it!

1. Today we are going to learn how to do Sudoku. We are going to start out doing a very easy puzzle altogether as a class. Have you ever done Sudoku before? How are you feeling? (List some words on the board.)
2. Let's look back at the previous slide for some helpful tips. <https://sudoku.com/>
3. Do you feel comfortable trying one with a partner or even on your own?
4. Complete printed Sudoku with a partner.
5. Reflection - Did you find that any of the helpful tips worked really well for you? In the future, what can you do when you are nervous about learning something new?

Lesson 2. I'm willing to take risks.

Day 1. Today I am going to teach you how to break through the fear of trying something new either at school or in your personal life.

1. Have you ever wanted to try something or start something new but you just couldn't get the courage to start? Think about that... Anyone willing to share?
2. Let me tell you about a time I was afraid to try something... (tell about a time you were afraid and never tried - how you felt afterwards).
3. There was a time when I was thinking about going out for the cross-country team in high school. I really thought I might like running but I thought everyone else would be so much better so I never tried. I really regret that because I missed out on a good opportunity.
4. Let's make a list of all of the things that we might be afraid to try (guide students to academic things and social things ex. New math strategy, talking to someone new at lunch. Do this on a T chart- one side of things we are afraid to try and the other side why we are afraid to try)
5. What happens when we let fear get in our way? We miss out, we don't learn, we feel regret, we feel frustration.
6. [Have Courage and Be Fearless](#)
7. Let's talk about some things we can do:
 - a. Give ourselves a Pep talk
 - b. Practice what we will do or what we will say (ex. Talking to a new friend at lunch)
 - c. Make it fun (trying a new book? Sit in your favorite place in your room or the classroom)
 - d. Say some positive phrases to yourself- See the positive affirmations sheet
 - e. Take it one step at a time
 - f. Get someone to help
 - g. Remember - to learn and grow, you need to get out of your comfort zone

Day 2. Class posters.

1. [See this class poster activity.](#)

Lesson 3. When I put my mind to something, I get it done.

Day 1. Today I'm going to teach you that sometimes making a plan can help us to get things done, especially things that we don't really want to do. Have you ever had something to do but you just kept putting it off and found it was hard to just get started?

1. Class Discussion. It is easy to make excuses and not get things started or even get things finished.
<https://www.youtube.com/watch?v=mEHQ9tzJpYA>
2. Why do you think it is so hard for us to get started? Let's make a list of things that stop us from getting started or even just getting things done. Ex. fear of failure, unsure of what to do, we know it will be hard, tired, hungry.
3. Introduce Problem Solving Plan.
4. Finish posters from day 1
5. What are some other things you can do when you find you are having trouble getting started on an assignment, project, or other classroom activity? Write your ideas on the poster or Jamboard.
6. How does it feel when you complete something that was challenging?

The Impact of Peer Collaboration on Effective Mathematics Learning Intent Design

Krystin Dieringer, Lisa Docter, Dana Riley, Julie Floyd, Karen Heggie, Sarah Lang, Sara Pyka, Angela Ullrich, Buffy Wilkey

Oconomowoc Area School District

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Author Note

This action research study was supported by an OASD Learners and Leaders research grant. Correspondence concerning this research should be addressed to Krystin Dieringer, Summit Elementary School, 1680 E. Valley Rd. Oconomowoc, WI 53066. Email: DieringK@oasd.org

ABSTRACT

This action research project investigated the use of a peer collaboration cycle (PCC) to create, critique, and share short digital elementary math lessons for use during the COVID-19 pandemic and beyond. Teacher participants evaluated the video lessons for instructional scope, clarity, context, and lesson alignment to help measure the impact of the PCC. Results showed each instructional component was better represented in the video lessons by the end of the cycle. Participant reflection indicated the PCC expanded professional capacity to produce effective instructional experiences for students.

Keywords: peer collaboration, learning intent, math instruction, instructional design, video lessons

THE IMPACT OF PEER COLLABORATION ON EFFECTIVE MATHEMATICS LEARNING INTENT DESIGN

The 2020 COVID-19 pandemic forced many districts to change what schooling looks like. The Oconomowoc Area School District (OASD) responded by creating a three-model system that allowed for full face-to-face instruction with mitigation strategies, full virtual, or an alternating day attendance model. While the District moved in and out of these models based on the absence data related to the pandemic, students and teachers also managed quarantines for up to fourteen days. Teachers needed to respond with how to best provide consistent high-quality instruction for students who could not attend school due to quarantine and sought ways to provide ongoing high-quality instruction if they themselves were ill or quarantined.

The OASD, like many others, moved to technology and learning management systems to help support learning consistency for students moving in and out of different learning models. During this initial time period, a group of elementary teachers worked created short shareable instructional videos to meet the needs of high-quality instruction and to keep pace with novel teaching demands created by the pandemic. The team found this approach beneficial as it enhanced their skill at using short digital instruction videos and improved their understanding of effective instructional techniques in mathematics. Given this success, an idea formed that elementary math leaders could work together to create needed videos for the second semester for all staff, benefiting from the collaborative learning cycle of *creating*, *sharing*, and *critiquing* the original team used. It would be an opportunity to take a deep dive into what effective high-quality digital lessons in elementary mathematics look like.

Peer Collaboration, Feedback and Reflection in Teaching and Learning

The group of seven math leaders decided to investigate how the model of collaborative feedback of teacher-created digital math lessons could impact understanding of effective math instruction and influence growth for reflective practitioners. Teacher skill and content knowledge is essential for effective pedagogical practice (Ball & Fonzani, 2011). Analyzing one's own performance, the performance of peers and the performance of their students, enables candidates to recognize the areas of instruction that need improvement. Repeated studies demonstrate that the ability to analyze one's performance is a defining characteristic of experts (Ericsson, 2014).

Peer feedback is a form of professional development that refers to reciprocal teaching in which teams of teachers observe one another as they incorporate new teaching techniques in the classroom. This type of work involves giving

and receiving feedback in written and/or verbal format with the emphasis on providing positive constructive feedback to support professional and developmental growth. Peer feedback promotes professional development, collaboration, and self-assessment (Vidmar, 2005; McTighe & Emberger, 2006). One of the greatest strengths of using peer feedback is its practicality. It also promotes collaboration and reflection which are key factors in teacher effectiveness. Peer feedback has been studied in various contexts (Wilkins & Shin, 2010). Those studies have focused on a formal process that included a planning conference, observation/data collection and feedback conference.

Video analysis involves videotaping a lesson and then watching the video for the purpose of analyzing and reflecting on instruction using a set of success criteria. Video analysis has proven to be powerful in teacher learning (Nagro et al., 2017). Assessing video instruction with specific success criteria goes beyond superficial analysis of teaching and examines how instruction is enacted. This type of analysis allows teachers to confront their existing knowledge, skills, or potential misconceptions about instruction to make meaningful changes in teaching practice. Quasi-experimental and experimental studies of video analysis have demonstrated that it can improve teacher's ability to analyze their instruction and, in some cases, improve their instructional skill (Alexander et al., 2012; Nagro et al., 2017).

Video analysis enables evaluators to systematically review critical instructional components multiple times. Discussion and feedback about instruction and what might be done to improve it can promote alternative interpretations concerning instructional content and delivery (Santagata et al., 2007; Star & Strickland, 2008). Research within teacher education has reported positive results using video analysis to improve reflective practices (Santagata & Guarino, 2011; van Es & Sherin, 2010). Nagro and Cornelius (2013) found that video analysis could be considered a promising practice based on the fact that there were seven experimental and quasi-experimental studies that supported its use.

Another study that showed the influence of video analysis on teacher ability to generalize instructional practices (Hiebert et al., 2017) provides longitudinal evidence that participation in video analysis impacts elementary teachers' analysis of mathematics instruction in their first three years of practice. All teachers participated in video analysis of specific mathematics teaching scenarios and were scored using a validated rubric that was predictive of classroom instruction (Kersting et al., 2010). This study showed that teachers analyzed mathematics instruction more effectively if previously using video instruction with differences between teachers who experienced the innovation and those that did not. Thus, video analysis seemed more effective than experience in helping teachers learn to analyze instruction.

METHOD

This action research project used a cycle of video analysis and peer feedback to study the impact of peer collaboration on effective mathematics instruction. Specifically, focusing on the design and communication of learning intent. The study asked, “How does the professional development model of collaborative feedback on teacher-created digital math lessons impact teacher skill in designing and communicating learning intent.” A practical goal was to create a library of kindergarten to grade 4 math lessons that OASD teachers could access.

Seven members of the OASD Math leadership team agreed to participate in the project representing each elementary grade level. The study began by collecting base-line data through a pre-survey that gathered participant demographics, history of learning and leadership in mathematics education, self-ratings of skill in mathematics instruction and experience, and level of self-reflection practices. The individual participants also agreed to keep notes or a log about reflection.

As the project moved forward, participants created lesson videos for upcoming units. The group met to collaborate and provide feedback on instructional videos, individuals reflected on feedback, wrote notes on that reflection, and then set upon a new set of videos. This cycle was completed several times.

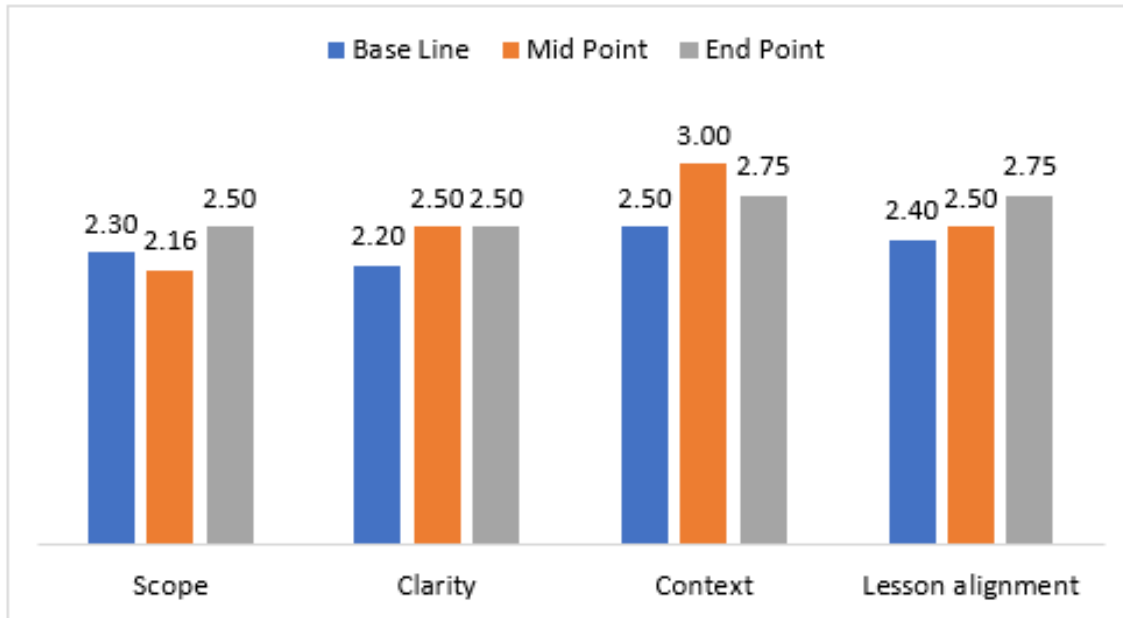
At the culmination of the project, participants completed a post-survey that mirrored the pre-survey. The pre-survey was compared to the post-survey data as a growth indicator. Teacher reflection logs were analyzed and ideas were coded by theme and frequency. Finally, the actual math instructional videos were viewed and rated for math instruction criteria and ratings from the beginning of the project to the end of the project were compared.

RESULTS

Participants rated the OASD math lesson videos for instructional scope, clarity, context, and lesson alignment using a three-point scale. Lesson context ($M = 2.75$) and lesson alignment ($M = 2.75$) were best represented in the videos. Teachers also rated the presence of each instructional component higher by the end of the project (Figure 1).

Figure 1

Average Participant Ratings of Mathematics Instructional Design



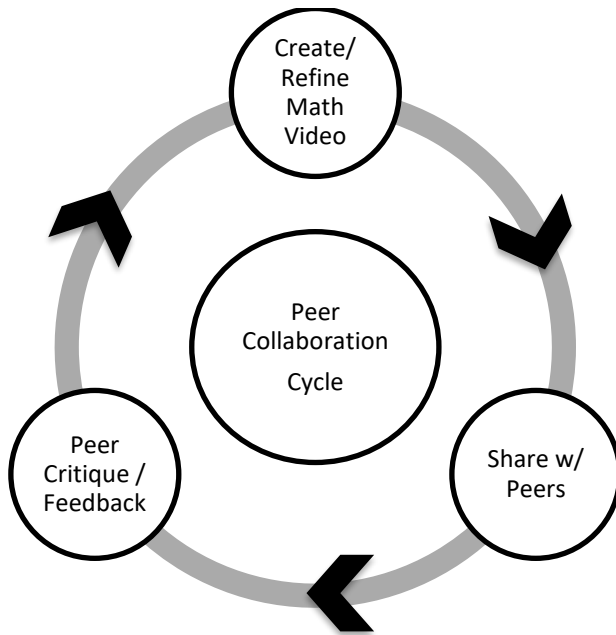
Teacher reflection as measured by pre- and post-surveys and reflections logs indicated significant teacher growth in confidence in the ability to focus learning intent, clearly communicate learning intent, and contextualize learning intent. One participant noted, “Now I really know what the main focus of the lesson and pushed me to search and narrow to main focus. Really honing in on the meat of the lesson. Because teachers did a sequence of lessons at a time I understood much more how the math skills/concepts build on one another.” Other growth areas identified were around digital tools and technical skills. All participants reported a greater comfort and skill level using digital tools and technology.

DISCUSSION

This study investigated a peer collaboration cycle as a means to develop effective instructional math videos for elementary students (Figure 2). Teacher ratings of the video lessons showed improved representation of instructional scope, clarity, context, and lesson clarity. Teachers also reported improved capacity to design effective video lessons by participating in the peer collaboration cycle. The math videos developed during this project were made available to other OASD educators.

Figure 2

Designing Digital Math Lessons Using a Peer Collaboration Cycle (PCC)



Limitations and Future Research

Action research is a powerful means for educators to systematically investigate problems that arise in their school or classroom. Results are used to improve context-specific practices and processes. Hence, generalizing findings may be limited. Additional action research involving peer collaboration as a professional development and instructional design mechanism may benefit educators at intermediate and high school levels. Also, exploring and refining each PCC component may boost teacher ability to produce high-quality instructional product regardless of medium.

REFERENCES

- Alexander, M., Williams, N. A., & Nelson, K. L. (2012). When you can't get there: Using video self-monitoring as a tool for changing the behaviors of pre-service teachers. *Rural Special Education Quarterly*, 31(4), 18-24.
- Ball, D. L., & Forzani, F. M. (2011). Building a common core for learning to teach: And connecting professional learning to practice. *American Educator*, 35(2), 17.
- Ericsson, K. A. (Ed.). (2014). *The road to excellence: The acquisition of expert performance in the arts and sciences, sports, and games*. Psychology Press.
- Hiebert, J., Berk, D., & Miller, E. (2017). Relationships between mathematics teacher preparation and graduates' analyses of classroom teaching. *The Elementary School Journal*, 117(4), 687-707.
- Kersting, N. B., Givvin, K. B., Sotelo, F. L., & Stigler, J. W. (2010). Teachers' analyses of classroom video predict student learning of mathematics: Further explorations of a novel measure of teacher knowledge. *Journal of Teacher Education*, 61(1-2), 172-181.
- McTighe, J., & Emberger, M. (2006). Teamwork on assessments creates powerful professional development. *The Learning Professional*, 27(1), 38.
- Nagro, S. A., & Cornelius, K. E. (2013). Evaluating the evidence base of video analysis: A special education teacher development tool. *Teacher Education and Special Education*, 36(4), 312-329.
- Nagro, S. A., DeBettencourt, L. U., Rosenberg, M. S., Carran, D. T., & Weiss, M. P. (2017). The effects of guided video analysis on teacher candidates' reflective ability and instructional skills. *Teacher Education and Special Education*, 40(1), 7-25.
- Santagata, R., & Guarino, J. (2011). Using video to teach future teachers to learn from teaching. *Zdm*, 43(1), 133-145.
- Santagata, R., Zannoni, C., & Stigler, J. W. (2007). The role of lesson analysis in pre-service teacher education: An empirical investigation of teacher learning from a virtual video-based field experience. *Journal of mathematics teacher education*, 10(2), 123-140.
- Star, J. R., & Strickland, S. K. (2008). Learning to observe: Using video to improve preservice mathematics teachers' ability to notice. *Journal of Mathematics Teacher Education*, 11(2), 107-125.
- van Es, E. A., & Sherin, M. G. (2010). The influence of video clubs on teachers' thinking and practice. *Journal of Mathematics Teacher Education*, 13(2), 155-176.
- Vidmar, D. J. (2005). Reflective peer coaching: Crafting collaborative self-assessment in teaching. *Research Strategies*, 20(3), 135-148.
- Wilkins, E. A., & Shin, E. K. (2010). Peer feedback: Who, what, when, why, & how. *Kappa Delta Pi Record*, 46(3), 112-117.

Implementing Universal Design for Learning in Video Lessons During a Pandemic

Lisa Docter, Christie Matteson, Jennifer Reinders, Jennifer Schneider, Rachel Gaulke

Meadow View Elementary School, Oconomowoc Area School District

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Author Note

This action research study was supported by an OASD Learners and Leaders research grant. Correspondence concerning this research should be addressed to Jason Schreiber, Meadow View Elementary School, 1500 Whalen Drive, Oconomowoc, WI 53066-3888. Email: SchreibJ@oasd.org

ABSTRACT

This action research project investigated teacher efforts to infuse UDL principles into video lessons created and used by educators during the COVID-19 pandemic. It was hypothesized that a focused collaborative peer feedback and assessment process could increase the representation UDL practices within videos. The research team used a rubric to evaluate the level of UDL practices in an initial set of instructional videos. UDL principle growth opportunities were identified and incorporated into subsequent video development. Follow-up video evaluation indicated improvement in UDL representation. Moving forward, this model could continue as a tool for teachers to use in a variety of settings.

Keywords: Universal Design for Learning, video lessons, peer collaboration

IMPLEMENTING UNIVERSAL DESIGN FOR LEARNING IN VIDEO LESSONS DURING A PANDEMIC

The Oconomowoc Area School District implemented a Universal Design for Learning (UDL) Pilot Program beginning in the 2015-2016 school year. UDL is an educational framework based on research in the learning sciences, including cognitive neuroscience, that guides the development of flexible learning environments and learning spaces that can invite in all learners with a wide variety of individual learning differences. UDL goals include providing multiple means of engagement, representation, action, and expression throughout the learning process. So rather than making a universal type of lesson, UDL provides universal access and engagement in learning, regardless of the assets learners bring to the learning process.

The 2020 pandemic brought challenges to all teachers and learners. A significant challenge for most teachers was maintaining instructional integrity and efficacy when students moved in and out of the classroom, from face-to-face learning to virtual, and managing blended learning in between. This study investigated teacher efforts to maintain high quality instruction infused with UDL practice, specifically the strength of representation of observable UDL design guidelines present in video lessons.

Literature Review

The roots of UDL are found in early civil rights and special education legislation that emphasized the right of all students to a free, appropriate public education in the least restrictive environment (Rose et al., 2005). The purpose of UDL design and implementation is to create expert learners — learners who can assess their own learning needs, monitor their own progress, and regulate and sustain their interest, effort, and persistence during a learning task. This framework stems from brain research on cognition that demonstrates there is variation in what individuals need to learn effectively (Rao et al., 2014). By intentionally applying the UDL framework, instructional materials can be made accessible to a broader range of learners (Coolidge et al., 2015). Rao and Meo (2016) noted that UDL's flexibility allowed educators to select elements of UDL to meet students' needs within their content and context for learning.

UDL can be defined as a set of principles and techniques for use in the classroom along with the design of accessible instructional materials. The three UDL principles focus on providing learners with (1) multiple means of engagement in learning experiences, (2) access to multiple means of representation to support learning, and (3) opportunities for learners to show what they know in diverse ways UDL lesson design makes it possible for students with wide differences in their abilities, such as seeing, hearing, speaking, moving, reading, writing, understanding English, paying attention, organizing, engaging, or remembering, to more fully participate in learning (Courey et al., 2013; Zimmer, 2012).

Although research indicates that there are positive outcomes associated with the use of UDL, the wide variation in how UDL is described and applied in research presents a challenge for defining when and how UDL is effective. However, the study of individual instructional practices that are classified as effective UDL strategy have demonstrated significantly

larger learning gains for students (Zimmer, 2012; Courey et al., 2013; Cook et al., 2012; Rao et al., 2016; Rao et al., 2014).

Most UDL research focuses on the impacts of teacher training on UDL lesson design. Spooner et al. (2007) examined the effects of UDL training on the lesson plan designs of special and general education teachers in undergraduate and graduate teacher preparation classroom settings. Teachers were randomly assigned to experimental or control conditions. The experimental group was given the UDL training intervention during the first hour of class with control participants arriving an hour later. University instructors administered a one-hour lecture on the principles of UDL and discussed various ways to include those principles in lesson planning. The intervention effects were assessed with each participant assisting in the creation of a group lesson plan to meet the needs of contrived case study students. Experimental participants used significantly more UDL variations in their lesson planning after they received the intervention and outperformed their peers in the control condition.

METHOD

This study examined teacher success in implementation of the UDL framework and strategies within a digital format for lesson delivery. Study participants ($N = 4$ educators) were part of the initial UDL Pilot Program in 2015-2016. The novel challenge facing the educators was how UDL teaching and learning strategies could be infused into video instruction effectively, when that instruction may or may not have in-person teacher support and in-classroom resources. It was hypothesized that a focused collaborative peer feedback and assessment process could increase the representation of UDL practices within videos. A UDL Co-teaching Model Rubric (see Appendix) was designed that defined UDL standards of multiple means of engagement, representation, action and expression. The assessment scale rated each area from one to three, with one being minimal representation and three being strong representation. The rubric defined specific UDL strategies the group would focus on infusing into instruction.

Data Collection and Analysis

The participants began creating instructional videos for use in fluid learning models. Each member planned the lessons for one curricular area, to allow maximum time and focus on creating quality instruction. Team members used one another's videos during normal daily instruction with interactive components embedded into the videos. After several weeks, the team scored a random sample of created videos using the UDL Co-teaching Model Rubric. Frequencies, percentages, item means and variances were used to describe the data. T-tests and effect sizes were used to test and qualify improvement.

The participants completed the rubric for videos together to create a common understanding of how to consistently use the rubric. The scores on these videos served as the baseline measurement of UDL practices.

The participants then began to assess, critique, and reflect on video lessons together using the UDL Co-teaching Model Rubric to guide collaboration. The goal was to create and maintain a focus on UDL principles during instructional design to increase the quality of lessons as defined by the level of representation of UDL strategies. Participants offered strategies, technical skills, and resources to each other to facilitate the infusion of various UDL strategies in the new format of video lessons.

The participants had significant experience collaborating as a design team but seldom, prior to the project, provided focused feedback on instruction to each other. The project was pursued for nine more weeks with focused UDL study and feedback. Teachers created up to five videos per week for use by the team. Those videos were randomly selected and scored using the UDL Co-teaching Model Rubric by team members as they were used. The team compared the level of UDL strategy representation in the baseline videos to those developed throughout the nine-week action research period that provided focused peer feedback and analysis.

RESULTS

Baseline video UDL ratings were compared to post UDL video ratings to assess degree of mean differences (Table 1). The baseline video ratings indicated participants possessed a strong understanding of UDL principles. Many of the initial videos were already infused with UDL components (e.g., Providing options for perception/Visual information: $M = 2.94$; Providing options for executive functions/Support planning and strategy development: $M = 2.94$). The baseline – post instructional video comparisons showed two statistically significant gains regarding Multiple Means of Representation: Providing options for perception/ Display of information ($t = 3.34, p = 0.00, +0.50$ gain) and Providing options for comprehension/ Guide information ($t = 2.25, p = 0.03, +0.31$ gain).

Table 1

Mean Ratings of UDL Principles in Instructional Videos

UDL Principles		<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
1. Multiple Means of Representation - Provide options for perception/ Display of information	<i>Baseline</i>	16	2.50	0.52	3.34	0.00
	<i>Post</i>	12	3.00	0.00		
2. Multiple Means of Representation - Provide options for perception/ Visual information	<i>Baseline</i>	16	2.94	0.25	-0.86	0.40
	<i>Post</i>	12	2.83	0.39		
3. Multiple Means of Representation - Provide options for comprehension/ Guide information	<i>Baseline</i>	16	2.69	0.48	2.25	0.03
	<i>Post</i>	12	3.00	0.00		
4. Multiple Means for Action and Expression - Provide options for executive functions/ Support planning and strategy development	<i>Baseline</i>	16	2.94	0.25	-0.20	0.84
	<i>Post</i>	12	2.92	0.29		
5. Multiple Means for Engagement - Provide options for sustaining effort and persistence/ Foster Collaboration and Community	<i>Baseline</i>	16	2.63	0.81	0.76	0.45
	<i>Post</i>	12	2.83	0.58		

Note. Rating scale (1 = Minimally represented, 2 = Partially represented, 3 = Strongly represented). *df* (26)

DISCUSSION

The team collaborated to modify and learn from each other's videos to strengthen UDL representation. The UDL principle of Multiple Means of Representation (Display of Information; Guide Information) were deemed as focus areas based on the team's first assessment. One component that required a modification was the addition of more opportunities for student participation. This encouraged more pausing and interacting with the videos to promote

engagement for all students in each individual class. In the final assessment, the team found an increase in the mean score for these sub-strands indicating strong representation of this UDL principle.

The data also indicated that certain curricular lessons lent themselves better to implementing strong UDL models than others, which encouraged the team to modify visual aspects of future lessons to best fit the UDL model. These modifications included the breaking up of visual content. If there was too much visual distraction on any given slide, the information was broken up to manage the amount of content presented for the learner. This assessment allowed the team to determine next steps in improving the lessons.

CONCLUSION

The 2020-2021 school year brought insurmountable challenges in education. The UDL Co-teaching Model provided a successful unification between traditional and newly modified teaching and learning practices. These slideshows and videos are now available for future team use, as all the elements of UDL are present. The team found their implementation plan to be a vital component to the success of an atypical year.

Moving forward, this model could continue as a tool for teachers to use in a variety of settings. In the event that students are absent from the classroom for an extended amount of time, teachers could use these videos as a way to help students stay caught up with the class and content. The videos can also support parents and families who are unfamiliar with the content and strategies used in the classroom in order to help their students at home.

Teachers could also use the videos as a review tool to support students who are struggling with specific skills. Learning Strategists or other support staff can use the videos with small groups or individual students as well. This allows the Learning Strategists and support staff to better understand what is happening in the classroom and can then better support the students they work with.

Additionally, this model can support other teachers by allowing them to learn from each other, as a form of professional development. The videos can be used as a learning or teaching tool. This can be especially beneficial for new staff and/or staff changing grade levels.

Limitations and Future Research

This study is limited by several factors. Action research findings are constrained to the specific research context thereby limiting generalizability. In addition, the three-point UDL Rubric rating scale may have restrained growth estimates due to ceiling effects. Future research may focus on UDL Rubric refinement and calibration.

The research could also stretch to better understand student comprehension by highlighting student background knowledge through the videos. The videos could link together content areas to help students make cross-curricular connections. This would emphasize the UDL Strand Multiple Means of Representation - Guideline Three: Provide Options for Comprehension. This strand encourages noticing patterns, important features, big ideas, and relationships. This would be a study to follow alongside student engagement and visual representation.

REFERENCES

- Cook, B. G., Smith, G. J., & Tankersley, M. (2012). Evidence based practices in education. In K. R. Harris, S. Graham, & T. Urdan (Eds.), *APA educational psychology handbook* (Vol. 1, pp. 495–528). Washington, DC: American Psychological Association.
- Coolidge, A., Doner, S. & Robertson, T. (2015). BC Open Textbook Accessibility Toolkit.
<http://opentextbc.ca/accessibilitytoolkit/>
- Courey, Susan Joan, Tappe, Phyllis, Siker, Jody, & LePage, Pam. (2013). Improved lesson planning with Universal Design for Learning (UDL). *Teacher Education and Special Education*, 36(1), 7–27.
<https://doi.org/10.1177/0888406412446178>
- Rao, K., & Meo, G. (2016). Using Universal Design for Learning to design standards-based lessons. *SAGE Open*.
<https://doi.org/10.1177/2158244016680688>
- Rao, K., Ok, M. W., & Bryant, B. R. (2014). A review of research on universal design educational models. *Remedial and Special Education*, 35, 153–166. doi:10.1177/0741932513518980
- Rose, D. H., Meyer, A., & Hitchcock, C. (2005). *The universally designed classroom: Accessible curriculum and digital technologies*. Harvard Education Press.
- Spooner, F., Baker, J. N., Harris, A. A., Ahlgrim-Delzell, L., & Browder, D. M. (2007). Effects of training in universal design learning on lesson plan development. *Remedial and Special Education*, 28, 108-116.
- Zimmer, M. A. (2012). Universal Design in Higher Education: From Principles to Practice - Edited by Sheryl E. Burgstahler and Rebecca C. Cory. *Teaching Theology & Religion*, 15(1), 89–91. <https://doi-org.ezproxy.lib.uwm.edu/10.1111/j.1467-9647.2011.00769.x>

APPENDIX

UDL Co-teaching Model Rubric

UDL Co-teaching Model Rubric	3 - Strongly represented	2 - Partially represented	1 - Minimally represented
<p>1. Multiple Means of Representation - Provide options for perception/Display of information:</p> <ul style="list-style-type: none"> • The size of text, images, graphs, tables, or other visual content • The contrast between background and text or image • The color used for information or emphasis • The volume or rate of speech or sound • The layout of visual or other elements 			
<p>2. Multiple Means of Representation - Provide options for perception/Visual information:</p> <ul style="list-style-type: none"> • Provide descriptions (text or spoken) for all images, graphics, video, or animations • Provide physical objects and spatial models to convey perspective or interaction • Provide auditory cues for key concepts and transitions in visual information 			
<p>3. Multiple Means of Representation - Provide options for comprehension/Guide information processing:</p> <ul style="list-style-type: none"> • Give explicit prompts for each step in a sequential process • Provide options for organizational methods and approaches • Provide interactive models that guide exploration and new understandings • Introduce graduated scaffolds that support information processing strategies • Provide multiple entry points to a lesson and optional pathways through content • "Chunk" information into smaller elements 			
<p>4. Multiple Means for Action and Expression - Provide options for executive functions/Support planning and strategy development:</p> <ul style="list-style-type: none"> • Embed prompts to "stop and think" before acting as well as adequate space • Embed prompts to "show and explain your work" • Provide checklists and project planning templates for understanding the problem, setting up prioritization, sequences, and schedules of steps • Embed coaches or mentors that model think-alouds of the process • Provide guides for breaking long-term goals into reachable short-term objectives. 			
<p>5. Multiple Means for Engagement Provide options for sustaining effort and persistence~ Foster Collaboration and Community:</p> <ul style="list-style-type: none"> • Create cooperative learning groups with clear goals, roles, and responsibilities • Provide prompts that guide learners in when and how to ask peers and/or teachers for help • Encourage and support opportunities for peer interactions and supports • Construct communities of learners engaged in common interests or activities • Create expectations for group work 			

Chart taken from: <https://udlguidelines.cast.org/>

Connecting Consistent Literacy Instruction with Virtual Learning

Dee Price, Julie LoDuca

Ixonia Elementary School, Oconomowoc Area School District

June 30, 2021

Author Note

This action research study was supported by an OASD Learners and Leaders research grant. Correspondence concerning this research should be addressed to Dee Price, Ixonia Elementary School, N8425 North St. Ixonia, WI 53036.

Email: PriceD@oasd.org

ABSTRACT

This study investigated the relationship between consistent and frequent literacy instruction and reading achievement among second-grade students learning in a virtual setting. A variety of assessments were administered and analyzed over the course of the school year to indicate reading success and identify growth opportunities. On average, students showed improvement in F&P reading level, CBM reading fluency, and MAP reading RIT scores. The results suggest combining traditional “best practice” literacy instruction with virtual learning approaches and tools like ZOOM can benefit young readers.

Keywords: literacy instruction, virtual learning, reading achievement

CONNECTING CONSISTENT LITERACY INSTRUCTION WITH VIRTUAL LEARNING

Research shows a positive connection between consistent small group reading instruction and student achievement in traditional school settings (Hall et al., 2018). Less is known about whether this approach translates to a virtual learning setting. Regardless, in March 2020, the world and schooling changed right before our eyes. Not knowing what the future held for traditional in-person learning, educators worked on creating and rearranging instruction to best continue meeting all learners' needs while quarantined at home. As families around the world braced for the unknown, teachers were frantically searching, teaching, and engaging students in best teaching methods.

Fast forward, September 2020, back in school with a new perspective on teaching due to pandemic mitigation including face coverings, social distancing, and constant hand washing altered the typical elementary classroom. Flexible classroom environments were forced into a structure of individual spaces with little room for even sharing a pencil with a classmate. With these new restrictive structures and routines in place, one tool that has dominated the teaching environment is the use of technology. From the physical tools of Chromebooks and iPads to the use of new platforms such as Zoom, Google Meet and Jamboard, the world of teaching was changed forever.

The "old" method of teaching was challenged by this new virtual reality. Teachers must think differently, think creatively to develop new ways to connect with students virtually. So, how do teachers continue to teach students at the same high level with all the new norms and potential barriers presented by virtual learning? Think differently about teaching and learning. Combining "what works" with promising new teaching approaches and virtual tools.

Literature Review

A balanced approach to literacy instruction helps engage students in reading. According to Jennifer Serravallo (2020), students who are given clear learning goals and receive immediate feedback in strategic small group settings experience reading success. Students also need a balanced approach to literacy that is responsive to the needs of each individual student. Calkins (2015) asserts that students need *time* to read, a *choice* in what they are reading, and immediate *feedback* in what they read. Providing these three components in a typical Reading Workshop is manageable and doable.

But what about reading in a virtual or restricted learning environment? Are these three components still effective for reading instruction? Serravallo (2020) offers suggestions and tips on how to teach virtually and in a constricted

classroom. She cites eight priorities that are key to successful online teaching online: connection and relationships, emotional well-being, engagement with learning, focused direct instruction, guided practice, access, assessment, and balance.

Building relationships and connecting with students in a virtual environment are crucial to learning (Serravallo, 2020). The stronger the students feel a connection between teacher and students the more successful the student will be able to learn and grow. Providing small group instruction on a virtual platform like Zoom is one way to continue to build the relationship with students. Providing, clear, strategic, and direct instruction is also important to successful teaching (Calkins, 2015). The National Reading Panel strongly supports instruction in comprehension strategies, and that teaching a repertoire of strategies can make an even larger difference (National Reading Panel, 2000).

The last priority to teach online is providing all students access to reading instruction. This is also a core belief stated in the District's strategic plan and practice via implementation of the UDL framework that acknowledges that learners are diverse in terms of background, needs and interest. By eliminating barriers, teachers help all students engage and learn (Serravallo, 2020). We must be flexible in the ways we work with students and we need to offer different ways to represent what they know, while continuing to hold them to high expectations (Sarevello, 2020). Conducting small group instruction in a daily Reading Workshop allows for these priorities to be met.

This project is designed to develop a variety of ways to think differently about the physical learning environment and how to continue to engage students at a high level of learning while consistently engaging in small group instruction during Reading Workshop. According to Fisher, Frey, and Hattie (2016), providing direct instruction can be an effective method for teaching constricted skills for direct instruction (effect size 0.59). Providing feedback in a small group environment has an effective size at 0.75 (Fisher et al., 2016).

Using specific and actionable feedback in small group instruction will improve student achievement. Research supports the effectiveness of one-to-one teaching, especially essential for children who are at high risk. Both Dorn and Allen (1995) and Harrison (2002) studies identify a need for students who are in high-risk categories and identify the need to receive one-to-one instruction. In addition to one-to-one teaching, researchers also suggest consistent instruction with a comprehensive model of reading helps student achievement (Askew & Simpson, 2004). Research indicates that students learning in small groups grow considerably more than those students instructed in larger groups (Vaughn et al, 2021). Interventions that focus on the five areas of reading instruction (phonemic awareness, phonics, fluency, vocabulary, and

comprehension) and implemented three to five times per week for at least 20-40 minutes each session shows an increase in student achievement (Hall et al., 2018).

METHOD

During the 2020-21 school year, a second-grade teacher from Ixonia Elementary School collaborated with the school's literacy coach to meet individual student literacy needs via frequent and consistent small group instruction as students transitioned from traditional to virtual learning. The use of technology was emphasized along with relationship building, direct reading instruction and immediate student feedback. Reading data were collected using a variety of assessments during the school year.

Data Collection and Analysis

The teacher incorporated small group instruction via Zoom from January 2021- June 2021 academic year. The study measured growth in reading fluency, word accuracy, and comprehension. The Fountas and Pinnell (F&P) benchmark reading assessment was administered to each student in January, March, and May and was scored using the applicable F&P rubrics. Reading fluency and growth was also assessed using the FastBridge CBM reading assessment. This assessment was given in January and May. The Measures of Academic Progress (MAP) reading scores, given to all grade two students in the district, was also analyzed to assess growth. Informal reading assessments included daily running records and anecdotal notes were also conducted. The teacher and literacy coach analyzed the data for each student and adjusted instruction, as needed.

RESULTS

Fifteen (15) second-grade students from Ixonia Elementary School participated in the study. Twenty-seven percent (27%) of students met the F&P benchmark at the beginning of the school year. Given the baseline data, the teacher and literacy coach decided to meet with students every day using Zoom. Upon reassessment, 64% of students scored at or above the F&P reading benchmark in January. The percentage increased to 80% in May.

Reading fluency, as measured by the FASTCBM assessment, showed improvement over the school year (Table 1). Eighty percent (80%) of students met or exceeded the Words Per Minute (WPM) benchmark in spring representing an

improvement over baseline testing. Mean reading fluency increased from 61.1 to 113.6 WPM resulting in a positive effect size ($ES = +1.58$). Similarly, mean MAP Reading scores increased by +17.1 points over baseline levels ($ES = +1.90$).

Student growth was evident. It was a priority that teachers routinely met with students about reading comprehension, decoding and fluency. Due to this, students also made progress on District Assessments. While this was not the main goal, it was a direct result of students working on their reading goals.

Table 1

Reading Data Summary: F&P, CBM, MAP

Student	F&P			CBM Fluency			Growth	MAP Reading			Growth				
	Fall	Winter	Spring	Fall	Winter	Spring		Fall	Winter	Spring					
1	H	L	M	54	69	111		171	184	187					
2	FG	J	K	9	40	61		165	163	185					
3	I	L	O	85	111	132		157	191	192					
4	K	---	O	124	---	185		190	---	203					
5	J	M	N	106	125	146		176	181	201					
6	J	L	O	105	129	147		179	191	193					
7	H	L	N	68	95	118		178	181	198					
8	G	K	M	32	53	74		163	177	186					
9	JK	L	O	68	93	123		197	192	193					
10	F	J	L	13	49	83		166	172	201					
11	IJ	L	O	68	91	128		180	194	205					
12	I	L	O	57	94	97		175	185	187					
13	H	MN	O	44	97	124		169	195	205					
14	FG	H	H	20	51	70		163	157	164					
15	H	K	M	63	92	105		169	183	192					
				<i>M =</i>	61.1	84.9	113.6					<i>M =</i>	173.2	181.9	192.8
				<i>SD =</i>	33.2	27.3	32.2					<i>SD =</i>	10.3	11.0	10.2
				<i>ES =</i>	1.58							<i>ES =</i>	1.90		

Notes. F&P Benchmarks (Winter = L. Spring = M). CBM Fluency Benchmarks (Winter = 66, Spring = 83).

DISCUSSION

This study investigated the impact of consistent and frequent literacy instruction on second-grade students' learning in a virtual setting. After a few frustrating weeks of "stop and start" small group work, the teacher incorporated technology into her instructional approach. In October, in collaboration with the Literacy Coach, she decided to teach her small group of students using the ZOOM platform. After teaching the students how to use Zoom and the functions that were available she started on the hard work, teaching reading!

The teacher emphasized three priorities in her classroom. Connection and relationships, Focused Direct Instruction and access given to all students to form the backbone to small group literacy teaching online. Not only did teaching in small groups matter, using technology to develop strong teaching routines are important to the structure and formation of the lessons.

Another benefit was the amount of student growth in fluency, as based on the Fastbridge CBM assessment. The increase in reading comprehension and fluency is a strong indicator that consistency and collaboration are important to the growth of reading achievement. In addition, teachers could improve their literacy instructional practice by meeting with students on a more frequent basis around reading achievement.

Limitations and Future Research

Future research should explore the relationship of class-size on the effective delivery of literacy instruction. Does small class size improve instructional program coherence? Is there an ideal number of students that permits a teacher to deliver effective literacy instruction? Can technology be used to negate the negative influences of large classes?

REFERENCES

- Askew, B., & Simpson, A. (2004). Does one-to-one teaching really matter. *Journal of Reading Recovery*, 4(1), 36-42.
- Calkins, L. (2015). *A guide to the reading workshop, primary grades*. Heinemann.
- Dorn, L., & Allen, A. (1995). Helping Low-Achieving First-Grade Readers: A Program Combining Reading Recovery Tutoring and Small-Group Instruction. *ERS Spectrum*, 13(3), 16-24.
- Hall, M. S., & Burns, M. K. (2018). Meta-analysis of targeted small-group reading interventions. *Journal of School Psychology*, 66, 54-66.
- Harrison, L. (2002). A study on the complementary effects of Reading Recovery and small group instruction for reversing reading failure. *Research Summary*, (210-03).
- Fisher, D., Frey, N., & Hattie, J. (2016). *Visible learning for literacy, grades K-12: Implementing the practices that work best to accelerate student learning*. Corwin Press.
- National Reading Panel (US), National Institute of Child Health, Human Development (US), National Reading Excellence Initiative, National Institute for Literacy (US), United States. Public Health Service, & United States Department of Health. (2000). *Report of the National Reading Panel: Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups*. National Institute of Child Health and Human Development, National Institutes of Health.
- Serravallo, J. (2020). *Connecting with students online: Strategies for remote teaching and learning*. Heinemann.
- Vaughn, S., Hughes, M., Moody, S., Elbaum, B. (2021) Launching young readers! Grouping students who struggle with reading. *Reading Rockets*, <https://www.readingrockets.org/article/grouping-students-who-struggle-reading>

Engaging Students in Virtual Learning

Elizabeth Schmocker

Oconomowoc Area School District

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Author Note

This action research study was supported by an OASD Learners and Leaders research grant. Correspondence concerning this research should be addressed to Elizabeth Schmocker, OASD Administrative Office, 915 E. Summit Ave., Oconomowoc, WI 53066. Email: SchmockerE@oasd.org

ABSTRACT

This action research study explored how formative assessment may be used to engage students learning in virtual settings. Oconomowoc Virtual Learning Community (OVLC) teachers focused on formative assessment during professional development and team meetings during the 2020-21 school year. Teachers experimented with pre-instruction assessments like entrance tickets and in-class assessments delivered via a Learning Management System to provide student feedback related to learning objectives. Giving assessments during virtual lessons and adjusting small group instruction accordingly within the same day or next day provided the best student learning outcomes.

Keywords: distance learning, student engagement, formative assessment, virtual learning

ENGAGING STUDENTS IN VIRTUAL LEARNING

One way the Oconomowoc Area School District (OASD) responded to the 2020-21 COVID pandemic was to create a virtual learning opportunity for students who wanted to learn from home. Through the Oconomowoc Virtual Learning Community (OVLC), students interacted with their teacher using a computer and a virtual learning platform like Google Classroom or Canvas. Planning and implementation work hastened during the summer months and professional development opportunities for OVLC teachers focused on effective instruction in virtual learning environments.

The importance of student engagement to a successful virtual learning program was emphasized throughout the research literature. In-person techniques such as turn and talk are not applicable in a virtual setting. Different techniques are required. As such, professional development for OVLC teachers focused on learning how to best engage students in virtual learning environments. In the words of an OVLC leader,

Going into the 2020-2021 school year, OVLC was made to be an online school for students for the entire school year. No longer was this online setting an emergency remote setting, but one where students and families were choosing to have their students learning virtually. Knowing this, it became increasingly important to reflect upon the teaching practices staff would normally use in a face-to-face setting, with students who were used to an in person setting. We read in *The Distance Learning Playbook* (Fisher et al., 2020) that student engagement is at the core of learning. Staff and students still wanted to engage with the curriculum and one another, but our traditional ways of teaching needed adjusting so we could continue the high level of engagement we see in classrooms. To achieve this, the question I began the year with as I created professional development was, “How can teachers use formative assessments to engage students through Distance Learning?” During the school year, I was able to observe how teachers developed lessons and how students engaged with those lessons. As we continued to meet and learn about best practices for engagement in distance learning, a piece of data I am collecting is, “How have OVLC staff used what they have learned throughout the year in the Professional Development, that I have led during my Design and Planning meetings, to engage students in their virtual classrooms?”

Literature Review

Teachers seek to create engaging virtual lessons that maximize learning and retention of content. Finding the best combination of experiences is key and teachers must reflect upon this task as they refine traditional face-to-face strategies for distance learning (Fisher et al., 2020). According to these authors, student engagement is usually viewed across three dimensions: behavioral, cognitive, and emotional but may require different perspectives for virtual classroom application. For example, “Engagement is influenced by a learner’s level of motivation, focus and cognitive ability as well as online course design and a teacher’s decisions regarding facilitation style” (Rice & Kipp, 2020).

Students need to connect to the teacher and the content before they can fully engage in the curriculum. How do teachers gauge students’ level of engagement when they cannot walk around the classroom and have conversations with students, ask students to turn and talk, or monitor what they may have going on around them? Not being able to constantly assess engagement, as in a face-to-face classroom, teachers engage students in new ways and gather formative feedback and assessment data to gauge students’ level of engagement and understanding of content. In a virtual setting, teachers have worked to make an environment that is learner focused. Online formative assessments promote student-teacher collaboration and communication and improves learning through feedback (Wijesooriya et al., 2015).

There are several ways to assess student engagement in a virtual setting: behaviorally through amount of time in a learning module or number of assignments complete, cognitively through performance on assignments and quality of discussion in synchronous lessons, and emotionally through reaction to the teacher/school and how students communicate with their teacher and peers (Rice & Kipp, 2020). Computer network metrics are also available to help gauge student engagement with virtual tools (Hu & Li, 2017). This interaction and communication in regards to formative assessment and how teachers can help support students in the online environment is important in the student learning process (Wijesooriya et al., 2015).

METHOD

This action research project explored formative assessment as a means to engage OVLC students in distance learning. Specifically, what formative assessments, from the teachers’ perspective, are most promising. Four OVLC teachers (kindergarten, grade 3, grade 5, grade 6) and their respective students participated in the study. The OVLC instructional program expectations are outlined in Table 1.

Table 1

Instructional Expectations for OVLC Students

Topic	4K-Grade 6	Grades 7-12
Time	Students will be expected to engage in synchronous and asynchronous daily learning tasks for approximately 3-4 hours daily.	Students will be expected to engage in synchronous and asynchronous daily learning tasks for approximately 4-6 hours daily.
Content Management Platform	4K-grade 4 courses will be managed within Seesaw and Google Classroom. Grades 5-6 courses will be managed in Canvas.	All courses at the 7-12 grade level will be managed through Canvas.
Instructional Strategies and Expectations	All teachers will be required to use the following virtual instruction techniques: <ul style="list-style-type: none"> • Synchronous whole class meetings • Synchronous small group and/or individual meetings • Peer Discussions (both synchronous and asynchronous) • Student inquiry through thematic assignments • Formative and summative assessments • Daily independent learning tasks 	
Technical Equipment Necessary	<ul style="list-style-type: none"> • Internet Access • Remote Workstation 	

Data Collection

The researcher collected data throughout the school year starting with virtual classroom visits at the beginning of the year, and anecdotal feedback from parents on observations from students' virtual classrooms. As noted by the investigator

One of the first pieces of professional development I guided teachers on was engaging students as they first entered their virtual classrooms. The expectation is that OVLC teachers should have an entrance slide/visual as students enter their classroom. I wanted to see how students are engaging behaviorally, cognitively, or emotionally as they enter the class. As students begin their classes, students should know the learning intentions so they are able to engage. Did students know their expectations for their learning today? To see if teachers were using these strategies on a daily basis in their live sessions, I conducted bi-weekly classroom visits to OVLC classrooms, held bi-weekly design and planning meetings to discuss engagement strategies, and sent follow-up emails with engagement strategies from our design and planning meetings.

Teachers spent the first part of the school year learning about student engagement during professional development time. Data collection via formative assessments commenced after winter break. Every three weeks from January 20, 2021 to March 20, 2021, teachers were asked to implement a strategy to assess student engagement. Teachers completed the activity with their OVLC students and submitted the results via a Google Form. During each set of weeks, teachers tried a new formative assessment strategy to see how it would affect student engagement.

An entrance ticket/slide/activity was completed by students during the first set of three weeks. The assessment was something that students completed quickly as they entered the meeting. Teachers quickly scored the assessment and used results to inform instruction.

Teachers chose a lesson(s) paired with an assessment of intended learning outcomes for the second set of three weeks. Options included a Pear Deck, Jamboard, or Seesaw activity where students chose how to respond to a question, etc. The assessment was given during instruction.

Teachers selected a lesson or activity paired with a formative assessment they felt engaged students most effectively during the final three weeks of the study. The selection was based on teacher experience and expertise. Teachers were asked to use their individual Learning Management System (Google Classroom, Canvas, Seesaw, etc.) to administer the assessment and share results.

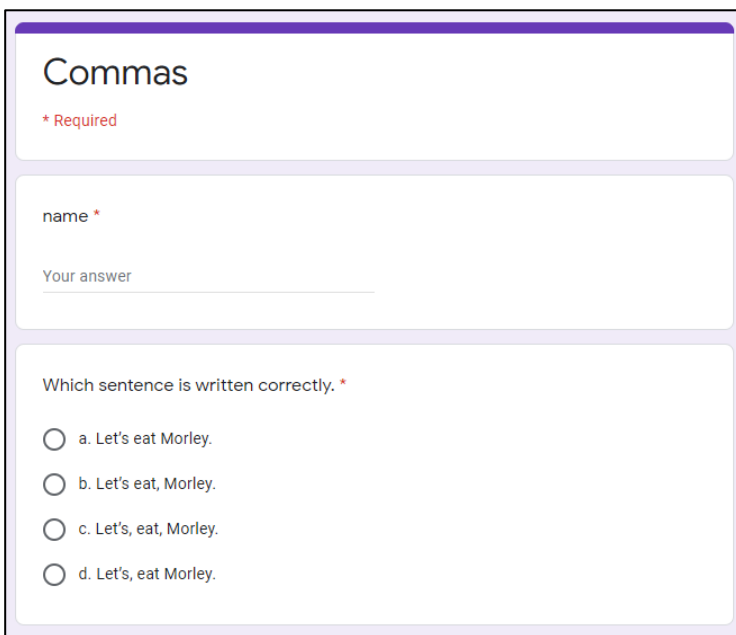
RESULTS

In the first set of weeks, teachers administered an entrance activity/assessment that students completed at the beginning of a live meeting (see Figure 1). These assessments yielded information that helped the teacher focus and engage students in breakout rooms and small group work. Assessment completion rate ranged from 90% to 100% while the number of questions answered correctly ranged from 50% to 100%. One teacher reflected on an entrance activity this way, “This [entrance activity/formative assessment] allowed students to work on skills they have shown they need support in or to be enriched with based on their classwork and/or homework.”

In the second set of weeks, teachers chose a lesson and created a formative assessment where students had a choice in how they responded to show their understanding. These formative assessments with embedded choice capitalized on personalized learning capabilities of online learning (see Figure 2). Assessment completion rate ranged from 89% to 100%. Students completed the assessments with 96% accuracy. One teacher reflected, “When things were presented easily and students had access to a quick link to complete they were more likely to answer each of the questions with detail. I think since things are all so connected with Google it was easy for kids to navigate and complete easily.”

Figure 1

Example of Entrance Activity/Assessment

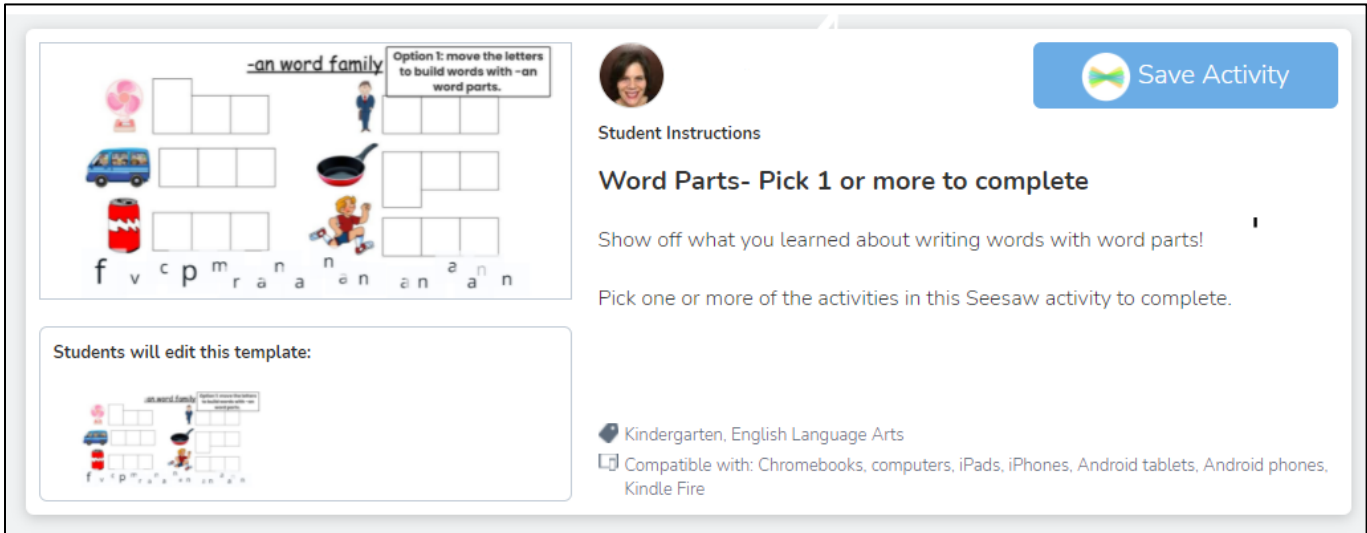


The screenshot shows a digital form titled "Commas" with a red asterisk and the word "Required" below the title. The form contains two main sections. The first section is a text input field labeled "name *" with a placeholder text "Your answer". The second section is a multiple-choice question: "Which sentence is written correctly. *". It lists four options, each with a radio button: a. Let's eat Morley. b. Let's eat, Morley. c. Let's, eat, Morley. d. Let's, eat Morley.

Note. [Example entrance activity](#)

Figure 2

Example of Formative Assessment Completed by the Student During Instruction



The screenshot shows a digital activity interface. On the left, there is a workspace titled "-an word family" with a sub-instruction: "Option 1: move the letters to build words with -an word parts." Below this are three rows of empty boxes for writing words, each accompanied by a small illustration: a fan, a bus, and a pot. At the bottom of the workspace are the letters: f, v, c, p, m, r, a, n, a, n, e, n, a, n, a, n. Below the workspace is a preview section titled "Students will edit this template:" showing a smaller version of the workspace. On the right side of the interface, there is a "Save Activity" button, a "Student Instructions" section with the text "Word Parts- Pick 1 or more to complete", and a "Kindergarten, English Language Arts" category tag. At the bottom right, it lists compatible devices: Chromebooks, computers, iPads, iPhones, Android tablets, Android phones, and Kindle Fire.

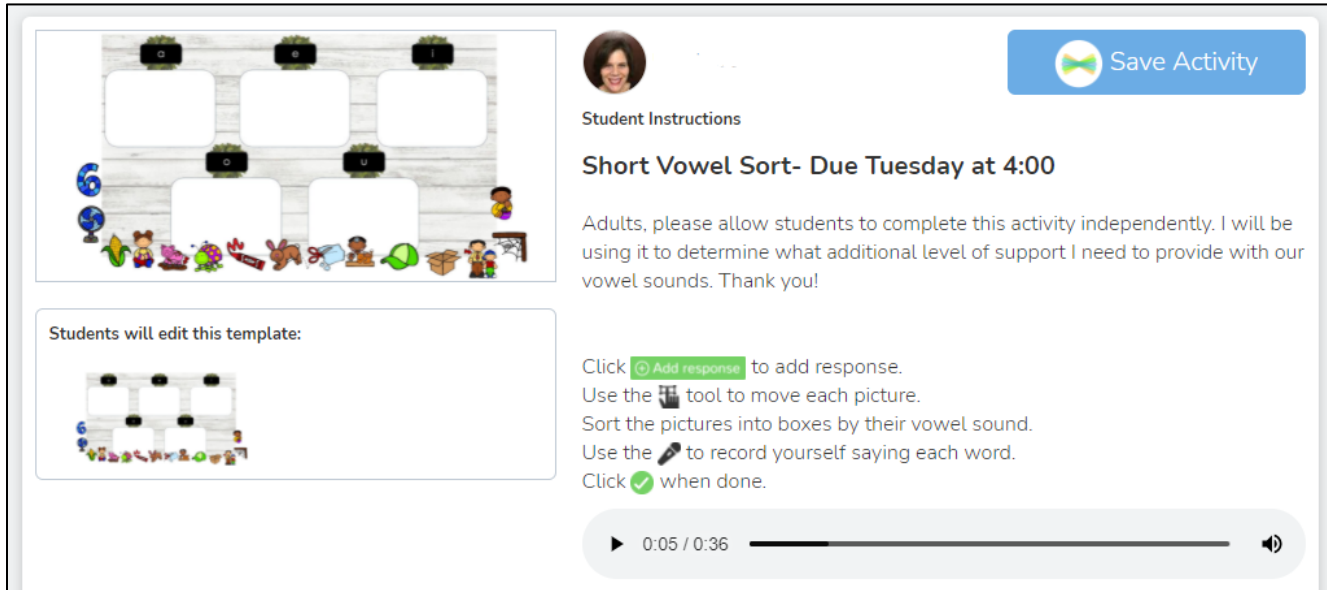
Note. [Example formative assessment during instruction](#)





In the third set of weeks, OVLC teachers chose the formative assessment and learning management platform they believed worked best for their students (see Figure 3). The assessment completion rate ranged from 62% to 95%. The accuracy rate ranged between 62% to 81%. Teachers assigned formative assessments that reflected the current standards they were working on in their synchronous class sessions and were most similar to an entrance/exit slip given in the classroom. As explained by one teacher,

Using an LMS is a great tool to help students stay organized and creates a consistent method for handing in assignments. I could see many of the resources that were intended to be used in a virtual setting apply to a non-virtual setting, especially some of the homework assignments. This can create a seamless means for students to submit homework and receive feedback all in the same place.

Figure 3

Example of Exit Activity Completed by the Student After Instruction



The screenshot shows a digital learning interface. On the left, there is a large workspace with a grid of six empty boxes for sorting pictures. Below this is a smaller preview of the same workspace. On the right, a teacher's profile is visible, along with a 'Save Activity' button. The activity title is 'Short Vowel Sort- Due Tuesday at 4:00'. Below the title, there is a message from the teacher: 'Adults, please allow students to complete this activity independently. I will be using it to determine what additional level of support I need to provide with our vowel sounds. Thank you!'. Further down, there are instructions: 'Click **Add response** to add response.', 'Use the  tool to move each picture.', 'Sort the  pictures into boxes by their vowel sound.', 'Use the  to record yourself saying each word.', and 'Click  when done.' At the bottom, there is a video player with a progress bar showing 0:05 / 0:36.

Note. [Example formative assessment used after instruction](#)

DISCUSSION

This action research project explored the use of formative assessments to engage students in distance learning. OVLC teachers learned about student engagement via professional development and collaborated with colleagues about “better” formative assessment practices to focus learning. Teachers were able to share and model new tools and new ways to use traditional assessment strategies with their colleagues. This built a sense of efficacy within the staff and encouraged each other to try new things as well as predicted by Fisher et al. 2021.

As teachers reflected upon the type of formative assessment they felt was most engaging and informative, they responded a preference for “live” assessments. Some of the difficulty of online learning and assessment has been that, when done on their own, the teacher cannot see into their testing environment. Specifically, in the younger grades, ensuring that other adults within their learning environment are not assisting in their students' testing has proven difficult to get accurate data. One OVLV teacher reflected,

I think using Seesaw for some of our assessments could be an exciting way to keep families involved in students' learning and progress next year and the most effective formative assessments I can use virtually are ‘live

assessments' where I work in small groups or one-on-one and students show me what they know in the moment... Using work submitted asynchronously is more challenging because there are the possibility students are being given support. I've tried to give clear explanations to families not to help (on formative assessments) and I think the data I gained from this assessment was accurate for the majority of students. I look forward to using this information to support next steps for my learners who demonstrate that they are not yet proficient in the content.

CONCLUSION

In summary, using formative assessment in the virtual classrooms gave OVLC teachers valuable insight on how to effectively engage and instruct students. Lessons learned via this action research project might be used in our classrooms across the district. Teachers could use what we learned about the importance of providing assessments through an LMS to organize and track student learning. Giving assessments during lessons and adjusting small group instruction accordingly within the same day or next day provided the best student learning outcomes. We also learned that providing choice in assignments helped reach more students as they were able to choose the best assessment to meet their learning needs. Overall, teachers in face-to-face and virtual settings can help increase student engagement by creating a variety of assessments that give valuable data to help teachers plan instruction for their students.

Limitations and Future Research

A main purpose of action research is to help educators systematically answer questions their specific school, classroom, or teaching or administrative practice (Mertler, 2019). As such, generalizability of findings is limited. This action research aided us in focusing more deeply on the specific strategies that teachers were using with students, across elementary and intermediate grade levels, to see if certain strategies impact student engagement more effectively than others. Future research should explore formative assessment and student engagement at the high school level to improve learning outcomes.

REFERENCES

- Fisher, D., Frey, N., & Hattie, J. (2020). Engaging Tasks. In *The distance learning playbook: Teaching for engagement and impact in any setting*. Corwin Press.
- Fisher, D., Frey, N., Smith, D., & Hattie, J. (2021). *Rebound, Grades K-12: A Playbook for Rebuilding Agency, Accelerating Learning Recovery, and Rethinking Schools*. Corwin Press.
- Hu, M., & Li, H. (2017, June). Student engagement in online learning: A review. In *2017 International Symposium on Educational Technology (ISET)* (pp. 39-43). IEEE.
- Mertler, C. A. (2019). *Action research: Improving schools and empowering educators*. Sage Publications.
- Rice, K., & Kipp, K. (2020). How can educators tap into research to increase engagement during remote learning?. *EdSurge*, available at: www.edsurge.com/news/2020-05-06-how-can-educators-tap-into-research-to-increase-engagement-during-remote-learning (accessed 23 May 2020).
- Wijesooriya, C., Heales, J., & Clutterbuck, P. (2015, January). Forms of formative assessment in virtual learning environments. In *Twenty-first Americas Conference on Information Systems*.
<https://core.ac.uk/download/pdf/301365899.pdf>