Studies in Teaching
2023 Research Digest

Action Research Projects
Presented at Annual Research Forum

WAKE FOREST
UNIVERSITY

Department of Education

Winston-Salem, NC
June 29, 2023

Leah P. McCoy, Editor
<mccoy@wfu.edu>

Studies in Teaching – 2023 Research Digest

Table of Contents

The Effects of Real-World Mathematics Activities on High School Students' Attitudes

Alexa Altizer

with Leah McCoy
Wake Forest University
Department of Education
June 2023

Introduction

If you have ever been in a high school math classroom, you have likely heard a student ask the question, "When are we going to use this in the real world?" This perceived lack of usefulness can lead to bad attitudes toward math, defined in this study as a negative way of thinking and behaving when working with mathematics. At the heart of mathematics is problem solving, critical thinking, and reasoning – all skills that are necessary in the real world. The purpose of this action research study was to prove to students that they *are* going to use math in the real world. The researcher aimed to accomplish this by teaching a series of real-world math activities to a class of high school math students and examining whether their attitudes toward math improved.

Literature Review

Student Engagement & Attitudes

Engagement is viewed as "one of the most important issues facing educators today" (Conner, 2011, p. 53). Low engagement has been found to be most prevalent in math classes, and more specifically, in secondary math classes (Sullivan et al., 2006). It is critical that in teachers' efforts to engage students, they account for the fact that what is interesting and effective for one student, may be completely unfamiliar for another. When teachers achieve high engagement in their students, research has recognized an improvement in student attitudes toward mathematics (Bodovski & Farkas, 2007).

Mathematics has been found to be unpopular among high schoolers because of its complexity, abstractness, and high levels of effort required to succeed (Hidi, 2000). Ng and Fergusson (2020) wrote that students participate in STEM less because they perceive the material as irrelevant. Research shows that a commonly held belief by high school students about mathematics is that its main value is its utility value, but not utility in their own lives. Matthews

(2018) found that the majority of students in his study claimed that math was not important in their lives, but was useful for future classes, college, or some jobs.

Real-World Math

The National Council of Teachers of Mathematics (2014) identifies five representations of mathematics: physical, visual, symbolic, verbal, and contextual. The fifth representation, contextual, refers to real-world applications in which the math problems are not situated in the mathematical domain, but in a continuum of contextual settings. It is important that mathematics materials meet students where they are by using contexts to which students can relate.

Real-World Math & Student Attitudes

Regarding student attitudes, there are many possible benefits reflected in the research from implementing real-world math activities in the classroom such as improving student engagement (Struyf et al., 2019), increasing student motivation, and supporting students in recognizing the value of mathematics in the real world (Beswick, 2011; Ng & Furgusson, 2020).

Many researchers have concluded that using real-world math activities improves student attitudes. In the Matthews (2018) study, a positive relationship was found between real-world math activities and student attainment value. Students started to see mathematics as a transformative tool in their lives. Similarly, Irvine (2020) found that the reform mathematics intervention, which included relevant contextual material, had the greatest impact on students who had preconceived negative attitudes.

The question in this action research study was: What is the effect of real-world math application activities on high school students' attitudes toward math?

Methodology

Participants

The participants in this study were 13 students in a Math 2 class at an urban high school in the southeastern United States. Of the 27 students in the class, only students who turned in their permission forms, participated in both the pre- and post-survey, and were present for at least three out of the five intervention lessons were included as participants in the study. Students were chosen for focus groups on a volunteer basis. The students' normal math teacher taught all content except for the weekly interventions.

Intervention

In this study, the researcher went into the classroom and taught five 30-minute intervention lessons throughout the semester. The first lesson studied the geometry of the Flatiron Building in Manhattan. The second lesson featured the geometry behind the Laker's Triangle Offense. The third lesson modeled a quadratic in Angry Birds. The fourth lesson answered whether the Carolina Panthers' Graham Gano made the game winning kick against the New York Giants. The fifth lesson modeled locations' average monthly temperatures with parabolas.

Data Collection & Analysis

This study used a mixed-methods approach to examine the research question. Data collection techniques included pre- and post-surveys of student attitudes toward mathematics including both Likert scale questions and open-ended questions; focus groups to measure student attitudes; field notes from interventions; and student work samples from intervention lessons.

For qualitative data, open-ended survey responses, interview responses, focus group responses, and field notes were openly coded. For quantitative data, the researcher averaged each Likert scale question's responses and determined percent changes between Likert scale pre- and post-survey question averages.

Results

According to both quantitative and qualitative data on the pre- and post-surveys , student attitudes generally increased slightly or stayed the same. In fact, three subgroups emerged from the participants in the study based on their reactions to the study: 1) Students who had positive attitudes in both the beginning and end of the study, 2) Students who had negative attitudes at the beginning of the study and slightly improved attitudes at the end of the study, and 3) Students who had negative attitudes at the beginning and end of the study.

Quantitative Results

There was a very slight increase in student attitude toward mathematics according to the Likert scale questions from the pre- and post-surveys (Table 1).

Table 1

Average Ratings on Likert Scale Questions from Pre- and Post-Surveys

Question	Pre-Survey Average Rating	Post-Survey Average Rating	Percent Increase in Average Rating
1. I use the math I learn in school in the real world often.	0.8	1.1	37.5%
2. I will need the math I learn in school for my future.	1.6	1.7	6.25%
3. I like math.	0.9	0.9	0%
4. I can learn new math concepts, even if they're hard.	1.8	1.9	5.56%
5. I understand math better when I learn how to apply them to real-world contexts.	1.8	1.8	0%

The slight increase in student attitudes toward mathematics based on the Likert scale ratings could be attributed to the intervention lessons. The two statements that relate the most to the intervention lessons are "I use the math I learn in school in the real world often" and "I understand math better when I learn how to apply them to real-world contexts." The former's 37.5% increase in average rating suggests that the increase could be due to the intervention lessons, but the latter's 0% increase does not. The other statements are less related to the intervention lessons but could have been influenced by the content of the intervention. However, a possible third variable that might have influenced student responses is the experience they had in their normal math class throughout the semester.

Qualitative Results

Qualitative results from the study also indicate only a slight increase in students' attitudes towards mathematics. In the beginning of the study, most students responded negatively on the open-ended pre-survey questions, had low engagement in the classroom, and generally displayed negative attitudes during class time. By the end of the study, open-ended post-survey questions revealed a small improvement in responses, but contained many of the same responses, and students still displayed generally negative attitudes in the classroom. Again, it is possible that students were influenced by their experiences throughout the semester beyond the intervention.

Focus Groups

The data collected from the focus groups were very insightful. In one focus group, students argued about where they might use math in the real world. One student claimed that the math they learn in high school is irrelevant because he "learned to count money in kindergarten," to

which one student agreed and said, “Yeah, when you gonna use the square root of 3 in the real world?” One girl rebuked, “Engineering, construction…” so the boy said, “Do I look like a scientist?” When asked to describe themselves as math students, responses included, “I’m terrible at math but I make good grades,” “Above average,” and, “Horrible, terrible.” These qualitative results most effectively delineate the differences between the three subgroups of students in the ways in which they responded to the study, as previously mentioned.

Subgroup 1: Positive Attitudes to Positive Attitudes. A small number of students in the class were very strong math students. These students had positive attitudes towards mathematics both at the beginning of the study and at the end, suggesting little effect from the intervention lessons, although they seemed to benefit from the lessons based on their pre- and post-survey open-ended responses. On the Likert Scale survey questions, these students chose mostly “agree” and “strongly agree,” raising the class averages, even though there was little quantitative growth in their responses.

Subgroup 2: Negative Attitudes to Positive Attitudes. In the beginning of the study, this group of students was less engaged. These students saw math in the real world in more obvious settings such as money and some workplaces, but by the end of the study, they stated that they saw math in more varied settings such as technology, architecture, gaming, sports, and restaurants. On the Likert scale survey questions, these students showed the greatest quantitative growth.

Subgroup 3: Negative Attitudes to Negative Attitudes. This group of students had little to no reaction to the intervention. Unfortunately, their attitudes toward mathematics were negative both at the beginning and end of the study. Unfortunately, it seems from these open-ended responses that students’ attitudes generally decreased throughout the semester. Given these results, it seems that their attitudes towards math actually decreased throughout the study.

Discussion & Conclusion

From this study, the results indicate that teaching high school mathematics using real-world applications can be helpful, according to survey responses and focus group statements. Some students benefit from it more than others, depending on their predispositions, background knowledge, previous experiences with math, and future goals. There is still a need to try to connect the real world to students’ learning of mathematics.

References

Beswick, K. (2011). Putting context in context: An examination of the evidence for the benefits of "contextualised" tasks. *International Journal of Science and Mathematics Education*, *9*(2), 367-390. https://doi.org/10.1007/s10763-010-9270-z

Bodovski, K., & Farkas, G. (2007). Mathematics growth in early elementary school: Beginning knowledge, student engagement, and instruction. *The Elementary School Journal*, *108*(2), 115-130. https://doi.org/10.1086/525550

Conner, T. (2011). Academic engagement ratings and instructional preferences: Comparing behavioral, cognitive, and emotional engagement among three school-age student cohorts. *Review of Higher Education and Self-Learning*, *4*(13), 52-66.

Hidi, S. (2000). An interest researcher's perspective on the effects of extrinsic and intrinsic factors on motivation. In B. Sansone & J. M. Harackiewitz (Eds.), *Intrinsic and extrinsic motivation: The search for optimum motivation and performance* (pp. 309-339). Academic Press. http://dx.doi.org/10.1016/B978-012619070-0/50033-7

Irvine, J. (2020). Positively influencing student engagement and attitude in mathematics through an instructional intervention using reform mathematics principles. *Journal of Education and Learning*, *9*(2), 48-75. https://doi.org/10.5539/jel.v9n2p48

Matthews, J. S. (2018). When am I ever going to use this in the real world? Cognitive flexibility and urban adolescents' negotiation of the value of mathematics. *Journal of Educational Psychology*, *110*(5), 726-746. https://doi.org/10.1037/edu0000242

National Council of Teachers of Mathematics (NCTM). (2014). *Principles to actions: Ensuring mathematical success for all*. NCTM.

Ng, W., & Fergusson, J. (2020). Engaging high school girls in interdisciplinary STEAM. *Science Education International*, *31*(3), 283-294. https://doi.org/10.33828/sei.v31.i3.7

Struyf, A., De Loof, H., Boeve-de Pauw, J., & Van Petegem, P. (2019). Students' engagement in different STEM learning environments: Integrated STEM education as promising practice? *International Journal of Science Education*, *41*(10), 1387-1407. https://doi.org/10.1080/09500693.2019.1607983

Sullivan, P., Tobias, S., & McDonough, A. (2006). Perhaps the decision of some students not to engage in learning mathematics in school is deliberate. *Educational Studies in Mathematics*, *62*, 81-99.

An Investigation of the Effect of Explicit Spatial Reasoning Instruction on Student Self-Efficacy in High School Chemistry

Emma Armstrong

with Debbie French
Wake Forest University
Department of Education
June 2023

Educational literature supports that strong feelings of self-efficacy and strong spatial reasoning skills can increase students' resilience and desire to continue studying STEM at the university level (Ozgur, 2021; Oliver-Hoyo & Babilonia-Rosa, 2017). This research was conducted to determine if explicit spatial reasoning instruction in a high school chemistry classroom impacted students' feelings of chemistry self-efficacy and if the application of spatial reasoning instruction impacted males' or females' chemistry self-efficacy to differing degrees. This research was conducted in a $10^{th}/11^{th}$ grade standard chemistry class of 30 students who all attended a central North Carolina public school of 2,7000 students. Students' feelings of self-efficacy before and after the treatment of explicit spatial reasoning instruction using 3D models and real-world chemistry relevant examples were determined by using Likert-style pre- and post-surveys with open-ended responses. These data were coded for overarching themes and trends that elucidated any potential relationship between increased spatial reasoning skills and a change in students' sense of chemistry self-efficacy.

Literature Review

The STEM Pipeline, or the flow of students studying science, engineering, technology, and math subjects to the workforce, is leaky according to economists and science education researchers. Despite statistics predicting STEM job market growth and a record number of students expressing interest in STEM disciplines in high school and college, there are still too few employees in the STEM workforce (Ryan, 2022).

One key factor known to increase any individual's determination to study a topic despite the challenges associated with the learning process is self-efficacy (Bandura, 1977). Schunk et al. stated in a 2010 paper that "Researchers have established that self-efficacy beliefs and behavior outcomes are highly correlated and that self-efficacy is an excellent predictor of academic motivation and performance" (p. 671-672). Students with a higher sense of self-efficacy are

more likely to overcome the academic challenges associated with the learning process because they often feel more ready to meet new expectations. Additional literature emphasizes the importance of strong feelings of self-efficacy for students while pursuing a STEM education; when students feel confident in their ability to meet the demands of new tasks, they are more likely to persevere through the challenges of the content area (Ozgur, 2021).

Strong spatial reasoning ability has also been correlated with an increased performance in STEM subjects like chemistry and physics. Spatial reasoning, also referred to as spatial ability, is defined by the APA Dictionary of Psychology as "the ability to comprehend and conceptualize visual representations and spatial relationships in learning and in the performance tasks such as reading maps, navigating mazes, conceptualizing objects in space from different perspectives, and executing various geometric operations" (APA Dictionary of Psychology*,* 2023, n.p.*)*. In chemistry, the ability to visualize atomic structure and planes and rotations of symmetry is a key skill because it enhances the student's understanding of integral topics discussed in class (Oliver-Hoyo & Babilonia-Rosa, 2017). Spatial reasoning, though, is not a skill that is explicitly taught at the high school or college level. This can be a potential cause of "leaks" in the STEM Pipeline because males, on average, tend to have stronger spatial reasoning skills than females; females' decreased spatial reasoning ability could be resulting in fewer females pursuing STEM careers beyond the high school years (Uttall, 2012).

The purpose of this action research is to weave together the ideas of stronger self-efficacy and spatial reasoning ability as a means to prevent leaks in the STEM Pipeline. Reilly et al. stated that "There is a need for longitudinal studies to determine which types of training and at what intervals best support students [with spatial ability] and the extent to which this reduces the gender gap for STEM outcomes" (2016, p. 26). While this study is not longitudinal, it will begin the process of investigating potential relationships between spatial reasoning abilities and self-efficacy in high school chemistry students. Kiernan et al. stated that "Future work might use spatial aptitude tests as a diagnostic tool as well as a pre-test to provide information to students about their individual visuospatial aptitude and inform potential strategies to adopt for successful learning outcomes" (2021, p. 11). Though these researchers acknowledged more research must be done to more fully understand how students engage with and are influenced by spatial reasoning instruction in science classes, they do not explicitly mention investigating the relationship between spatial reasoning abilities and chemistry self-efficacy. For this reason, the

research questions that this paper will answer are as follows. Research Question 1: Does the explicit spatial reasoning instruction grounded in real world chemistry examples (i.e., chiral food molecules) and taught using 3D manipulative models serve as a mastery experience that impacts high school chemistry student's perceived feelings of chemistry self-efficacy? Research Question 2: Does explicit teaching of spatial reasoning skills in a high school chemistry classroom have a differing impact on males' and females' reported perceived feelings of chemistry self-efficacy.

Method

Participants and Demographics- This study was conducted in a western North Carolina suburban public high school serving students grades 9-12. This study was conducted in a block scheduled, half year 10^{th} grade general chemistry class in the Spring 2023 term. Of the 30 total students in the class, 23 of the students assented or consented to having their data included in the study for analysis. Eleven of the 23 students who assented or consented self-identified as male, eleven self-identified as female, and one self-identified as other.

Treatment- The treatment consisted of a series of small exploratory lessons centered around practicing chemistry relevant spatial reasoning skills. The lessons lasted for about 30 minutes a day for 5 days. The lessons were divided into three sections, increasing in complexity and difficulty. The three subsections of the treatment involved 1) drawing molecules like H_2O, NH_3, and CH_4 from different lines of sight, 2) drawing shapes and molecules like H_2O, $CBrClH_2$, and CH_3OH reflected over a mirror plane and determining if the original image and mirrored image shapes/molecules were equivalent, and 3) investigating food relevant molecules whose mirrored image is not equivalent to the original image and therefore results in differing chemical and physical properties.

Data Collection- Students who had obtained parent/guardian consent and assented to participating in the research were asked to fill out a survey prior to the treatment of the spatial reasoning exercises and lessons. To assess students' feelings of chemistry self-efficacy, a pre-and post-treatment survey was administered that included Likert-style and open-ended questions related to how students felt they were able to meet success in their chemistry class. Additionally, teacher observations from each day of the treatment and the students' work artifacts were compiled and reported to shed light on how students were interacting with the spatial reasoning practice problems throughout the week of treatment.

Results

Likert-Style Pre-and Post-Questionnaire- The Likert-style pre-and post-test questions were analyzed in three ways. First, the entire class set was interpreted to see if there were aspects of positive change (identified as a decrease in the number of students *disagreeing* with the statement pertaining to chemistry self-efficacy) or negative change (identified as an increase in the number of students *disagreeing* with the statement pertaining to chemistry self-efficacy). In analyzing the entire classes Likert data, positive change was observed in five of the seven question categories when comparing the pre- and post-survey responses and no change was observed in the remaining two questions. In analyzing the Likert data for the self-identified male students, positive change was observed in five out of the seven categories and no change was observed the remaining two question categories when comparing the pre-and post-survey responses. In analyzing the self-identified female students, positive change was observed in three out of the seven categories and negative change (or an increase in the number of students *disagreeing* or *neither agreeing nor disagreeing* with the statement pertaining to chemistry self-efficacy) was observed in three out of the seven categories.

Student Work Artifacts and Teacher Observations- At the beginning of the treatment, it was evident that students were unfamiliar and not confident in their ability to complete the spatial reasoning tasks. Students required a lot of assistance in first understanding what the tasks were asking and there was a low degree of accuracy in their answers to the tasks. Through the week, however, students grew more familiar with the tasks and started picking up on broader trends in spatial reasoning pertaining to chemistry. Their work samples improved in accuracy throughout the treatment.

Discussion

In summary, the data collected during the treatment indicated that explicit spatial reasoning instruction grounded in real world chemistry examples (i.e., chiral food molecules) and taught using 3D manipulative models has the potential to serve as a mastery experience that positively impacts high school chemistry students' perceived feelings of chemistry self-efficacy (Research Question 1). This conclusion was supported by the positive change observed in the entire class's Likert-style pre-and post- chemistry self-efficacy survey responses, the students' improvement on the spatial reasoning activities, and the students' improved ability to think critically about trends and patterns of the spatial reasoning activities. Students transitioned from being nearly entirely unfamiliar with the spatial reasoning tasks and requiring a lot of

prompting/scaffolding to being able to determine some rules that apply to molecular superimposability. Additionally, using molecules that were olfactorily and gustatorily active in Day 5 of the treatment really peaked student interest. This observation was in alignment with the previous literature that stated student chemistry self-efficacy can be enhanced when food related chemistry is involved in the curriculum. Furthermore, the incorporation of 3-D manipulatives proved to be vital for student success in their spatial reasoning activities; students relied heavily on using the models to check their work and to tangibly visualize what they were trying to visualize mentally. Without the implementation of the models, it would likely have been observed that students' performance on the spatial reasoning activities a did not improve or remained constant.

Regarding Research Question 2, in comparing the Likert-style pre-and post- chemistry self-efficacy responses for the self-identified male and female students, it was evident that the spatial reasoning instruction had a stronger positive impact on the male students than the female students. More positive change was observed in the male responses to the 7 Likert-style questions (5) compared to the female responses (3). Originally, it was hypothesized that female students would respond more strongly to the spatial reasoning instruction as a means to improve chemistry self-efficacy being as women's spatial reasoning skills are often not as developed as males' spatial reasoning skills. It was possible that the female students were more fixated on their "mistakes" during treatment than they were on their areas of improvement and therefore internalized the treatment as one that didn't positively impact their chemistry self-efficacy.

To more thoroughly investigate the relationship between spatial reasoning instruction and chemistry self-efficacy, several modifications should be made. First, the sample size should be larger to diversify the study. Second, increasing the duration of the treatment and allowing students more time to engage with spatial reasoning activities pertaining to chemistry could result in stronger positive changes to students' chemistry self-efficacy. Third, expanding the data collection methods could provide a more comprehensive picture of how spatial reasoning instruction impacts students' chemistry self-efficacy. Lastly, it could be interesting to see how spatial reasoning instruction in other STEM courses like physics or engineering.

References

American Psychological Association. (2023). *APA Dictionary of Psychology*. American Psychological Association. https://dictionary.apa.org/visual-spatial-ability

Bandura, A. (1995). *Social Foundations of thought and action: A social cognitive theory*. Prentice Hall.

Capa-Aydin, Y., Uzuntiryaki-Kondakci, E., & Ceylandag, R. (2018). The relationship between vicarious experience, social persuasion, physiological state, and chemistry self-efficacy: The role of mastery experience as a mediator. *Psychology in the Schools*, *55*(10), 1224–1238. https://doi.org/10.1002/pits.22201

Cheung, D. (2014). The combined effects of classroom teaching and learning strategy use on students' chemistry self-efficacy. *Research in Science Education*, *45*(1), 101–116. https://doi.org/10.1007/s11165-014-9415-0

Howell, E. L., Yang, S., Holesovsky, C. M., & Scheufele, D. A. (2021). Communicating chemistry through cooking and personal health: Everyday applications increase perceived relevance, interest, and self-efficacy in chemistry. *Journal of Chemical Education*, *98*(6), 1852–1862. https://doi.org/10.1021/acs.jchemed.1c00125

Kiernan, N. A., Manches, A., & Seery, M. K. (2021). The role of visuospatial thinking in students' predictions of molecular geometry. *Chemistry Education Research and Practice*, (3), 1–14. https://doi.org/10.1039/d0rp00354a

Oliver-Hoyo, M., & Babilonia-Rosa, M. A. (2017). Promotion of spatial skills in chemistry and biochemistry education at the college level. *Journal of Chemical Education*, *94*(8), 996–1006. https://doi.org/10.1021/acs.jchemed.7b00094

Ozgur, S. D. (2021). Chemistry self-efficacy beliefs as predictors of students' metacognitive skills when solving chemistry problems. *International Online Journal of Education and Teaching (IOJET)*, *8*(1), 132-147.

Reilly, D., Neumann, D. L., & Andrews, G. (2016). Gender differences in spatial ability: Implications for STEM education and approaches to reducing the gender gap for parents and educators. *Visual-Spatial Ability in STEM Education*, 195–224. https://doi.org/10.1007/978-3-319-44385-0_10

Ryan. (2022). *Stem education stats for 2022: Facts on Jobs & Careers, Shortage & Minorities*. iD Tech. Retrieved September 26, 2022, from https://www.idtech.com/blog/stem-education-statistics

Schunk, D. H., & Pajares, F. (2010). Self-efficacy beliefs. *International Encyclopedia of Education*, 668–672. https://doi.org/10.1016/b978-0-08-044894-7.00620-5

Smith, D. W., Lampley, S. A., Dolan, B., Williams, G., Schleppenbach, D., & Blair, M. (2020). Effect of 3D manipulatives on students with visual impairments who are learning chemistry constructs: A pilot study. *Journal of Visual Impairment & Blindness*, *114*(5), 370–381. https://doi.org/10.1177/0145482x20953266

Speer, J. (2021). Bye bye Ms. American sci: Women and the leaky STEM pipeline. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3913037

Wackler, T., Kontos, C., Bridenstine, J., Cordova, F., & Kratsios, M. (2018). *Charting a course for success: America's strategy for STEM Education*. Committee on STEM Education of the National Science & Technology Council.

The Influence of Goal Setting on Student Motivation for English Learners

Anna Bush

with Alan Brown
Wake Forest University
Department of Education
June 2023

Motivation is in an integral component of the learning process where high motivation is related to high learning outcomes (Nugraha et al., 2021). As a result, a wealth of literature has addressed various non-cognitive strategies utilized to improve student motivation. Some of this research has focused on goal setting, with researchers suggesting that a goal acts as a motivating force for students, encouraging them to learn new skills and strategies required to help them achieve their aims (Mikami, 2020; Sullivan & Strode, 2010). Whilst much of this literature has focused on more traditional high school and university environments, it must be acknowledged that the American school system is evolving, specifically in its inclusion of more linguistically and culturally diverse learners (Calderón et al., 2011). Despite their common presence in American schools, immigrant students and English learners may fall behind their peers academically (Jiménez-Castellanos & García, 2017). It cannot be assumed that the instructional methods and strategies employed in a normal classroom setting would have the same effects on a class of English learners. Given the need to ensure all students receive an equitable education in American schools, further research should consider the learning processes of diverse student populations when it comes to goal setting. As a result, this action research study aims to fill this gap by attempting to answer the question: How does goal setting influence student motivation for English learners?

Literature Review

The climate within the United States public school system is rapidly evolving along with our ever-changing society. According to the 2019 census, more than 44.9 million immigrants reside in the United States (Batalova & Esterline, 2022). Despite the growing presence of ELs in general education classrooms, teachers may struggle to implement instructional strategies to help meet their distinct needs (Lee, 2020; Olds et al., 2021). A recent study conducted by Olds et al. (2021) suggests that the presence of an achievement gap between ELs and non-ELs may be a

response to a lack of teacher understanding surrounding what instructional strategies would best meet the unique needs of the population.

For many years, research has shown that a student's motivation influences their learning and performance on academic tasks (Shores & Shannon, 2007). Shores and Shannon (2007) found that in a fifth-grade mathematics class motivation appeared to greatly affect a student's learning and academic performance. The value of motivation in regular education classes has been well established but findings also suggest that it plays a pivotal role for students learning a second language (Dörnyei, 1994; Ellis, 1994; Shih & Change, 2018).

As a result of these findings, some studies have focused on instructional methods and strategies that aim to increase student motivation. Specifically, multiple studies have utilized the instructional method of goal setting to help maintain student engagement and motivation. Duckworth (2015) claims that through helping students develop non-cognitive skills such as goal setting, teachers can build student motivation. A recent study by Rowe et al. (2017) investigating how to improve student engagement in a general classroom concluded that providing students with goal-setting opportunities can work to motivate students.

One of the most frequently used goal setting techniques is SMART goals. This method of goal setting sees the creation of goals that are specific, measurable, attainable, realistic, and timely (Lawlor & Hornyak, 2012). Using a technique such as SMART goals is thought to be beneficial as students who create goals that are specific and difficult were more likely to outperform individuals who instead set more vague and nonspecific goals (Latham, 2004). The benefits of specific goals were highlighted in Schunk's (1983) study, which saw a comparison of elementary student math achievement; half of the class was given a specific goal to reach, and the second half of the class was given a non-specific goal. When results were compared, it was found that those students who were working towards the specific goal, on average, scored higher than their peers. This research tends to suggest that for goals to be successful it is necessary to partake in the appropriate goal setting process.

Methods

The study was conducted at a public elementary school located in the southeastern United States. Ten students from the English as a second language class completed the full consent/assent process and submitted each of the questionnaires and assignments. These ten participants make up the sample for this study.

The researcher conducted a series of goal setting workshops with the students, introducing them to SMART goals and action plans. Collaboratively with the researcher and their classroom teacher, students looked back upon their latest WIDA assessment and identified areas of their reading or writing that they wanted to improve. Once an area had been identified, students helped to create their own SMART goal and accompanying action plan. These goals and action plans were revisited once or twice a week by the researcher and her cooperating teacher.

Data from the study were collected through pre- and post- questionnaires, student artifacts, check-in assessments, and researcher field notes. Each of the questionnaires included twelve statements that students responded to via a four-point Likert scale. Each question asked students to rank the degree to which they agreed with the statement. Each number on the Likert scale was represented by a facial expression on an emoji. If the students strongly agreed with the sentiment of the statement, they circled the happiest face, which represented a four; if they did not agree with the sentiment at all, they would circle the saddest face, which represented a one. The post-questionnaire included the same 12 questions outlined in the pre-questionnaire but additionally included two open-ended questions asking the students to reflect on their learning this semester.

Artifacts included various worksheets completed by the students during the research period such as their brainstormed goals and action plans. Halfway through the study the researcher conducted mini check-in assessments to help monitor student progress towards their goals. Throughout the study, the researcher also observed the students and their interactions with their coursework, looking for verbal and non-verbal signs of motivation change.

Results

All ten participating students reported in the post-questionnaire that they had found learning about and using goal setting to be helpful. These subjective reflections from the students were supported by the quantitative data collected from the pre- and post-questionnaires measuring student motivation. The results indicated that eight out of the ten students' motivation levels increased from the pre-questionnaire where the average score was 41.4/48 to the post-questionnaire where the average score was 43/48.

The data saw large positive shifts from the pre- to post-questionnaires for three questions. The first was question seven, where students responded to the prompt “I enjoy doing my schoolwork.” Prior to the unit, students averaged a 2.6 out of 4; at the conclusion of the unit, the

average response of students increased by .06 to a 3.2. This suggests that they agreed more with the written statement at the conclusion of the goal setting unit. Question 10 also saw a significant positive increase after reverse scoring. In the pre-questionnaire, participant's responses averaged a 3 when responding to the statement, "I would rather practice something I do well than learn something new." On average, scores increased in the post-questionnaire by .05 improving the average to 3.5. The final question also saw a large positive shift with students responding to the prompt, "I give my best attention during my English learning class." On the pre-questionnaire, the average response by the students was a 3.5; in the post-questionnaire the response increased to an average of 3.8.

The student artifacts collected were able to provide further insights into how the students responded to the goal setting process. The results showed that students who had a greater understanding of the goal setting process were more likely to see higher increases in motivation. The group of students who were able to identify and describe each section of the SMART acronym, provide an example, and highlight why a person sets a goal, averaged a 3.8-point increase in motivation from pre- to post-questionnaires. The groups that struggled to describe the acronym, provide an example, and explain a possible why, recorded averages of +1 and -2 from pre- to post-questionnaires. Students that could connect their goal to a larger purpose tended to report higher motivation scores in the post-questionnaire. The four students who reported that the skills they learnt in the goal setting unit would help them in the future demonstrated increased motivation scores from the pre-questionnaire to the post-questionnaire with an average increase of 3.75 points. The findings also suggest that students who were specific in their goal setting and within their action plans recorded larger increases in their motivation scores over the six-week period. Comparably, students who used broad terms in their action plans and did not describe their action plan steps in detail were more likely to record decreases in motivation from the pre- to post-questionnaire scores.

Discussion

The findings from this study, suggest that student participation in goal setting activities helped to improve their motivation within their English as a second language classroom. The data found that most of the students saw an increase in motivation scores from the pre-questionnaire to the post-questionnaire. This finding is consistent with previous scholarship whose findings also demonstrate a positive relationship between goal setting and student

motivation (Mikami, 2020; Rowe et al., 2017; Sullivan & Strode, 2010). The data collected from this study highlights various aspects of the goal setting process and its relevance for elementary-aged English learners. This study emphasized how students who understood the nature of SMART goals, the process of setting goals, and the why behind the process were more likely to see increases in their motivation. This finding could be related to what Locke (1996) describes as a conscious approach to goal setting where increased performance is related to understanding and engaging cognitively throughout the goal setting process. The findings of this current study also indicate a relationship between specificity and increased levels of student motivation. This further suggests that students who use specific wording and detailed action steps are often more motivated by the goal setting process than students who do not. These findings are consistent with previous literature published in the field, including Latham's (2004) claims that individuals who set specific goals will outperform those who set vague, nonspecific goals. These results echo similar sentiments to Schunk's (1983) where students who set specific goals scored higher than those who used non-specific, broad goals.

Ultimately, the findings of this study align themselves with the plethora of existing research that supports the benefits of goal setting in the classroom environment. As Latham (2004) states, the process of setting goals helps to motivate people to attain or use the knowledge necessary to reach those goals. The results from this study seem to suggest that these previous findings may also extend to elementary-aged English Learners.

References

Batalova, J., & Esterline, C. (2022, March 17). *Frequently requested statistics on immigrants and immigration in the United States*. Migration Policy Institute. https://www.migrationpolicy.org/article/frequently-requested-statistics-immigrants-and-immigration-united-states-2022

Calderón, M., Slavin, R., & Sanchez, M. (2011). Effective instruction for English learners. *Future of Children, 21*(1), 103–127. https://doi.org/10.1353/foc.2011.0007

Dörnyei, Z. (1994). Motivation and motivating in the foreign language classroom. *The Modern Language Journal*, *78*(3), 273-284. http://dx.doi.org/10.1111/j.1540-4781.1994.tb02042.x

Duckworth, A. (2015). *OECD report of skills for social progress: The power of social emotional skills.* The Organization for Economic Co-operation and Development (OECD). https://www.oecd.org/education/ceri/seminarandlaunchofthereportskillsforsocialprogressthepowerofsocialandemotionalskills.htm

Ellis, R. (1994). *The study of second language acquisition*. Oxford University Press.

Jiménez-Castellanos, O. H., & García, D. (2017). School expenditures and academic achievement differences between high-ELL-performing and low-ELL-performing high schools. *Bilingual Research Journal*, *40*(3), 318-330. https://doi.org/10.1080/15235882.2017.1342717

Latham, G. P. (2004). The motivational benefits of goal-setting. *Academy of Management Perspectives*, *18*(4), 126–129. https://doi.org/10.5465/ame.2004.15268727

Lawlor, K. B., & Hornyak, M. J. (2012). Smart goals: How the application of smart goals can contribute to achievement of student learning outcomes. *Developments in Business Simulation and Experiential Learning, 39,* 259-267. https://absel-ojs-ttu.tdl.org/absel/article/view/90

Lee, S. (2020). Analysis of the effect of school organizational culture and professional learning communities on teacher efficacy. *Integration of Education*, *24*(2), 206-217. https://doi.org/10.15507/1991-9468.099.024.202002.206-217

Locke, E. A. (1996). Motivation through conscious goal setting. *Applied and Preventive Psychology*, *5*(2), 117–124. https://doi.org/10.1016/s0962-1849(96)80005-9

Mikami, Y. (2020). Goal setting and learners' motivation for extensive reading: Forming a virtuous cycle. *Reading in a Foreign Language*, *32*(1), 28–48. https://doi.org/10125/66575

Nugraha, D. Y., Nugraha, D., & Widyastuti. (2021). The correlation between learning motivation and learning outcomes on mathematics subjects in XII science class senior high school 4 bone. *Anatolian Journal of Education*, *6*(1), 157–166. https://doi.org/10.5430/wje.v11n3p18

Olds, J., McCraney, M., Panesar-Aguilar, S., & Cale, C. (2021). Adopting instructional strategies for English language learners in elementary classrooms. *World Journal of Education*, *11*(3), 18–29. https://doi.org/10.5430/wje.v11n3p18

Rowe, D. A., Mazzotti, V. L., Ingram, A., & Lee, S. (2017). Effects of goal-setting instruction on academic engagement for students at risk. *Career Development and Transition for Exceptional Individuals*, *40*(1), 25–35. https://doi.org/10.1177/2165143416678175

Schunk, D. H. (1983). Developing children's self-efficacy and skills: The roles of social comparative information and goal setting. *Contemporary Educational Psychology, 8*, 76-86.

Shih, H., & Change, S. (2018). Relations among L2 learning motivation, language learning anxiety, self-efficacy, and family influence: A structural equation model. *English Language Teaching*, *11*(11), 148–160. http://doi.org/10.5539/elt.v11n11p148

Shores, M. L., & Shannon, D. M. (2007). The effects of self-regulation, motivation, anxiety, and attributions on mathematics achievement for fifth and sixth grade students. *School Science and Mathematics, 107*(6), 225-236. http://doi.org/10.111/j.1949-8594.2007.tb18284.x.

Sullivan, G. S., & Strode, J. P. (2010). Motivation through goal setting: A self-determined perspective. *Strategies: A Journal for Physical and Sport Educators*, *23*(6), 19–23. https://doi.org/10.1080/08924562.2010.10590899

Having Fun & Learning Deeply:
Constructivist Assessments in a Social Studies Classroom

Molly Dwyer

with Adam Friedman
Wake Forest University
Department of Education
June 2023

Introduction

The archetype of history as a subject full of droning lectures, lists of meaningless facts, and unengaging teachers is rampant in popular culture, and at times unfortunately finds a foothold in many students' lived experiences. Yet the teaching of social studies is an untapped wealth of opportunities for student creativity and meaningful connection to content, as "history holds the potential… of humanizing us in ways offered by few other areas in the school curriculum" (Wineburg, 1999, p. 490). Recent developments in social studies education have seen a push away from factual memorization and towards an inquiry model, which focuses on students' answering of complex compelling questions through engagement with primary and secondary resources (National Council for the Social Studies, n.d.).

Another rising method in social studies is the use of constructivist assessments such as project-based learning, a student centered pedagogy in which "students learn by actively engaging in real-world and personally meaningful projects" (What Is PBL?, n.d.). Inquiry and constructivist assessment models such as project-based learning have the potential to engage students with what Wineburg refers to as the "humanizing" aspects of history through meaning-making in the classroom while also allowing students to build historical thinking skills such as causation, historical perspective taking, and establishing historical significance (1999). This study seeks to understand student perceptions of the use of Canva projects as an assessment tool and discover how these projects impact student achievement on historical thinking skills and student interest in the social studies.

Literature Review

Meaningful social studies education must rest upon a foundation of inquiry if it seeks to cultivate civic competence within students (National Council for the Social Studies, n.d.). Inquiry centers learning on the student and allows students' individual experiences, beliefs, and

knowledge to shape their interaction with curriculum material. As students explore primary sources through an inquiry lens, they engage in historical and critical reasoning skills to answer open-ended questions with evidence and textual support.

Learning to analyze primary sources is a key component of teaching students to practice the disciplinary skills of historians (Wineburg, 1991). As students learn to read primary sources as historians, they engage in sourcing, questioning, and inferring, further developing their inquiry and analysis skills, which are key goals of social studies education (National Council for the Social Studies, n.d.). While many primary sources are textual, a wealth of historical information can be accessed through the analysis of visual primary sources. Teaching students to use and analyze visual sources is vital, especially considering how visually and digitally focused the 21st century has become as images now are "central to communication and meaning-making" (Felten, 2008, p. 60).

As the teaching of social studies has moved increasingly away from remembering facts and events to an emphasis on active inquiry learning, constructivist theory becomes readily applicable to the social studies classroom (Hicks et al., 2004). In addition to supporting the practice of inquiry learning, Doolittle and Hicks propose constructivism as a theoretical framework for the integration of technology in the social studies (2003). The current study builds upon this foundation of constructivism as a basis for technology integration, specifically the use of Canva.com, and incorporates several key tenets of constructivism defined as by Doolittle and Hicks (2003). Students in a constructivist classroom are encouraged not only to represent key factual information but to construct claims based in historical evidence that are guided by their own interests and ideas (Dimock, 1999; Doolittle & Hicks, 2003; Heafner & Friedman, 2008).

This current study proposes Canva.com as a method through which students can conduct inquiries, analyze primary sources, and communicate conclusions to their community. Doolittle and Hicks conclude that "the construction of knowledge is fostered by authentic and real-world environments" and creating projects on Canva.com provides these real-world environments in which students can develop meaningful and applicable skills. If education is to prepare students for college, career, and civic life, project creation on a digital site such as Canva.com provides a place for students to practice the fundamental skills they will use beyond the classroom, skills such as reasoned decision-making, sustained inquiry, and the communication of conclusions (National Council for the Social Studies, n.d.).

Methodology

This study was conducted in an American History 2 class in a North Carolina public high school during the spring of 2023. Sixteen students in the class returned adult student consent or parental consent forms, and only these students were involved in the study. Students individually created their Canva projects over two 90-minute class periods. Their projects were required to include visual primary sources, analysis of these images, and specific content vocabulary. The Canva projects were structured with elements of constructivism and student choice, where students were provided with the following prompt and project requirements, but they could interpret the prompt in any direction they wanted: Using four (or more) primary source images, how would I represent the 1920s?

The Canva projects were graded with a rubric and analyzed by the researcher for content knowledge, historical thinking skills, and engagement with class material. Students were divided into three groups based on achievement on the Canva project rubric. After completing the project, students completed a post-project survey that included likert-type and open-ended questions. Likert-type question responses were analyzed for trends across the whole class and small group data. Researchers in this study used grounded theory coding methods to analyze emergent themes in students' qualitative survey responses. Finally, student artifacts were analyzed by the teacher for evidence of student creativity and historical thinking skills.

Results

Student Canva projects were graded using a predetermined rubric, and when looking at the whole class data, students excelled in this project ($M = 17.1$, Median = 18.5, $SD = 4.184$). The results of both quantitative and qualitative student survey data indicate that a large majority of students responded positively to this project. Student responses to the seven Likert scale survey questions illustrate that students overwhelmingly reported being able to exercise their creativity and engage in historical thinking skills during this project. 100% of students agreed or strongly agreed that this project allowed them to creatively express their knowledge of the 1920s, and 93.7% of students reported that they felt the project allowed them to express their creativity. Reflecting on the specific skills required in this project, 87.6% of students reported that they enjoyed using primary source images in this project, and 81.3% of students reported that they believe Canva to be a valuable technology skill.

Qualitative data also supports these findings. Students shared what they learned from the project and four main themes emerged in their responses: historical cause and effect/change over time, the role of women, the Harlem Renaissance, and an expanding knowledge about different parts of 1920s society. Four students clearly identified historical cause and effect/change over time in their answer. Laila, a student in the mid-achieving group, identified that the project helped her make connections between historical events; "i [sic] learned about how ww1 [sic] had a big effect on the 1920 and that 1920 effected [sic] the great depression." These emergent themes illustrate that students were able to exercise key historical thinking and analysis skills in the project.

When asked to share what they enjoyed about this project, four themes emerged from students' responses: the opportunity to represent knowledge, using images, the opportunity to learn more about the topic, and the ability to be creative. The most common theme, creativity, was identified by nine students. Nova, a student in the high-achieving group, said that she enjoyed "being able to be creative," and Katie, a student in the high achieving group, mentioned that she enjoyed "using canva [sic] for my creativity I have heard of it before but never fully used it and it was fun to do that." Four students mentioned that they enjoyed using images in this project. Israel, a student in the low-achieving group, said that "I really [enjoyed] the way we had to describe a picture taken from the 1920's and how it impacted society then."

The two most salient themes across all qualitative data were enjoyment in learning about different parts of society in the 1920s and enjoyment in representing this knowledge in creative and non-traditional ways. Between the "enjoyment" and "learning" survey questions, students mentioned creativity and individual representation of knowledge seventeen times, and they mentioned learning about different aspects of 1920s culture and society sixteen times. The teacher's observations of student artifacts also supports these themes, as student creativity in design and variety in photograph and subject choices were evident.

Discussion

The results of this study appear to support the hypothesis that individual student projects created on Canva can be a successful teaching method that allows students to utilize their creativity, express content knowledge, and practice critical and historical thinking skills. This project was designed to engage students in the historical thinking skills of historical causation and analysis, and qualitative data displays how students across all three achievement groups were

successfully able to demonstrate these skills during the project. As such, it can be inferred that this project was a successful method of teaching students to practice historical thinking skills and demonstrate content knowledge through a creative assignment.

Not only did students demonstrate high levels of understanding on the project itself as well as on the post-project survey, but students also reported high levels of enjoyment when reflecting on the project. One of the primary goals of social studies education is to "help young people make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world" (National Curriculum Standards for Social Studies: A Framework for Teaching, Learning, and Assessment, 2010). A large portion of this goal can be achieved through helping students develop a curiosity and desire to learn, and thus educators should seek to create assignments that are both challenging and enjoyable. Based on student rubric scores and on the number of positive student responses to the post-project survey, this assignment can be considered to have successfully achieved both of these goals. Overall, these results demonstrate that a constructivist Canva project that incorporates visual primary sources and student choice can be an effective form of social studies instruction. Although these results are specific to a particular time and place, high student achievement on this project and positive reactions of students in the post-project survey suggest that integrating assignments like this in the classroom may lead to positive outcomes.

As an action research study, this study has limitations when related to generalizability. The small sample size of this study, sixteen students, did not reflect the size of the entire class (29 students) nor was it a random sampling of all students at a specific school. Because this study was conducted with a specific class, teacher, and in a specific environment, there is no guarantee that these results could be repeated in another classroom. However, these are common limitations in action research studies, and thus should not be considered reasons to discount the results of this study. Another limitation of this study could be that even though students expressed a significant amount of enjoyment in this project, this could have been a result of a novelty effect. This was the first time that students used Canva in this class, and thus they could have simply enjoyed a change in instructional methods rather than specifically enjoying Canva as a platform. Finally, the results of this study may have been influenced by any number of mitigating factors, including but not limited to; teacher personality, class demographics, students with other assignments, and out of school contexts.

This study provides a wealth of opportunities for further research such as modifying the assignment design, completing the project after a different class unit of study, or conducting a similar study in a different classroom or school setting. One interesting direction for future research could be to modify the assignment so that students worked in pairs or small groups. This could provide an opportunity for increased student collaboration and possible positive social-emotional learning outcomes. Further research that could increase the generalizability of these results could be to complete a similar assignment in a different classroom or with a different unit of study, such as World War II or the Civil Rights movement.

Although it was not possible in the context of this research study, it would be interesting to further investigate possible connections between project assignments and content retention. A study could be designed in which content retention is compared between curriculum units where students completed a project as opposed to those in which they simply took a unit test. In sum, this study provides a platform for future research into the many positive effects of implementing constructivist, technology based, primary source analysis projects into social studies classrooms.

References

Buck Institute for Education. (n.d.). What is PBL?. PBLWorks. https://www.pblworks.org/what-is-pbl

Dimock, K. V. (1999). *Constructing knowledge with technology* (p. 59). Southwest Educational Development Lab.

Doolittle, P. E., & Hicks, D. (2003). Constructivism as a Theoretical Foundation for the Use of Technology in Social Studies. *Theory & Research in Social Education*, *31*(1), 72–104. https://doi.org/10.1080/00933104.2003.10473216

Felten, P. (2008). Visual Literacy. *Change*, *40*(6), 60–65.

Heafner, T. L., & Friedman, A. M. (2008). Wikis and constructivism in secondary social studies: Fostering a deeper understanding. *Computers in the Schools*, *25*(3–4), 288–302. https://doi.org/10.1080/07380560802371003

Hicks, D., Tech, V., Lee, J., Berson, M., Bolick, C., & Diem, R. (2014). Guidelines for using technology to prepare social studies teachers. *Contemporary Issues in Technology and Teacher Education*, *14*(4), 433–450.

National Council for the Social Studies. (n.d.). *College, Career, and Civic Life (C3) Framework for Social Studies State Standards | Social Studies*. Retrieved September 26, 2022, from https://www.socialstudies.org/standards/c3

National curriculum standards for social studies: A framework for teaching, learning, and assessment. (2010). https://www.socialstudies.org/standards/national-curriculum-standards-social-studies

Wineburg, S. S. (1991). On the reading of historical texts: Notes on the breach between school and academy. *American Educational Research Journal, 28(3),* 495-519.

Wineburg, S. S. (1999). Historical thinking and other unnatural acts. *Phi Delta Kappan*, *80*(7), 488–499.

"Why Is There a Cage in Central Park?": The Impact of Political Art on Engagement and Understanding in Civics

Elena Ecelbarger

with Adam Friedman
Wake Forest University
Department of Education
June 2023

A 2021 survey conducted by Common Sense Media found a seventeen percent increase in screen use among children ages eight to eighteen from 2019 to 2021, with teenagers spending an average of eight hours and thirty-nine minutes per day in front of a screen (Wenner Moyer, 2022). Additionally, from 2019 to 2021, the percentage of eight- to twelve-year-olds who use social media has risen from 31 to 38 percent (Wenner Moyer, 2022). Despite these statistics, there remains to be a lack of noticeable emphasis placed on visual literacy within K-12 curricula, which would provide students with the skills to view the countless images they encounter with an active, critical eye and allow them to perceive images as capable of possessing deeper meaning than what is immediately discernible to a passive observer (Harrison, n.d.).

Historical works of art do not exude the realism and sway of written texts, verbal lectures, photographs, or documentaries, and their blatant subjectivity makes them valuable for historical inquiry. They do not hide the fact that they have bias, so they more readily invite students to view them with an inquisitive, or even skeptical, eye. Given the image saturation that students experience in the twenty-first century, they must be given the tools necessary to not only investigate the meanings of these images but also to evaluate their biases and the perspectives that underlie them. The secondary Civics classroom is an ideal place for these types of visual literacy skills to be developed, as the prevalence of powerful and persuasive political imagery has become a highly accessible and influential communication mechanism for government leaders and citizens alike to convey their political opinions through. Political art can be used to help students develop a deeper understanding of civic mechanisms, the historical contexts they are rooted in, and the individuals that they affect on a day-to-day basis.

Literature Review

Benefits of Integrating Visual Arts with Social Studies

Supports the Development of Visual Literacy Skills

In the midst of the "pictorial turn"—the shift from a text-based society to an image-based society—that has arisen in Western culture in the twenty-first century, Felten (2008) posits that "images no longer exist primarily to entertain and illustrate. Rather they are becoming central to communication and meaning-making" (p. 60). Integrating art historical inquiry into the Social Studies classroom is one strategy teachers can use to develop their secondary students' visual literacy skills. Every element of an artwork is placed with intention, and art historical inquiry leaves it up to the student to evaluate the extent to which each element holds a key to unlocking the overall message of the work.

Increases Student Engagement with and Understanding of the Material

Taylor et al. (2014) conducted a study among teachers of a diverse array of levels and content areas in a Midwestern state to learn about whether they use and how they perceive visual arts integration. Among the Social Studies teachers surveyed, the majority reported that incorporating visual arts into their lessons increased student engagement, interest, and understanding of the material, and helped their students think critically about historical and contemporary perspectives different from their own (Taylor et al., 2014).

Roots History in Something Tangible

Burstein and Knotts (2010) assert that "using the arts extends student understanding by providing a context, often a tangible product, which then connects them to the content in real, explicit, and relevant ways" and that "students can use the arts as an alternative pathway to demonstrate how they make sense of concepts, vocabulary, and content in social studies" (p. 20).

Facilitates Cultural Learning

Integrating the visual arts with Social Studies is a natural way to facilitate learning about cultural differences and how various cultures have changed over time as showcased by their artistic production, which can thereby increase students' understanding of those cultures (Burstein & Knotts, 2010). Visual art integration with Social Studies also helps students view artists as people with cultural identities and memberships, which facilitates their understanding of *all* historical figures as people with cultural identities and memberships as well (Sizemore, 2011).

Political Art as a Subset of Inherently Subjective Art

Political art as a broad category includes works of art "with overtly political subjects or messages made to express criticism of the existing state of affairs" on a local, national, or

international scale (*Identifying Political and Historical References in Art*, n.d., para. 1). Because the creators of political art use it to communicate an important message about a political opinion they hold, their art is innately biased to reflect their perspective and views, and it becomes difficult to see their work as an objective portrayal of reality. This quality of political art may invite students to engage with it in a similar manner as they would with other blatantly human art forms (Singer Gabella, 1994).

Civic Education is Rooted in Historical Understanding

Barton and Levstik (2009) view historical knowledge as a crucial component of understanding what it means to be an active participant in democracy in the modern day. Using political works of art within Civics lessons may prompt students to uncover the historical context in which the works were created and why the artists felt compelled to create them, both of which can be used to develop a more comprehensive understanding of how a particular governmental feature functions and impacts its citizenry.

The literature suggests there are numerous benefits associated with historical inquiry and the integration of the visual arts with Social Studies concerning student engagement. This study seeks to examine the intersection of these two disciplines in the form of art historical inquiry of political artworks. Ultimately, this study asked the question: How does centering a Civics lesson around an art historical inquiry of political art influence student understanding and engagement?

Methodology

This study took place in a standard-level Civics class at a high school in the southeast United States during the spring semester of 2023. To assess their understanding of Executive Orders and First Amendment rights before the intervention, students answered a mixture of multiple-choice, fill-in-the-blank, and free-response questions on the pretest. The pretest also measured students' initial interest in these two Civics topics.

The intervention took two and a half days of class to complete. The first day was designed to provide students with background information that they would need before they could engage in independent analyses of the focus work. After reviewing Executive Orders with students, I introduced them to political art, which I framed as a way to exercise one's First Amendment rights to protest government actions that they disagree with (including Executive Orders). Next, I broke down the essential components of visual analysis and framed them as the

"puzzle pieces" necessary to uncover a work of art's deeper meaning—the artist's background and the work's title, historical context, audience, and medium.

On the second day of the intervention, I introduced students to the focus work, *Good Fences Make Good Neighbors* by Ai Weiwei, which was a large-scale installation of more than 300 individual works throughout New York City in late 2017 and early 2018 designed to draw the public's attention to the plights and mistreatment of immigrants in the U.S. and around the world. Because this work was designed and implemented in part in response to former President Trump's hard stances on immigration and his Executive Orders restricting immigration into the U.S., specifically from predominantly-Muslim countries, there was a natural tie-in to be made between this work and Executive Orders. Students worked through a visual analysis worksheet in groups using a provided resource guide to try to uncover the main message or meaning of the work. To reinforce the idea that each of these five components is like a puzzle piece that is necessary for solving the larger puzzle of an artwork's meaning, I awarded each group with a puzzle piece for each box they completed. After filling out all the boxes and finishing their puzzle, they would see that their completed puzzle spelled out, "What does it mean?" to indicate that they should now work together to think about all of those visual analysis components together to decode the artwork.

The final day of the intervention was a wrap-up day. Students shared with their classmates what insights their groups came up with for each of the five visual analysis elements that could lend hints to what Ai Weiwei's intended message was when creating the work. Immediately following this wrap-up discussion, students took a posttest, which assessed their understanding of Executive Orders and First Amendment rights and attempted to gauge how impactful the intervention was in shifting the way students thought about these Civics topics.

Results

There were 27 students whose data were included in this study for meeting all inclusion criteria. These students were sorted into three groups based on their results in the content knowledge section of the posttest. Ten students scored within the range of 10/12 to 12/12 on the posttest, and they will subsequently be referred to as "Group 1." Nine students scored within the range of 8/12 to 9/12 on the posttest, and they will subsequently be referred to as "Group 2." Eight students scored within the range of 0/12 to 7/12 on the posttest, and they will subsequently be referred to as "Group 3."

Pretest and Posttest

- *Average Group Content Knowledge Scores on Pretest and Posttest* — Group 1: Pretest = 76%, **Posttest = 90%**; Group 2: Pretest = 55%, **Posttest = 72%**; Group 3: Pretest = 44%, **Posttest = 43%**
- *Average Group Engagement with Executive Orders & First Amendment Rights on Pretest and Posttest* — Group 1: Pretest = 68%, **Posttest = 70%**; Group 2: Pretest = 67%, **Posttest = 80%**; Group 3: Pretest = 70%, **Posttest = 70%**
- Posttest Question Only: *Yes or No: Did learning about* Good Fences Make Good Neighbors *in the context of Executive Actions and Orders influence the way you think about Presidential powers and First Amendment rights?* — Group 1: **Yes = 89%**, No = 11%; Group 2: **Yes = 88%**, No = 12%, Group 3: **Yes = 71%**, No = 29%

Visual Analysis Graphic Organizer

As the primary work sample showcasing their engagement with the intervention, students completed a Visual Analysis Graphic Organizer in small groups in which they filled out information they learned and inferred about the focus work. Students' grades on this activity were based on their demonstrated level of engagement with it. A score of 100% denotes all boxes having been thoroughly filled out with multiple sentences containing substantive thoughts and interpretations about the artwork. Scores below 100% reflect varying degrees of incompletion and surface-level sentences that do not reflect deeper engagement with the artwork. *Average Group Performance on Visual Analysis Graphic Organizer* — Group 1: 100%; Group 2: 98%; Group 3: 86%

Discussion

The data from this study reveal that engagement with the focus Civics topics, the visual analysis activity, and political art is not necessarily a good predictor of content knowledge of these Civics topics, and vice versa. Rather, students with varying degrees of knowledge concerning Executive Orders and First Amendment rights had comparable interest levels in these topics before and after the intervention. Many students also displayed notable increases in their knowledge of the focus Civics topics after completing the intervention. Additionally, the fact that an overwhelming majority of the whole sample (83%) reported that they *did* shift how they thought about Executive powers and First Amendment rights after learning about *Good Fences*

Make Good Neighbors supports the notion that integrating political art has the power to engage students of all knowledge levels in Civics topics.

One of the main limitations of this study is the small sample size, which is difficult to avoid due to the nature of action research. Another limitation is the fact that it only involved a single intervention with one set of focus Civics topics and one focus artwork. This was largely due to curricular time constraints, as well as time restraints posed by the teaching licensure process.

The results of this study align with previous studies that have been conducted on visual art integration in school and how they can positively affect student engagement with the learning material. For instance, Taylor et al.'s (2014) study found that most Social Studies teachers surveyed reported increased student engagement with the material. I will definitely continue to integrate political art and art as a whole with my Social Studies teaching as a means to engage my students in the content and potentially further the way they understand it.

References

Activist art. (n.d.). Tate. Retrieved October 8, 2022, from https://www.tate.org.uk/art/art-terms/a/activist-art

Barton, K., & Levstik, L. (2009). *Teaching History for the Common Good*. Lawrence Erlbaum Associates.

Burstein, J. H., & Knotts, G. (2010). Creating connections: Integrating the visual arts with social studies. *Social Studies and the Young Learner*, *23*(1), 20–23.

Felten, P. (2008). Visual literacy. *Change: The Magazine of Higher Learning*, *40*(6), 60–64. https://doi.org/10.3200/CHNG.40.6.60-64

Harrison, K. (n.d.). *What is visual literacy?* Visual Literacy Today. Retrieved September 21, 2022, from https://visualliteracytoday.org/what-is-visual-literacy/

Identifying political and historical references in art. (n.d.). Artsology. Retrieved October 8, 2022, from https://artsology.com/political-and-historical-art.php

Lentz, A., & Buffington, M. L. (2020). Art + politics = activism: The work of Ai Weiwei. *Art Education*, *73*(1), 52–58.

Singer Gabella, M. (1994). Beyond the looking glass: Bringing students into the conversation of historical inquiry. *Theory & Research in Social Education*, *22*(3), 340–363. https://doi.org/10.1080/00933104.1994.10505728

Sizemore, J. (2011). *Integrating social studies and the arts: Why, when, and how*. Kentucky Educational Television. https://www.kentuckyteacher.org/wp-content/uploads/2011/06/Integrating-Social-Studies-Arts.pdf

Taylor, J. A., Monck, T., & Ayoub, S. (2014). Arts integration in the social studies: Research and perspectives from the field. *The Councilor: A Journal of the Social Studies*, *75*(1), 27.

Wenner Moyer, M. (2022). *Kids are using social media more than ever, study finds*. The New York Times. https://www.nytimes.com/2022/03/24/well/family/child-social-media-use.html

The Privilege of Wonder

Courtney C. Fadley

with Debbie French
Wake Forest University
Department of Education
June 2023

Introduction

Wonder is built upon wonder. The role of an educator is to teach students how to intellectually reach out and find the things hidden from them, to explore, connect and create new understandings (Duckworth, 2006). But, as educators, are we simply prescribing wonderful ideas instead of engaging all "children's ideas, experiences, and ways of talking and knowing" (Calabrese Barton et al., 2011, p. 255)? Inquiry has been considered a best practice for decades, yet "today, inquiry in the science classroom is advocated and expected yet surprisingly rare and enigmatic" (Crawford, 2014, p. 516). Although there is agreement that inquiry or question-asking should happen in classrooms, there is still disagreement on what components make it most effective, especially in diverse classrooms (Crawford, 2014).

This study measures the impact of learner-centered, culturally-relevant teaching on students' curiosity and wonderment as evidenced by authentic inquiry (the number and types of questions asked) throughout a series of lessons adapted from the Ambitious Science Teaching Framework (Windschitl et al., 2020). "The more we help children to have their wonderful ideas and to feel good about themselves for having them, the more likely it is that they will someday happen upon wonderful ideas that no one else has happened upon before" (Duckworth, 2006, p. 14). That is the privilege of wonder! Is it also the source of resistance to change?

Literature Review

Inquiring minds are active; they ask questions as a learning process and do not statically await knowledge to be revealed (Dewey, 1910). In addition, to learn, students must connect their unique histories, ideas, experiences, and knowledge base to new information (Calabrese Barton et al., 2011). As such, "it is our job as educators to not just teach skills, but also teach students to know, validate, and celebrate who they are" (Muhammad & Love, 2020, p. 69).

Inquiry is not only about asking the right questions but also at the right time and in the right way, positioning both teacher and student as inquirers. A shift in how we view teaching and

designing lessons to invoke and involve all students in a way that teachers cannot anticipate is unsettling (Stroupe, 2023). In 1995, Ladson-Billings coined the term *culturally relevant pedagogy, "*a theoretical model that not only addresses student achievement but also helps students to accept and affirm their cultural identity while developing critical perspectives that challenge inequities that schools (and their institutions) perpetuate" (p. 469). However, without involving student questions in science teaching, it disallows access to an identity as a scientist.

When considering the current measure of quality education is test scores, the assessment-based system is built without much time to explore or adjust for variance in ideas or experiences amongst students or educators. When students pass the minimum requirements, they move on to the next level, regardless of how many wonderings they had, ideas they explored, or expertise they developed as individually contributing learners. To shift toward proven and effective inquiry-based and culturally-relevant models, "more studies in diverse classrooms [are needed] on how children learn and take on identities as science learners" (Crawford, 2014, p. 536).

Methods

The purpose of this study is to measure the impact of using student-centered, culturally relevant teaching methods on students' curiosity and wonderment, as evidenced by the number and type of students' questions. The setting was a public middle school science classroom in North Carolina in March of 2023. The school demographics were 3% Asian, 35% Black, 23% Hispanic, 34% White, 5% two or more races, and <1% Native/Pac. Islander. 48% of students were considered economically disadvantaged. 100% of students returned assent forms (29), and 66% (19) returned parents/guardians' informed consent forms.

Data Collection & Analysis

Overview

The unit consisted of five non-consecutive, 55-minute lessons created utilizing natural phenomena and student-centered, inquiry-focused practices based on the Ambitious Science Teaching framework where teachers plan for "[engagement] with big science ideas," then "[elicit] student ideas," followed by "supporting ongoing changes in students' thinking," and finally, students "[draw] together evidence-based explanations" (Windschitl et al., 2020, Fig. 1.1). For each lesson, the guiding question was adapted to connect student interests and curiosities from the prior class to science content. Data were collected on *wonderboards,* a researcher-created classroom tool where students wrote and/or drew observations, wonderings,

and learnings. The researcher developed rubric, based on the work of Goodwin (2001) and Bianchi (2014), recorded the number and types of questions asked. A pre-post survey measured comfort and appreciation for curiosity in science. Students demonstrated content understanding through discussion, group work presentations, and individual creation of diagrams and charts.

Table 1

Flow of Unit by Day

Day 1 Guiding Wonder: Why am I here? Wondering about wondering.		
Activity 1	Activity 2	Activity 2
Brief introduction Why I am here (without disclosing actual research topic) **Pre-survey**	*Book read aloud:* "What do *you* wonder?" "What do *you* question?" What do *you* want to find out?"	*Wonderboard introduced* with "wonderings" that drive the instruction for the day. Wonderings and observations can be a word, a picture, a question, a statement… They're yours to observe and wonder! (use colors and write in your preferred language if you like)
Day 2 Guiding Wonder: All of these rocks came from NC - why are they all so different?		
Activity 1	Activity 2	Activity 3
Wonderboard 1 (only 2 columns) Review: observation vs. wondering. *Phenomena introduced:* All of these rocks came from NC, why are they all so different? Discuss at tables. Write on wonderboards.	*Musical Rocks* Pass **rocks** around noting differences. When the music stops, write down observations and wonderings.	Choose a rock bag from your table. Write 2-3 observations. Compare with a partner, add 1-2 more observations/wonderings. Class discussion - add to big wonder board. Sort the rocks at your table into 3 categories. *Predict rock types*. Draw a table with 3 columns, add category headings based on your observations and group discussion. How are rocks different? How would you label each category to identify them?
Day 3 Guiding Wonder: They are all rocks. WHAT makes them SO different?		
Activity 1	Activity 2	Activity 3

Any additional predictions? **Wonderboard 2** (now 3 columns) Pictures of rock types, no names. Are these your categories? *Phenomenon Review:* New ideas? (dramatic pause)	Video: 3 rock types. What makes them different? (heat, pressure, time, minerals) What makes us different?(genes, experiences) *Read aloud, we're different, we're the same.*	*Local Spotlight: Quarry Park* Show Pictures (slideshow) Quarry Park Article Present Draft of playground Complete feedback form for city The rock type that was pulled from the quarry originally was granite. What type of rock is granite? (Igneous) Hmm… that's volcanic…and it's IN Winston Salem?

Day 4 Guiding Wonder: I wonder, what changes have occurred to create this rock?

Activity 1	Activity 2	Activity 3
Wonderboard 3 *Quarry Park, mine & your wonderings,* **let's investigate** … Groups present: What do we use rocks for?, Why do we mine rock? Is that okay?, How does this impact the earth?, What alternatives could we use?, Why is there volcanic rock in WS?, What can be done with the hole?	*Review Rocks & Predict Rock Cycle* Based on what you know, draw a diagram to predict how you think they change into each other - label the parts of your diagram. Read **Stone Mountain Article.** Underline any words or phrases that indicate movement.	*Questions are important!* After reading this, who questioned what I taught you about how rocks are made and what they're made of? Display slideshow of contradictions/additions even in my own presentation/papers. Some of you noticed! Then, display responses to questions from previous day's wonderboards. Let's revise with your critical eye: • In addition to heat and pressure, what factors change rocks? (Time, heat, pressure, wind, water, humans, gravity) • What are rocks made of? (Minerals, fossils, and parts of other rocks)

Day 5 Guiding Wonder: How do rocks move?

Activity 1	Activity 2	Activity 3
Factors that move/change rocks Re-read Stone Mountain Article Review Rock Cycle, Sediment - It is not a rock, what is it?	*Discussion:* The quarry rock is granite. What type of rock that? (Igneous=volcanic) Stone Mountain is made of igneous rock too! How is this possible in WS?!	*Explain how rocks move* using diagram. **Post-Surveys** Closure: Never Stop Wondering, Questioning, or Inquiring!

Note: **Bolded** words are elements passed out to students. *Italicized* words are the activities.

Results

In this study, students showed growth in the types of questions asked throughout the five lessons, as evidenced by questions recorded on their wonderboards and in discussions where several students felt empowered to take risks and share ideas and questions in ways their teacher affirmed as new or different behaviors. Students displayed an understanding of the science standard, leaning on their own sense-making, prior knowledge, and experiences to inform the responses recorded on wonderboards, presented as groups and shared in classroom discussions.

Table 2

Connection to State Science Standard

	Wonderboard-1	Wonderboard-2	Group Assignment	Wonderboard-3
% of students with written connection to science standard	95%	88%	100%	75%

The use of wonderboards showed what students were thinking, revealed common misconceptions, and connected student questions (utilized in the group assignment) to prescribed curricula. I scaffolded the science content beyond the requirements of the standard, which is evidenced by students connecting less with the standard as time went on. Results of the pre-/post-survey indicate that gun violence, even the threat of it, impacted students' abilities to feel curious, evidenced by an average decrease of nearly one full point when asked, "Are you curious about science?" They showed no change in personal efficacy in their ability to ask questions. They did show an increase in their perception that they get to explore their questions at school despite major changes to the lesson on day five due to unforeseen circumstances.

Discussion

Inquiry-based instruction is not just about asking the right questions but also at the right time and in the right way, positioning both teacher and student as inquirers, which is hard to measure and replicate. As the educator in the room, a visitor in the room, or a student in the room, it is obvious that student and teacher inquiries drove the lessons. All were curious and responded to questions with more questions, students were energetic and curious for most of the lessons, and they learned new science! The data collection rubric was not the best tool to measure a scaffolding of wonder or types of questions, but in future research could be useful during peer observations. The wonderboards were an excellent tool to capture student inquiries and misconceptions, frame future lessons with student questions readily available, and provide

an opportunity to differentiate with prompting questions pre-printed. They can easily be incorporated into interactive notebooks, and the *learning* column can be pre-printed with guided notes. This tool would be even more powerful in a true classroom setting with long-standing student and teacher relationships. Students have wonderful ideas, and crafting lessons with even some of the most "boring" standards around their natural and contextualized curiosity fosters a student-centered classroom environment.

References

Calabrese Barton, A., Tan, E., & O'Neill, T. (2014). Science education in urban contexts. In N.G. Lederman & S.K. Abell (Eds.), *Handbook of research on science education,* (2nd vol., pp. 246-265). Routledge. https://doi.org/10.4324/9780203097267.ch13

Bianchi, L. (2014). The keys to wonder-rich science learning. In K. Egan, A. Cant, & G. Judson (Eds.), *Wonder-Full Education: The centrality of wonder in teaching and learning across curriculum* (pp. 190–202). Routledge.

Crawford, B. A. (2014). From inquiry to scientific practices in the science classroom. In N.G. Lederman & S.K. Abell (Eds.), *Handbook of research on science education* (2nd vol., pp. 515-541). Routledge. https://doi.org/10.4324/9780203097267

Dewey, J. (1910). Science as subject-matter and as method. Science, 31(787), 121-127.

Duckworth, E. (2006). *"The having of wonderful ideas" and other essays on teaching and learning* (3rd ed). Teachers College Press.

Goodwin, A. (2001). Wonder in science teaching and learning: An update. *School Science Review*, *83*(302), 69–73.

Kates, B. (2017). *We're Different, We're the Same (Sesame Street).* Random House Books for Young Readers.

Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal*, *32*(3), 465–491. https://doi.org/10.2307/1163320

Morgan, E. (2019). *Never stop wondering.* NSTA Kids.

Muhammad, G., & Love, B. L. (2020). *Cultivating genius: An equity framework for culturally and historically responsive literacy*. Scholastic.

Stroupe, D. (2023). *Growing and sustaining student-centered science classrooms.* Harvard Education Press.

Windschitl, M., Thompson, J., & Braaten, M. (2020). *Ambitious science teaching*. Harvard Education Press.

Have You Heard?: The Impact of Auditory Sources on Student Engagement and Achievement in Secondary Social Studies

Connor Flaherty

with Adam Friedman
Wake Forest University
Department of Education
June 2023

Former President Gerald Ford highlighted the importance of music and music education when he stated that, "the future of our nation depends on providing our children with a complete education that includes music" (*Music*, n.d.). Music and other audio sources such as speeches, when actively incorporated into a secondary education curriculum has been shown to increase students' self-reported interest in social studies (Social Sciences Institute & Bulut, 2019), and create a positive classroom environment (Burroughs & Hare, 2008). Despite all of the potential added benefits, many educators have failed to heed former President Ford's call as the amount of music in the curriculum decreases as students get older (White & McCormack, 2006). This study sought to continue the analysis of the impacts of incorporating audio sources on students in secondary social studies classrooms.

Literature Review

Students frequently state that social studies is an uninteresting subject, with 'boring' often being the most cited criticism of the subject (Chiodo & Byford, 2004; Schug et al., 1982). In Schug et al., (1982) a twelfth grade student described their experience with social studies, stating that "Well it got boring when you are memorizing date after date, name after name, President after President – that type of thing. It gets a little tedious after awhile" (p. 10). Similarly, in Zhao and Hoge's (2005) study of 300 students, the researchers found that "Most children said that they did not like social studies because 'it is boring and useless'" (p. 3). Students both viewed the content of social studies, and the teaching methods used to teach the curriculum, as the reasons for their boredom with class (Chiodo & Byford, 2004; Gibson, n.d.; Schug et al., 1982).

Regardless of how music has been implemented in the social studies classroom, research has identified a multitude of benefits that come from the incorporation of music in the classroom. Using music in the social studies classroom affords students a unique opportunity to connect their personal experiences with the experiences of their community and the nation (Ender, 2021).

As a result of this newfound connection, students are more willing to discuss difficult topics or difficult experiences in their personal lives in the classroom setting. In his research Ender, (2021), found that students were more willing to discuss their own personal experiences with discrimination, racism, gender, and class after music was incorporated into the classroom curriculum (p. 157). Similarly, students also began to challenge their own prejudiced views about immigration after listening to the song "1977" which tells the story of a child in exile (Ender, 2021). This challenge to their perceived notions on immigration shows that music incorporation in the classroom serves to increase students' cultural understanding and expanders their perspectives (Ender & Varga, 2022). Music in the classroom gives students a way to self-reflect while also allowing students to consider how their vulnerabilities and challenges are connected to issues in the greater world. This increased vulnerability and self-reflection in the classroom also serves to create a more positive classroom environment for both teachers and students (Burroughs & Hare, 2008; Ender, 2021).

In their research Social Sciences Institute and Bulut, (2019) investigated the impact of multimedia teaching on student engagement in the social studies classroom by stimulating both the student's auditory and visual senses (Social Sciences Institute & Bulut, 2019). In their study, a majority of students indicated that stimulating both the visual and the auditory senses resulted in a positive impact on their desire to learn that their learning was more efficient and productive (Social Sciences Institute & Bulut, 2019). More specifically, students pointed out that they now "understood everything better and began to like it all" (Social Sciences Institute & Bulut, 2019, p. 9). These impacts on student's desire to learn and achievement were also found to be more long-lasting in a multimedia classroom than in a traditional classroom (Social Sciences Institute & Bulut, 2019). Their findings point to increased student engagement and student achievement once audio is implemented in the social studies classroom.

Limited research has shown that podcast incorporation into the classroom has had positive impacts on both student achievement and engagement (Popova et al., 2014). When used in the classroom, listening to podcasts has helped enhance students critical thinking skills, writing skills, and their ability to analyze historical texts (Goldman, n.d.). Listening to spoken words, as opposed to just reading, has been shown to increase students understanding of complex ideas by as much as two to three grade levels (Goldman, n.d.). Podcasts provide students a new way of accessing this spoken word and thus can help students understand complex historical,

social, and economic ideas that written documents might not be able to provide. Data shows that students think more deeply about a lecture's content if they hear it through the podcast medium and can further apply the lecture's knowledge to the outside world (Popova, Kirschner & Joiner 2014).

This research seeks to fill in the gaps that exist in the literature surrounding auditory sources such as music and podcasts. Further research needs to be conducted to investigate the benefits that auditory sources bring into the classroom. Specifically, this research study seeks to answer the question: How does the use of auditory sources such as music, speeches, and videos impact achievement, critical reasoning skills, and self-reported engagement in social studies?

Methodology

For this study, students participated in a week and a half unit which incorporated auditory primary and secondary sources throughout. Music, speeches, videos, and podcasts were used to analyze various historical perspectives or historical retellings of the American election system, the origins of political parties, and how political parties play an important role in our political system. Students were asked to listen to the sources and analyze them for how the sources portrayed the American election system works and how political parties have influenced American politics in the past and today. Similarly, students were also asked to evaluate the sources for credibility and to learn about the creator's perspective. Students were also asked to put multiple sources in conversation with one another to answer summative questions about the effectiveness and fairness of our election systems while also comparing the different views from the creators of these audio sources.

Across three sections of Honors Civic Literacy, 18 students consented to participate in the research study. All the 18 participants except for one were sophomores, with one participating student being a senior. Not all the 18 participants completed all the different facets of the unit, which will be reflected in the discussion of the results that are available. The study took place in the Spring 2023 semester of the 2022-2023 school year and lasted for nine total school days.

Data sources for this research project included qualitative data that were collected through student artifacts that were collected during the data collection, and pre- and post-session surveys about the students' self-reported interest in social studies and their critical thinking skills. The pre- and post-session surveys consisted of Likert-scale questions that asked students to respond to prompts such as "On a scale of 1-5, how interesting do you find social studies?"

Student responses would be given on a scale of 1 (Very Boring) to 5 (Very Interesting) with 3 being a midline response (Neutral). Free response questions were also included on the pre- and post-surveys. These questions asked students to consider the development of their own critical thinking skills and their enjoyment of social studies and how it changed over the course of the research process.

Quantitative data sources were collected in order to measure the impact the implementation of audio sources had on student achievement in a social studies classroom. Students were given pre- and post-tests that ask them to apply their understanding of social studies concepts in a multiple choice and open-ended fashion. Participant artifacts were also collected to evaluate the impact that the use of auditory sources have on student achievement. These artifacts include students written responses to open ended questions that asked them about their opinions about a variety of election related topics after they listened to auditory sources.

Results

In order to discuss the results of the research study in full, the students will be broken into different groups based upon their performance on the post-unit test (score out of 100). Group 1 scored between 72 and 100 on the post-test, while Group 2 scored between 42 and 68 on the post-unit test. All the groups received the same stimuli to analyze and discuss and were asked to complete the same tasks with that stimulus.

10 out of 13 participating students saw an increase from their pre-unit test to their post unit test, with an additional student (Student 8) seeing no change in their overall score. Both Group 1 and Group 2 saw an overall increase of over 20 percent in their scoring following the implementation of the research study. In Group 1, Student 4, who scored the worst out of the group on the pre-test, saw an improvement of 14 points (or 56 percent) on the post-test. Similarly, in Group 2, Student 10 saw a dramatic increase in their academic achievement from the pre-test to the post-test. Student 10 scored a 5 out of 25 (20 percent) on the pre-test, but this score would increase to a 15 out of 25 (60 percent) after exposure to the audio sources. Although some students saw more of an increase than others, the overall trend shows an increase in students' academic achievement following their engagement with the audio sources.

Similarly, student written responses to short answer questions offer evidence that student work with these audio sources allowed to students to utilize higher level critical thinking skills, more successfully interpret the sources, and utilize the sources to build their own individual

arguments about political parties and elections in the United States. After exposure to several videos about the Electoral College, Student 1 crafted an in-depth argument for abolishing the Electoral College by highlighting specific evidence from the sources, such as, “the flaws in the Electoral College have appeared 4 times in elections, where the candidate lost the popular vote, but won the Electoral College.” When asked to make an argument whether the United States needs a new Voting Rights Act, Student 8 is able to draw evidence from the audio sources that were provided, stating if we had a new Voting Rights Act “then Americans won't have to be worried about mailing in votes, making sure their vote is counted, not being turned down when they show up to vote.” Students were able to draw specific historical examples and examples from current events to create and support their historical arguments from the audio sources themselves.

Students themselves identified that the audio sources improved their academic achievement and critical thinking skills over the course of the unit. When asked to self-describe the impacts that the audio sources had on their understanding and analyzation, students were generally positive, with some such as Student 9 saying the sources “significantly improved” their understanding of the sources and corresponding concepts. Seven out of nine students noted that the audio sources helped make the sources “easier,” and the number increased to nine out of nine students when sources with both audio and visual components were specifically mentioned. Student 1 even mentions specifically that “it became easier to interpret” when the sources were auditory as opposed to strictly being visual texts.

Similar conclusions can be drawn when looking at the data related to student engagement with social studies overall. Following the implementation of the unit, students tended to view social studies more favorably, particularly the students in Group 1 who saw an increase from a 3.33 out of 5 on the Likert Scale to a 4 following the research study. More specifically, Student 5 saw an increase in their engagement and enjoyment of social studies as a subject, rating social studies as a “very boring” subject on the pre-survey (1 out of 5 on the Likert Scale) to a new rating of a 3 out of 5 on the Likert Scale on the post-survey. Student responses on the post-survey also demonstrate that students would be interested in seeing audio sources used in future social studies classrooms. 6 out of 9 students (66.67 percent) specifically mentioned videos as a type of source they would like to see utilized again.

Conclusion

Whether it is music on their own for personal consumption, videos from politicians on TikTok or Twitter, or the seemingly infinite library of podcasts on applications such as Spotify, the world around students is more about listening and engaging with audio more than ever before. Based upon their ability to increase academic outcomes for students while also improving student enjoyment of social studies overall, audio sources need to become more of a mainstay in modern social studies classrooms. Audio sources should move beyond being a fun way to captivate students' attention. Audio sources should be analyzed for the complex ideas they show and represent and be used more than just a side idea to get students attention.

References

Burroughs, S., & Hare, D. (2008). Music and messages from the past: Tuning into history. *Social Studies Research and Practice*, *3*(2), 68–78. https://doi.org/10.1108/SSRP-02-2008-B0006

Chiodo, J. J., & Byford, J. (2004). Do they really dislike social studies? A study of middle school and high school students. *Journal of Social Studies Research*, *28*(1), 16–26. https://www.proquest.com/docview/211065996/abstract/C3374C5555FE48A2PQ/1

Ender, T. (2021). Incorporating the critical music framework: An autoethnographic reflection. *International Journal of Multicultural Education*, *23*(1), 146–161. https://doi.org/10.18251/ijme.v23i1.2447

Ender, T., & Varga, B. A. (2022). The use of music to connect the past, present, and future. *The Social Studies*, *113*(5), 217–222. https://doi.org/10.1080/00377996.2022.2034731

Gibson, S. (n.d.). "Why do we learn this stuff"? Students' views on the purpose of social studies. *Canadian Social Studies*, *45*(1).

Goldman, T. (n.d.). *The impact of podcasts in education*. 16.

Music. (n.d.). CT.Gov - Connecticut's Official State Website. Retrieved September 27, 2022, from https://portal.ct.gov/SDE/Arts/Music

Popova, A., Kirschner, P. A., & Joiner, R. (2014). Effects of primer podcasts on stimulating learning from lectures: How do students engage? *British Journal of Educational Technology*, *45*(2), 330–339. https://doi.org/10.1111/bjet.12023

Schug, M. C., Todd, R. J., & Beery, R. (1982). *Why kids don't like social studies.* 25.

Social Sciences Institute, & Bulut, R. (2019). An analysis of the effects of multimedia teaching on student achievement. *International Journal of Progressive Education*, *15*(1), 1–22. https://doi.org/10.29329/ijpe.2019.184.1

White, C., & McCormack, S. (2006). The message in the music: Popular culture and teaching in social studies. *The Social Studies*, *97*(3), 122–127. https://doi.org/10.3200/TSSS.97.3.122-127

Zhao, Y., & Hoge, J. D. (2005). What elementary students and teachers say about social studies. *The Social Studies*, *96*(5), 216–221. https://doi.org/10.3200/TSSS.96.5.216-221

Influence of Creative Portfolios on Students' Engagement with Grammar

Bailey Inama

with Alan Brown
Wake Forest University
Department of Education
June 2023

Words are the fabric of language, and the structure of language is what stitches them together to convey an idea clearly and purposefully. Hinkel (2016) claims that a language's structure makes what is trying to be communicated comprehensible, digestible, and accessible. Milner et al. (2017) built on that idea by stating that "grammar is a tool that the brain uses to facilitate communication" (p. 72). Linguists and educators recognize the significance of language structures, but modern learners perceive it all as tedious and arbitrary. As a result, there has been an increase in the research on and implementation of alternative methods to teach grammar to showcase its importance. While educators are putting in immense effort to create new methods of instruction, a frequently forgotten while deeply versatile method is portfolios. Creative portfolios offer a compromise between traditional and contemporary methods of instruction (Demirel & Duman, 2015). They maintain classroom writing expectations while offering more student-centered instruction because the students, not the teachers, oversee the design. There are few studies that analyze the influence portfolios have on students' engagement with the structure of language. Thus, there is a gap that his study aims to fill by attempting to answer the research question: How can teaching the structure of language through creative portfolios influence student engagement with grammar?

Literature Review

Research shows that many students have not always had positive experiences with grammar instruction. Negative attitudes towards grammar result in reduced student engagement with the structure of language. In response, there has been an abundance of research on techniques for teachers to use to improve student outlook and engagement (Bullard & Anderson, 2014; Dredger et al., 2010; Morelli, 2003; Nicholson, 2018; Rylance & Kevech, 2018). Devet (2002) advocates for methods that encourage students to learn the structure of English in a way that develops and relates to their own interests. Parsons (2014) recommends unique and creative grammar instruction in the English language arts classroom. "Language is actually like a

multidimensional theme park with an infinite capacity to entertain and enlighten….[we should be] on the lookout for ways to intrigue, involve, and amuse our student through the study of grammar, [because] we might just hook them on a love for language" (Parsons, 2014, p. 8). Delight is caught not taught, so educators should create opportunities for students to spark an interest.

An effective way to engage students in the structure of language is through creative portfolios. Portfolios are an accessible yet rigorous approach to instruction for various disciplines, grades, fluency levels, and cognitive needs (Demirel & Duman, 2015; Milner et al., 2017; Strickland et al., 2004). Previous studies established portfolios as an effective way to improve student engagement because it offers an opportunity for instruction that increases student autonomy, agency, and accountability (Bintz & Shake, 2005; Jenson & Treuer, 2014; Rhodes, 2010). Strickland et al. (2004) note that portfolios have the potential to help document, process, showcase, and evaluate students' learning over time. Portfolios may have the potential to encourage students' engagement with grammar; however, there appears to be a gap in the literature when it comes to research on the influence of portfolios being used to teach grammar. While some studies (Demirel & Duman, 2015; Tosh et al., 2005) suggest that creative portfolios may affect students' engagement and achievement with language acquisition, there has not been substantial research on their impact on engagement with the *structure* of language.

Methods

This research study was conducted in two semester-long standard-inclusion English III classes at a large, Title I high school located in the Southeastern United States. The classes met daily during the spring semester and included 49 students in total. Twenty-two students completed the entire consent and assent process, submitted the questionnaires and assignments, and were included in this study.

The researcher implemented daily grammar activities and a weekly workshop for a total of ten weeks during one semester. The first two weeks of the study focused on slowly gauging students' prior knowledge of grammar, familiarizing students with the structure of Daily Grammar Practice (DGP) and introducing the grammar portfolio assignment. The students picked a cohesive theme for their portfolios based on their interests. Then, each entry required a concept, a definition, tips or tricks to identify concepts in a sentence, and three examples of the concept found in authentic texts relating to their theme. The next six weeks followed a similar

format for each week: Mondays, students labeled the parts of speech; Tuesdays, students identified the different sentence parts; Wednesdays, students recognized the clauses along with determining the sentence type and purpose; Thursdays, students corrected the capitalization and punctuation; Fridays, students took part in concept-specific mini-lessons. The researcher picked two concepts discussed during the week for her Friday interactive lecture; then, students picked one concept from the two to draft an entry for their grammar portfolio. During the last two weeks of the study, the students continued participating in DGP, but they transitioned from drafting to revising and polishing their entries for their final grammar portfolio submission.

Data from this study were collected through pre-, mid-, and post-questionnaires, interest inventories, field notes, and student artifacts. Each of the questionnaires contained ten statements that students responded to via a Likert scale. The Likert scale ranged from one to four and asked students to rank the accuracy of the statement. Participants responded by selecting if the statement was 1—Untrue, 2—Somewhat Untrue, 3— Somewhat True, and 4—True. In addition to the Likert scale questions, the post-questionnaire included three open-ended questions that prompted students to note any changes in their understanding of grammar, attitude toward the structure of language, and attitude toward creative portfolios.

The researcher observed the classroom throughout the duration of the study and looked for any change in student engagement with the structure of language. Specifically, the researcher looked for consistency or change in how often students volunteered their work as examples, responded to related questions, or posed questions about content. Additionally, the researcher observed students commenting to their peers about activities and how they discussed grammar in authentic conversations. Student artifacts were also an essential component of the grammar portfolio project's data collection. The artifacts included the students' DGP packets – where they recorded their morning warm-ups – and their final grammar portfolio submission. Students' DGP packets demonstrated how they participated in the daily grammar activities and if, over time, there were any changes in students' attention and effort in their grammar activities. The final grammar portfolios provided insight into students' cognitive engagement with the project.

Results

Overall, student engagement with grammar changed positively. Specifically, when students were polled with a query derived directly from the research question, 95% of the students responded that creative portfolios had positively influenced their engagement with

grammar. The other 5% reported they were "unsure" if creative portfolios affected their engagement with grammar. No students reported that creative portfolios negatively impacted their engagement with grammar. Student artifacts revealed something that polls and questionnaires could not, which is that all participants could create cohesive, complex, and grammatically correct final projects. Through analysis of the data, the researcher categorized how creative portfolios influenced students based on types of engagement: "Social engagement" (content-specific conversation and student interactions), "cognitive engagement" (understanding and academic success), and "emotional engagement" (attitude and outlook). Within each group, unique patterns and themes emerged that inform how this method influenced students' engagement with the structure of language.

There was a positive shift in students' social engagement with the structure of language. When students were introduced to the structure of language through inventories, pre-questionnaires, and DGP, students were initially resistant. In their interest inventories, 32% of students responded to the open-ended question, "In English, what is something you feel less confident in and want to get better in/at?" with "speaking," "sharing," and "grammar." Students were not confident in the structure of language, nor were they wanting to participate publicly in activities relating to it. Once students were introduced to grammar portfolios, students talked more about the structure of language. Frequently, the students were asking their peers, "What do you think?" or "Can you help me?" By week five, the participants initiated specific conversations relating to the structure of language every day during DGP or portfolio work time. After students completed their grammar portfolios, there was a noticeable shift in their participation in the DGP and confidence in their own work. Specifically, Student L, someone who did not participate in DGP until week eight, corrected the cooperating teacher while labeling parts of speech of a sentence. He coyly interrupted and stated, "I think… 'for' acts as a coordinating conjunction in this sentence, not a preposition."

Similarly, there was a significant shift in students' cognitive engagement with the structure of language. Before introducing the grammar portfolios, zero of the twenty-two participants were able to correctly define or suggest examples of the common parts of speech (e.g., nouns, verbs, adjectives, adverbs, interjections) without the researcher's assistance. In contrast, 83% of participants' creative portfolios were correct in defining parts of speech or parts of a sentence. Additionally, 100% of participants were successful in identifying concepts in a

sentence from a theme-related published article. Three participants, individually and unprovoked, sought out the researcher to inform them that the portfolios "helped a lot with the ACT" and all three reported that the English/grammar portion was their best section out of the whole test. Participant O said, "The grammar portfolio helped me learn and understand what things are and where they're found…I payed *[sic]* attention sometimes before doing the grammar portfolio, but now I know what to look for, what to fix, and how to do it."

Finally, students' emotional engagement with grammar also showed a positive change. Students vocalized their opinions on grammar to the researcher prior to the portfolios. They did not like it, they were not interested in it, and they did not see the necessity of it. As seen in the Likert scale responses in the pre-questionnaire prior to beginning the creative portfolios, less than a quarter of the participants said they enjoyed grammar. However, at the end of the study, students' mindsets had shifted. On Friday of week nine, Student D and Student H approached the researcher and exclaimed, "Grammar can be fun!" In addition, many students came to realize that grammar is an essential component of the English curriculum. During the last week of the study, Student M told the researcher that "grammar is not just periods and colons, it is so much more." Further, Student Q zealously stated, "I loved learning about different subjects, terms, and concepts. It helped me realize what I need to improve."

Discussion

The study found that the use of creative grammar portfolios positively influenced students' social, cognitive, and emotional engagement with the structure of language. Specifically, it was evident that students became more open to discussing and debating grammar. As a result, their conceptual understanding of grammar was strongly enhanced and their attitudes towards the structure of language were boosted. They were visibly excited to talk about, work on, and share their portfolio progress with their peers and the researcher. Creative portfolios are beneficial for secondary English classrooms by providing students with alternative and interest-driven ways to showcase their understanding of the structure of language. Findings from this study suggest that creative portfolios have the potential to inspire an important shift in the teaching and learning of grammar in secondary education.

References

Bintz, W., & Shake, M. (2005). From university to classrooms: A preservice teachers' writing portfolio program and its impact on instruction in teaching strategies for writing portfolios in the classroom. *Reading Horizons: A Journal of Literacy and Language Arts 45*(3), 217-233.

Bullard, S. B., & Anderson, N. (2014). “I’ll take commas for $200”: An instructional intervention using games to help students master grammar skills. *Journalism & Mass Communication Educator*, *69*(1), 5–16. https://doi.org/10.1177/1077695813518778

Demirel, M., & Duman, H. (2015). The use of portfolio in English language teaching and its effects on achievement and attitude. *Procedia - Social and Behavioral Sciences*, *191*, 2634–2640. https://doi.org/10.1016/j.sbspro.2015.04.598

Devet, B. (2002). Welcoming grammar back into the writing classroom. *Teaching English in the Two Year College*, *30*(1), 8-17.

Dredger, K., Woods, D., Beach, C., & Sagstetter, V. (2010). Engage me: Using new literacies to create third space classrooms that engage student writers. *Journal of Media Literacy Education, 2*(2), 85-101. https://doi.org/10.23860/jmle-2-2-1

Hinkel, E. (2016). Prioritizing grammar to teach or not to teach. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (1st ed., Vol. 1–3, pp. 369–383). Routledge. https://doi.org/10.4324/9781315716893-27

Jenson, J. D., & Treuer, P. (2014). Defining the E-portfolio: What it is and why it matters. *Change: The Magazine of Higher Learning*, *46*(2), 50–57. https://doi.org/10.1080/00091383.2014.897192

Milner, J. O., Milner, L. F. M., & Mitchell, J. F. (2017). *Bridging English* (Sixth Edition). Pearson Higher Education.

Morelli, J. A. (2003). *Ninth graders’ attitudes toward different approaches to grammar instruction* (Publication No. 3084892) [Doctoral dissertation, Fordham University]. ProQuest Dissertations Publishing.

Nicholson, D. T. (2018). Enhancing student engagement through online portfolio assessment. *Practitioner Research in Higher Education*, *11*(1), 15–31.

Parsons, L. (2014). *Grammarama!: Innovative exercises, creative activities, models from reading, sentence combining, updated rules, and more!* Pembroke Publishers.

Rhodes, T. L. (2010). Making learning visible and meaningful through electronic portfolios. *Change: The Magazine of Higher Learning*, *43*(1), 6–13. https://doi.org/10.1080/0009 1383.2011.538636

Rylance, C., & Kevech, A. (Eds.). (2018). *New ways in teaching grammar* (Second edition). TESOL Press.

Strickland, D. S., Galda, L., & Cullinan, B. E. (2004). *Language arts: Learning and teaching*. Thomson/Wadsworth.

Tosh, D., Light, T. P., Fleming, K., & Haywood, J. (2005). Engagement with electronic portfolios: Challenges from the student perspective. *Canadian Journal of Learning and Technology*, *31*(3), 1-19. https://doi.org/10.21432/T23W31

Arts Integration in the Elementary Math Classroom

Ashlyn John

with Leah McCoy
Wake Forest University
Department of Education
June 2023

Introduction

Integration in the Classroom

Arts integration has varying definitions, as the meaning of the arts and their purposes are ever-growing and changing as we learn more about their role in education. Arts integration is "an approach to teaching in which students construct and demonstrate understanding through an art form. Students engage in a creative process which connects an art form and another subject area and meets evolving objectives in both" (Silverstein & Layne, 2010, p.1). In arts-integrated classrooms, students are simultaneously learning content in these varying forms of art. These students are provided with the opportunity to learn in a classroom that is not characteristic of traditional academic subjects (Corbisiero-Drakos et al., 2021). Arts-integrated classrooms are becoming more prevalent within schools, as one study referred to arts integration as the forefront of elementary education reform (Brown, 2007).

Arts integration may have a significant effect on students' academic achievement, engagement levels, and attitude, as well as the development of skills. The integration of arts is an important part of learning and one that is oftentimes left out of the traditional classroom. It is evident that integration or infusion of multiple disciplines positively impacts student engagement. Arts integration is a topic that is studied, although researchers must continue to understand the impacts in more contexts. This research seeks to investigate the role of arts integration in another context, with hopes to utilize these findings in future teaching.

Literature Review

While arts integration, visual arts, movement, and music integration hold different meanings, the results reveal significant effects on students' engagement, attitudes, achievement, and the development of new skills. Fiske (1999) investigated the impacts of art on student learning. This study reveals how participation in the arts provides "unparalleled opportunities for learning that enables young people to reach for and attain higher levels of achievement" (Fiske,

1999, p. 15). Unlike other disciplines that focus solely on that area, the arts "regularly engage multiple skills and abilities," while engaging in the arts- whether the visual arts, dance, music, theatre, or other disciplines- nurtures the development of cognitive, social, and personal competencies" (Fiske, 1999, p. 12). In terms of the learning experience within schools, arts reach students who are not otherwise being reached. As mentioned within this research, students who are disengaged are at higher risk of harm or academic failure. Researchers found that art engaged these students and provided them with a reason to be interested in the material. In other instances of disengagement, "problem students" achieved higher rates in arts learning settings. If we know that arts contribute to the success of students, as well as level the playing field for struggling students, we must integrate arts within the academic setting to create these desired outcomes.

Latham (2018) conducted a research study and investigated art making in forms of sculpture, drawing, painting, and creating, to determine its impacts on students' well-being. The participants in this study included 2 voluntary high school students in Australia, who would share their experiences with art in their school environment. This study included field notes from the researcher, classroom observations, semi-structured interviews, and weekly reflective journals for students to journal their thoughts, feelings, and experiences within the school. The data went through various stages of coding, as Latham analyzed the themes that emerged from the student's experiences. For both students, art played a similar role in their life. Students A and B experienced some traumatic experiences in their childhood and claimed that art was the first thing to take away the anxiety, and depression they felt. They also claimed that art provided them with a connection to others, better communication skills, and a new purpose in life. In this study, art helped both students overcome their traumatic experiences, form strong relationships, and provide them with a sense of belonging and meaning (Latham, 2018). This study echoes the importance of art inside and outside the classroom, providing educators with even more reasons to integrate art within their classrooms.

Evidence for the utilization of arts in education is increasing. It is evident that there are positive effects on children's development and skills (Hallam, 2010), as well as academic achievement (Moore, 2010), such as Reading and Math achievement scores (Deer, 2011). As a result of this data, it can be predicted that the use of arts within the traditional curriculum, will have positive effects. Researchers have provided strong evidence for arts integration and academic achievement. Music, creative movement, dance, drama, and visual arts are just a few

of the arts that can be used as effective tools in teaching academic subjects such as math, resulting in students' achievement. These findings in the literature are pronounced, signifying how essential it is that researchers continue to study the impacts of arts within other academic settings. Arts integration holds significance in the education of children. Thus, the following research question will guide this study: What is the effect of arts integration in a first-grade math classroom on students' engagement and attitude toward math?

Methodology

This study was performed in the spring of 2022 in a public elementary school in the Southeastern United States. The school student body consists of 636 students, with exactly half of the student population being female, and half male. Approximately 28% of the student body are minorities, and 14% are economically disadvantaged. The data was collected from 14 first-grade students, 8 girls and 6 boys. The Independent variable of this study, also known as the intervention, was arts integration, defined as, the implementation of drawings/ projects, dancing, singing, as well as building sculptures. The intervention was conducted twice a week within the math classroom, for four weeks, resulting in eight sessions overall. The dependent variables in this study are engagement and attitude. To assess levels of engagement and attitude, the researcher utilized pre- and post-Likert scale surveys, field notes, observations, and interviews.

Results from Observations

Engagement

Throughout the intervention lessons, the researcher observed student behaviors such as body language, facial expressions, levels of participation, engagement with others, willingness to participate, and ability to do the activity.

3D Shape Hunt Lesson: While searching for shapes, struggling students were keeping up with the other students in comparison to other activities where they had stayed to themselves quietly. They walked around the room, pointing, smiling, and laughing with one another. Anna, (a student in the negative feeling group) ran to the researcher and said "Look, the globe is a sphere!" These observations indicate that students had high levels of engagement with the activity as well as each other. The students in the positive feeling group finished quickly and asked what was next, and these students were challenged to create a drawing of 5 or more shapes that looked like a real-life object. These students smiled, turned to one another, and shared a grin,

excited to let their creativity grow on the page. These verbal and non-verbal cues informed the researcher that students were engaged and felt enjoyment of the lesson.

Marshmallow Architecture Lesson: As the researcher sat with the students, they noticed that every student was actively participating and curious. Students worked quickly, as friendly competition began to see who could get to the 'coolest' shapes. Students learned different ways to build effectively- some laid out their shapes on the table first eventually sticking their toothpicks into their marshmallows. Other students built as they went. Every student from each group was observed smiling, laughing, and showing signs of pride and excitement when they finished building that shape. These interactions indicate that students enjoyed working with their hands to build shapes. Students participated in the intervention and engaged with other peers in conversations/

Results from Surveys

Engagement and Attitude

These Likert-scale surveys were administered one on one at the beginning and end of each session. In the pre-surveys, students were asked to answer a variety of questions regarding their thoughts and feelings towards math, see Appendix A. 14 students were interviewed, all of which participated in both the pre-survey and post-survey. Out of the 14 students interviewed in the pre-survey, 50% of students had positive feelings toward math, 36% of students had mixed feelings towards math, and 14% of students had negative feelings towards math. In the post-surveys, 50% of students maintained their positive feelings, 42% of students had mixed feelings, and only 7% had negative feelings towards math. For this research, I have chosen 2 students from each category to analyze pre- and post-interventions.

Results from Interviews

Attitude

Student attitudes were measured using pre-and post-surveys. In the pre-survey, there were 3 categories- students who had strong positive feelings towards math, more lukewarm/medium feelings towards math, and those who had negative feelings about math. These categories were determined according to student answers. Students in the positive feeling group felt solely positive towards math. The emojis chosen were associated with positive emotions (happy, excited, silly, cool), they described math as "fun" and in many cases, listed math as their favorite topic. Students in the negative feelings group felt primarily negatively

towards math. The emojis chosen were associated with negative emotions (bored, annoyed, worried, angry, and scared). They described math as "not fun" and oftentimes listen math as their least favorite subject. As for the medium feelings group, these students had mixed feelings about math. The emojis chosen were a mix of negative or positive emotions, as well as more neutral feelings such as sleepy. Students in this group stated that math is sometimes fun and sometimes boring depending on what they are learning. I discovered that students who described math as "easy," were in the category that had positive feelings towards math, while the students who thought math was "hard," had more negative opinions and emotions towards math. I also noticed that students in the medium group felt negative emotions when the math felt hard and had positive emotions when the math felt easy. Students will be called pseudonyms for confidentiality.

Conclusions

This study revealed the impact of arts integration within other disciplines, particularly a first-grade math classroom. Over the course of this study, observations revealed varying levels of engagement, while pre- and post-surveys revealed attitudes towards math. Students told the researcher how much they enjoyed the art integration and even showed signs of excitement when the researcher entered the room, such as comments like, "Yay," "We missed you," and "We love when you come in to teach." These verbal cues informed the researcher that students enjoyed lessons where art integration was utilized. Students were very communicative in letting the researcher know that they looked forward to these arts-integrated math lessons. The researcher also studied the non-verbal cues of students such as increased levels of participation, smiling, laughing, and participation with class materials and other peers. While art was integrated into the lesson, no student had to be shifted back on track, they were engaged in the material and did not need guidance with redirecting. The researcher found a trend- students were laughing and smiling more than they were in the traditional math classroom prior to this study.

This research revealed that students who felt positively towards math, were more engaged in the traditional math classroom, while the students who felt negatively towards math, engaged less in the traditional classroom. Arts integration in terms of this study, has revealed that autonomy is a major component that is implemented in lessons, and as a result, positively embraced by students. This study has revealed that arts integration is enjoyed and accepted by students with a variety of learning styles, needs, and outlooks/ opinions toward math. While

these results echo the role arts play in external disciplines, researchers must continue to study the impacts and importance of them in our schools.

References

Brown, S. (2007). An arts-integrated approach for elementary level students. *Journal of Research in Childhood Education*, *83*(3), 172-175.

Corbisiero-Drakos, L., Reeder, L., Ricciardi, L., Zacharia, J., & Harnett, S. (2021). Arts integration and 21st century skills: A study of learners and teachers. *International Journal of Education & the Arts*, *22*(2). http://doi.org/10.26209/ijea22n2

Deere, K. B. (2011). *The impact of music education on academic achievement in reading and math*. (Publication No. 3425720) [Doctoral dissertation, University of North Carolina at Greensboro]. ProQuest Dissertations and Theses Global.

Fiske, E. B. (1999). *Champions of change: The impact of arts on learning* (ED435581). ERIC. https://eric.ed.gov/?id=ED435581

Hallam, S. (2010). The power of music: Its impact on the intellectual, social and personal development of children and young people. *International Journal of Music Education*, *28*(3), 269-289. https://doi.org/10.1177/0255761410370658

Latham, M. J. (2018). Artmaking in school and its impact on student wellbeing (Bachelor's thesis). Retrieved from https://research.avondale.edu.au/cgi/viewcontent.cgi?article=1065&context=theses_bachelor_honours

Moore, A. (2012). *The impact of instrumental music programs on student achievement in an urban-suburban fringe school district*. (Publication No. 3512418) [Doctoral dissertation, University of Missouri]. ProQuest Dissertations and Theses Global.

Silverstein L. B., & Layne S. (2010). Defining Arts Integration. *The Kennedy Center; Arts Edge*. https://www.kennedy-center.org/globalassets/education/resources-for-educators/classroom-resources/artsedge/article/arts-integration-resources/what-is-arts-integration/definingartsintegration.pdf

The Influence of the CRAAP Test and the SIFT Method on University Students' Understanding of Credibility of Information Online

Amanda Kaufman

with Alan Brown
Wake Forest University
Department of Education
June 2023

Introduction

The CRAAP Test (*Currency*, *Relevance*, *Authority*, *Accuracy*, and *Purpose*) emerged as one of the most popular techniques for teaching source evaluation in academic libraries in the early 2000s (Blakeslee, 2004). Later in the 2010s and 2020s, the SIFT Method (*Stop*, *Investigate the Source*, *Find Better Coverage*, and *Trace Claims, Quotes, and Media to their Original Source*) was introduced and became a popular alternative to the CRAAP Test (Caulfield, 2019). Very few studies exist around the effectiveness of either the CRAAP Test or the SIFT Method. Fewer, if any, studies examine both the CRAAP Test with the SIFT Method in comparison with one another. This study will examine which model helps students more accurately determine credibility, which steps or criteria are most influential in students' credibility decisions, and what might be missing from one or both models that would help students evaluate sources more accurately.

Literature Review

With the increasing prevalence of online information in the 21st century, researchers began studying how internet users made credibility judgements in online contexts. Metzger et al. (2010) found that rather than making well-reasoned decisions about source credibility, people typically made use cognitive heuristics, or mental shortcuts. Examples of these cognitive heuristics included how professional the website looked, whether it was perceived as cool, and how high it ranked in search engine results (Metzger et al., 2010; Sundar 2008). Given that internet users were often making credibility judgments based on weak heuristics, it is no surprise that librarians and teachers developed teaching methods like the CRAAP Test for helping students determine website credibility.

Despite their popularity, there have been long-held critiques of checklist-style methods like the CRAAP Test for being ineffective, unrealistic, and time-consuming (Meola, 2004).

Breakstone et al. (2018) and Caulfield (2018) both demonstrated that it was easy for dubious sources to pass the CRAAP Test. Breakstone et al. (2018) also argued that checklist methods were outdated, calling them an "an analog approach" to a digital challenge (p. 28). Still, the CRAAP Test remained a popular resource with librarians teaching online evaluation.

Given the concerns about the efficacy of checklist approaches to information evaluation, researchers and authors such as Wineburg and McGrew (2019) and Caulfield (2019) began exploring alternative methods. Caulfield (2019) developed the increasingly popular SIFT Method, which heavily features fact-checking techniques like lateral reading. Lateral reading involves looking outside the source to verify the information within it. Lateral reading is endorsed as effective by several research studies (Brodsky et al., 2021; Wineburg & McGrew, 2019). The SIFT Method is increasingly being used as a replacement teaching method for checklist approaches like the CRAAP Test.

Methods

This study took place in a 1.5 credit introductory information literacy course at a mid-sized, private, liberal arts university located in the southeastern United States. Participation in the study was voluntary and students were given the choice to opt out of the researcher's study. A total of 32 students agreed to participate in the study and completed all the source evaluation assignments and questionnaires. Eleven students (34.37%) were in the CRAAP Test sample group. Twenty-one students (65.63%) were in the SIFT Method sample group.

Data from the study were collected from pre-, mid- and post-course source evaluations and questionnaires. For the pre-, mid-, and post-course source evaluations, students were given one of four possible sources to evaluate. Each source had questionable credibility. The pre- and post-semester source evaluations were open-ended, asking students to provide a 1-2 paragraph evaluation that considered whether the source they had been provided was reliable and trustworthy and to offer a justification for their decision using appropriate evidence. Students were not asked to use any specific method on the pre- and post-course evaluations in order to analyze how their naturally chosen techniques for online source evaluation changed, if at all, from the beginning of the course to the end. For the mid-course evaluation, students were instructed to apply either the CRAAP Test or the SIFT Method in their source evaluation based on what course section they were enrolled in. Performance on the evaluations did not impact students' grades. These open-ended responses were thematically coded by the researcher to

determine which evaluation criteria and techniques were the most frequently mentioned. The pre-, mid- and post-course source evaluations were coded using criteria from the CRAAP Test and the SIFT Method. Other evaluation criteria and techniques listed in student responses that did not fit into these categories were coded using constant comparative analysis. This analysis involved using open, axial, and selective coding techniques (Corbin & Strauss, 2008). All data were analyzed twice by the researcher to ensure consistency.

The pre-, mid- and post-semester questionnaires also asked students to make judgements about the credibility of the sources they examined. Students were asked to rate their agreement with ten different statements. Examples of the questions included statements like, "The source was trustworthy and credible" and "The author(s) were credible and reliable." Students rated their judgements on a five-point Likert scale from (1) *strongly disagree* to (5) *strongly agree*. Cronbach's α's for the 10 questions on the pre-, mid-, and post- questionnaire were .93, .95, and .94, respectively. Scores from the pre-, mid- and post-course questionnaires were compared to determine if scores improved over the duration of the semester.

Results

Pre-Course Evaluations

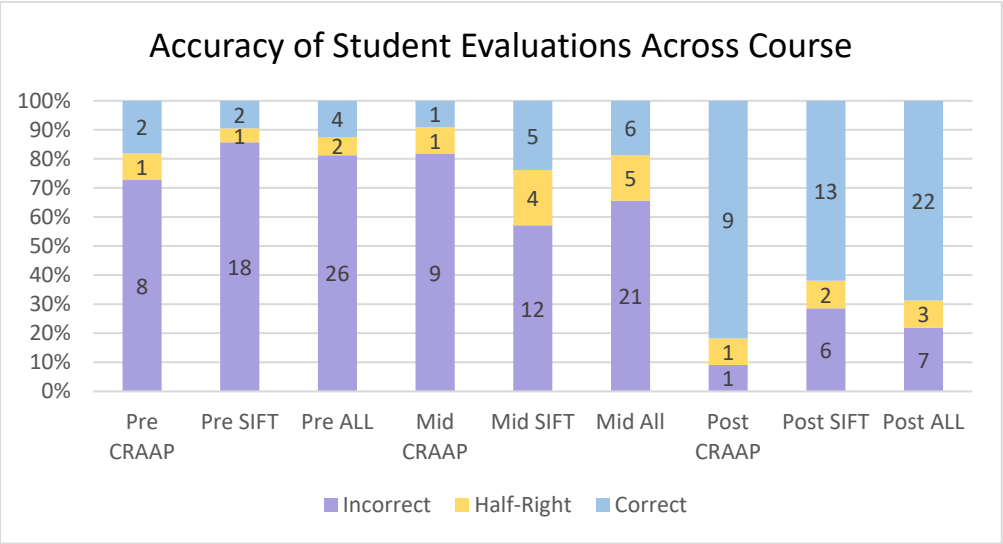
Of the 32 student participants in the pre-course evaluations, four (12.50%) accurately evaluated the source in question, 26 students (81.25%) incorrectly evaluated the source, and two students (6.25%) were "half-correct." The researcher made decisions about each student's accuracy through a combined analysis of the student's written evaluation and how they answered the ten questions on the questionnaire. Answers were labeled "half-correct" in situations where the students' evaluation could not be deemed correct or incorrect. An illustration of how students in all groups performed on all source evaluations over the course of the semester can be seen in Figure 1 on the next page.

Mid-Course Evaluations (CRAAP Test Group)

Of the 11 student participants in the CRAAP Test group, one student (9.09%) accurately evaluated the source in question, one student (9.09%) was "half-correct," and nine students (81.82%) evaluated the source incorrectly. The student who answered correctly followed some steps in the CRAAP Test method, including the lateral reading technique of using a search engine to learn more about the source, and found that the author had falsified their data. The nine students in the CRAAP Test group who produced an inaccurate evaluation followed at least

some steps of the CRAAP Test Method. All nine students discussed the source's *Currency*, *Authority* (author), and *Purpose* and appeared to judge the author's reliability using the source's author biography.

Figure 1



Mid-Course Evaluations (SIFT Method Group)

Of the 21 student participants in the SIFT Method group, five students (23.81%) accurately evaluated the source in question, 12 students (57.14%) incorrectly evaluated the source, and four students (19.05%) were "half-correct." Of the five students who answered the source evaluation correctly, all five came upon their conclusion through lateral reading and used a search engine to look up the author or the publisher of the information and used this outside information to determine that the source was not credible. This aligns with the *Investigate the Source* step in the SIFT Method.

Post-Course Evaluations

Of the 11 student participants in the CRAAP Test group, nine students (81.82%) evaluated the post-course source correctly, one student (9.09%) evaluated the source incorrectly, and one student (9.09%) was "half-correct." The nine students who answered the post-course evaluation correctly used SIFT Method techniques, specifically *Investigating the Source* by searching for more information about the publishing organization on the internet.

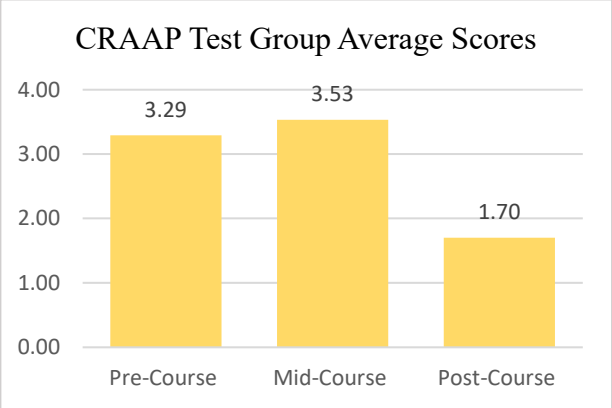
Of the 21 student participants in the SIFT Method group, 13 students (61.91%) accurately evaluated the source, six students (28.57%) incorrectly evaluated the source, and two students (9.24%) were "half-correct." All six students who answered incorrectly relied on the author bios

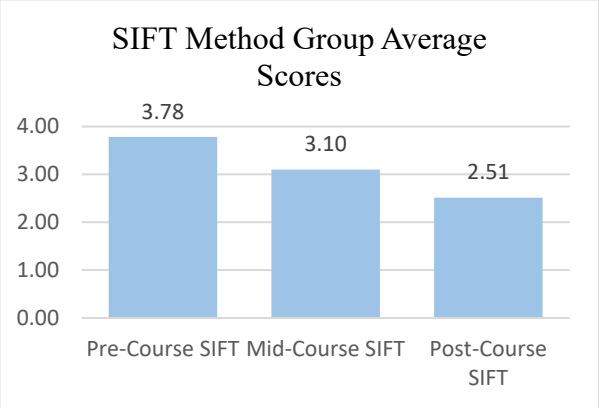
on the website to determine that the author was credible. All thirteen students who answered correctly used a search engine to look up the author or organization behind their source, which aligns with the SIFT Method step *Investigate the Source.*

Questionnaire Scores by Subgroup

On the questionnaire, a lower overall average score meant that the students more accurately evaluated the sources in question. Students in the SIFT Method group had a larger decrease in their overall score (-.68) on the mid-course questionnaires than the CRAAP Test group, who performed worse on the mid-course questionnaire than the pre-course questionnaire (+.24). However, students in the CRAAP Test group made the largest progress overall from the pre-course questionnaire to the post-course questionnaire (-1.59) compared to the SIFT Method group (-1.27). An illustration of how both subgroups performed can be seen in Figures 2 and 3.

Figures 2 and 3





Discussion

Though there were not conclusive findings about which method was more effective, CRAAP Test criteria, such as *Authority* and *Currency*, were generally ineffective for evaluating the sources in this study. This is largely due to the CRAAP Test relying on techniques where the student uses information only available from the source itself to determine its reliability, specifically author biographies. SIFT Method techniques—specifically the lateral reading technique of *Investigating the Source*—generally worked well, but only when performed correctly. Findings from this study revealed some aspects of the SIFT Method that may require further research and consideration. These considerations include how time-intensive it can be to conduct a SIFT Method source evaluation and the level and length of instruction required for students to learn to perform each of the steps competently.

There were a few limitations to this study. The sample size of 32 may be too small to draw any major conclusions or generalizable findings. More students were in the SIFT Method group than the CRAAP Test group, which may have impacted the findings. Some of the post-course findings could be the result of taking a half-semester long credit-bearing information literacy course in addition to learning these two source evaluation models. It may also be that students grew used to the sources they were evaluating being unreliable, so they knew going into the post-course evaluation that they were likely to be evaluating an unreliable source, which would have skewed the results. It could also be that the sources chosen impacted the results of the study, with students seeming to struggle more with the retracted articles than the articles related to climate change denial. Further studies are needed to draw more definitive conclusions on the effectiveness of the SIFT Method and its impact on student understanding of source evaluation. Future studies may also attempt to observe student evaluations of sources for personal use.

References

Blakeslee, S. (2004). "The CRAAP Test," *LOEX Quarterly 31*(3), 6-7.

Breakstone, J., McGrew, S., Smith, M., Ortega, T., & Wineburg, S. (2018). Why we need a new approach to teaching digital literacy. *Phi Delta Kappan, 99*(6), 27–32. https://doi.org/10.1177/0031721718762419

Brodsky, J. E., Brooks, P. J., Scimeca, D., Todorova, R., Galati, P., Batson, M., Grosso, R., Matthews, M., Miller, V., & Caulfield, M. (2021). Improving college students' fact-checking strategies through lateral reading instruction in a general education civics course. *Cognitive Research: Principles and Implications, 6*(23), 1-18. https://doi.org/10.1186/s41235-021-00291-4

Caulfield, M. (2018). *A short history of CRAAP.* Hapgood. https://hapgood.us/2018/09/14/a-short-history-of-craap/

Caulfield, M. (2019). *SIFT (The four moves).* Hapgood. https://hapgood.us/2019/06/19/sift-the-four-moves/

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research* (3rd ed.). Sage.

Meola, M. (2004). Chucking the checklist: A contextual approach to teaching undergraduates web-site evaluation. *Portal: Libraries and the Academy, 4*(3), 331–344. https://doi.org/10.1353/pla.2004.0055

Metzger, M. J., Flanagin, A. J., & Medders, R. B. (2010). Social and heuristic approaches to credibility evaluation online, *Journal of Communication, 60*(3), 413–439. https://doi.org/10.1111/j.1460-2466.2010.01488.x

Sundar, S. S. (2008). The MAIN model: a heuristic approach to understanding technology effects on credibility. In M. J. Metzger and A. J. Flanagin (Eds.), *Digital media, youth, and credibility* (pp. 73-100). The MIT Press.

Wineburg, S., & McGrew, S. (2019). Lateral reading and the nature of expertise: Reading less and learning more when evaluating digital information. *Teachers College Record: The Voice of Scholarship in Education, 121*(11), 1–40. https://doi.org/10.1177/016146811912101102

The Effect of Music Integration on Student Engagement with Novels

Caroline Pope

with Alan Brown
Wake Forest University
Department of Education
June 2023

Reading is the backbone of English instruction, yet the years of online instruction, or lack thereof, during the COVID-19 pandemic may have exacerbated literacy learning and academic achievement. Though less research has been conducted on high schoolers, studies of elementary-aged children suggest the dramatic decline in reading ability. Students are falling drastically behind in their reading comprehension at schools across the United States (Goldstein, 2022). As a result, it is essential for English Language Arts educators to find new ways to engage students with literature. Studies have shown that the implementation of music in a curriculum has the potential to positively impact the cognitive development of students and may combat many of the negative effects of declining reading levels such as low self-esteem, short attention span, and lower achievement rates (Atıgan, 2021). Therefore, this study aims to answer the question: What effect does music integration have on student engagement with novels?

Literature Review

Reading is an essential skill in the English classroom and the world beyond, and a student's ability to read effectively and meaningfully can have a significant impact on their self-esteem and future success. Scharlach (2008) asserts that "children who struggle with reading acquisition perform lower in other subject areas, possess lower self-esteem, present greater discipline problems in school, and are less likely to finish high school" (p. 158). In the classroom, struggling readers who have been labeled as such for most of their lives may have been conditioned to expect failure. Their low self-efficacy may result in a lack of engagement with the texts (Morgan et al., 2008). To make matters worse, literature is sometimes taught in a way that does not effectively engage students. Kalin (2017) and Milner et al. (2017) suggest that too often English teachers present texts and focus on reading to receive a grade. Gallagher (2009) argues "how the overemphasis on testing is playing a major part in killing off readers in

America's classrooms" (p. 7) because it devalues the act of reading altogether and attempts to place a numerical value primarily on the skills of reading.

Given the connection between literature and music as well as the potential benefits of arts integration, there is a visible place for music to exist in the English classroom. Music plays a key role in helping high schoolers develop a stronger sense of self and establishing their identity whilst grappling with physical, environmental, and social changes (Carmen, 2009; Ford, 2020). Music can also serve as a mirror that "represents some internalized aspect of the younger person" that they may feel is otherwise suppressed, misunderstood, and underrepresented (McFerran, 2011, p. 101). Educators have begun to realize the need to reach students through more creative methods, and many teachers have had great success integrating music into their curriculum (Collins, 2021; McDermott et al., 2017; Rubin, 2011). McDermott et al. (2017) recognizes the importance of aesthetic, abstract approaches to literature that allow students to explore their readings through more creative approaches, rather than submitting to a strict set of standards that prohibits the text from coming to life. Giving music a place in the English classroom can foster collaboration, which teaches students essential communication skills (Ford, 2020; Hallam, 2010).

Methods

This action research study was conducted during the spring of 2023 at a public high school in a suburb of the southeastern United States. Each participant and their guardian completed assent and consent forms, respectively, and the study concluded with 32 participants. Research has previously established a link between music and poetry, and the integration of music in the English classroom has proven to increase student engagement and interest. This study conducted interventions during a unit on *Lord of the Flies* (Golding, 2011). Throughout the unit, students critically analyzed each chapter to identify a theme statement, and they found a song to represent each theme.

To conduct this study, the researcher began by giving all students a music taste survey and placed them in groups based on their answers. After the groups were assigned, the *Lord of the Flies* unit began. The class read one chapter of the novel each night for homework, and at the end of each class discussion, they were asked to write a theme statement regarding the message from that chapter. On every Friday throughout the unit, the instructor hosted a *Lord of the Flies* soundtrack work day. Each genre group worked together to fill out the soundtrack document. The document asked students to write a theme statement for each chapter, assign a song that relates to

that theme, and find quotes from the chapter in addition to lyrics from the song that support their theme. Every genre group did this for all twelve chapters of the book and turned in the final compilation, which served as their soundtrack for the novel at the end of the unit.

The data collected for this study included a pre- and post-survey, music taste questionnaire, and the soundtrack document. The pre-survey asked students to rate their interest in reading with a Likert scale ranging from one, indicating strong disagreement, to four, indicating strong agreement. There were additional Likert scale questions measuring how intimidated students were by the length of texts and their confidence in reading novels. Following the Likert scale questions, the researcher provided a series of open-ended questions to give students a chance to explain themselves further. They were asked why they do, or do not, like to read; if novels scare or excite them; and if they believe music has a place in classroom. Student artifacts were also collected to demonstrate the students' conceptualization of the novel and research intervention. Their final soundtrack document demonstrated each group's ability to successfully craft a theme statement and tie that statement to textual evidence from *Lord of the Flies* and their song choice.

The researcher collected the surveys and coded the student responses to the Likert scale questions. Once the data were organized, the researcher looked for emerging themes and decided that four of the most relevant to the research question would guide her analysis. These themes included connections, focus on the details, fun, and not beneficial.

Results

Through coding of the open-ended responses, one of the main themes that arose was students being able to make connections from music to the novel, thus increasing their understanding of the text. Student 2, who indicated through the Likert scale questions that she previously enjoyed reading, said that "being able to connect different kinds of media like literature and music can help to better analyze and understand a piece of work." Student 19 said that he "would often rather do something else" than read and that "novels do not scare or excite" him. When asked on the post-survey about his thoughts on the intervention, he wrote, "I did enjoy it, because I really enjoy music and the activity made me more excited to work with the novel. I also believe it made the novel easier to understand by comparing it to the songs I know." His responses indicated that being able to make connections to the music he already liked made the novel more engaging and approachable.

Another theme that emerged from the surveys was the intervention's ability to encourage students to focus more on the details of the novel. Student 1 remarked that music itself improved her focus, and the intervention "helped me think more in depth about [*Lord of the Flies*]." Student 31, who initially expressed apprehension about her interest in novels, had a similar comment: "I thought about every little situation and how this could relate with the book or song and that deep thinking made me understand more."

The next theme the researcher discovered when coding the data was that students found the project fun. Though Student 5's understanding of the novel was not improved, he did comment that it "was fun to do and a nice use of class time." Student 30 also commented that "music is simply a popular form of poetry, and people often can learn more from analyzing something they enjoy." It is worth noting that this was a shift form her response to the same question on the pre-survey, wherein she had more trouble articulating why music might have a place in the English classroom. Student 26 represented another shift; this student wrote on her pre-survey, "I don't like to read because the books are too dense." On her post-survey, she found the intervention to be engaging: "It was fun and made chapters easier to understand."

The last theme included students who did not find the music integration helpful in their understanding of the novel. Student 4 noted on his Likert scale questions on both surveys that he did not particularly enjoy listening to music, and he did not listen to it often. On the music taste survey, he did not indicate any favorite artists or songs. When answering the open-ended prompts on the post-survey, the student wrote, "Music doesn't help me learn, but I could see why it might help other people learn and comprehend what is happening in the books." Though he could see the benefit of music integration in the English curriculum for others, he himself did not benefit from this intervention: "It didn't help me understand what was happening, as I already know what happened, and I don't really remember song names or listen to music all that often, so this was not very easy for me." When asked about assigning songs to each chapter, Student 6 responded, "I didn't really enjoy giving each section of the novel a song because I didn't really know what to look for."

Discussion

This research investigated the effect that integrating music into the study of a novel would have on student engagement. The study found that the intervention positively affected student engagement with the novel overall. Almost every student expressed an interest in music

before the unit started, many of them saying that music was something that helped to calm them and make them feel understood. After the unit, many students noted that music should have a place in the English classroom, not only because music is a form of poetry but also because it is something that so many students understand and enjoy. When asked on the post-survey if the playlist project helped them better understand *Lord of the Flies* (Golding, 2011), most students noted that it increased their understanding and created a more fun environment in which to read it. Music is integral to the lives of many teenage students, and it is a valuable tool that educators can use to increase student engagement, comfortability, and confidence.

On their post-survey, most students wrote that the playlist creation did help them understand *Lord of the Flies,* thus increasing their engagement. Some students remarked that it was the most fun way they have ever been asked to interpret a novel, and others enjoyed working with their classmates while listening to music. This positive feedback is supported by Dunn and Johnson's (2020) research, which states that readers become more engaged in material if they are given a chance to respond authentically, rather than in a format like a multiple-choice assessment. Schreuder and Savitz (2020) align with Student 21's thoughts on group work with their research on the importance of peer collaboration and its necessity within classrooms. They argue that collaborative learning activities have been proven to increase student engagement, motivation, and interest in reading (Schreuder & Savitz, 2020). The *Lord of the Flies* unit aligns with these researchers' call for more authentic experiences within the classroom that involves more than just individual students but creates groups that can bond over shared interests and answer each other's questions.

References

Atıgan, D. S. (2021). Impacts of music education on different areas of personal development. *International Journal of Curriculum and Instruction*, *13*(3), 23.

Carmen, C-C. (2009). Music for engaging young people in education. *Youth Studies Australia*, *28*(2).

Collins, K. O. (2021). Discovering hip-hop: A case for bringing *Hamilton* into students' lives. *English Journal, 110*(4), 26-36.

Dunn, M. B., & Johnson, R. A. (2020). Loss in the English classroom: A study of English teachers' emotion management during literature instruction. *Journal of Language and Literacy Education*, *16*(2), 21.

Ford, M. (2020). Communication, identity, respect: A case study of collaborative music practice in a community music project. *Music Education Research*, *22*(3), 287–303. https://doi.org/0.1080/14613808.2020.1763287

Gallagher, K. (2009.) *Readicide: How schools are killing reading and what you can do about it.* Stenhouse Publishers.

Golding, W. (2011). *Lord of the flies*. Faber & Faber.

Goldstein, D. (2022, March 8). It's 'alarming': Children are severely behind in reading. *The New York Times*. https://www.nytimes.com/2022/03/08/us/pandemic-schools-reading-crisis.html

Hallam, S. (2010). The power of music: Its impact on the intellectual, social and personal development of children and young people. *International Journal of Music Education*, *28*(3), 269–289. https://doi.org/10.1177/0255761410370658

Kalin, M. (2017). The crisis in the humanities: A self-inflicted wound? *Independent School*, *76*(2).

McDermott, P., Falk-Ross, F., & Medow, S. (2017). Using the visual and performing arts to complement young adolescents' "close reading" of texts. *Middle School Journal*, *48*(1), 27–33. http://www.jstor.org/stable/44320351

McFerran, K. (2011). Music and adolescents. In N. S. Rickard & K. McFerran (Eds.), *Lifelong Engagement with Music* (pp. 97–108). Nova Science Publishers, Inc.

Milner, J. O., Milner, L. M., & Mitchell, J. F. (2017). *Bridging English* (6th ed). Pearson.

Morgan, P. L., Fuchs, D., Compton, D. L., Cordray, D. S., & Fuchs, L. S. (2008). Does early reading failure decrease children's reading motivation? *Journal of Learning Disabilities*, *41*(5), 387–404. https://doi.org/10.1177/0022219408321112

Rubin, D. I. (2011). Mindcrime and doublethink: Using music to teach dystopian literature. *English Journal*, *101*(2), 74–79.

Scharlach, T. D. (2008). These kids just aren't motivated to read: The influence of preservice teachers' beliefs on their expectations, instruction, and evaluation of struggling readers. *Literacy Research and Instruction*, *47*(3), 158–173. https://doi.org/10.1080/19388070802062351

Schreuder, M-C., & Savitz, R. S. (2020). Exploring adolescent motivation to read with an online YA book club. *Literacy Research and Instruction*, *59*(3), 260–275. https://doi.org/10.1080/19388071.2020.1752860

Dedicated Social Studies Instruction in Elementary Schools: A Case Study

Kathleen Rainey

with Adam Friedman
Wake Forest University
Department of Education
June 2023

Introduction

When considering the teaching and learning of social studies in American elementary schools, several characteristics tend to emerge: it is typically taught at the end of the day, social studies instruction does not occur every day, students learn about historical figures, events, or time periods through novels, picture books, or informational texts during literacy blocks, fun activities and projects, field trips, videos, and reading a textbook in conjunction with answering low-level comprehension questions. These characteristics are typical of elementary social studies instruction in the twenty-first century, particularly after the implementation of the No Child Left Behind Act, which was a reauthorization of the Elementary and Secondary Education Act (Boyle-Baise, Fitchett & Heafner, 2010; McGuire, 2007; Ming-Chu, Johnson, Serrier, & Dorshell, 2008; Thacker, Friedman, Fitchett, Journell, & Lee, 2018). Since social studies was not included in one of the prioritized subject areas, the allotted instructional block significantly decreased to reallocate instructional time for tested subjects. Tyner and Kaborurek (2020) argued that results on reading standardized assessments were significantly positive for students who had dedicated social studies focused on content information and content vocabulary.

Literature Review

The National Council for the Social Studies created an overarching goal for grades kindergarten through twelfth grade. The council states that the goal is to "...help young people to develop the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world" (NCSS, 2022).

In 2001, the federal government implemented the No Child Left Behind Act, a reauthorization of the Elementary and Secondary Education Act (Burroughs, Groce & Webeck, 2005; Fitchett & Heafner, 2010; McGuire, 2007; Thacker, Friedman, Fitchett, Journell & Lee,

2018). Boyle-Baise, Hsu, Johnson, Serriere, & Stewart (2008) stated this act required students to take a yearly standardized assessment in mathematics, reading and specific science courses to determine their proficiency. Researchers confirmed the law required each state to create Adequate Yearly Progress goal(s) for individual schools to meet (Burroughs, Groce, & Webeck, 2005; Fitchett & Heafner, 2010).

This educational reform resulted in the marginalization of the teaching and learning of social studies. (Fitchett & Heafner, 2010; McGuire, 2007). Therefore, dedicated instructional time for social studies began to decrease in order to focus on tested subjects (Burroughs, Groce, & Webeck, 2005; Fitchett & Heafner, 2010; Fitchett, Heafner & Lambert, 2014). Hawkman, Castro, Bennett, and Barrow (2015) found dedicated social studies instructional blocks occurred two to three times per week and typically alternated with science.

As a result of the No Child Left Behind Act, pre-service elementary teachers lack opportunities to observe or teach social studies in dedicated instructional blocks because of the emphasis placed on tested subjects (Brophy, Alleman, Knighton, 2009; Fitchett, Heafner, & Lambert, 2014; Hawkman, Castro, Bennett, & Barrow, 2015). Fitchett, Heafner, & Lambert (2014) implied teachers need more experience during their pre-service training to gain pedagogical knowledge. McGuire (2007) put forth once teachers enter the profession, the professional development they receive is focused on math and literacy instruction.

Principals and other administrators tend to encourage social studies if it promotes the development of literacy skills through an integration (Boyle-Baise, Hsu, Johnson, Serreire, & Stewart, 2008; Fitchett, Heafner & Lambert, 2014). Several researchers concluded the integration approach narrowed the social studies curriculum (Boyle-Baise, Hsu, Johnson, Serreire, & Stewart, 2008; Burroughs, Groce & Webeck, 2005; Hawkman, Castro, Bennett & Barrow, 2015; McGuire, 2007). Further, Boyle-Baise, Hsu, Johnson, Serreire, and Stewart (2008) argued integration assumes that social studies does not have specific content, skills, or concepts.

Burroughs, Groce, and Webeck (2005) posited students are not knowledgeable about civic engagement or the American political process due to the marginalization of social studies education, especially in the early educational years. Burroughs, Groce, and Webeck (2005) offer the lack of dedicated social studies instruction had long term ramifications on students as they age into secondary grades. Secondary teachers reported students are not prepared for social

studies courses in middle and high schools. Hawkman, Castro, Bennett, and Barrow (2015) suggested advocacy for social studies needed to begin at the elementary level in order to build students' foundational knowledge for secondary social studies courses.

Dedicated social studies instruction needs occur at the elementary level in American schools. Tyner and Kabourek (2020) found that this dedicated time allows students to build background knowledge to understand and analyze other texts, especially in reading. Because of the necessity of exploring how social studies is taught at the elementary level, this study seeks to explore how the implementation of dedicated Social Studies instruction in elementary schools impact reading comprehension scores.

Methodology

This study began with a pre-study teacher interview to gain understanding about Mrs. Jones' knowledge and use of social studies in elementary school. Mrs. Jones taught three units of dedicated social studies instruction. Before each social studies unit, students completed a pre-assessment that included historical fiction and non-fiction reading passage. After reading the passages, students answered five questions for each passage using question stems based on the types of questions posed on the end of year state reading assessments. At the conclusion of each unit of study, students completed post-assessments similar to the pre-assessments. Finally, the researcher conducted a teacher interview after the implementation of dedicated social studies instruction.

Results

During this study, students received between twenty and thirty minutes of instruction. In the post-study interview, Mrs. Jones expressed that it would be beneficial to discuss social studies in Professional Learning Team meetings. If teachers were able to have time to discuss social studies at these meetings, they could research more information, get a deeper understanding of the standards and objectives for social studies, as well as create lessons and assessments.

Mrs. Jones utilized similar instructional strategies to teach social studies in each unit that was observed. She used the slideshow presentations created by the school district to provide teacher-facilitated instruction. Mrs. Jones relied on slideshow presentations to teach because they

were ready-made instructional materials provided by the district. Throughout this study, Mrs. Jones implemented a great deal of nonfiction reading into the social studies instructional block.

One trend that occurred during observations included different disruptions to the scheduled social studies instructional time. Since reading and math are tested subjects, most of the instructional time disruptions occurred during social studies and science instructional blocks. Most of the participating students in this study were proficient on the pre-assessments and post-assessments for both fiction and nonfiction selections. For two of the three units, they were able to display growth between the pre and post assessments for both fiction and nonfiction selections. Students frequently missed questions about text structure and main ideas. Students were more proficient on point of view and inference questions. Overall, the results of this study were positive in showing that dedicated social studies instruction benefits students' proficiency in reading.

Discussion/Implications

Dedicated social studies instruction with limited non-academic interruptions positively impacted students' reading proficiency. The majority of students grew in their reading proficiency, which can have a direct impact on student performance on the end of year state standardized reading assessment.

Social studies aids students in developing higher order thinking skills. During social studies, students not only have to read text, but also sources such as graphs, charts, maps, images, and videos. This allows students to use different sources to contextualize the past and generate questions for further consideration and research.

When creating schedules for grade levels and classrooms, administrators need to consider the impact that social studies has on other subjects, particularly reading. Teachers need time in Professional Learning Team meetings to discuss social studies. The standards and objectives for social studies can be technical, so they need time to unpack the standards and objectives together in order to understand what students need to know. Instructional coaches that have a social studies background are an asset for elementary teachers. Instructional coaches can provide the pedagogical knowledge and content knowledge for social studies that many elementary teachers did not acquire in their teacher preparation programs or experience in the classroom. Instructional coaches can support teachers by helping with lesson development, unpacking of

standards and objectives during Professional Learning Team meetings, or modeling/co-teaching of lessons.

Conclusion

This case study will not only impact social studies at the elementary level, but also at the secondary level. With a shift to include dedicated social studies instructional blocks in the class schedule, it will give students the opportunity to build their historical thinking and critical thinking skills. Not only will dedicated social studies instruction impact students in the K-12 setting, but also as they become adults. Through the building of critical thinking skills, students will have the ability to problem solve and effectively communicate with others. Dedicated social studies instruction throughout K-12 will help encourage students to become active citizens while they are in school and as they age into adulthood.

References

Boyle-Baise, M., Hsu, M., Johnson, S., Cayout, S., & Stewart, S. & D. (2008). Putting reading first: Teaching social studies in elementary classrooms. *Theory and Research in Social Education, 36*(3), 233-255. http://doi.org/10.1080/00933104.2008.10473374

Brophy, J., Alleman, J., & Knighton, B. (2009). *Inside the social studies classroom.* New York.

Burroughs, S., Groce, E., & Webeck, M. L. (2005). Social Studies education in the age of testing and accountability. *Education Measurement: Issues and Practice, 24*(3), 13-20. http://dx.doi.org/10.1111/j.1745-3992.2005.00015.x

Fitchett, P. G., & Heafner, T. L. (2010). A national perspective on the effects of high-stakes testing and standardization on elementary social studies marginalization. *Theory & Research in Social Education, 38*(1), 114-130. https://doi.org/10.1080/00933104.2010.10473418

Fitchett, P. G., Heafner, T. L., & Lambert, R. (2014). Assessment, autonomy, and elementary social studies time. *Teachers College Record, 116*(10), 1-34.

Hawkman, A. M., Castro, A. J., Bennett, L. B., & Barrow, L. H. (2015) Where is the content?: Elementary social studies in preservice field experiences. *The Journal of Social Studies Research, 39*(4), 197-206. http://dx.doi.org/10.1016/j.jssr.2015.06.001

McGuire, M.E. (2007). What happened to social studies? The disappearing curriculum. *Phi Delta Kappan, 88*(8), 620-624.

National Council for theSocial Studies. (22 Sept. 2022). *About Social Studies*. https://www.socialstudies.org/about/about#

Thacker, E., Friedman, A.M., Fitchett, P. G., Journell, W., & Lee, J.K. (2018). Exploring how an elementary teacher plans and implements social studies inquiry. *The Social Studies, 109*(2), 85-100. http://doi.org/10.1080/00377996.2018.1451983

Tyner, A. & Kabourek, S. (2020). *Social studies instruction and reading comprehension: Evidence from the early childhood longitudinal study.* Thomas B. Fordham Institute. https://fordhaminstitute.org/national/resources/social-studies-instruction-and-reading-comprehension

The Impact of Reflection Activities on High School Student's Math Identity

Allie Rice

with Leah McCoy
Wake Forest University
Department of Education
June 2023

Introduction

Today, mathematics is often only being taught as a "performance subject" (Boaler, 2022). Thinking about math in this way can be very dangerous because it leads students to feel that they either know how to find the answer, or they do not. There is rarely an in-between. This results in students identifying either as a "math person" or "not a math person." How students perform in math class greatly influences how they view themselves and their capability in mathematics (Boaler, 2022). It is imperative that students shift their view of themselves within the math classroom. When students feel assured in themselves and capable, there is potential for them to participate productively in mathematics. Moreover, they will have the potential to illustrate "powerful mathematics identities" (Oslund & Barton, 2017, p. 22). A mathematical identity is "an individual's relationship with mathematics" (Leatham & Hill, 2010, p. 226). Furthermore, a mathematical identity "includes beliefs about one's self as a mathematics learner, perceptions of how others perceive them as mathematics learners, and a perception of themselves as a potential participant in mathematics" (Miller & Wang, 2019, p. 2039). The purpose of this study is to examine the promotion of positive mathematical identities in high school math students. The ideas that students have about themselves and their potential in mathematics greatly affect how they learn, their achievement, and their motivation. Boaler (2022) argues that the most powerful types of learners are those who are reflective, that is those who think about what they know, what they don't know, and take control of their learning. This study will look at how the use of reflective activities within a high school math classroom impacts a high school math student's math identity.

Literature Review

Mathematical Identity Development.

Boaler et al. (2000) argue that students who can develop a strong math identity are more like to continue their studies with mathematics compared to their peers who do not have a strong

math identity. In one research study, data from Factors Influencing College Success in Mathematics (FICSM) on 10,437 calculus students found that recognizing students in mathematics significantly influenced their choice of entering a career in engineering (Cribbs, 2016). Another study looking at 2,266 undergraduate students at 129 different colleges and universities found that when students had a negative belief in terms of their confidence in mathematical ability, it largely deterred both male and female students from pursuing careers in STEM (Ellis, et al., 2016). These studies show that when students view themselves as capable of doing mathematics, they feel more confident. Boaler et al. (2000) recommend that there needs to be a shift from students viewing "ability" in math as their status as a mathematician and instead feel a greater sense of "belonging."

Student Beliefs and Growth Mindset.

Research suggests that students who take on a growth mindset will achieve higher grades in school compared to other students who have a fixed mindset (Aronson, et al. 2001; Blackwell et al., 2007). One research study found that students who had a fixed mindset did not have any improvement in their achievement in mathematics while their peers who had a growth mindset showed higher achievement (Blackwell, et al. 2007). Since having a growth mindset is shown to be beneficial for students in their academic learning, it is important to consider different implementations in the classroom to help students reflect on and change the type of mindset that they have. Research suggested that one-time mindset interventions have only a short-term impact (Fraser, 2018). To help create permanent positive changes, the messages that teachers and students give each other and receive need to be consistent. When students have more positive beliefs about their capabilities in math and believe that their intelligence can grow by studying and working hard, they will feel more motivated (Kloosterman, 1996).

Reflective Thinking in Math.

Activities that are centered around reflection can be a powerful tool to bring about change in how a person views themselves and their capability in math. Both students as well as teachers can learn through the use of reflection. The use of reflection is often associated with helping promote a deeper conceptual understanding. One popular use of a type of reflective activity is the use of reflective journals. Reflective journals allow students to examine their "beliefs, values, experiences, and assumptions about the subject matter at hand" (Dyment, 2011, p. 2). One research study looked at 30 students in a Calculus 1 course in which they completed ten

reflective journal entries over the course of a semester. Students were asked to journal at least once a week choosing one or more of the following topics to write about: 1. What have you learned in the past week and what do you know about Calculus? 2. What things are you still unsure about? 3. Questions you have and 4. Topics you are looking forward to learning about. The last journal entry had the students reflect on how they felt and what they thought about the journaling activity over the course of the semester. Results from this study showed that students had a very positive response to the use of journaling in a math setting and that it helped them learn calculus better. About half of the students also indicated that they enjoyed the class more and experienced less anxiety (McCarty & Faulkner, 2020).

Methodology

Participants.

This action research study was conducted in the spring of 2022 in a school district in the southeast. Data was collected from a Math 3 class. Data was collected over the course of two weeks. A pre and post-survey was administered on the first and last day of the study.

Intervention.

The independent variable of this study was the use of different reflective activities. The intervention was conducted by having participants spend 15 minutes a day, once a week reflecting in a math journal and discussing with their peers. Participants also spent 10 minutes, for a total of three learning sessions, taking part in different reflective activities. The first two reflective activities involved showing students two different YouTube videos by Jo Bolar on the science of the brain. These two videos described what a growth mindset is and how the brain can grow. The third reflective activity required students to sit in groups of either three or four students. Students were shown four different scales. Each scale had a different continuum. Students were instructed to place themselves on the continua according to how they felt about math. A whole class discussion was then led for students to share how they felt and why they felt that way. This study took place over a two-week period, resulting in a total of five learning sessions.

Data Analysis.

Quantitative analysis was done on the Likert-scale questions on the pre and post-surveys. The means of each item on the pre and post-survey were compared. Data analysis included a qualitative analysis of open-response questions from focus group interviews. These focus group

interviews were coded for themes. Related items were coded into one of three categories centered around the definition of math identity. Lastly, data was also collected through research field notes and observations.

Results

By analyzing the data from the Likert-scale surveys used in this study, several results regarding the effect of the intervention on high school math students' math identity were evident. In total 15 of the 22 students participating in the intervention had their surveys included in the data set. For students to have their responses considered, they needed to turn in both the pre and post-survey. Both pre and post-surveys given to the students were identical, containing items that measure math identity. Overall, the data collected in these surveys gives insight into how this intervention impacted high school math students' math identity. There was a clear change in the pre and post-surveys. The class mean total Likert score decreased from 4.00 to 3.00 for the pre and post-surveys. This indicates, that overall, after the intervention students in the class had a more positive math identity than they did at the start of the intervention.

Focus group interviews were led by the researcher at the end of this study. The questions in the focus group interviews asked students to reflect on the different activities they took part in. Students were also asked to reflect on what it means to have a positive math identity and whether their own math identity has evolved or changed during the intervention. Students were organized into groups of no more than five students. There were three focus group interviews conducted. In general, it seemed that students felt positive or indifferent about the reflective activities they participated in. Three themes emerged in relation to student responses from the focus group interviews: development of growth mindset, increased self-awareness, and applications of mathematics.

When students were asked to describe what it means for someone to have a positive math identity many students stated that it meant someone believes they can succeed in math and has confidence in their math abilities. Students also shared that they felt it was valuable for a teacher to recognize that it is okay to struggle and encounter failure in math. This realization is directly related to the idea behind what it means to have a growth mindset. While there were many positive results from this intervention, it was also noticeable that students felt some anxiety and frustration with mathematics. When asked about their experience during this intervention, students would also discuss their frustration with why they were learning specific math topics.

Many students would often ask, “Why do we even need to know all of this math?” It was evident that many students shared this sentiment and would often question the purpose behind learning certain math content. One student shared, “I just don’t know why we need to learn this math if we don’t ever use it.” Another student stated, “I just feel like all math is just memorization. I don’t know why we need to know it though.” Overall, many students shared and demonstrated a desire to understand why they are learning specific math topics as well as how is math used more in real-world situations.

Conclusion

Results indicated that after the two-week intervention of reflective activities, students had a more positive math identity. Based on the Likert scale surveys and focus group interviews, students were able to recognize and reflect on their feelings towards their math abilities and role in a math community. Prior to the intervention, the pre-survey illustrated that many students had a negative math identity and little to no confidence in their math abilities. The post-survey showed growth in students’ math identity, more specifically, growth was shown regarding three different characteristics that together define math identity. These characteristics include students’ beliefs about themselves as mathematic learners, students’ perceptions of how others perceive them as mathematics learners, and students’ perceptions of themselves as potential participants in math. students taking time to reflect on their knowledge, struggles, and the type of mindset they have can play a vital role in promoting a positive math identity. By promoting self-awareness, a growth mindset, and a sense of belonging in a math community, students can develop a stronger sense of confidence in their math abilities. Nurturing a strong math identity for high school math students is critical for long-term success and commitment to mathematics.

References

Aronson, J., Fried, C. B., & Good, C. (2001). Reducing the effects of stereotype threat on African American college students by shaping implicit theories of intelligence. *Journal of Intervention Social Psychology*, *38*(2), 1–13. https://doi.org/10.1006/jesp.2001.1491

Blackwell, L., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development, 78*(1), 246–263. https://doi.org/10.1111/j.1467-8624.2007.00995

Boaler, J. (2022). *Mathematical mindsets: Unleashing students' potential through creative mathematics, inspiring messages and innovative teaching* (Second edition). Jossey-Bass.

Boaler, J., Wiliam, D., & Zevenbergen, R. (2000). *The Construction of Identity in Secondary Mathematics Education*. (ED482654). ERIC.

Cribbs, J. D. (2012). *The development of freshman college calculus students' mathematics identity and how it predicts students' career choice.* (Publication No. 1651828584) [Doctoral Dissertation, Clemson University]. ProQuest Dissertations and Theses Global.

Dyment, J. E., & O'Connell, T. S. (2011). Assessing the quality of reflection in student journals: A review of the research. *Teaching in Higher Education*, *16*(1), 81–97. http://www.informaworld.com/openurl?genre=article&id=doi:10.1080/13562517.2010.507308

Ellis, J., Fosdick, B. K., & Rasmussen, C. (2016). Women 1.5 times more likely to leave STEM pipeline after calculus compared to men: Lack of mathematical confidence a potential culprit. *PLOS ONE*, *11*(7), e0157447. https://doi.org/10.1371/journal.pone.0157447

Fraser, D. M. (2018). An exploration of the application and implementation of growth mindset principles within a primary school. *British Journal of Educational Psychology*, *88*(4), 645–658. http://dx.doi.org/10.1111/bjep.12208

Kloosterman, P., Raymond, A. M., & Emenaker, C. (1996). Students' beliefs about mathematics: A three-year study. *Elementary School Journal*, *97*(1), 39–56. http://dx.doi.org/10.1086/461848

Leatham, K. R., & Hill, D. S. (2010). Exploring our complex math identities. *Mathematics Teaching in the Middle School*, *16*(4), 224–231.

McCarty, L. A., & Faulkner, M. S. (2020). Integrating writing and mathematics: Journaling to increase learning and enjoyment while reducing anxiety. *Teaching Mathematics and Its Applications*, *39*(3), 145–159. http://dx.doi.org/10.1093/teamat/hrz010

Miller, R. S., & Wang, M. (2019). Cultivating adolescents' academic identity: Ascertaining the mediating effects of motivational beliefs between classroom practices and mathematics identity. *Journal of Youth and Adolescence*, *48*, 2038-2050. https://doi.org/10.1007/s10964-019-01115-x

Oslund, J. A., & Barton, J. (2017). Creating zines: Supporting powerful math identities. *Mathematics Teaching in the Middle School*, *23*(1), 20–28. https://doi.org/10.5951/mathteacmiddscho.23.1.0020

The Influence of Humor on Student Engagement with Nonfiction Texts

Lily Richards

with Alan Brown
Wake Forest University
Department of Education
June 2023

In 2014, the Common Core State Standards (CCSS) required schools to adopt a 70-30 split between fiction and nonfiction texts in middle and high school classrooms (Milner et al., 2017). With the proliferation of nonfiction content in English courses as a result, it has become imperative that teachers find ways to increase student engagement with and perception toward informational texts. CCSS asserts that informational texts should inform, persuade, argue, and offer purpose (Milner et al., 2017). Yet, it is unnecessary to view nonfiction through such an inflexible lens given that it provides a myriad of genres and purposes, including essays, biographies, testimonials, and diaries. Milner et al. (2017) encourages teachers to "rethink and expand out students' experiences of nonfiction" (p. 303). To do this, teachers may integrate nonfiction genres that are relevant and of personal interest to students, including romance, science fiction, and comedy. Comedy can be a particularly useful liaison between students and nonfiction texts. As Goebel (2009) attests, humor may reduce students' anxiety toward complex material and increase their receptiveness to new or difficult content, including nonfiction texts (Goebel, 2009). The purpose of this study is to explore the ways in which teachers can use humorous autobiographies and personal narratives to increase student engagement with nonfiction texts. Ultimately, this researcher seeks to answer the following question: How does humor influence student engagement with nonfiction texts in a secondary English classroom?

Literature Review

Students are often taught to think of nonfiction texts as strictly factual or informational (Dawkins, 1977). As a result, students may perceive nonfiction texts as uninteresting (Skinner, 2022) and inaccessible (Cervetti et al., 2009). Humor is an interdisciplinary tool that can be used to increase accessibility and engagement with complex classroom content, such as political commentary and nonfiction texts (Alexander & Wood, 2019). Numerous studies indicate that students maintain a higher level of interest and engagement with intricate material when it is

being taught through a narrative and informal lens, such as storytelling or humor (Huss & Eastep, 2016). Humor has also been shown to develop an increased openness among the instructor and their students, thus creating a more comfortable and relaxed learning environment (Goebel, 2009; McCabe et al., 2017).

The influence of humor on student engagement with classroom content is nearly undisputed by experts in the education field (Goebel, 2009; Mayo, 2014). However, research on humor in the English classroom tends to focus on student engagement with fictional texts. There is a resulting gap in information on the influence of humor on student engagement with nonfiction texts. Nonfiction humor is a growing field in the publishing industry as autobiographical authors such as David Sedaris and Augusten Burroughs use humor to reflect and write on their lived experiences. Given that humor has been used to increase student interest (Goebel, 2009), it is imperative that researchers consider addressing this growing field in their studies on student engagement in the English classroom.

Methods

This action research study was conducted in an English III Honors course at a traditional public high school in the southeastern United States. All twenty-eight students enrolled in English III Honors completed the consent and assent process. Those twenty-eight participants make up the sample for this study.

To examine the influence of humor on student engagement with nonfiction texts, the researcher integrated a series of comedic, autobiographical stories over a four week period. Each week, the researcher introduced a new humorous nonfiction excerpt, including: “I’ll Eat What He’s Wearing” (Sedaris, 2000), “Married on the Fourth of July” (Lawson, 2012), “Three Great Loves” (Brunson, 2021), and “Bad Sleeper” (Poehler, 2015).

The researcher began the study with a metacognitive reading of “I’ll Eat What He’s Wearing” (Sedaris, 2000), pausing and commenting each time she came across a humorous moment in the story. During the read-aloud, students were encouraged to mimic the researcher’s annotation techniques, highlighting humorous moments in the text, and briefly responding to them in the margins of the story. The read-aloud was followed by a class-wide discussion, during which students were prompted to volunteer pieces of the text that they highlighted and their reasoning for doing so. After the class was finished discussing, the researcher transitioned to an independent writing activity. In line with Sedaris’ conflict in “I’ll Eat What He’s Wearing”

(2000), students were prompted to write a short, humorous story detailing a memorable food experience. After they finished writing, students were asked to submit their personal narratives to the researcher for independent review and feedback.

Weeks two through four of the study followed the structure applied in week one. Week two introduced "Married on the Fourth of July" (Lawson, 2012); week three focused on "Three Great Loves" (Brunson, 2021); and week four centered around "Bad Sleeper" (Poehler, 2015). Again, students were expected to highlight and annotate the text, share their findings in a class-wide discussion, and compose a humorous personal narrative based on the main conflict in the selected text. The central conflicts for weeks two through four included the following: experiences with animals; first crushes; and poor sleeping habits.

During this study, the researcher collected the following types of data: pre- and post-surveys, student artifacts including short stories, post-reading reflections, and observational field notes. To begin the data analysis process, the researcher input the Likert scale responses from the pre- and post-surveys and post-reading reflections into an Excel sheet and categorized them into their applicable groups: strongly disagree, disagree, agree, and strongly agree. After categorizing the results, the researcher totaled the number of students for each rating and used this data to examine quantitative differences between the pre- and post-surveys and post-reading reflections. To code the open response questions on the pre- and post-surveys and post-reading reflections, the researcher created categories based on common response patterns. Once the categories were determined, the researcher totaled the number of respondents in each group and then used this data to gauge students' engagement with nonfiction texts, both before and after the intervention.

Results

Of the twenty participants who submitted post-surveys, thirteen students agreed or strongly agreed with the statement, "My understanding of nonfiction has changed in the last month" (q7). Many students attributed their positive rating to having an expanded understanding or increased exposure to nonfiction texts. For example, one student who agreed with q7 explained, "There are a lot of different types [of nonfiction] that I hadn't thought of before." Other students attributed their positive rating to having a more generous understanding of nonfiction. For example, one student wrote, "I found that not all nonfiction is boring." It is worth noting that only one student used humor to explain their positive rating: "Yes, because humor made the stories more interesting."

Prior to the intervention, only fifty percent of students claimed to enjoy reading nonfiction. After the invention, the percentage of students who claimed to enjoy reading nonfiction grew to seventy, indicating a twenty percent growth. In comparison to reading nonfiction, only eighteen percent of students indicated that they enjoyed writing nonfiction prior to the invention. After the intervention, this number rose by two percent, for a total of four students.

The pre- and post-surveys were helpful in establishing a baseline understanding of the impact of the intervention on student engagement with nonfiction texts. However, throughout the unit, it became apparent that students' responses to and attitude toward nonfiction texts were heavily dependent on the writing style and content of the selected readings. To better understand students' responses to the individual excerpts, the researcher broke down the results into the four post-reading reflections.

Of the four humorous nonfiction texts, "I'll Eat What He's Wearing" (Sedaris, 2000), received the lowest overall rating, with a 2.89 out of 5. Despite the low average score, twenty-three students claimed to enjoy reading the story and twenty-one students attributed humor as being the reason for their enjoyment of the story. In comparison to the inaugural text, "Married on the Fourth of July" (Lawson, 2012) received a significantly higher overall score, with a 3.43 out of 5. Twenty-one students claimed to enjoy reading the story, though only eight respondents credited their enjoyment to its comedic elements. Instead, most respondents explained that they enjoyed the excerpt because of the nature of the content: a wedding. "Three Great Loves" (Brunson, 2021) received the highest overall score, with a 3.62 out of 5. Twenty-three students claimed to enjoy reading the story; however, only two of the positive respondents offered humor as an explanation for their enjoyment of the story. Instead, many students reasoned their positive rating on the "interesting" storyline. "Bad Sleeper" received the second lowest overall score, with a 2.95 out of 5. Only fourteen students indicated that they enjoyed reading the story and, like the second and third stories, most of the positive respondents focused less on the humorous undertones and more on the story's "enjoyable" qualities.

Discussion

Data collected from pre- and post-surveys revealed a twenty percent increase in the number of students who claimed to enjoy reading nonfiction and a two percent increase in the number of students who claimed to enjoy writing nonfiction. The overall increase in the number

of students who claimed to enjoy reading and writing nonfiction suggests that a unit on nonfiction humor positively influenced student engagement with nonfiction texts. Further, sixty-five percent of students indicated that their understanding of nonfiction changed in the month that the intervention took place. Students' explanations for their changed understanding of nonfiction (e.g., "There are a lot of different types that I hadn't thought of before") reveal a broader and more positive perception of the genre than they had prior to the unit.

While humor was the primary focus of this unit, only one student offered it as an explanation for their altered perception of nonfiction: "Yes, because humor made the stories more interesting." Students' post-reading reflections indicated similar findings. For example, "Three Great Loves" (Brunson, 2021) received the highest average score, yet only two of the twenty-three positive respondents offered humor as an explanation for their enjoyment of the story. The fact that students responded positively to the story but did not acknowledge its comedic successes suggests that humor was not the driving factor in their enjoyment of the text.

Instead, students' engagement with the selected nonfiction texts seemed to prioritize relatability and relevancy over humor. For example, many students attributed their low rating of "I'll Eat What He's Wearing" (Sedaris, 2000) to its unrelatable content. As one student remarked, "I don't wanna write about a man who eats clothes." Conversely, stories with more applicable content – such as poor sleeping habits – tended to receive higher scores. As one student enthusiastically responded to "Bad Sleeper" (Poehler, 2015), "Yes! [Amy Poehler's] so cool and now I know I'm like her." These responses are consistent with Fisch and Chenelle's (2016) study, which found that relevancy and relatability play an essential role in student engagement with nonfiction texts.

Given these results, humor may not have been the sole reason for increased student engagement with nonfiction texts in this study. However, as numerous students attest, humor can play a helpful role in shifting students' perspective and understanding of the genre. Prior to the intervention, many students described the relationship between humor and nonfiction as "nonexistent." As one student remarked, "I don't think I have read something nonfiction that is funny." After the intervention, however, students began describing the relationship between humor and nonfiction as "beneficial" and "helpful." As one student commented, "Humor makes real life stories and passages more relatable and easier to read." Another student similarly observed, "Humor can help to make a nonfiction story much more enjoyable and easier to read."

References

Alexander, S., & Wood, L. M. (2019). No news is good news? Satirical news videos in the information literacy classroom. *Libraries and the Academy, 19*(2), 253-278. https://doi.org/10.1353/pla.2019.0015

Brunson, Q. (2021). "Three great loves." In *She memes well* (pp. 79-107). HarperCollins Publishers.

Cervetti, G. N., Bravo, M. A., Hiebert, E. H., Pearson, P. D., & Jaynes, C. A. (2009). Text genre and science content: Ease of reading, comprehension, and reader preference. *Reading Psychology, 30*(6), 487-511. https://doi.org/10.1080/02702710902733550

Dawkins, J. (1977). Defining fiction and nonfiction for students. *Language Arts*, *54*(2), 127–129.

Fisch, A. A., & Chenelle, S. (2016). Using nonfiction to enhance our teaching of literature. *English Journal*, *105*(4), 31–36.

Goebel, B. A. (2009). Comic relief: Engaging students through humor writing. *English Journal, 98*(6), 38-43.

Huss, J., & Eastep, S. (2016). The attitudes of university faculty toward humor as a pedagogical tool: Can we take a joke? *Journal of Inquiry & Action in Education, 8*(1), 39-65.

Lawson, J. (2012). "Married on the Fourth of July." In *Let's pretend this never happened (A mostly true memoir)* (pp. 95-99). Berkley Books.

Mayo, C. (2014). Humorous relations: Attentiveness, pleasure and risk. *Educational Philosophy and Theory, 46*(2), 175-186. https://doi.org/10.1080/00131857.2012.721731

McCabe, C., Sprute, K., & Underdown, K. (2017). Laughter to learning: How humor can build relationships and increase learning in the online classroom. *Journal of Instructional Research, 6*(1), 4-7.

Milner, J. O., Milner, L. M., & Mitchell, J. F. (2017). Assaying nonfiction. In *Bridging English* (6th ed). Pearson.

Poehler, A. (2015). "Bad sleeper." In *Yes, please* (pp. 171-184). HarperCollins Publishers.

Sedaris, D. (2000). "I'll eat what he's wearing." In *Me talk pretty one day* (pp. 265-272). Little, Brown and Company.

Skinner, T. (2022). Promoting agency and building engagement with nonfiction reading. In M. Krebs & C. A. Torrez (Eds.), *K-12 teacher inquiry and reflections* (pp. 109-128). Lexington Books.

The Influence of Authentic Letter Writing on Students' Attitudes toward Writing in the Secondary English Classroom

Luke Tatum

with Alan Brown
Wake Forest University
Department of Education
June 2023

Writing instruction in K-12 schools is under a microscope as writing is not only an indicator of future success (Bradberry & De Maio, 2019) but also a transferable skill with universal value. Since the written word is one of humanity's primary means of expression and communication, writing skills yield personal, social, and political benefits. Murray (1985) captured this idea well by saying, "we write to think – to be surprised by what appears on the page; to explore our world with language; to discover meaning that teaches us and that may be worth sharing with others" (p. 4). The challenge lies in getting students to view writing the same way, as standardized education has reduced writing in schools to a blunted, formulaic practice (Milner et al., 2017). To counteract this trend, some educators over the last several decades have opted to give their students "authentic" writing opportunities. In the years since authentic pedagogy was introduced, it has had a positive influence on student achievement and engagement with instruction (Carmichael & Martens, 2012; Newmann et al., 1996). Of the available literature on authentic writing, few studies concern middle or high school students, leaving a knowledge gap in authentic writing's influence on the general population of secondary students. To explore this gap and reevaluate the efficacy of authentic writing instruction, this study proposes the research question, "How does persuasive letter writing influence students' attitudes toward writing in the secondary English classroom?"

Literature Review

A review of the literature reveals no consensus definition of authentic learning. In general, the term authentic learning has been broadly applied to learning contexts across disciplines, with its roots in constructivism (Newmann et al., 1996; Willems & Gonzalez-DeHass, 2012). From an educational theory standpoint, authentic learning builds on constructivism by creating a learning context in which learners are likely to construct knowledge, distinguishing "real world" tasks and contexts from those typically found in the classroom

(Behizadeh, 2014; Newmann et al, 1996). Several seminal studies on authentic learning have been published. Newmann et al. (1996) developed a widely cited framework for authentic learning which asserts three criteria for authentic pedagogy: construction of knowledge, disciplined inquiry, and value beyond school. Additionally, Rule (2006) completed an extensive literature review to refine the body of literature on authentic pedagogy into four major themes: "real-world problems that mimic the work of professionals," "open-ended inquiry, thinking skills, and metacognition are addressed," "social learning in a community of learners," and "students are empowered through choice to direct their own learning" (p. 2). More recent research than these two sources highlights that for learning to be truly authentic, the learning situation must not simply simulate a "real world" context, but it must have opportunity to impact the world through the presence of an audience beyond the classroom (Behizadeh, 2017; Wargo, 2020). Recommendations from the literature for reaching authentic audiences include grant writing (Wargo, 2020), writing letters to politicians (Khan, 2009; Willems & Gonzalez-DeHass, 2012), and creating a student newspaper (Willems & Gonzalez-DeHass, 2012). Of the available authentic writing practices, letter writing is among the most popular.

When it comes to measuring students' writing attitude, the literature is full of distinct theories. One approach is to describe writing attitude using self-efficacy, such as in Bandura's social learning theory (Zimmerman & Bandura, 1994). In contrast, others conceptualize writing attitude in terms of affective state, such as Knudson (1993), whose writing attitude survey asks questions of students in terms of their emotionality about writing. Still others have attempted to describe writing attitude as an extension of academic motivation (Boscolo & Gelati, 2013). With all of these interpretations and factors of writing attitude represented in the literature, Ekholm et al. (2018) conducted a literature review that found no unifying concept of attitude as it relates to writing. Therefore, the most useful resources in the literature are those that are careful in clarifying and justifying their conceptualization of measuring writing attitude. Though the conceptualizations may vary, clarity provides the ability for the sources to be reconciled.

Methods

The researcher selected persuasive letter writing as the authentic writing intervention for the study. Letter writing is a fitting intervention because it bears several components of authenticity, being a real world writing practice and providing the opportunity to write to an external audience with real stakes. The researcher asked students to compose three persuasive

letters during a unit on letter writing. The summative assignment ("Letter 3)" involved writing a letter to an elected politician, a city official, newspaper editor, or some other individual with the ability to effect change in the local community. The other two letter assignments were a diagnostic letter on the same prompt written at the beginning of the unit ("Letter 1") and a letter asking for a favor from a family member or close friend ("Letter 2"). Since the goal of the study is to explore how students' attitudes toward writing are influenced, the ambiguity about writing attitude in the literature poses a challenge for the researcher. To define or conceptualize writing attitude is beyond the scope of the study, but a working understanding was needed for the research design. Therefore, the researcher decided to base their writing attitude data collection on a modified version of Piazza and Siebert's (2008) Writing Dispositions Scale (WDS), which is a Likert scale self-inventory measuring various factors influencing writing attitude. The researcher's modified version of the scale is referred to as the Writing Attitudes Self Inventory (WASI).

This action research study was conducted at a large, suburban high school located in the southeastern United States. In the 2021-2022 school year (the year before this study was conducted), the school enrolled 45% minority students and 23% free-or-reduced-price lunch students. The participants (n = 22) in this study were members of one of the researcher's Honors 12th grade English classes. The intervention was situated in a unit on letter writing spanning about three weeks in which students were assigned to write two formative persuasive letters and one summative persuasive letter. There were two sources of data for this study, both of which were qualitative. The first was the pre- and post-test WASI administered at the beginning and end of the unit. The second was an adapted version of the PAW metric designed by Behizadeh and Engelhard (2014) to determine whether participants felt the writing opportunities were authentic. Like the WASI, the PAW was set on a Likert scale. It was administered a total of three instances: after the completion of the two formative letters and the summative letter.

This study used qualitative data collection, analyzing data using constant comparative analysis (Corbin & Strauss, 1990). Open, axial, and selective coding were used during the analysis process. The researcher leveraged the pre- and post-test WASIs to study the intervention's influence on student writing attitude. To do this, the researcher placed the Likert scale response options from the WASI on a numerical point scale. Changes in student answers to Likert scale response options between the pre- and post-test WASIs could then be assigned a

numerical value from -3 to 3. Analysis was done at both the individual and whole class level. At the individual level, the researcher created a profile for each participant, tracked the point value of their responses to the pre- and post-test statements, and totaled them. A positive point value in the participant's total indicated a positive change in the participant's attitude about writing, and vice versa. On the whole class level, the researcher calculated the total point value of responses to each statement across all participants for both the pre- and post-test WASIs. The participants' overall attitude change question-to-question was then determined. While the pre- and post-test WASIs were used for uncovering changes in students' attitudes about writing, the PAW questionnaires were used to evaluate the validity of the study from a perspective of authentic pedagogy. To measure students' perception of authenticity in each writing assignment, the researcher assigned a point value to each of the PAW questionnaire response options ranging from -2 to 2. Then, the researcher totaled the cumulative score earned by each letter assignment on the participants' PAW questionnaires.

Results

First, an examination of the PAW results. The mean PAW scores of each letter assignment (possible scores ranged from -20 to 20) were as follows: Letter 1, 8.68; Letter 2, 7.52; and Letter 3: 12.00. Letter 3 was not only the highest scorer overall but also received the highest scores by participants on 9/10 statements. As for the WASI data, a comparison of pre- and post-test WASIs demonstrates a slight attitude change in the positive direction for participants. From the pre-test to the post-test, the sum of Likert scale WASI scores shifted by a total of +36.00 points, which amounts to a mean change of +1.64 per participant. The +36.00 points are the sum of point changes per statement for the entire participant group from pre- to post-test WASI. The participants were divided by the researcher into four groups based on their shifts in Likert scale responses from pre- to post-test WASI. The four groups (with number of participants in parentheses) are described in the following table:

Table 1

Participant Groups

Group 1 (n=4): Greatest Positive Change in Writing Attitude	4.00 to 6.00 point increase
Group 2 (n=7): Noticeable Positive Change in Writing Attitude	2.00 to 3.00 point increase
Group 3 (n=8): Little or No Change in Writing Attitude	0.00 to 1.00 point increase
Group 4 (n=3): Noticeable Negative Change in Writing Attitude	2.00 to 3.00 point decrease

The participants' written responses to the three open-ended questions on the pre- and post-test WASIs were coded for themes. After coding, four themes became evident, each of which represents a factor contributing to the participants' writing attitude. Sorted alphabetically, the themes are affective state (attitude in terms of emotion), agency (personal relevance, investment, and interest in the writing topic), confidence/competence (self-efficacy in writing), and writing purpose (intrinsic and extrinsic motivation for writing).

Discussion

Since participants scored each of the three letter assignments well toward the authentic pole on the PAW questionnaires, it can be concluded that each of the three letter writing assignments in the intervention were instances of authentic writing. Participants' experiences in the persuasive letter writing unit appear to have influenced their writing attitude in a modest, yet positive way. Much of the observable change in writing attitude was recorded through trends in participant responses to the Likert scale statements on the WASIs. The average change from pre- to post-test WASI per student was +1.64, which would amount to a more positive attitude indication on one or two WASI statements. Essentially, students' opinions on themselves as writers and on writing in the classroom were slightly more positive after the study than before.

The themes (affective state, agency, confidence/competence, and writing purpose) coded from participants' WASI written responses can be understood as factors contributing to the participants' writing attitude. In terms of authentic pedagogy, much can be learned from the success of Letter 3 as an authentic writing opportunity, which featured various instructional components (mimicking a real-world writing process, teaching practical skills, and writing to a real audience) that can be replicated in other lessons. Since students responded to these components in a positive way, instructors might seek to incorporate them in their own teaching.

Writing attitude remains a pertinent area of study as skills related to writing dominate lists of 21st century learning outcomes (e.g., communication, creativity). To aid the study of writing attitude, more work must be done to create a cohesive, comprehensive definition of writing attitude that will synthesize the existing literature and unite practitioners with common understanding. To further understand authentic pedagogy's influence on writing attitude, there is more room for studies especially in secondary classrooms. All future research on these subjects should aim to equip students with the skills to communicate in an increasingly interconnected world.

References

Behizadeh, N. (2014). Adolescent perspectives on authentic writing instruction. *Journal of Language and Literacy Education, 10*(1), 27-44.

Behizadeh, N. (2017). Aiming for authenticity: Successes and struggles of an attempt to increase authenticity in writing. *Journal of Adolescent and Adult Literacy, 62*(4), 411-419. https://doi.org/10.1002/jaal.911

Behizadeh, N., & Engelhard, G. (2014). Development and validation of a scale to measure perceived authenticity in writing. *Assessing Writing*, *21*, 18–36. https://doi.org/10.1016/j.asw.2014.02.001

Boscolo, P., & Gelati, C. (2013). Chapter 12: Best practices for promoting motivation for writing. In: *Best practices for writing instruction, second edition* (pp. 384-308). Guilford Publications.

Bradberry, L. A., & De Maio, J. (2019). Learning by doing: The long-term impact of experiential learning programs on student success. *Journal of Political Science Education, 15*(1), 94-111. https://doi.org/10.1080/15512169.2018.1485571

Carmichael, D. L., & Martens, R. P. (2012). Midwestern magic: Iowa's statewide initiative engages teachers, encourages leadership, and energizes student learning. *Journal of Staff Development, 33*(3), 22-26.

Corbin, J., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology, 13*(1), 3-21.

Ekholm, E., Zumbrunn, S., & DeBusk-Lane, M. (2018). Clarifying an elusive construct: A systematic review of writing attitudes. *Educational Psychology Review, 30*(3), 827–856. https://doi.org/10.1007/s10648-017-9423-5

Khan, E. (2009). Making writing instruction authentic. *English Journal, 98*(5), 15-17.

Knudson, R. E. (1993). Development of a writing attitudes survey for grades 9 to 13: Effects of gender, grade, and ethnicity. *Psychological Reports, 73,* 587-594. https://doi.org/10.2466/pr0.1993.73.2.587

Milner, J. O., Milner, L. F., & Mitchell, J. F. (2017). *Bridging English*. Pearson.

Murray, D. (1985). *A writer teaches writing* (2nd ed.). Houghton Mifflin.

Newmann, F. M., Marks, H. M., & Gamoran, A. (1996). Authentic pedagogy and student performance. *American Journal of Education, 104*(4), 280-312.

Piazza, C., & Siebert, C. (2008). Development and validation of a writing dispositions scale for elementary and middle school students. *The Journal of Educational Research, 101*(5), 275-286. https://doi.org/10.3200/JOER.101.5.275-286

Rule, C. A. (2006). Editorial: The components of authentic learning. *Journal of Authentic Learning, 3*(1), 1-10.

Wargo, K. (2020). A conceptual framework for authentic writing assignments: Academic and everyday meet. *Journal of Adolescent and Adult Literacy*, *63*(5), 539–547. https://doi.org/10.1002/JAAL.1022

Willems, P. P., & Gonzalez-DeHass, A. R. (2012). School-community partnerships: Using authentic contexts to academically motivate students. *School Community Journal*, *22*(2), 9-30.

Zimmerman, B. J., & Bandura, A. (1994). Impact of self-regulatory influences on writing course attainment. *American Education Research Journal, 31*(4), 845-862. https://doi.org/10.3102/00028312031004845