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Studies in Teaching – 2022 Research Digest

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Historical Empathy, Primary Sources, and Subjectivity in History

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Introduction

By teaching students to work with primary sources, a teacher can foster their development of historical empathy which may better allow them to appreciate the way that subjectivity shapes our understanding of history. As historical evidence, primary sources offer students a window into not only the past, but into the perspectives of those who lived in that past. Historical empathy is "the process of students' cognitive and affective engagement with historical figures to better understand and contextualize their lived experiences, decisions, or actions" (Endacott & Brooks, 2013, p. 41). Through the strategies of perspective taking, affective connection, and historical contextualization when working with primary sources, students can deepen their understanding of the perspectives of people from the past which can in turn further develop their historical thinking skills. Such engagement with primary sources may impact the ways in which students think about how history is the product of subjective experience rather than objective 'truth.'

This study provided students with the opportunity to work with primary sources in ways that foster their development of historical empathy which can in turn influence their understanding of history as a whole. In order to engage students in primary source work, they employed various strategies to affect empathy with the historical actors with whose perspectives they are interacting. In doing so, students reflected upon the importance of perspective and subjectivity in the realm of historical thinking.

Literature Review

The first strategy tied to historical empathy is perspective taking, which involves working through historical evidence by viewing a historical event through one particular lens and appreciating the perspective that the author has on the issue. Doppen (2000) accomplished this by offering students various sources of differing perspectives regarding the use of the atomic bomb against Japan in 1945. The researcher found that students appreciated and were engaged in

learning about historical events from different perspectives. However, the students' perception of these multiple perspectives tends to become merely two-sided unless directed by the teacher to think beyond a dichotomy of opposing viewpoints. In this way, perspective taking is a strategy that must be carefully cultivated and supported by the teacher.

The second strategy tied to historical empathy is affective engagement, which involves making an affective connection with the historical actors at play in sources of historical information. Kohlmeier's 2006 study examined the use of Socratic Seminar in interpreting primary source documents to affect historical empathy, namely through affective engagement with the authors of said documents. Although students initially had difficulty understanding the relationship between the various documents, they showed real effort in forming an affective connection with the historical actors who were the subjects of the historical sources. In this way, affective engagement was useful in engaging students in the process of doing history regardless of their initial grasp of historical thinking skills.

The third strategy tied to historical empathy is historical contextualization, which involves understanding that historical events are not isolated but rather are part of a larger context of social, political, and cultural factors as well as related events that occurred before or after the event in question. Kohlmeier (2005) explored how students can take the perspectives of various historical sources in order to contextualize them within the social, political, and cultural forces that shaped the accounts, as well as how the sources related to one another within that context. Not only were students able to situate these historical documents in their own understanding of history, but they also gained an appreciation for the ways that historians make such contextualizations and interpretations in their work to produce works of history.

Given the potential utility of teaching with primary sources, it is important to give students the opportunity to engage in such work in ways that foster historical empathy and assist their understanding of how history is constructed. This study therefore provided students with such opportunities to engage in primary source work to affect historical empathy. Utilizing the strategies of perspective taking, affective engagement, and historical contextualization, students were guided to draw on their historical thinking skills to carefully and fruitfully assess various primary sources. By participating in such work, students may better recognize the vital roles that perspective and subjectivity play within the realm of historical thinking. To this end, the following research question guided this study: To what extent does working with primary

sources in order to affect historical empathy impact how students recognize and reflect upon the role of subjectivity in the study of history?

Methodology

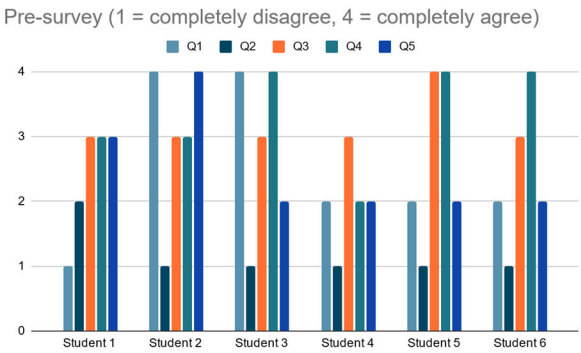
This study took place in a United States History class in a North Carolina public high school. 20 students, 10 male and 10 female, participated in the study from one class period of juniors and seniors. The study involved student work with primary sources using strategies that affect historical empathy. At the beginning of the study on the first day, students completed a pre-test survey measuring their attitudes and perceptions about the role of subjectivity in history. Also on the first day, students read through four primary sources, three being letters from John Adams to his wife Abigail Adams, and the last being a letter from Thomas Jefferson to John Holmes. When working with primary sources, students were prompted to read documents guided by questions that require them to use the strategies of perspective taking, affective engagement, and historical contextualization. On the second day, students continued their primary source work, reading through four primary sources from the renewed correspondence of John Adams and Thomas Jefferson after 1812. On the third day, students completed a reflection essay about how they engaged in the strategies listed above and the extent to which they found them impactful on how they view history. At the conclusion of the study, students completed a post-test survey identical to the pre-test survey.

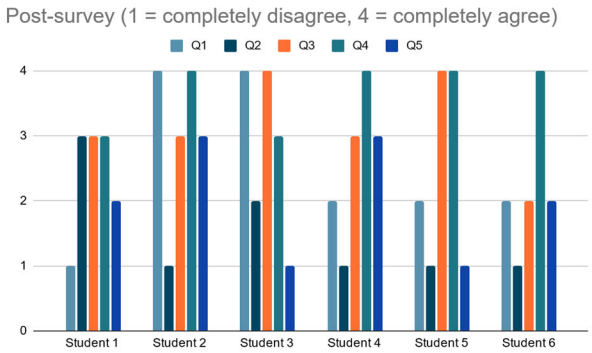
Data sources included qualitative data collected by means of pre- and post-test surveys about subjectivity (using both Likert scale questions and free response), teacher observations of students working with primary sources, and student artifacts provided during the intervention. These observations were recorded by utilizing Spradley's (1980) observation matrix. Data also included qualitative data collected by means of reflections on the last day of the study. The data was analyzed by means of grounded theory, such that ideas and concepts emerge from the collected data (Strauss & Corbin, 1998). In this way, analysis involved emerging trends and themes involving students' work with primary sources to affect historical empathy, their perceptions of subjectivity in history, as well as their reflections on the work that they did.

Results

Beginning with students' responses to the pre-study survey, students varied in the extent to which they valued or considered the subjective aspects of historical study. By the end of the

study, several students' responses to the post-study survey differed from their responses to the pre-study survey.





On Day One, students demonstrated their ability to use historical empathy to work through primary source texts. In their responses to the first question asking students to practice perspective taking, all six students indicated some sense that assuming the presidency is an overwhelming task from the perspective of John Adams. In their responses to the second question asking students to practice affective engagement, students demonstrated making an emotional connection by comparing Washington's praise of Adams to praise that they themselves received. In their responses to the third question asking students to practice historical contextualization, every student centered the context of Adams succeeding Washington, an immensely popular figure. Finally, in their responses to the last question which asked students to synthesize these three strategies when reading Jefferson's letter and reflect on whether they changed their perspective of him, most students indicated a slight positive change in perspective.

On Day Two, students continued to provide evidence of their utilizing strategies to affect historical empathy when working with primary sources. In response to the first question asking students to continue practicing perspective taking as they read Adams's letter to Jefferson rekindling their friendship after 10 years, most students indicated an appreciation of Adams's attempt to ease tensions and related it to what they would do in a similar situation. In their responses to the second question asking students to continue practicing historical contextualization as they read Jefferson's letter reflecting on his friendship with Adams, students indicated an understanding of the importance of the context of the American Revolution to their becoming friends. In their responses to the third question asking students to continue practicing affective engagement as they read Jefferson's letter to Adams about the death of Adams's wife Abigail, students made an emotional connection with both figures as they related their dealing

with loss to their own experience. Finally, in their responses to the fourth question asking students to once again synthesize these three strategies when reading Adams's letter and reflect on whether they changed their perspective of Adams and Jefferson given their friendship, most students indicated that understanding their close friendship made them view them more positively.

On Day Three, students wrote their reflections upon their practice with the strategies of perspective taking, affective engagement, and historical contextualization in affecting historical empathy. Student 4 offered a reflection on how these strategies may influence him going forward, as he wrote, "I think there is a lot of importance in empathizing and understanding context for historical figures and historical events. It has also made comprehending and understanding simpler because you relate and make connections." Similarly, Student 5 wrote about how the strategies helped to better understand historical figures "by putting myself in their shoes. I also compared my point of view to their view. Not only did they help me understand things better but also how others feel."

Discussion

Students 2, 5, and 6 exhibited the least change from pre-study to post-study survey, with all three only changing one response. Students 1, 4, and 3 exhibited the most change from pre-study to post-study survey in ascending order, with two, three, and four response changes respectively. Although some demonstrated more change than others, this overall change demonstrates that engaging in the strategies of perspective taking, affective engagement, and historical contextualization led these students to think slightly differently about the role of subjectivity in history. Furthermore, the students' written responses and reflections offer evidence that this primary source work did affect historical empathy to some extent as they wrote about ways they related to or felt for the historical figures who had written the letters that they were reading.

This study demonstrates the utility of the strategies of perspective taking, affective engagement, and historical contextualization in instructing students to interpret primary sources in a way that affects historical empathy and allows them to think about history more subjectively. As two studies by Wineburg (1991a, 1991b) have shown, high school students are novices at interpreting historical sources to the extent that they decide that conflicting perspectives render both sources unreliable. By engaging with primary sources in the way that students have done in

this study, i.e. by focusing on the subjective nature of reading primary sources, students are better equipped to judge the usefulness of primary sources to the study of history. Thus, although it is difficult to teach high schoolers to think about history in the same way that trained historians do, we can still support them to think historically in ways that develop their critical thinking skills beyond isolated source work.

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Cultivating Classroom Science Outdoors

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Introduction

In a typical science classroom setting, students are introduced to a range of important concepts and processes that occur in the natural world, but ironically encounter this instruction almost exclusively indoors and lacking any direct context or connection to the world around them. As the institution of public education has placed increased emphasis and consequences on standardized testing, curriculum has steeply narrowed and opportunities for experiential learning are less available to students now more than ever (Berliner, 2011; Faulkner, 2006). Elementary students are taught about plants, animals, and weather all while remaining sedentary and disconnected from the very real organisms and environments that exist just beyond the classroom walls. Suggested by Rivkin (1997), interacting with the natural world allows students to utilize all of their senses and enhances their comprehension of the world around them more than indoor experiences or videos. Direct interaction with and in nature also has been found to increase children's attention spans, ability to focus, and creativity, all of which allow children to become both more successful students and citizens (Burdette & Whitaker, 2005). Whether it be in a school courtyard, a community garden, or a nearby wooded area, allowing students to learn in the context of nature offers a range of benefits both cognitively and academically that are not present in a traditional classroom setting.

Literature Review

Context. Outdoor experiential learning provides an aspect that is so often missing from classroom curriculum, but is pivotal to students' deeper understanding: a relevant context. Sobel (1995) found that classroom content has a tendency to focus on developmentally inappropriate or abstract subjects, such as teaching the very distant Amazon Rainforest ecosystem while blatantly ignoring the local outdoor ecosystems students may already be familiar with. Through repeated exposure to the outdoors, students can establish a connection with the environment and enrich

their learning in various content areas while simultaneously meeting state and national standards (Rios & Brewer, 2014).

Positive Classroom Climate. A student's comfortability in their class environment can also have a powerful influence on their ability to learn, and research has found that students are more engaged and reach higher levels of academic achievement in schools with a positive school climate (Devine & Cohen, 2007; Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013). Children's social development can be benefitted by outdoor activities through increasing collaboration and shared responsibility that occurs more naturally than in a traditional classroom (Sabet, 2018). Additionally, being outdoors is shown not only to alleviate symptoms of ADHD for children diagnosed with the disorder, but to also benefit students who are impulsive, have difficulty concentrating, or are mentally fatigued (Dressniak, 2009).

Engagement and Attitude. A meta-analysis of 69 independent studies on engagement and achievement revealed that there is a moderately strong positive relationship between engagement and achievement, and in terms of science specifically, students' participation in outdoor learning activities can further engage them and improve their attitude around the subject, benefitting their overall understanding (Lei, Cui & Zhou, 2018). Erol & GÜLEN (2019) studied the influence of outdoor science activities on middle school students, and in their research 100% of students used positive expressions when discussing their attitudes towards the science content taught outdoors. Teachers involved in these studies emphasized that they observed students' increased engagement in the learning process in comparison to traditional classroom instruction (Peacock et. al 2021; Rios & Brewer, 2014).

Achievement. Achievement, one of the most valuable measures of academic performance, can be increased through providing outdoor learning opportunities to students. Carrier-Martin (2003) examined the influence of utilizing established outdoor environmental education curricular sources in the schoolyard on students' environmental knowledge, attitudes, behaviors, and comfort level outdoors and found that students in the treatment group scored higher on the post-test across all outcome variables compared to the control group. Klemmer, Waliczek, and Zajicek (2005) studied the effects of garden-based outdoor science activities on upper elementary students' science achievement. From their sample of 647 students spread across 7 elementary schools, students in the experimental group who participated in the garden activities scored significantly higher on the science achievement test than students in the control group.

The research behind the benefits offered by outdoor education supports its value as a classroom instructional method. Understanding the continuing trend creeping across the nation to decrease time spent outside, there is a necessary call to action to further investigate and make known the benefits of outdoor learning (Burriss & Burriss, 2011). Thus, this research investigated the question; What is the impact of integrating outdoor experiential learning in science on elementary students' attitude, engagement, and achievement?

Methodology

Participants. This study took place at a public Title I elementary school in North Carolina in the spring of 2022 during the researcher's internship placement. One third grade science class was asked to participate in the study, and all of the students were given informed assent to sign and informed consent forms for parents to sign.

Intervention. The goal of the study was to observe the effects of teaching a science class outdoors on student engagement, attitude, and achievement. The topic of instruction aligned with the North Carolina Science Essential Standards. During the time allotted for science instruction, the student teacher-researcher took the students outside to the school community garden to teach the science content in its natural environment, teaching students in science rather than about it.

Data Analysis. The information combining student surveys, group interviews, artifacts, and field observation notes was assessed to determine what effects the intervention had on student attitude, engagement, and achievement.

Results

This study was conducted over a period of five successive outdoor-integrated science classes and the participating third grade class consisted of 19 students, with daily attendance averaging around 16 students. Lesson structure followed a pattern of first engaging students through discussing their background knowledge of the topic and completing a brief learning activity in the classroom, then transitioning to taking the new concept outdoors and conducting observations in an outdoor learning activity, and finally completing the surveys and exit ticket .

Student Surveys. As students participated in the lessons, accompanying worksheets and post-activity surveys along with field notes were collected daily. A few unexpected issues occurred with the surveys as the questions on the survey were above many of the student's reading levels,

and this hindered their understanding of how to select an emoji even with the reading assistance of their teacher. On days where students did not wish to go outside due to colder or rainier weather, their responses included a greater quantity of negative responses (bored, worried, unhappy) than days when the weather was more enjoyable. This variation in responses not directly correlated to the actual science lessons being taught made it difficult to consider the surveys as a valid source of data. That being said, the most common survey responses were overwhelmingly positive.

Field Observations. Each day, students expressed high levels of excitement about science classes and when I entered the classroom they rapidly began inquiring about if we would be going outside for today's lesson. Field observations also highlighted the enjoyment students expressed during lesson three's game of tug of war, where they had to create a balanced and unbalanced scenario, and wanted to keep trying out new team combinations to see who would win. Lastly, field observation notes indicated that behavior and communication were particularly noticeable for one student who is diagnosed with ASD (Autism Spectrum Disorder) and typically struggles to remain on task and focused in class and was actively participating and making outdoor observations and predictions with peers both outside and when we returned to the classroom.

Artifacts. The lessons all required students to collaborate with one another, and their artifacts such as completed worksheets were reflective of this. During the dream playground designs of lesson four, students all took turns brainstorming and drawing their initial designs then combining all their valuable and ranging ideas into one final drawing. During lesson five, students again demonstrated strong ability to collaborate and work together outside when they completed the scavenger hunt with randomly assigned partners and searched around the garden for the forces and motion scavenger hunt items, noticing gravity and the wind moving leaves, or an unbalanced force where a plant fell over due to dirt not holding it strongly enough .

Group Interviews. During a whole class discussion of overall sentiment towards the outdoor lessons on day five, student responses included positive statements such as: "I liked the activities, they were fun and I learned new things." Another student noted that one could "See and feel details around you outside in nature," One student in particular expressed that learning in nature was special to her because she "can't see nature or flowers at home."

Conclusions

Summary. Overall, students engaged with the content and were excited to make practical application of the knowledge they gained in the classroom environment with the forces and motion that exists in the outdoors. This was evident in the increased participation, communication, and creativity exhibited by students of all ability ranges. The students' work quality was heightened by the engagement that they had with the activities, and some of the students wrote more than was expected simply because they had more they wished to say. Both the dream playground design activity and scavenger hunt showed that the students had retained the information learned throughout the week, and were able to then apply that knowledge to a new higher level of thinking aspect, such as creating a new playground or finding forces in the garden and being able to justify their answers.

Science Learning. Students were able to be fully immersed in the science content, and gained a practical understanding of the standards through demonstrations and activities in the outdoors. Throughout the lessons, students were able to test out their understanding and make predictions by using balls, observing nature, and manipulating playground equipment outdoors.

Continuation and Implications. Although there were some challenges in terms of student literacy, with students experiencing difficulties interpreting the survey questions as well as unpredictable March weather, the lessons in general went well. An additional challenge was the short 25 minute class time, which would ideally be a longer period if the study was to be redone. This research could be furthered through comparing outdoor-integrated learning classes with traditionally taught curriculum and looking at the outcomes, as well as with other subjects besides just science. The compiled data from this study show that overall student engagement, attitude, and achievement can be supplemented through outdoor-integrated learning in science.

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"A Good Debate Is One Where I Win": Utilizing Debate as an Instructional Strategy in Secondary Social Studies

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The National Council for the Social Studies (n.d.) asserts that the overriding goal of social studies education is "to help young people 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" (https://www.socialstudies.org/about). This approach to education to produce effective citizens who will contribute to our democratic society is not a new one, but rather has been discussed by many leaders in the field of education.

An effective and engaging way for teachers to help their students sharpen their critical thinking skills is through utilizing debate as an instructional strategy. Incorporating debate into classrooms has not only demonstrated to increase students' critical thinking skills (Zare & Othman, 2015; Hogan, Kurr, Johnson & Bergmaier, 2016; Bellon, 2000) but also increased oral competency skills such as public speaking (Tonkins, 2019), and positively impacted academic achievements such as cumulative GPA and ACT scores (Mezuk, Bondarenko, Smith & Tucker, 2011) or a deeper absorption of content paired with a sharpening of research skills (Zare & Othman, 2015). Incorporating debate as an instructional strategy can allow students to take a more active approach in their learning, especially in social studies classrooms, as it both encourages them to question their historical thinking and requires them to find and interpret evidence that effectively supports their argument, a practice that is crucial in the realm of social studies. The ability to have a productive discussion, backed up by relevant evidence, that allows both parties to maintain a level of civilized respect is something that our students need to see modeled in schools today. The incorporation of debate as an instructional strategy within the social studies classroom allows for just that.

Literature Review

The Importance of Critical Thinking and What That Looks Like in the Classroom

‘Critical thinking’ is a popular term in education, and it is important to consider its meaning, what it looks like in practice, and how it can be encouraged in the classroom. Ennis (1993) addressed these questions and ultimately provided a simple definition that will be used for the purpose of this study. He detailed that “Critical thinking is reasonable reflective thinking focused on deciding what to believe or do” (Ennis, 1993, p. 180). He notes “reasonable reflective thinking,” which is something that sounds straightforward enough but holds a tremendous weight in the discipline of social studies. Reflective thinking opposes passivity in the classroom, calling for students to not only avoid rote memorization but to engage with the content in an active way, a way that is fully supported by the use of debate in the classroom. Debate and critical thinking go hand in hand in this scenario, with teachers encouraging students to think about the ‘why’ of historical events, whether they agree the best decision was made by those in power, how certain laws were supported for so long, and other more inquisitive research questions within the discipline. This approach falls directly in line with the higher levels of Bloom’s taxonomy, synthesis and evaluation, through encouraging students to combine ideas and engage with their knowledge in a way to both create a new perspective and justify the claim that they make (Bloom, 1956).

The process that students must go through to effectively participate in debate demands a deeper understanding of the content being discussed, which promotes student reading, speaking, and critical thinking levels that also simultaneously encourages engaged citizenship (Hogan, Kurr, Johnson, & Bergmaier, 2016). Having students work with content through higher level thinking allows for the development of a deeper understanding than that which would occur through traditional teaching styles such as lectures.

Utilizing Debate in the Classroom

The Merriam-Webster dictionary (n.d.) defines debate as “a discussion between people in which they express different opinions about something,” or as “a regulated discussion of a proposition between two matched sides.” These definitions provide a general overview of what debate will look like in the classroom and why it is used.

Multiple studies have been completed over the years to discover the impacts that utilizing debate has in the classroom. One of the largest of these studies took place in the Chicago public school district to see if participation in a policy debate program (Mezuk, Bondarenko, Smith, & Tucker, 2011) impacted academic achievement for students that attended at least one year of

high school in the Chicago Public School district from 1997 to 2006, resulting in a total of 9,145 students. The analysis found that students who participated were more likely to graduate, performed better on the ACT, and displayed greater increases in cumulative GPA compared to their peers. The researchers also note that while practicing debate contributes to academic achievement through critical thinking, interpretation of nonfiction evidence, and collaboration with peers, there are also other indirect factors that most likely contributed to success, such as developing rapport between students and teachers as well as creating a positive connection to school life in general, which positively affects factors such as attendance. The relationships that were cultivated in student-to-student interaction through the debate process were also a positive benefit (Zare & Othman, 2013).

Another overarching benefit noted among researchers was that of the development of oral skills. Zare and Othman (2015) found a number of positive themes among oral skills such as how participating in classroom debate helped them overcome their fear of public speaking, boosted their confidence to express their opinions, improved their speaking ability, and enhanced their critical thinking skills. Bellon (2000) lists off multiple research-backed benefits that occur when students participate in debate that included increased communication skills, analytical skills, interpersonal communication skills, and public speaking competence. Bellon's research also reiterated the positive benefits of certain aspects such as cumulative GPA and social skills while also finding that debate encourages student involvement with important social issues and provides a skill that can resolve conflict without violence (Bellon, 2000). Lastly, Bellon details how his research supports the fact that incorporating debate into the classroom also assists teachers because it encourages students to become more active in their own learning and allows teachers to step away from whether a topic is right or wrong but rather is now in a space to help their students formulate their own judgments. Additionally, it allows teachers a unique perspective on how well students understand the course material.

Therefore, with both the pros and cons of utilizing debates in the classroom having been examined, this research aims to answer the question: To what extent does debate influence students' historical and critical thinking skills and student self-reported interest level?

Methodology

Students participated in a one-week session that culminated into a classroom debate, with students being split up into four groups in order to argue for or against one of two topics

predetermined by the teacher. The topics were based in a historical reflection format so that students could utilize and sharpen their historical thinking skills. The two questions used were "Should President Truman have dropped the atomic bomb" and "Was World War II overall more helpful or hurtful to the United States." Each initial presentation was required to last two to five minutes, with an opportunity to respond to the opposing team afterwards.

Each group had five minutes to prepare their responses, with each response lasting no more than two minutes. After the debate, the two groups who did not present on the current topic cast their vote anonymously in order to determine which argument was better, and vice versa when the second debate took place. Once all four groups presented and the two winners were decided, the class quickly debriefed about what made the winning arguments better and how they could have improved their arguments having now been given the chance to see what other students did. Student work was collected at the completion of this activity in order to be analyzed at a later date.

Data collection for this research consisted of a pre- and post-session survey about the students' critical thinking skills, historical thinking skills, self-reported interest in social studies in general, and any relevant student work generated throughout the process. The survey included Likert-scale questions that allowed students to respond to claims such as "I feel confident in my critical thinking skills" or "I enjoy social studies as a subject" on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree), with a midline option for 3 (Neutral). Open ended questions were designed to gauge students' own perceptions of their critical thinking and historical thinking skills, along with reflection questions on the post-survey. The post-survey also asked students what they thought they benefitted from the most during the week-long session. Student answers were coded for themes through the utilization of grounded theory, which "allow[ed] the theory to emerge" (Strauss & Corbin, 1998, p. 12), and answers to the Likert-scale questions were compared on the pre- and post-surveys to take note of any changes. Lastly, any notable observations made during the actual debate itself were also included, such as student comments or behavior.

Results

In a class of 24 students, 13 (7 boys and 6 girls) consented to participate in this action research study. All 24 students in the class participated in the overall debate project, but only data from the 13 students will be utilized to discuss results. All participants except for one were

seniors, with one participant being a junior. This research project took place in the Spring semester of the 2021-2022 school year and lasted for one school week. Additionally, this project took place towards the end of the semester, allowing students to build upon many of the skills that they had been working on the previous few months, such as their research and collaboration skills.

On the first day of this research project, all students were given pre-surveys that contained both Likert Scale questions and free response questions. Students were encouraged to fill out the survey with little to no help from the teacher or from each other in an effort to receive uninfluenced preliminary results. The post-survey that students filled out at the end of the week was identical to keep consistency with comparisons.

Five of the seven statements on the Likert Scale saw an increase of their averages from the pre-survey to the post survey, displaying that the project had an overall positive impact on the 13 students included in this paper. All of the changes of the Likert Scale statements are as follows:

I like my Social Studies class: 4.38 → 4.46 [+.08]
I like Social Studies as a subject: 3.77 → 4.08 [+.31]
I feel confident talking in my Social Studies class: 3.85 → 3.85 [+-0]
I feel confident in my critical thinking skills: 3.77 → 3.69 [-.08]
I feel confident in my public speaking skills: 3.08 → 3.23 [+.15]
I know how to have a civil debate with someone that holds a different opinion: 3.46 → 4 [+.54]
I know how to defend an argument with evidence: 3.69 → 4.08 [+.39]

The overall positive changes were imitated in the free response answers as well. Many students' responses included words or phrases more specific to critical thinking or the debate process, such as equating critical thinking to reflective thinking (rather than the quick thinking that many students equated critical thinking to in the pre-survey) or expressing the importance of credible sources for a "good debate."

Discussion

The findings of this study reinforce the concept that utilizing debate in a social studies classroom can positively affect various aspects of students' self-reported argumentative skills, such as holding a civil debate or supporting a claim with evidence. Further, debate encourages students to better understand the concept of critical thinking as they practiced this skill through the process of sifting through sources of varying perspectives. This was mainly found in the students' free response answers, as their displayed understanding of critical thinking shifted from

associated to quick thinking to more proper definitions, such as one that include the phrase "reflective thinking." This focus on reflective thinking draws back on Ennis' discussion of reasonable reflective thinking, one that encourages students to actively engage with the content rather than to accept it passively. The students amply displayed this process due to their excitement with the format of the debate activity and were often asking questions concerning the information that both they and their group mates found before including it within their argument.

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Can current events influence student interest in a high school social studies classroom?

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Keeping a student interested and engaged is a problem in classrooms across the country. In social studies, students can have a tough time feeling connected to the material. This leads to teachers constantly searching for ways to keep their students interested in the material. It is common to hear a student ask, "why do we have to learn this" or "why does this matter." Certainly, one of the most important reasons is because history continues to matter (Gonchar 2018.) Many researchers have done studies on how best to find current events for students (Gonchar, 2018; Haas, 2000.)

Connecting with student's lived experiences can play a key role in keeping students engaged with the material (O'Mahony 2017.) Reading accessibility can often times play a bigger role in selecting current events than news-focused criteria like in-depth reporting (Clark, 2021.) There has been some research to suggest that current events in the classroom can be beneficial for students (Chapman, 1997). The question that this study tries to answer is, can current events influence student interest in a high school social studies classroom?

Literature Review

Selecting current events that students find interesting and relate to can be challenging for teachers. When selecting events, teachers need to consider many distinct factors. Selection criteria can include where the event took place, who was involved, what type of event it was

(political, weather/natural disaster, sporting event), what source the student receives the news from (online, tv, newspaper) and the effect that it had on the region.

O'Mahony (2017) notes the importance of current events, offering "Current events can offer provocative ideas and starting points for generating questions and interactions in the students' various communities. They can learn how local, state, national, and non-governmental agencies and corporations shape their daily lives. They can build connections to the real world." (p. 4). This was O'Mahony's view on the use of online sources for students, "However, the challenge of using many websites and international newspapers with and for children is that they have been written for adult readers" (p. 5).

The amount of work given to students can also impact their interest in the class. One way to keep students engaged is to give students the proper amount of work and not overload them. "In grade four, sometimes it feels a little bit like cramming it down their [the students] throats because there's a lot more to be covered. If there is a way to pare it down a little bit that would be a joy" (Gibson, 2012, p. 5).

Walters (2017) found that student discussions helped with critical thinking and engagement. "On weeks where student discussions were not held, reflections were not as strong as weeks with discussions" (p. 206). Walter notes that his approach is not the only one, but that it was successful in his classroom. "I have found that the highly structured format of the Article of the Week that I have implemented to be the best fit for my students" (p. 207).

Methodology

This study took place in the spring of 2022 at a North Carolina high school. The study consisted of 10 students from an honors level American History 1 class. Students were provided

with a pre/post survey to determine their level of interest in current events before the lesson and after. Students were asked a series of pre- and post-survey questions. The questions used a Likert scale that ranged from 1 to 5. A score of 1 meant that they strongly disagreed with the statement and 5 meant that they strongly agreed with the statement. They were asked eight questions that used the Likert scale format. On the pre-survey they were asked six open ended questions and for the post-survey they were asked three open ended questions.

The study took place over the course two days. Each day began with students viewing CNN10 and followed up with a discussion. On day one students were told to find two current events. Each event had to cover a different topic and they were told to include the source. After they found their event, they had to write a response to the current event. Day 2 had the student use two separate sources that covered the same current event. They were told to use two sources with differing political points of view, they could also use a national source and an international source. Students had to describe the differences in the coverage of the event as described by each source. Both days will end in a discussion about the current events that each student researched.

I observed the students throughout the two days and took notes on the interactions that students had with each other. Students were then presented with the post-survey. I compared the results of the post-survey to the pre-survey to determine if there was a change in student interest regarding current events.

Results

The purpose of the research was to determine if current events would influence interest in social studies and finding the best ways to implement current events into the curriculum. The research conducted showed that including current events in the curriculum could increase interest

in a social studies classroom. The percentage of students that wanted to be informed about the news and students that wanted to engage with others about current events increased.

The results had an increase in interest, similar to Chapman (1997) where they found that two-thirds of students reported that their interest in national issues had increased as a result of the courses incorporating national issues in which they participated. The amount of anticipated daily and weekly news consumption had minimal increase.

The research also looked at the best ways to implement current events into the classroom. The data collected suggest that students prefer learning about current events one to three times a week. They believed that spending time on current events every day would take away from the current curriculum. Students preferred positive news stories and tended to stay away from stories that they perceived as negative. Students also stated that they preferred to learn about events that they had a connection to, this was similar to Bahmani (2016) "When students find content in current events that they enjoy, the course becomes more thought provoking and relevant as they find themselves on the path of deep learning and mastery."

Limitations

The sample size of this research was a limitation. The study took place in a classroom of 32 students and only had 10 participants. Time was another limitation. An increased sample size and more time could have produced different results.

Increasing the number of students and allocating additional time for research is recommended in the future. Additional research studies relating current events to current curriculum would be beneficial for the classroom. This research can be applied to all aspects of school curriculum to try and increase student interest. Research in other subject areas such as

science and math could benefit from implementing current events (technology, climate change, etc.) into their curriculum.

Conclusion

The research did show an increase in interest and engagement with current events. As a teacher, current events are something that I will implement in my classroom. Including current events one to two times a week provides students with the opportunity to learn about the world around them and offers them a break from their everyday curriculum. Introducing current events in the classroom has positive outcomes for everyone involved in the educational process. Current events can influence student interest in a high school social studies classroom.

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Art History Used in Standard History Courses

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Introduction

I would like to see art history as more involved in regular history classes. Art history can help students receive a more well-rounded version of history (McKean, 2002). When students learn more about the time they are studying with paintings and pictures, it can give them a better chance of understanding a time period. Then the students may remember later which years something took place.

Staley (2006) noted, "pictures can help students with their learning" (p. 1). Felton (1990) stated that "images can help students understand a time in history" (p. 35). Learning about art history can make the students want to travel and see more of the world.

Teaching students about art history can give them a better idea about the world they live in. It helps them focus on something more than just the present. Art history can also show the students differences between what the art shows and the truth behind them. Laney (1995) proclaimed, "art in textbooks often does not show the truth of what happened at the time" (p. 2). This presents an opportunity to consider the difference between what actually happened and what is portrayed.

Literature Review

Many students ask why they have to learn about dead people when they get into a history class (Boyum, 2018). They may not understand the point of learning about dead people's activities from hundreds of years ago. Fallace (2009) argues that the main goal of teaching history is to create effective, responsible citizens. The National Council for the Social Studies (2021) states that the purpose of social studies is to, "help young people develop the ability to make informed and reasoned decisions for the public good" (online). It is compelling that people must develop the ability to make an informed decision, even though, "making a decision" is just

human nature. The decisions are informed, meaning they know a lot of information about the subject, and not just answer on a whim. Our goal is to engage and develop active citizens.

Memorizing isolated facts is not the best way for students to learn from social studies (Milson, 2002*)*. We want them to work with the history through primary sources, and it is important to engage students in inquiry learning. Inquiry based learning involves asking questions and thinking of problems that the students can solve. "Social studies educators have long promoted inquiry learning as a valuable method of instruction" (Milson, 2002, p. 30). "Primary sources can be employed successfully and consistently in the secondary history classroom" (Boyum 2018, p. 56). Boyum believes that these primary sources can help students be engaged in the class and not, "rank it as their least-liked subject" (Boyum, 2018, p. 56). While stereotypical social studies instruction involves teachers lecturing, it is important to include inquiry-based learning. A definition of historical inquiry is, "asking questions, gathering and evaluating relevant evidence, and reaching conclusions based on that evidence" (Barton, 2004, p. 2). Inquiry-based learning is important because it focuses on the students asking questions and being involved. It is an improvement over lectures because it allows students to be more involved and want to learn, not just listening (Barton, 2004).

Methodology

I used qualitative and quantitative research methods. I gave my students a pretest before I started my research. I asked them questions about what they know about art history, and how much they are interested in history at present using a Likert scale. I taught two different classes on the same subject. I did one class without the addition of art, and the other with the addition of art. After they took tests on that unit, I will compare the classes against each other.

This is my quantitative research because I can use their test scores to compare them. I wanted to see if it helped students retain information. At the end of this unit, I gave out a post-test. I asked if they enjoyed the inclusion of art, if they disliked it, and if it helped them remember facts. The pre and post-test are my qualitative data to find out how the students feel about the research they were a part of. I have also analyzed student work samples that they created while I was teaching the unit.

I included art and photographs to help students understand time, tell between the truth and lies, and hopefully appreciate art history. According to History as Art, Art as History,

“reports demonstrate that students who consistently participate in arts education are more engaged and successful and have better communication skills than other students. Therefore, I will research the difference that art history can make on a standard history course.

Results

For this section, I added art history to my civics class unit. The unit was about law and court and how the system works. I discussed art history and law by showing an image of lady justice. I told them that she can be found all around the world outside of courthouses. We also discussed what her symbols mean and why that is important to law. After that discussion, I went through paintings of different crimes painted by famous artists such as Titian, Rembrandt, and Caravaggio. We discussed the crime that was shown and discussed why it is illegal. We discussed what made things illegal versus not. I received 18 responses from each class, but we had an open discussion.

With these classes, I gave out a pre-survey and a post-survey. The questions were the same to see if they had changed their mind at all about art history and its usefulness. Period two was where I taught this lesson involving art history. Period 4 was my control class where I administered the surveys but did not teach the art history lessons. The surveys had five questions at the beginning that asked for a written answer. The next ten questions were using a Likert scale.

As can be seen in the charts there was a change but nothing to prove that art history changed their learning in any way, as the data were inconclusive. Student grades on the test were also not better than they normally were. However, while teaching the lesson with art history the students were more engaged. The class participation in the discussion was higher, so that was an added benefit that could not be calculated by this scale but was clear from observation. The students added much more to the conversation. When I asked them specific questions, they were answering them and conversed as a class. I did not teach the 4th-period art history and there was nearly no conversation. I would try to get the students to discuss, but there was not much participation.

I really enjoyed reading through these and learning what my students were thinking. I asked them to answer as honestly as possible. I would say that most of my students liked social studies class, probably ~75% like it or are okay with it while the other ~25% dislike it. Some students

offered: “I do enjoy social studies over most subjects,” “no it’s just boring,” “I like to learn about history,” “it gives me a good idea of what the past was like,” “no because it will not help us in the future,” “I learned about my rights,” and “ yes it is interesting and attention-grabbing.” I really enjoyed hearing my student’s feelings toward learning history. I understood the “nothing new being learned,” because I felt that way in school sometimes. It felt like I learned United States history for years but nothing new. I started loving history when I learned about other worlds.

The second question addressed what they want to learn from their social studies class. Some of the best answers are as follows: “African American history,” “the really bad stuff,” “how to pay bills and taxes,” “failures of the US,” “social injustices,” “Berlin Wall and Joseph Stalin,” “Native Americans,” “WWII,” “the Enlightenment,” “non-Eurocentric view, “environmental studies,” “federal bureaucracy,” and “gender equality during wartime.” I was fascinated and impressed by these answers. Some of them had clearly not taken world history yet, but a lot of these are what we do not teach. A lot of the students answered, “I don’t know,” but I am interested in teaching my students more about what they want to learn.

To the third question asking if they enjoy making art, the answers were: “yes I think it is a form of expression,” “yes it takes my stress away,” “yes it’s a form of expressing how you feel,” “no it’s boring,” “no it's stressful,” “yes it can distract me from problems,” “yes it is fun,” and “I like being creative.” I was impressed by the number of people that enjoyed making art. I asked this to get a sense of how they felt about art in general. If you like making art, you are more likely to appreciate looking at art and thinking about it. The ones who did not like making art said that they were not good at it, or they had gotten a bad grade in art class.

The fourth question was if they liked looking at art. Some of the answers were as follows: “yes sometimes it looks odd or beautiful,” “yes it helps find deeper meaning,” “yes art has a story,” yes it makes me calm,” “art is amazing,” and “sometimes I don’t really understand art.” There were a lot of positives about looking at and appreciating art. I was happy to see that a lot of the class was interested in what I wanted to show them. The ones who did not say they do not get it, or they think that it does not actually look like art.

The last question received a unanimous, “yes,” because most everyone enjoys looking at photos. Some of the answers included: “yes because it helps with visualization,” “yes it helps to see things differently,” and “yes I am a visual learner.” I was not surprised by this because no

student gets excited to read a textbook, but they feel like they can learn more about something from a photograph. It also helps you relate what is being said in the text to an actual person or event if there is a photo of them.

While the classes were taught the same things about the law, I really enjoyed my discussion with the class I taught the art history to. We talked more as a class about the art we were looking at and how it relates to law. First, we talked about the Code of Hammurabi and how it was written in cuneiform. I asked them what they thought was good about these laws, and what was bad. We then moved on to Moses with the Ten Commandments by Rembrandt. I asked the students, "why he was going to break them, what was he angry about?" Some of the students remembered and said something about the golden calf. I said, "yes!" and explained how he had told his followers to only follow the word of the lord and not false idols. He was very angry when he came down from the mountain with the ten commandments and saw them praying to a golden calf. and I asked if they would call the ten commandments a written law. Most of them said yes, it is a written law, and many of our laws today are based on those ten commandments.

Overall, I thought this was a great class full of discussion about laws and art history and how we can relate these things. My students had a lot to say about what I put these images on the board. They had opinions on the art that I showed them and how it related to law. The students also went into a lot of detail to say what their laws would be and why. Although it did not help their grade, it did get them more involved in the class. There were more people speaking and more discussion which is ideal for learning.

Discussion

Through this research, I found that students do not really care if I have art history in the lesson or not. However, I did learn that many students answered on their pre-test that they enjoy history and it is one of their better classes. I was delighted to learn this. I also loved how the students got more involved when I was teaching with art history.

We talked about laws, so we had to discuss Hammurabi's Code. I was excited to show the students the actual Code of Hammurabi that was carved almost 4,000 years ago. We discussed Hammurabi's law, and how it is understandable as a first written law, but we all agreed our laws were better now. We also discussed Lady Justice, what she stands for, and why she is outside of courthouses all over the world. We discussed the Declaration of Independence and

how that painting is not what happened in reality. I finished it with Banksy and we had a discussion about why some murals are called art and some are graffiti.

I have always known that art history is my favorite subject, but I really loved teaching it. I was nervous when I first found out I would be teaching civics. I was not sure how to put that together with art history. However, I was very pleased with how I incorporated it into the lesson on law. Sadly, there were no results that showed any change in the students learning. Their test scores were basically the same, and the opinions on Likert tests did not change much. In the end, I am happy with how the discussion went when I showed pieces of art. It gave the students an image to look at and dissect and then we could discuss it and what it had to do with our lesson. I think I will continue this in my future classroom, as it is a great way to encourage class discussions.

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Hip-hop Meets Mathematics: The Effects of Teaching Upper Elementary Mathematics Concepts Through the Lens of Hip-hop on Student Engagement, Attitude, and Achievement

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Mathematics typically elicits three different responses from most students; they either love it, hate it, or run from it. We have all heard the groans and cheers of math from our peers, ourselves, and our students. Some students believe they are not "math" people in the ways others are, but this is not true. A student's mathematics identity can be broken down into smaller chunks to understand the broader construct as follows: student interest, mathematics self-efficacy and self-concept, and the value they place on mathematics (Crossley, Karumbaiah, Ocumpaugh, Labrum, & Baker, 2020). Every student has experiences or interactions with mathematics. These interactions can affect how students orient themselves towards mathematics.

The idea of not being a "math person" is born from the experiences and reflections students have about mathematics (Anderson, Boaler, & Dieckmann, 2018). Their mathematical identity and approach to learning mathematics needs to be shifted. Research suggests there needs to be a shift in how teachers teach the material from drilling to analyzing and creating. The old way falls under the banking educational philosophy, which works for a small percentage of students. It focuses on memorization over understanding at a deeper level. As teachers, the focus should be on students to make meaning of what they are learning rather than memorizing and thus the methods must change.

Hip-hop may be used to foster elementary students' understanding and success in mathematics. Hip-hop culture can be used as the art form integrated into mathematics in an elementary classroom to foster the students' sense of self, math identity, and growth mindset to improve their engagement and attitude towards mathematics. As a result of these changes in the student, the hope is that their academic success will also improve. Since the arts, specifically Hip-hop, does not exclude any one type of learner or person from enjoying or being involved in the culture, Hip-hop has the potential to engage, interact, and connect students with mathematics

concepts in an approachable way. Hip-hop culture could be the method teachers and students are looking for to improve their engagement, attitude, and conceptual understanding of mathematics content.

Review of Literature

Hip-hop Integration in K-12 Settings

Hip-hop integration in schools at all levels from elementary to higher education has been or is currently being researched. This is known as Hip-hop pedagogy. According to Adjapong and Edmin (2015), Hip-hop pedagogy is incorporating the elements of Hip-hop (breaking, emceeing, djing, and graffiti) into the classroom curriculum in an authentic way. Hip-hop pedagogy challenges educators to invite students to make connections with the content while meeting students where they are culturally and acknowledging their day-to-day realities. This section will discuss the effects of Hip-hop pedagogy in schools.

Effect of Hip-hop Integration in Schools

In a study conducted by Broughton (2017), he discovered a positive correlation between using Hip-hop in his teaching practices and learning more about his students. The use of Hip-hop allowed the students to discuss their past, curriculum, and current issues while providing the teacher with the opportunity to truly listen. This study was done over 11 months in a kindergarten and first-grade combo classroom. There were 13 participants in total for this study. The teacher found learning was apparent and consistent with the learning outcomes when student voices were embraced.

A second study conducted by Vasil (2020) in the general elementary (K-5) music classes sought how to increase student engagement and comprehension. While this teacher was a music teacher, he incorporated Hip-hop music, graffiti, and dance with the history of a famous rapper/artist. 72 Students were involved in a short unit that incorporated Hip-pop culture into interdisciplinary lessons. The teacher did not do a formal analysis of the data. He examined the scores and level of engagement of his students throughout the unit and saw an increase in participation and excitement around the content material. He also received feedback from his students asking to do another unit similar to this one. The results from the unit suggested interdisciplinary lessons that infuse pop culture provide an opportunity to engage students in

collaborative learning, allow for social interaction, and connect content to students' lives causing an increase in engagement and positive attitudes.

While there are prior studies in different fields and grades, Hip-hop and mathematics in elementary schools is an under-researched topic with only a few published studies out there. However, from the positive results from studies integrating Hip-hop with the sciences, art, and English language arts, there is reason to believe that upper elementary students would benefit from Hip-hop pedagogy being used to teach and learn mathematical concepts. Therefore the purpose of this study is to examine the effectiveness of Hip-hop pedagogy in the math education of elementary school students' attitudes, engagement, and academic achievement. The research seeks to explore the answers to the following question:

- What effect does teaching upper elementary mathematics content through Hip-hop pedagogy have on student engagement, attitude, and achievement?

Methodology

The participants in this study were 5th-grade students. These students were in a traditional classroom learning environment executing all of their subjects throughout the day with their regular teacher. The participants represented various backgrounds and cultures but shared a common connection to the 5th-grade classroom. The intervention was implemented during their math portion of the day during the spring semester of 2022. The intervention consisted of four 45 to 60minute lessons. The goal was for students to leverage their knowledge from other subjects, to be creative, and to make meaning instead of pure rote memorization. By asking students to create their own lyrics for mathematical concepts it provided a challenge for them. In order to triangulate the data, this research drew on multiple data collection methods, including field notes (behavior, attitude, and engagement observations), student artifacts from each lesson and the open mic culminating event, and attitude emoji surveys after each lesson, and focus group interviews.

Data analysis included a qualitative analysis of open response questions on pre-and post attitude surveys. Pre-and post-surveys were also analyzed quantitatively to determine student attitudes. Artifacts, such as their raps for the open mic were gathered to check for student understanding and were used as examples of class work. Focus group interviews and field notes were used to analyze the incorporation of interventions to determine the impact on students'

attitudes, engagement, and achievement during the intervention, rather than only using student responses before and after.

Results

This study was conducted over the span of four lessons, one workshop, and one culminating activity meeting for one and one-half hours one day a week, a total of nine hours. The participating fifth-grade students consisted of 19 students. During the lessons, students reviewed the current unit's math topics such as graphing, decimals, and multiplying fractions. Lessons consisted of an introduction to a hip-hop element with a brief class discussion, a brief overview of the current math concept, a math activity incorporating one of the pillars of hip-hop, and lastly completing the emoji survey.

The first lesson was an introduction to hip-hop and reviewing graphing. Lesson one established the community guidelines and students began to practice using the hip-hop elements dj'ing (making beats) and emceeing (writing raps) to deepen their understanding of mathematical concepts. The second lesson focused on the history of hip-hop, the art of storytelling, and decimals. This lesson continued the idea of how hip-hop tells a story and allows the people involved to experience the world around them. Students discussed how math and hip-hop both tells stories about the world around them and then they came up with stories to go with equations adding or subtracting decimals. The third lesson involved the graffiti and break-dancing pillars of hip-hop and fractions. Students analyzed some graffiti art around in their community and discussed how math is connected to graffiti. The focus of this lesson was to help students work on their visual representations of multiplying fractions by a whole number. The final lesson was a review of the three concepts the students had learned over the intervention period thus far as well as an introduction to an open mic event. Students were asked to create a 9-square album cover and analyze it. The analysis involved multiplying fractions by a whole number, decimals, and creating a graph to display their analysis.

Over the course of the researcher's intervention period, students reported feeling more confident in their mathematics abilities on the attitude surveys and four focus group interviews. They also expressed an increase in the enjoyment of class activities when mathematics was integrated and connected to the five pillars of hip-hop during class activities, on the attitude surveys, and in the focus group interviews. Furthermore, when reviewing graphing, decimals, and multiplying fractions, many students said they were able to grasp the concept better. Lastly,

the student's attitude towards mathematics did shift to be more positive. Many expressed on the attitude surveys that their perspective of how to do math was changed.

Conclusions

Many of the students expressed how their perspectives of mathematics changed over the course of this study and as a result, they felt more inclined and willing to engage with mathematics. Integrating the four pillars of hip-hop (emceeing, break dancing, dj'ing, and graffiti) lowered the stress and anxiety they felt about math. Hip-hop provided an entry point for each student and each of the pillars captured at least one of the interests all of the students expressed during the observational period. They felt heard and seen because the lessons were crafted to their interests.

From the results, the researcher saw the attitude of students toward mathematics became increasingly more positive during and after the intervention compared to before the intervention. Since the students were engaging with the math content in a different way and had to think about it from various points of view, they were able to gain a better understanding of graphing, fractions, and decimals even though the lessons were more of a review. Throughout the lessons, the student's confidence in their math capabilities grew as more students were willing to help others, share their ideas/answers with the class, and perform their raps/spoken word poems.

Hip-hop integrated lessons provided the students with the opportunity to move around, make noise, express themselves through writing, and work collaboratively. This research found a positive effect on students' engagement, attitude, and achievement by providing a low entry point and keeping their attention on the task at hand for a longer duration of time. The raps they produced allowed the students to think about what they remembered about the math topic, what the key points were, and how to use them. This allowed the students to work collaboratively and fill in the gaps they may have had previously and gain a better understanding of the material. Their achievement on their typical math worksheets increased. Many of the students began to see they were getting less wrong or were making fewer smaller mistakes that would trip them up.

Students who typically struggled excelled more than they usually did in mathematics when being taught through the lenses of hip-hop. Furthermore, low-performing students expressed high interest in the material and reported enjoying activities. Therefore, struggling students not only achieved higher scores on their normal math worksheets but were more

interested in learning the content through hip-hop integration. The higher achieving students feeling challenged and not checking out and with the students on grade level were able to grasp the content better because they were having fun.

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Impact of Specials on Elementary School Student Engagement

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Introduction

Elementary schools are structured so that students may be in the same classrooms all day except for when the go to their extracurricular classes such as physical education, music, and art. Students at that age can easily get distracted and not realize that they are not listening to what is happening in class and that is when things start to spiral downwards. The purpose of this study is to ascertain the difference in engagement level a student may have before these extracurricular classes compared to after. With these extracurricular classes engagement levels potentially will rise and will help students be able to understand more of the traditional subjects.

Literature Review

The purpose of elementary school is to provide students with fundamental academic skills, basic knowledge, and socialization (Gutek, 2021). These skills are taught and learned at a young age so they can be worked on as students go from one grade to the next.

Art education has a few important purposes such as increasing creativity and how comprehensive arts help with peer-to-peer collaborations. Creativity at a young age is important and helps students think outside the box (Wright, 1980). Classes may not have a lot of flexibility and that is where art classes are important for young students because they can let their minds take them to different places.

The purpose of music classes is impactful. One important purpose of music classes is that it helps students learn English when English isn't their first language (Cohen, 2020). Music allows the students to feel less pressure and be more comfortable while learning a second language. People understand the difficulty level of understanding a new language and if students can learn English while having fun in a music class that is a double win situation.

Physical education has many reasons why it should be taught in schools. One of the main reasons is that students' obesity rate is going up and schools must try and incorporate more physical activity to try and control that rate from continuing to go up (Harris, 2015). Students at a young age tend to be focused too much on video games and not going outside to play. Students are able to make in-person connections when they are having fun and playing sports compared to when they are sitting down in front of a computer, and they make friends with strangers they will most likely never meet. Another important issue to consider is the amount of activity there is comparing boys and girls. As shown in one study boys tend to try harder in physical education causing their rate to be higher and cause more engagement (Howells, 2020). When it comes to physical education classes studies have shown that boys are having more fun than girls and that needs to be changed.

Methodology

The action research study took place in the spring of 2022 in an elementary school class in mid-Atlantic state. More specifically, the experimental group that was targeted was 4th grade Academically Gifted (AG) students. The area of study focused on extracurricular classes such as physical education, art, and music classes. The students' engagement level was investigated through observations during their classes before and after the extracurricular courses.

The overarching method used to answer the study question was observations of the students. This was guided by the use of Spradley's (1980) observation matrix. Observations included how the students sat, how long each class was, and what they were doing during that class period. Each student had their own desk and there were five desks per table of students.

When the extracurricular class was finished, students are told to line up in a straight line forming at the door. The teacher then led the students back to the classroom where they went directly to their seats and started working on their Iready. Certain extracurricular would make the students take a longer time to get started with their Iready while other extracurricular classes would be less time.

Results

Iready is a personalized instruction research-based program that the students receive one period a day to work on their Chromebook and answer questions based on time. Each student is supposed to finish 40 minutes a week on math and 40 minutes a week on reading. The way that Vienna Elementary School breaks it up is that Monday and Wednesday the students answer math question while Tuesday and Thursday are for reading questions. Friday is considered a makeup day, and that is for students who may be a little behind and need some catching up to do.

For the first lesson the students started off with watching a video that explained to them all the parts of the ukulele. They learned what it is built out of, what each string was called, and lastly how to play the instrument. Students were given a ukulele and were given specific instruction on how to carry it to their seats and what to do with it when they were sitting down. Students returned to their class fairly quickly as the music class was right across their main classroom. They went straight to their seats and open up their computers. The classroom teacher allowed the students to go to the bathroom and wash their hands if they needed. Once they were

all set and ready to start their Iready the students are locked in and focused. Each students used his/her own computer and were at different sections of the Iready

For art class students did not go to their seats directly; instead, they went to the rug on the floor to learn what they will do doing on that day. During the visit students were learning about an artist and what kind of artist he was. The artist they learned about was Leonardo Da Vinci. The art teacher went through a slide show showing what pieces of art he has made and what they will be doing once they go to their seats. The students were told that will be making a sculpture of a robot out of a paper towel roll, aluminum foil, paint, and other objects they would want to glue on. The students were noisier than they were during music and the classroom teacher asked them multiple times to quiet down. The quiet students were also trying to quiet down the class so they could hear the instruction the teacher was giving. A phrase the art teacher would use was "hand on top". Once the students were able to quiet down, they all got to work and were engaged.

Students returned to class quickly because art class was also close to the student's main classroom. Even though the students typically listened well to all teachers it was clear that they listened much better to their main classroom teacher compared to their art teacher and got to working on their lessons right away. Most students were focused and engaged but that day was the first time noticing some students were getting distracted from the things they had in their desk.

Discussion

Physical education class was the furthest away class from the student's main classroom. It took the students about three minutes to get to the class. The students had options between playing basketball, doing gymnastics on the mats, jumping rope, or riding square scooters.

Students were mostly playing with the square scooters or half-court basketball. Most of the boys decided to play basketball and started a 5 vs 5 game, while some girls didn't want to be too competitive and decided to play with the scooters. The students were engaged and active the whole period and was apparent that they were having fun. For the second PE class the students sat at their floor spots and the classroom teacher would yell out which stretch the students would do. The students would count out loud as a class up to 10 seconds. They did this for six total stretches.

The difference with Iready after PE class was that students were tired and sweaty. Instead of getting right to work most students asked to get their water bottles filled and or go to the bathroom to wash up. Since there was only one bathroom in the classroom it took a long time for all the students to use and that took time away from them doing their minutes. The students liked to sit at their desks and cool down from running around at PE. By the time the students were done with going to the bathroom, drinking water, and cooling down there was very little time to actually work on their Iready.

Limitations:

Information was acquired just by the observer. There was not data from the students and there were limited visits. The observer's visits may have impacted the way the students behaved while in class.

Conclusion:

As I embark in the next chapter of my career, I will be using this information to help me become the best tennis coach/teacher I can be. Just like in school physical activity may have an impact of the focus students have while learning and that can be prevalent in tennis as well. The more a student plays tennis the less focused and engaged they will be with the coach. Therefore,

it is more beneficial to have a shorter lesson and have the student fully engaged and active than have a longer less affective lesson. This study has showed me how to help students refocus their attention to the task they should be doing. I will be working with students of all ages and being able to observe 4th grade students will help me with the younger players. When it pertains to becoming an elementary school teacher this observation has showed me that it is crucial to have your students alert and engaged and once, they aren't engaged anymore, it is necessary to have techniques to refocus them.

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Educational Digital Games

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Introduction

The concept of using games to assist in teaching content to students and assessing them is not a new one. In fact, gamification, meaning utilizing game elements to make learning engaging and fun, has been an incorporated method in classrooms for many years. Digital learning is becoming more and more prevalent because of the COVID-19 pandemic (Murphy, 2020). As a result of students being forced to move to learn through a virtual environment, not all students were able to create a learning environment that fits their needs. It was challenging to engage students with course material, and because of this, many students were unable to achieve the same level of success as in previous years. Moving forward, tools that were created with a goal to assist students with engagement and achievement online may continue to be utilized in the classroom, whether in-person, hybrid or virtual. The achievement gap is becoming bigger and bigger because of the pandemic (Bailey et al., 2021). Parents and schools are still exploring ways to keep their students engaged, while simultaneously learning content. Before incorporating tools in a classroom or as extra assistance at home, it is important to determine whether the tool(s) make a positive, negative or neutral impact on both student engagement and achievement.

Literature Review

This literature review examines how games can be used as a tool to support English vocabulary development. Although non-digital games and digital games share the common theme of learning English vocabulary, there are discrepancies in the research included based on English being the participants' native language or foreign language.

Non-Digital Educational Games: A number of studies highlight the positive impact of utilizing non-digital games as a method of learning. Hursen and Salaz (2016) conducted a study outside of the United States, seeking to answer the question: is there a significant difference between the academic success of students who are taught English vocabulary through authentic childhood

games and those who are not? They approached this by focusing on 45 kindergarten students who were split into an experimental group of 22 students and a control group of 21 students. This study took place over a 6-week period, during which both groups learned vocabulary words for three 3-hour sessions per week. The experimental group was taught vocabulary through authentic childhood games, while the control group was taught vocabulary through traditional methods. The experimental group took a pre/post-test, the researchers and teachers each made observations and at the end of the study, the 6 teachers involved completed evaluation forms. The researchers performed quantitative and qualitative evaluations by conducting interviews with the teachers and grouped qualitative data through common themes. Both the quantitative and qualitative data showed that teaching English through authentic childhood games was more engaging and academically effective than using traditional teaching methods.

Educational Digital Games & Engagement: Educational digital games may provide a sense of engagement and entertainment while learning. Wu and Haung (2017) explored the impact of learning English vocabulary via mobile technology. In their 2017 study, they investigated: how does using mobile game-based learning increase motivation and interest of those learning English vocabulary? In this study, a group of student participants were divided into 3 groups, each learning vocabulary using a different review method. The students took a pre/post-test and results were statistically analyzed. The results showed that those who participated in the mobile gamified learning system demonstrated more interest, attention and motivation to learn. Thus, mobile gamification can make a meaningful difference in student achievement and engagement.

Educational Digital Games & Achievement: Educational digital games may also improve vocabulary acquisition and achievement scores. Yunus and Hua (2021) in their study evaluated whether using Quizizz enhanced primary grade 5 pupils' learning of irregular past tense verbs for non-native English speakers. This study was conducted in an elementary school in Malaysia. 30 eleven-year-old participants were included. Students used the digital game Quizizz to assist in learning irregular past tense verbs. The students took a pre/post-test to obtain scores which were statistically analyzed to assess the participants' achievements. The results showed that Quizizz increased the average class learning score. Using this digital game brought enhanced student engagement, increased retention of words and improved student attitudes when learning.

The studies analyzed in the literature review show that educational games, both digital and non-digital, are effective methods to engage students and provide collaborative and independent methods of gaining vocabulary skills. Research on the impact of utilizing gamification as a tool for learning provides insights into how gamification can support student engagement, academic achievement and provide benefits such as enhanced student confidence. Within the realm of research performed to understand the impact of educational gamification, specifically on vocabulary development, non-digital and digital games each deliver different types of benefits. There is a significant amount of research on non-digital games and their effect on student vocabulary development. However, digital gamification is a more recent advancement in classroom education, and thus, there are fewer studies to reflect on when evaluating literature in this area. While today's research on digital educational gamification is limited, one would expect that with the tremendous shift to online learning because of the COVID-19 pandemic, that this body of research will expand significantly over the next few years.

Previous research suggests that there is a wide range of educational games that support English vocabulary learning to enhance student engagement and achievement. Yet, there is little research on the topic of educational digital games and elementary school students, especially as they learn English vocabulary. Thus, this study examines the following question: *Does the use of educational digital games impact elementary students' engagement and achievement?*

Methods

Participants: This study took place in three fifth-grade classrooms (i.e. "groups") at a public elementary school in the southeastern region of the United States. There were a total of 40 participants, excluding 3 participants whose data was not consented to be included in this study.

***Intervention*:** The independent variable of this study was the implementation of an educational digital game named MEMdo. MEMdo is an iOS app designed to assist elementary and middle school students to help them learn and memorize information by using games, multimodal learning, spatial memory techniques and color-coding. There are two components of the app; the gaming component, which focuses on an avatar avoiding objects while simultaneously collecting tokens, and the learning part which incorporates kinesthetic, auditory, visual and tactile activities to promote vocabulary development. The app itself does not have a database of words to learn, it is up to the teacher to develop a list of words and definitions for their students to learn and input

into the app. Because there is no defined list of words to be utilized in the app, MEMdo can be incorporated into almost any subject when learning new vocabulary. The intervention was conducted by having the participants spend 20 minutes a day, 3 times a week, learning new vocabulary words while playing MEMdo. This took place over 2 weeks and resulted in a total of 6 learning sessions.

Dependent Variables & Data Collection: The dependent variables were engagement and achievement. Engagement is defined as a student's attention and participation in the activity, while achievement is defined as the amount of information a student learns from the activity. This study used various data collection strategies which included: field notes and observations with video recordings of each gameplay session, a 2-part Emoji Survey completed after each session, 6 focus groups of 3-4 students per group which was conducted at the completion of all six sessions, an interview with the cooperating teacher and a quiz as an artifact. The student "circle an emoji" component of the Emoji Survey (part 1) was examined to look for trends and insights using Microsoft Excel. The narrative data was analyzed from open-ended Emoji Survey questions (part 2), field notes, focus groups and interviews with MAXQDA.

Results

Emoji Survey: Part 1 of the Emoji Survey showed that the participants were more engaged in playing MEMdo than they were when learning vocabulary through traditional means but less engaged than they were when playing a game of their choice. Most of the negative feelings towards MEMdo came from technical issues that occurred while playing the game on Apple iPads. Part 2 of the Emoji Survey showed that 84% of the participants would prefer to play MEMdo over learning vocabulary through a traditional classroom approach, 14% said that the participants would prefer the regular/traditional approach and 2% were neutral. It was also reported that 99.3% of students had a fun time playing MEMdo, while it was reported only 0.7% of students disliked the game. It is still relevant to report that not all students were engaged the entire time while playing MEMdo. It was reported 28 times in part 2 of the Emoji Survey that students were bored at some point while playing.

In terms of achievement, it was found that 84% of participants felt that they had learned and/or remembered vocabulary words as a result of their MEMdo experience. On the other hand,

it was documented that 16% of students did not feel that they learned and/or remembered words from the session in which the survey was completed and/or previous sessions.

Quiz: The quiz, taken after the six sessions were completed, found that Group 1 had an average score of 88.84%, Group 2 had an average score of 96.33% and Group 3 had an average score of 90.80%. This means that the total average score of the three groups was 91.99%. Thus, MEMdo aided students in comprehending and memorizing nearly all vocabulary words assigned.

Focus Groups: It was found that all participants who shared in any of the focus groups preferred playing MEMdo to having a normal class. They shared that in the future, MEMdo should be used 1-2 times throughout the week to avoid boredom resulting from the repetitiveness. Lastly, all participants who shared in the focus groups stated that they felt like they had a better understanding of new words and refreshing of old words since playing the game.

Field Notes & Observations: The field notes and observations showed that Group 1 was more bored and disengaged than Group 2 or 3. Many students faced technical difficulties including iPads closing out of the app, among other issues, while they were playing the game.

Teacher Interview: The interview with the teacher showed that during class time, most students were talking about the game and its related words, rather than having side conversations about other topics. She also shared that some students tried to avoid the learning aspect of the game and gave feedback about how to combat this challenge. The teacher shared that she brought up vocabulary words learned through MEMdo outside of the designated sessions and that students were able to use the words correctly in sentences and explain the meaning of the word(s). She stated that using MEMdo "might be a good way to preview the words and get started on them." Lastly, she shared a particularly positive distinction with students who had a learning difference being more visibly engaged, motivated and able to define vocabulary words upon request.

Conclusion

Students said that they enjoyed playing MEMdo and the results demonstrated that they learned more effectively when using it. Interestingly, even the students who did not find the game as engaging still managed to improve their vocabulary comprehension through the use of

MEMdo and also performed well on the quiz. Both the students and the teacher reported that MEMdo was a very effective form of instruction for the students to learn vocabulary words and that it compared favorably to traditional methods. The quiz that the teacher gave confirmed that students effectively learned and expanded their vocabulary through playing MEMdo. The outcomes suggest that educational digital games such as MEMdo hold tremendous promise and can be considered an effective form of instruction in vocabulary development and learning.

Implications: There are several future steps that one might consider to expand the research performed around learning, engagement and gamification. One pathway is to segment populations of students in which gamification might be a preferred learning tool based on an individual's learning profile. Another consideration is how students within different achievement groups might benefit from MEMdo. For example, data suggests that MEMdo might be a tool that could be especially beneficial to the learning difference community. Likewise, those placed in a traditionally "gifted and high achieving" category might also benefit from MEMdo because it has the ability to engage students at an individual level, furthering the ability to support individualized learning. Thus, understanding how different profiles and categories of learners engage and benefit from MEMdo would be helpful to further refine the educational digital game, so that it can benefit the widest array of learners, each with their own style, modality, differences and challenges, and importantly, make learning and achievement more fun and accessible to all.

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The Influence of Sentence-Combining on Students' Attitude toward Writing

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The development of good sentence structure is vital for the advancement of effective communication, specifically in writing. However, Wheeler (2005) states that the desire of educators to "fix" students writing through the red-pen method of correction "is enough to make anyone want to quit…writing" (p. 109). While sentence structure is heavily emphasized for writing success in elementary schools, students may have less exposure to it after those early years beyond English teachers' corrections in the margins of their writing. An alternative to traditional grammar pedagogy, sentence-combining challenges students to build a new sentence from a set of simple sentences. Although the technique is designed to focus on sentence structure, sentence-combining also provides the opportunity to discuss parts of speech and punctuation. Beyond grammar, sentence-combining can be an effective way to help developing writers become more comfortable with language manipulation and the revision process (Haussamen, 2003). There is ample scholarship on the importance of grammar and language teaching in English language arts (ELA) classrooms, including why traditional approaches to teaching grammar may be ineffective (Devet, 2002; Kolln & Hancock, 2005). Yet, there appears to be a gap in the literature about the implementation of sentence-combining in high school ELA classrooms. This study aims to fill that gap by responding to the research question: How does the activity of sentence-combining influence high school students' attitudes toward writing?

Literature Review

When students share pieces of themselves through writing and receive a returned paper with decorations of grammar corrections, often not accompanied with how or why to correct them, they may develop a negative attitude toward writing (Dawson, 2009). Pajeres (2003) echoes this sentiment, explaining how "Students form their self-efficacy beliefs by interpreting information… [as a] result of previous performance" (p. 160). Students who feel as if they are failures due to the nitpicky nature of grammar corrections on their writing may develop a negative attitude toward writing as well as their abilities as writers. Confidence and attitude

toward writing go hand in hand, and because of practices like the overcorrection of mistakes without adequate explanation by teachers, students may be left with an apprehensive or even fearful view of writing and revision (Pajeres, 2003).

The emphasis placed on grammar in the classroom has varied over the years, but nonetheless it has become a staple of what is expected in ELA classrooms. Traditional methods of grammar instruction embody Freire's (1970) description of the banking method of education. Dunn and Lindbolm (2003) and Milner et al. (2017) both describe the traditional method of grammar instruction as a teacher-centered with worksheets and handouts overwhelming the lesson plan. The traditional method of approaching grammar, then, focuses not on the creation of writing, but on the correction of writing. Research shows that teaching grammar using traditional methods is ineffective for the long-term retention of information (Devet, 2002; Kolln & Hancock, 2005; Weaver et al., 2001).

An effective alternative to semester-long grammar instruction may be sentence-combining. This method teaches students to combine two or more simple sentences to make one grammatically correct, complex sentence. Previous studies have established sentence-combining as an effective way to improve sentence-level competence (Andrews et al., 2006; Berger, 2006; Graham & Perin, 2007; Walters, 2021). Studies have also found that this technique leads to improvements in the syntactic maturity and the overall compositional quality of students' writing (Graham & Perin, 2007; Saddler et al., 2008). Kittle (2008) notes that sentence-combining challenges students in problem solving and critical thinking in ways that traditional grammar pedagogy does not. Simply put, sentence-combing has the potential to help put the writer into the writing and revision process. However, there appears to be a gap in the literature when it comes to sentence-combining at the high school level. While some studies (Andrews et al. 2006; Graham & Perin, 2007) suggest that the benefits of sentence-combing span from children aged five through eighteen, there has not been substantial research on the influence of sentence-combining on students at the high school level.

Methods

This research study sought to answer the question: How does the activity of sentence-combining influence high school students' attitudes toward writing? The study was conducted at a large, urban arts magnet high school located in the southeastern United States in a 9th grade Essentials of English I/Standard English I class. A total of eleven students completed the entire

consent/assent process and submitted the questionnaires and assignments. Those eleven participants make up the sample for this study.

The researcher implemented weekly minilessons on sentence-combining for a total of eight weeks during the semester. Lessons were primarily focused on helping students to distinguish the academic language and labels for elements of sentence structure such as subordinate and coordinate structures, subordinating and coordinating conjunctions, and comma rules. After each lecture, students were then given a sentence-combining activity to complete. The researcher always provided students with an example at the top of the activity and modeled the first part of every activity for the students.

Data from the study were collected through pre-, mid-, and post-questionnaires, student-created artifacts, and observational field notes. 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 as it applied to their attitude. Participants responded by circling if the statement was 1—Untrue, 2—Somewhat Untrue, 3—Somewhat True, and 4—True. The post-questionnaire included the same ten statements as the pre- and mid-questionnaires but also included an additional open-ended question that prompted students to note any changes in attitude toward writing.

Student artifacts included writing inventories that were conducted before, during, and after the study at the same time as the questionnaires. The writing inventories tasked students with a sentence-combining activity, were all identical in format, and contained the following directions: Combine the short sentences within each cluster by adding coordinating and subordinating structures or by adding modifiers. The clusters on the inventories were in groups of three, and each inventory contained five clusters total. The following is a sample cluster: “We saw the puffins in a glass aquarium next. The puffins dove and frolicked in the water. They looked like they were flying.” Although the format was the same for the pre-, mid-, and post-writing inventories, the simple sentences were different each time to challenge students and maintain interest.

The researcher observed the classroom throughout the duration of the study and looked for any change in student attitudes toward writing. For example, the researcher observed how often students volunteered their responses to sentence-combining activities at the beginning of the study and how often they did so at the end of the study. The researcher also observed

comments made by students before, during, and after the activities to help gauge the influence of sentence-combining on their attitudes toward writing.

Results

Of the eleven participants, six students responded that sentence-combining had positively influenced their attitude toward writing. A single student stated that the sentence-combing activities had no effect on their attitude, and four students stated that they were unsure if they experienced any shift in attitude. When considering the data, the researcher concluded that q1 (direct attitude toward writing), q3 (confidence in general writing abilities), and q6-q8 (confidence in sentence mechanics) were the most relevant to the research question. From pre-questionnaire to post-questionnaire, direct attitudes toward writing (q1) responses and confidence in general writing abilities (q3) responses increased, showing an improvement in students' attitudes. Responses to questions related to confidence in sentence mechanics (q6-q8) increased as well. Thus, the questionnaires revealed that sentence-combining activities can have a positive influence on students' attitude toward writing.

Student artifacts revealed something that the questionnaires could not, which is that all participants were able to form more cohesive and grammatically correct compound, complex, and compound-complex sentences from the pre- to post-writing inventory, regardless of their attitude toward writing. The data shows that prior to completing sentence-combining activities, students, on average, had slightly negative attitudes toward writing. Their attitudes were represented by their lack of confidence and their unwillingness to attempt the activity. The mid-writing inventories revealed that the process of sentence-combining, which was confusing at first, became clearer to students, and there were small improvements in their writing; however, when they were presented with challenges they did not know how to face, they resorted to old attitudes. The post-writing inventories conveyed the following results: out of the eleven students who participated in the study, only one student left a set of sentences blank. Each student tried to use a coordinating conjunction at least three times on their post-writing inventory, and all of them also attempted to use a subordinating conjunction once. Moreover, all but one participant created at least one grammatically correct combined sentence.

Discussion

Based on the data collected in this study, the researcher observed that while students may not self-identify as having seen a drastic change in attitude after sentence-combining activities,

their writing did improve, and they were more open to experimenting with sentence-level mechanics. Prior to the study, students seemed wary of writing, likely for the fear of being told they were wrong, but over the course of the study students became more open and willing to manipulate language in different ways. This finding suggests that sentence-combining has the potential to inspire an important paradigm shift of helping secondary students view writing as something they can continuously improve instead of something they should know how to do automatically.

Students' initial hesitation to engage in writing is in alignment with the findings from Whitney (2018), who stated that to students, "It feels like my words are me. Like to judge my writing is to judge me. Like to share my writing is to share myself" (p. 130). Students' previous experiences with writing and grammar likely shaped their tendency to attach self-worth to writing, which, unsurprisingly, may have led to the development of negative attitudes toward writing. Participants' apprehension within this study also aligns with the findings of Dawson (2009) and Pajeres (2003), who outline how important confidence can be in shaping students' attitudes toward writing.

Kittle (2008), Saddler et al. (2008), and Milner et al. (2017) state that sentence-combining is an alternative grammar pedagogy tool that challenges students to learn traditional grammar but does so in a way that provides much needed context in the process of writing. The findings of this study are consistent with sentence-combining as an approach for engaging writers. An improvement in writing was seen across all participants, regardless of whether they self-reported a change in attitude. This finding is consistent with the findings of Andrews et al. (2006), Berger (2006), Graham and Perin (2007), and Walters (2021), all of whom establish sentence-combing as an effective way to improve and progress sentence-level competence. Participants' experienced improvements in the syntactic maturity and overall compositional quality of their writing, as shown through the improvements in activities over the course of the study, which aligns with the results found by Graham and Perin (2007) and Saddler et al. (2008).

While participant's' writing skills improved over the course of the study, the activity of sentence-combining only had a small influence on students' attitudes toward writing. Although the researcher observed changes in confidence throughout the study, some students' self-reported attitudes did not experience substantial change. According to many of the students who stated that sentence-combining had positively influenced their writing, the understanding they gained

helped them to feel more confident in their writing, a result that is consistent with Pajeres (2003). Based on the findings from this study, the researcher believes the activity of sentence-combining has the potential to benefit secondary ELA students by providing them with a contextual approach to grammar instruction, which, in turn, can improve students' writing skills and their attitude toward writing.

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The Effect of Reflective Practice on Student Mathematics Learning Attitude

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High school math is an important aspect of foundational learning for students' STEM education. Many students do not like to learn math because they believe it is challenging to grasp the concept of mathematics. This mindset will lead to a negative attitude, including inattention and lack of motivation in the math class. It is important that teachers can use reflective practice to adjust students' learning attitudes.

Many people suggest reflection to learn. Dewey (1910) emphasizes the importance of reflection. According to Dewey, reflection is the only way to correct mistaken ideas and obtain accurate pictures. He suggests reflection should be the goal of education because it frees us from impulsive and unchangeable behavior and helps us plan our activities with purpose. Mezirow's (1990) claim is the same as Dewey's. On the one hand, the act of reflection leads to an examination of one's values and beliefs. On the other hand, reflecting on one's thoughts, feelings, and actions increases thinking and leads to objective analysis and evaluation of issues and the formation of judgments. Boud (2001) claims the significance of experience reflection; he argues that reflection is to learn from experience by rethinking what has happened. According to Boud (2001), environmental and evaluative factors discourage reflection. He argues that a person in a safe, less stressful environment is more likely to reflect on uncertainty and puzzling events.

Gibbs (1988) created his reflective structure to support experiential learning. His reflective structure consists of description, feelings, evaluation, analysis, conclusion, and action plan. Leijen et al. (2012) discussed how to assess reflection. Successive stages of demonstration can describe the quality of reflection: description, justification, evaluation, and discussion, each representing a higher level of reflection. Higher stages of students' reflective responses represent a higher quality of students' reflection.

Literature Review

Reflection has different benefits. Teachers improve students' critical thinking by using the instruction inquiry and reflection method (Farah & Ayoubi, 2020). Students can enhance their understanding of the steps in mathematics by taking their mistakes seriously and reflecting on the reasons they made them (Heemsoth & Heinze 2016). Teachers can design more personalized instructional programs by analyzing students' reflections on what they have learned (Toker, 2020).

Reflective writing is one of the most common ways students can improve the quality of their learning. This is highlighted by Borasi and Rose (1989), who studied the effects of student journaling on mathematics learning in a mathematics course. This shows that when students journal, students express and reflect on their feelings, beliefs, knowledge, and processes about learning mathematics, which helps them cope with negative emotions and discover new content and skills. Hussein (2018) holds the view that reflective journal writing increases learners' understanding of concepts and the development of growth mindsets. Poe (2021) has suggested that reflection and planning activities have the potential to be tools to enhance students' classroom experiences and performance. Cleary (2008) noted that adding information about self-regulation in the learning diary activity expanded students' strategy use and high self-efficacy.

Reflective writing helps students positively influence their learning process by reviewing their feelings and learning. Researchers and teachers designed different inquiry experiments to confirm whether reflection improves student achievement. Williams (2006) and McCrindle and Christensen (1995) highlighted that learning journals positively impact students' academic performance. However, Lew and Schmidt (2011) and Cavilla (2017) also include reflective writing as part of students' academic experience. It was hoped that this would improve student performance, but the results showed no improvement. Another important highlight is the study Cavilla (2017) conducted, which examined whether reflective writing improves academic performance and changes motivation. The researcher found that reflection positively impacted students' metacognition and increased students' motivation, but there was no change in students' academic performance.

Methodology

This study took place at a public high school in a southern state in spring 2022, during the research's internship. One high school math class with 24 students was asked to participate in the study, and all the students had given informed consent forms for parents to sign and informed

assent for them to sign. All students in the researcher's field placement class were invited to participate in the study.

During the time allowed for mathematics instruction, the researchers printed a list of reflection questions for students. Once a week, after the teacher completed the instructional task, students were given 15 minutes to answer the reflection questions and share their reflections with their classmates. The reflection questions were designed based on the Gibbs' Reflective Cycle, which consists of six sections: Description of the experience, Feelings and thoughts about the experience, An evaluation of the experience, both good and bad, and an analysis of the situation to rationalize it, A conclusions about what you learned and what you could have done differently, A plan of action on how you would handle similar situations in the future (Gibbs 1988).

In the reflection checklist questions, students gave an overall sense of mathematics and a recollection of what they have recently learned. They evaluated their mastery of mathematics, reflected on their performance in class, and finally made suggestions for improvement based on their performance.

The reflection activity focused on the students' feelings about the course, students' motivation changes, and how reflective actions affect students' math learning attitude. The researcher observed the students' attitudes and class engagement from answering reflection questions. Students completed the reflection questions during the activity, and this analyzed their attitude toward learning mathematics. The students were asked to complete a survey after the intervention to help the researcher understand their responses to the activity: whether they liked the activity, what they learned from the reflective practice, whether they wanted to do more reflective practice, etc. The researcher asked for this information in an open-ended format, so the students could let him know their thoughts.

The data was assessed quantitatively and qualitatively. In the quantitative analysis, the researcher categorized the students' answers to the reflective practice, integrated them into the form of percentages, and finally analyzed the students' responses to the four reflective practices to find differences between the variables. In the qualitative analysis, the researcher used MAXQDA to combine the data from field notes, observation, and students' reflection practices to determine whether answering reflection questions changed students' attitudes during mathematics class. Did reflection have a positive effect on student attitude?

Results

This research was conducted over five weeks with one reflection practice task each week for the first four weeks. Students answered the reflection practice questions based on their class performance, their efforts, their improvement action, and what reflection practice changed. For the fifth week, the researcher interviewed eight students to get feedback about the reflective practice. The reflection practice answers were then collected and analyzed. The results have been organized by student math learning attitude, student self-assessment, improvement plan, and reflection practice effect.

Attitudes toward learning mathematics, for this indicator, questions 1 and 2 in the reflection practice were used to determine whether attitudes toward mathematics were positive or negative for the students based on their responses to the questions. Overall, students showed the most positive attitudes when learning Parts of a Triangle (Practice 2) and Definitions chords arcs (Practice 4), followed by Special Quadrilaterals (Practice 1), and the lowest percentage of students showed positive attitudes when learning Graphing Circles (Practice 3).

Students' self-assessment*,* for this indicator, question 3 in the reflection practice was used to determine whether students made all the efforts to successfully learn the mathematical content. These effects were based on their responses to the questions. The percentage of the students who believe they did everything they could to succeed in the topic has increased from 53% to 90%.

Students' improvement plan, for this indicator, question 4 of the reflection practice was used to determine the improvement plan for students to set for the next lesson by reflecting on their classroom performance based on their responses to the questions. Overall, 95% of respondents set an improvement plan for themselves.

Reflection practice effect*,* for this indicator, question 5 in the reflection practice was used to determine the percentage of the students who believe the reflection practice has a positive change or no change. Overall, more than half of the students in the first three reflective exercises believed that the reflective practice had a positive change on their mathematics learning, and half of the students in the fourth reflective practice believed that the reflective practice had a positive effect on them.

In the interviews, the researcher asked eight students about their reflective experiences before this experiment and asked the students to describe their reflective experiences. The researcher also asked about what specific changes the reflective practice in math class had made

for the students. Students reported that before this study, their reflective experiences came primarily from sports team coaches who, through one-on-one interactions, pointed out areas where students were lacking and helped them correct their mistakes. Students felt that reflection changed their behavior and believed that it positively impacted their performance. However, none of them had reflected on their mathematics study. One of the eight students said that reflection practices did not affect her mathematics learning, responding, "Math is very simple and nothing to reflect on." The other seven students felt that reflection positively impacted their mathematics learning. Their responses were.

Conclusion

This study explored the impact of reflective practice in the mathematics classroom on students' mathematics learning attitudes. The researcher designed a reflection activity to use in mathematics classrooms as an intervention and then analyzed the impact of reflective practice on students in mathematics courses by collecting and analyzing student responses to reflective questions and interviewing students. It can be concluded that by conducting reflective practice, students had a positive change in math learning attitudes, and increased awareness of their classroom performance and goal setting. Among students' responses to reflective questions, the number of students with negative feelings about learning math dropped from 26% to 0%. The percentage of students who believe they have done their best to learn math increased from 53% to 90%. And 95% of students set goals for themselves to improve. Only the reflection practice affect indicator shows a different result from the other. In the second practice, 81% of the students believed the reflection practice had a positive change, on the fourth practice, the percentage dropped to 50 %. The rate dropping may be due to the lack of support after the reflective practice. It could also result from the math contents becoming easier, making students feel less need for the reflection.

Overall, students' attitudes towards reflection questions were positive. Most students felt that reflection helped them review their classroom performance and made them aware of what knowledge they had mastered and still needed to learn. Through the goal-setting part, the students' improvement plans for the next class promoted students' motivation for learning. It is reasonable to conclude that incorporating the reflective practice into the mathematics curriculum may improve students' metacognitive abilities, as well as goal setting, and develop more positive attitudes toward mathematics learning.

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