

St. Catherine University

SOPHIA

Masters of Arts in Education Action Research
Papers

Education

5-2021

The Effects of Peer Collaboration on Students' Writing Skills and Their Attitude Towards Writing in a Hybrid Montessori Classroom of Second and Third Grade Students.

Preetha Kingsview

Follow this and additional works at: <https://sophia.stkate.edu/maed>

**The Effects of Peer Collaboration on Students' Writing Skills and Their Attitude Towards
Writing in a Hybrid Montessori Classroom of Second and Third Grade Students.**

Submitted on May 20th, 2021

in fulfillment of final requirements for the MAED degree

Preetha Kingsview

Saint Catherine University

St. Paul, Minnesota

Advisor: Amanda Perna

Date: 5/20/2021

Acknowledgements

I am deeply grateful to my project coach and instructors for their continuous guidance throughout the process of this work. I extend immense gratitude to the school's educational director for the unconditional support throughout the research process. I am immensely thankful to my classroom's lead teacher for accommodating and adjusting the class schedule for the purpose of this research. Finally, I am tremendously grateful for the unconditional support from my family.

Abstract

The purpose of this technology-integrated research is to understand the effects peer collaboration has on students writing skills on 2nd and 3rd graders in a virtual setting. The research took place over five weeks in a lower elementary classroom in a private Montessori school in New England area. The population included 18 students ages 8 to 9. Students participated in a 5-week intervention process, working in groups of 3 on peer collaboration, sharing ideas, and creating group written work. The findings indicate an overall beneficial effect on children's attitude towards writing, leading to better writing skills and communication skills. Collaborative writing in a technology-integrated platform positively impacted students' typing skills. Continued research is necessary to assess additional domains such as cognitive improvement, vocabulary effects, and students' specific writing skills.

Keywords: peer-collaborative writing, peer collaboration, writing skills, self-perception, virtual medium, typing skills

Introduction

Self-expression in children leads to self-discovery. The American poet and essayist Jami (2011) explains in his first book of poetry, *Salomé: In Every Inch In Every Mile*, that “Everyone has their ways of expression” (p. Introduction section). Jami believed even when people had many things to say, finding ways to say it was more than half the battle (Jami, *Salomé*, 2011). As children develop and grow, they learn forms of expression. As they grow, children learn to hold a crayon or a pencil, and their first curved lines become their first drawing. Similarly, at the second and third-grade level, creativity and self-expression are inseparable. When children immerse in academics, math, and the mechanics of education, writing becomes a platform for children to express their creativity, expand their thought process, organize their ideas, and plan to produce their best-formulated work. Subsequently, this form of the script allows children to form opinions express their reasons and beliefs. Thus, children learn to write skillfully through structured instruction with continuous opportunities to express their views, thoughts, and ideas.

Peer-collaborative writing connects peers. During the COVID-19 pandemic, connecting with peers, especially those who are learning remotely, has taken the forefront of classroom challenges. Children learning remote miss out on crucial conversations and learning opportunities from peers that would foster vocabulary expansion increased cognitive reasoning and editing skills in a traditional classroom setting.

Technology has flourished over the past decades, acting as a bridge filling the gap between students in-person and remote. No opportunity seems less or impossible to teachers with the integration of technology within the classroom. Technology has provided children with a platform to learn new skills such as typing and developing math and social studies irrespective of where they know. However, the most critical role technology plays in bridging the gap between

children at home and those at school are the opportunities it provides for children to connect socially. With this aspect in mind, research is necessary for a technology-centered platform for creating a platform for children to discuss, collect ideas and collaborate effectively.

Subsequently, this action research aims to understand better the impact technology has on students' writing and collaboration skills. The classroom consists of eighteen 2nd and 3rd graders, some of whom are English speaking and some bilingual in a Montessori setting. The research aims to provide children who are better-experienced writers and leaders to influence other children to think critically, write creatively, increase vocabulary and thus learn and build relationships while producing meaningful and age-appropriate written work. Providing children such a platform will allow remote children to connect socially, academically and demand critical thinking skills to work together and produce written work actively.

Theoretical Framework

To explore the research topic of peer collaboration and its impact on writing, I used Vygotsky's Zone of Proximal Development described in his Cognitive Development Theory as the lens to my research. Lev Vygotsky was a Russian psychologist and social constructivist known for his work on psychological development in children. Understanding student's Zone of Proximal Development (ZPD) will play a key role in creating "systematic writing instruction implemented on best practices" (Vygotsky, 1978, p. 86). ZPD is "the distance between the actual developmental level in independent problem-solving and the level of potential development as determined through problem-solving under guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). The actual developmental level would be the current skillset a child can model to independently problem-solve or, in other terms, defines the functions that are already developmentally mastered by the child. Potential development level is the skill that the

child is working towards or matures sometime in the future. When educators determined the ZPD in children, Vygotsky believed they could make bigger and better, more long-term learning opportunities.

Vygotsky believed in three essential concepts when it came to writing. First, "reading and writing must be something that the child needs" (Vygotsky, 1978, p. 117). Second, the report should be meaningful and motivated by an intrinsic need that arouses a relevant task relevant to their life, developing into problem-solving creative ideas. Vygotsky's third concept of writing highlights Montessori's immense work in teaching young children how to write naturally. With Montessori as an example, Vygotsky firmly emphasizes teaching children how to write naturally as a requirement. Meaning, writing must be something that has to be taught rather than expected to know. Thus, writing with deliberate instruction and modeled with the explicit organization of actions can lead to semantics, grammar, spelling, appropriate use of punctuation, and capitalization.

The central theme of Vygotsky's theoretical framework is that social interaction plays a fundamental role in cognition development. Vygotsky believed in a social culture that would transform through a child's cultural development. A child's culture would alter the natural functions of logical memory, decision making, and language comprehension. This learning would then lead to an expression of thought and ideas. Based on Vygotsky's theory on explicit instruction on writing and taking into account the formation of opinion and beliefs in a socio-cultural context, my research will use scaffolded education as an intervention to dive deeper into writing instruction in a collaborative setting. The term scaffolding, first used by Wood et al. (1976), is very similar to the ZPD. Scaffolding is the process of enabling children to solve a problem, carry out a task, or achieve a goal that is beyond their unassisted efforts. "This

scaffolding consists of the adult or a more capable peer controlling those elements of the task that are initially beyond the learner's capacity" (Wood et al., 1976, p.90), thus creating an environment of learning filled with competence at the same time.

Research studies showed students who received scaffolded instructions had a more positive attitude towards learning from their teachers after collaboration (Molenaar et al., 2011, 521). Students valued their teachers and peers more after collaboration. As a result of scaffolding, students formulated better questions for teachers and peers, resulting in a more productive and interactive session. While Vygotsky does not provide explicit details on how to scaffold instruction in writing, the ideas and theory will become the basis of my intervention, data collection, and research.

Review of Literature

Collaboration results in human evolvement, creating social structures, and creating coexistence and harmony among children. Among the many research studies on peer collaboration, my goal is to research the effect peer collaboration has on students writing skills. Acquiring writing skills at the 2nd and 3rd-grade level is a learning process that involves student engagement, critical thinking skills, and exposure to multiple perspectives, which may transform into written format. Min (2017) defined writing as a complex skill that develops over time. The purpose of this literature review is to find existing research on the correlation between scaffolded instruction and constructive feedback on student's writing skills when combined with peer collaboration. "Constructive feedback will include modeling, directed practice, guided practice, and independent practice" (Silver, Perini & Strong, 2007, p. 35). The essence of giving and receiving is renewed, forming every evolving bridge between children with collaboration.

Writing to Expand Creativity

Reading and its Impact on Writing

To impact student writing skills, one must look at two critical relationships: the relationship between reading and writing and the relationship between thought process and writing. To become purposeful writers, children must clearly understand what they need to write, the writing structure, and present their ideas to make it a meaningful story. Montessori (1967) clearly explained writing as a result of vocabulary expressed and the children's understanding of the world around them. Similarly, Deford (1981) confirmed a strong and engaging relationship between reading and children's writing skills. The Institute of Education Science's practice guide for Teaching Elementary Students to be Effective Writers (2012) states that "the authors believe students who develop strong writing skills at an early age acquire a valuable tool for learning, communication, and self-expression for life. Such skills can be developed through effective writing instruction practices that provide adequate time for students to write" (p. 6). This journal provides strong evidence on the need for the teaching writing process and explicit instruction for spelling, grammar, sentence structure, and word processing. At the same time, this journal includes minimal research evidence showing any correlation between children, their writing skills, and becoming engaged writers.

Orderly Thought Process

To achieve purposeful writing, children need to cultivate the idea of orderly thinking in the writing process. Montessori (1917) explained, "intelligence as the swift reactions occurring among children and the order in which the reactions are formed, and the personal work of arrangement. Thus, creation expands in an orderly, thorough process that leads to conscious behavior" (p. 202). New South Wales Department of Education and Training (2007) explained in their journal Writing and Spelling Strategies that assisting students who need additional learning

support requires contextual teaching. The journal continues to explain when the written work is presented as a formulated thought and a planned order of ideas children will transform them into words in a structured format with grammar, spelling, punctuation, comprehension, functions of writing, compositions, and rich vocabulary. Students will produce their best-written report with conscious thought and deliberate choice of words.

Collaborating for Success

The orderly thought process in articulating ideas among children will lead to a successful peer collaborated written work. According to Benz & Miller (2008), successful peer collaboration is an academic task requiring diverse perspectives and advanced problem-solving techniques leading to increased academic performance. Collaboration is successful when there is an expression of various ideas leading to a solution and a thorough understanding of a topic. Piaget (1997) emphasized that children would be motivated to resolve matters and attain a new level of equilibrium or experience when they worked in groups; thus, their minds becoming coextensive. Coextensive would mean children collaborating by assimilating to each other's ideas, solutions and making necessary accommodations within the written work to bring the best peer-to-peer written work. Robert and Eady (2012) also argued that cognitive dissonance could lead to qualitative writing when encouraged in a healthy and constructive environment. In contrast, their research also states that open collaboration without proper direction can lead to ineffective communication, unwanted expression of ideas, and writing without a purpose. Modeling open-ended questions, switching between directed, guided, and coached instruction will become the foundation for creating a venue for an unbiased and open-minded discussion floor.

Engaging in Discussions

Engaging to give and receive nourishes motivation for better academic performance. Collaboration is purposeful when there is a transparent exchange of ideas with interactive constructive feedback challenging each other's conclusions and reasoning and, most importantly, teaching and encouraging one another (Johnson & Johnson, 1990). They explain collaboration as a feeling of cooperation, community, and connection as part of work choices in the classroom. Thus, children learn to build a bridge between peers and their writing skills based on trust and respect. Similarly, Pratiwi (2020) explained the idea of collaborative learning in her research *Improving Students' Writing Skills through Collaborative Learning on the Collaboration Learning Model* that fostered respect for others' opinions, developed critical thinking skills, and a sense of cooperation and healthy competition. Simultaneously, Roberts & Eady (2012) explained the idea of collaborative learning in creative writing as an opportunity for children to be teachers and therefore became a contributor within the community. Engaging in a constructive, collaborative, process-oriented discussion allows students to experience peers multidimensionally, demonstrating multiple pathways to a goal.

Concrete to Abstract Thinking

Multiple perspectives allow children exposure to different ideas, different ways to express an opinion, and how to transform those ideas into constructive written format. Shute (2008) argued that young learners rely heavily on social feedback to transition from oral language expression to written language expression. Social input from peers and teachers for ages 6 to 12 helps students increase their knowledge and understanding of content through suggestions, comments, revisions, and additions. Similarly, the studies conducted by Niesyn (2011) explained that collaborative planning during the writing process allows the novice writer to orally discuss, plan, conceptualize, and revise a piece of writing before applying pencil to

paper, providing multiple opportunities for giving and receiving formative feedback. In the literature review, one of the critical benefits of peer collaboration Neisyn(2011) points out that creating opportunities for exposure to open-ended questions and multiple perspectives results in clarifying and remedying misconceptions. The above study also confirmed the difficulties young inexperienced writers faced related to transforming thought into writing as often ameliorated through social collaboration and feedback.

Virtual Strategies for Peer Collaboration

Oliver et al. (2010) conducted a study on elementary and middle schoolers in a North Carolina Virtual Public School (NCVPS) that investigated integrating technology courses to provide blended and fully online and virtual instruction courses. The study thoroughly researched the challenges of implementing virtual classes, instruction, and best practices to deliver virtual education. According to Dukes (2006), virtual learning focuses on asynchronous discussion tools such as research links, videos, virtual-friendly courses, and reading materials for children to research. For this research purpose, research links, newspaper articles, and writing materials would help children cognitively process materials over an extended time. Dukes also emphasized short reading for children virtually, as they are more beneficial for children to decipher rather than long lessons looking at the screen. The study conducted by Hrastinski (2008) suggested synchronous discussion tools such as chats and messaging and continuous verbal communication opportunities for peer collaboration in an online setting. These vital tools would allow children to learn, plan, and create ideas from each other. Virtual tools such as google docs, sheets, forms, and classrooms will become the main venues for accessing material and recording their written work.

In the study conducted by Oliver et al. (2010), teacher participants stated that young students at elementary levels required verbal instructions through audio and synchronous education and communication to support children as they assimilated to the new technology. Although the above study also states that the participants felt students adapted to online learning, they already possessed technology skills. Children, especially young children, are experiencing technology as a tool for integrated learning rather than games and fun activities. Children's need for education and social construction has placed a high demand on teachers and parents to explore new ways to provide learning materials and almost similar learning opportunities for the children had they been in classrooms. Technology integration is at the height of its evolution as a learning medium for children's youngest due to COVID-19. The importance of providing virtual social and emotional support for young learners is an area of concern mentioned in the study conducted by Oliver et al. (2010), although not discussed extensively. COVID-19 pandemic has forced schools to integrate the landscape and scope of technology to provide education and instruction to students better.

Further studies are necessary to understand better the effects technology has on the social-emotional well-being of children. Integrating technology within classrooms, especially Montessori classrooms, can come with many challenges due to its high dependency on Montessori materials. When we rely on Montessori's philosophy of following the child, we can coach children to become quick absorbers of technology integrated instruction and attain knowledge, and thus experience the kinesthetic benefits of what technology offers.

For peer collaboration writing instruction to happen in a virtual setting, teachers will play the crucial role of facilitator, developer (Johnston et al., 2014), and deployer of such a writing instruction workshop. The gap in peer collaboration in virtual learning research in schools is

evident. There is the need for thorough research on the effects of children's motivation on their writing skills. It is pertinent for educators to create virtual environments that facilitate children's reaching their best self in their proximal development zone (Vygotsky, 1978).

Although there are studies on delivering a transparent writing process in a classroom setting, there is a gap of research, knowledge, and data on implementing instructional scaffolding writing workshops in a collaborative environment in a virtual classroom. There is also a significant gap in data and research on how to model and instruct peer collaboration for this age group and what effects such instruction will have on children. According to Wood, Bruner, & Ross (1976), instructional scaffolding pairs a learner with a more experienced individual to achieve a specific task or solve a problem. In the above study, the researchers elaborated on static and dynamic instructional scaffolding. However, for this research purpose, dynamic instructional scaffolding will be the primary focus of intervention requiring a constant analysis of the student's progress, adjustments as needed, and a reduction of support over time (Molenaar et al., 2012) in the classroom and online setting to test the effects of such in children's writing skills. Scaffolding is defined clearly by Wood et al. (1976) as "providing assistance when children need them, fading the assistance when children's competence increases." (p. 516). Molenaar et al. (2012) explained that dynamic scaffolding uses diagnosis, calibration, and fading to know how to scaffold and when to meet a particular student's needs. For this research, children's best self in a peer collaboration setting in a virtual environment would mean when children agree upon each other's ideas collectively. Thus, further research is necessary to find out how children find intrinsic motivation. This research will provide details on how intrinsic motivation in children would lead them to produce written work where all the parties involved play an equal role in sharing ideas irrespective of their abilities. Thus, the research will answer if

the children's self-perception is an important ingredient towards the ultimate goal of becoming confident writers.

Thus, the studies stated above clearly provide evidence of success for children to learn through virtual environments or classrooms and become content reviewers when teachers apply the same strategies of peer collaboration through the technology-integrated medium. The medium of technology will serve as a bridge that connects the teacher to the students, their peers, and the worldwide web of learning opportunities technology provides. The key will be to tailor the instruction and resources for children to focus on the essential skills to make them better writers and express ideas constructively.

Methodology

The research collected qualitative and quantitative data to triangulate the action research on peer-collaboration effects on students' writing skills. Usually, in a Montessori classroom, the class size would be anywhere from eighteen to twenty-four students with first to third-grade students. However, this year, due to demands of the pandemic to maintain the same standards of education, the incoming first-grade students were separated into one classroom while second grade and third graders were in the same classrooms as last year. This allowed the students to continue to receive synchronous teaching from their previous year's teachers. Usually, a student in a typical Montessori classroom would spend three years with a teacher. Hence their grade also corresponds to the years they have spent in the same classroom. The research participants were lower-elementary second, and third-grade students enrolled in a private school, which offers a Montessori program for ages 2.9 to 11 years in the New England Area. The sample size was eighteen students consisting of nine-second grade and nine-third grade students. Of the eighteen students, six students were learning remotely from home, and two students were following the

hybrid model (being in-person only two days a week). On Mondays, the classroom had ten students learning in-person and eight remotely. On all the other days, the ratio is eleven to seven. The class consisted of eleven girls and seven boys. Out of the eighteen, thirteen students spoke languages other than English at home. Due to the pandemic's uncertainty, all the students brought their own devices to school daily for the first time this year. The participants of the research used iPads, MacBook's and Chromebooks as their school devices. Thus, the researcher implemented peer collaborated writing as an intervention in a technology-based platform to include all the students.

Parents received the passive consent form (see Appendix A) before the research with a week to obtain consent. All the students experienced peer-collaborated writing intervention as part of the regular teaching curriculum. The researcher saved the research data safely with a password. The researcher collected the data using technology as a primary medium for storage, integration, communication, providing teaching resources, and collecting artifacts.

As a pre-assessment, a questionnaire on an adapted version of Bottomley et al.'s (1997/1998) Writer Self-Perception Scale (WSPS) (Appendix B) recorded students' self-perception towards writing. Seventeen out of eighteen students completed the pre-assessment questionnaire. Participants used the google form to enter their data on the WSPS questionnaire with 27 questions, out of which the first question was a sample question with a 3-choice scale of "Agree," "Disagree," and "Not Sure." A sample question helped the participants understand how to answer the questionnaire. The researcher assured the students that the answers collected would be anonymous to protect their privacy. The questionnaire consisted of 1 sample question, six General Progress (GP) questions, five Specific Progress questions (SP), three Observational Comparison questions (OC), one General question (GEN), five Physiological State questions

(PS,) and five questions on Social Feedback (SF). Although some may argue that OC would be out of context for students in a Montessori classroom, the questions were part of this study. Usually, Montessori children do not rely on comparison to challenge themselves. In other words, they are intrinsically motivated to learn through repetition and learning.

For intervention, the researcher implemented peer-collaborated discussion as well as writing sessions over the 5-week study. As a class, the students studied, read, and collected ideas on climate change in phases. The researcher divided the eighteen students into six groups. Each group had three student members. The groups were named A, B, C, D, E, F. At least one member of the group was learning remotely. The groups remained the same throughout the intervention period.

Study of Climate Change

As part of the intervention, the study on climate change (Appendix F) provided an opportunity to collaborate on informative writing. After reading the survey implemented by Kottie Christie-Blick, an educator in New York (National Oceanic Atmospheric Administration, 2017), the researcher adopted a simpler model for this research. The study used three different articles (Appendix F) in PDF format. Each week one piece on climate change was assigned to the students along with the writing prompts (Appendix D). The participants could access the articles on Google Classroom as a material/resource under Action Research. The participants found the writing prompt for the corresponding essay on their group's Google documents. Tuesdays and Wednesdays served as the intervention and data collection days. The researcher completed data collection over five weeks. Hence, the researcher collected data for four weeks continuously and then during the last week of February.

Week 1

After collecting the pre-assessment on Tuesday, students received an introductory class on “*Article 1-What is climate change?*” (Appendix F). Students visited the school's greenhouse, which was in the schoolyard. The remote students participated in the 30-minute-long discussion as they joined via the Zoom meeting.

On Wednesday, all the students (in-person and remote) joined the Zoom meeting. Using the screen share feature on Zoom, children received an introduction to the first writing prompt, “*Is our climate changing? What is the difference between climate and weather? In your words, explain why scientists believe there may be global climate change? Use details or facts from Article 1 to support your reasons*”.

Using direct and modeled instruction methodology, the researcher explicitly modeled how to collect ideas using Article 1 and write a formal paragraph. The researcher shared the adapted version of *6+1 Traits of Writing* with a 4-point scale (Appendix E) to score their work post-intervention. The students were already familiar with a similar scale, which was part of their reading comprehension curriculum. The students then received detailed directions to access and refer to Article 1 using the Google Classroom feature. The students were already familiar with the Google Classroom as part of their regular curriculum. For the peer collaborative group session that immediately followed, an assigned writer noted each group's ideas. This assignment was only for this particular session. For the rest of the intervention period, the students took turns typing and sharing their screen. For this week, the assigned writer was to write the group's ideas in their science notebook. In each group, one designated student shared their *Article 1* while the group collaborated to answer the *first writing* prompt.

After receiving the above instructions, groups of 3 joined their assigned Breakout Room on the Zoom to discuss and write or build their paragraph. Group discussions were 35 minutes

long. During the group discussion, the researcher joined each of the Breakout Rooms for about 5 minutes. The researcher used the tally sheet on peer collaboration adapted from *Hennessey's Homeroom 2015* (Appendix C) to record peer-collaborative language, student reactions, and attitudes during the group sessions. The researcher provided guided instruction on a need basis, and students used the *Ask for Help* feature on Zoom if they needed help. The groups of students remained the same for the period of intervention.

For the first writing prompt, the students were asked to form a paragraph with a minimum of six sentences. However, the answers to the writing prompt were to be written in their own words, agreed as a group. The first writing prompt required students to find their answers from the article and restate it in a paragraph in their own words. The second writing prompt required students to agree on four possible choices on the topic and then collaboratively work to answer the writing prompt.

Week 2

On Tuesday, the researcher created six Google documents, one for each group. This document would be accessed by all group members simultaneously over the intervention period to write and edit each other's work in the Breakout Rooms. Each student could only access their group's google document. The researcher used the Google Classroom *Assignment* feature to create the Google documents under the topic *Action Research*. The groups met for 30 minutes on Tuesday and 45 minutes on Wednesday to complete the first writing prompt. In each Breakout room, one student used the screen share feature to share their screen. Students in each room could see the writing prompt on their google document, access Article 1 on another tab in their browser, and simultaneously see their typed work. The researcher used the tally sheet on peer collaboration adapted from *Hennessey's Homeroom 2015* (Appendix C) to record peer-

collaborative language, student reactions, and attitudes for each group session. 5 out of 6 groups completed their paragraphs within this session. Group D decided to research further into the topic and read more real-time googled data, which took more time than the assigned time for form opinions and conclusions. The group decided to work on the content later in the coming week. This was the basic model of the intervention.

Week 3

On Tuesday, we gathered as a class to read and discuss "*Article 2 – What are the effects of Climate Change?*" (Appendix F). The researcher posted the article on Google classroom under the topic Action Research that morning. We read the Article as a group and discussed the possible effects. The participants shared their views, opinions, and questions for 30 minutes. Based on observation and student comments, the researcher modified the content to have numbered bullet points. The researcher updated this version into Google Classroom and removed the initial version that evening after school.

On Wednesday, students viewed a short video on YouTube, "How Fossils were made? A video for kids", followed by questions and discussion on *Climate Change*. Students viewed the first 3 minutes of the video. The researcher screen shared the video footage on Zoom for the remote students while the student in-person viewed it in class. The researcher introduced the second writing prompt to the students as "*Week 2: Is It True That People Are Causing the Climate to Change? Describe in your own words the four effects of climate change. Write in one sentence what will happen to our planet Earth if we ignore this changing climate?*" (Appendix F). The session's goal was to collaborate and choose four possible effects from the bullet points as their most convincing reasons to answer the second writing prompt. After the discussion, in-person students joined the Zoom, and students moved into groups of 3 in Breakout Rooms for

about 30 minutes. The students noted the four reasons in their notebooks. During the group discussion, the researcher joined each of the Breakout Rooms for about 5 minutes. The researcher used the tally sheet on peer collaboration adapted from *Hennessey's Homeroom 2015* (Appendix C) to record peer-collaborative language, student reactions, and attitudes during the group sessions.

Week 4

The students met on Tuesday for 30 minutes and on Wednesday for 45 minutes to collaborate and collectively complete the "Week 2" writing prompt. During the group discussion, the researcher joined each of the Breakout Rooms for about 5 minutes. The researcher used the tally sheet on peer collaboration adapted from *Hennessey's Homeroom 2015* (Appendix C) to record peer-collaborative language, student reactions, and attitudes during the group sessions. The researcher provided guided instruction on a need basis, and students used the Ask for Help feature on Zoom if they needed help. 4 out of the six groups completed their paragraph. One group required extra time to finish their section, and group D worked on the first paragraph during this time and partially finished the second writing prompt. Both groups decided to complete the paragraph on the Tuesday following the February vacation.

Week 5

On Tuesday (following the February school vacation), students in-person were handed a flyer with the title "*Article 3 - Solutions to Climate Change – How Kids Can Make A Difference?*" (Appendix F), copyright owned by National Geographic Kids to read silently. A PDF version of the same flyer was posted on Google Classroom for the remote students under the Action Research topic as "*Week 3 –Solutions to Climate Change*". Students read, collaborated on the topic for 30 minutes. During this time, the researcher used the tally sheet on

peer collaboration adapted from *Hennessey's Homeroom 2015* (Appendix C) to record peer collaborations, student reactions, and attitudes for each group.

While each group met in a breakout room, the students worked together to build a paragraph as a group on their assigned Google document. Each group appointed one group member to type in the group's ideas and sentences. As the student typed, all group members suggested ideas, and one student simultaneously shared their screen on Zoom. In some groups, the assigned writer and the person sharing their screen were the same. All the group members could simultaneously type if they wanted to. Students shared their points that they noted from their discussions and simultaneously referred to the article to collect facts. The students shared their ideas on how to form sentences and make the paragraph informative. After finishing writing, the researcher provided suggestions on how to improve with guided instructions, and they chose to incorporate it or not. The students used the same Google document for the period of intervention to collaboratively write both first- and second writing prompts.

On Wednesday, introduced the final "*Week 3 - What Can We as Kids Do to Slow Down Climate Change? Do we as children believe we can positively impact the changing climate?*" (Appendix F) writing prompt. Following the observation, evaluation, and reflecting of the students in the past four weeks, the researcher decided to act and slightly modify this part of the action research by giving students a choice to collectively write as a class or continue with the small group's model. Students collectively voted to write as a class. Students gathered as a group to collectively write a paragraph to answer the third writing prompt, and one student was assigned to type the classes' solution sentences. Students started by writing the topic sentence and then added solutions and ended with a conclusion sentence. This was the final collaborative written work as part of the action research. This model presented peer collaboration as the basis

of intervention but with a broader scope of exposure to students' skills to write and build the paragraph. This provided a comparison artifact to make a meaningful conclusion on the effects of peer collaboration on students' writing skills.

Finally, all the writing prompts were collected, saved on my local computer, and deleted from Google Classroom and Google Drive. The researcher used an adapted version of *6+1 Traits of Writing* on a 4-point scale writing rubric (Appendix E) to assess their written work. The following day, the researcher collected a post-intervention questionnaire using an adapted version of the Writer Self-Perception Scale (WSPS) (Appendix B). After the intervention, the rubrics (Appendix E), questionnaires (Appendix B), student writing samples (Appendix G), and observational data (Appendix C) served as indicators of peer collaboration and its impact on their writing skills.

Peer-Collaborated Writing

The writing rubric (Appendix E) assessed students peer-collaborated writing on the areas of Ideas and Content, Organization, Voice, Word Choice, Sentence Fluency, Conventions, and Presentations. The area of *Ideas and Content* examined the group's ability to clearly express their ideas and include supporting evidence from the article. The area of *Organization* looked at the group's ability to have a persuasive topic and conclusion sentence along with organizational strategies to state ideas and supporting evidence in an organized manner to create a unified paragraph. The area of *Voice* took into account the personalization used by the group to express their ideas. Students scored in the *Word Choice and Sentence Fluency* when there was evidence of various adjectives and adverbs. Finally, *Conventions* examined the group's ability to have grade-level typing performance and space conventions, spelling, capitalization, and grammar.

Presentations examined the group's ability to have accurate spacing, space after periods and commas, indent and bold font title, underlined with date, weather, and time.

Each group had 3 participants with a total of six groups. Group members stayed the same throughout the intervention. The groups remained the same throughout the intervention period. Letters A, B, C, D, E, F represented each student group with S1, S2, S3, S4, S5.....S17 representing the sample of participants. Writing scores were assessed on two on-demand writing prompts. A group who received a Writing Score (WS) between 12-15 points received an overall paragraph (P) grade as "exceeding," 9-11 points meant a "proficient," 6-8 points received a "developing" and 0-5 points received a "beginner" grade. Based on the overall paragraph (P) score, a group could get up to a total of four points. A beginner group received 1 point, developing = 2 points, proficient = 3 points, and exceeding writers = 4 points. In the figures below, WS1 represents the writing score each student group received on their first writing prompt, and WS2 represents the second writing prompt. In the figures below, *P1* indicated the first writing prompt's overall paragraph score and *P2*, the second writing prompt.

Students could earn up to a total of fifteen points identified as a Writing Score (WS) score in the figures below. The study used the adapted version of *6+1 Traits of Writing* on a 4-point scale (Appendix E) rubric to determine the scores. The writing score for the first writing prompt was noted as WS1, and the writing score for the second writing prompt was identified as WS2. The groups were further classified as either beginner, developing, proficient, and exceeding writers for this research based on the writing scores. After collecting all the surveys and writing scores, the researcher analyzed the data to determine the effect of peer collaboration on writing proficiency and on students' attitudes as a writer of second and third graders.

Data Analysis

This research analyzed data primarily from three sources. These sources included a writing rubric that assessed two on-demand writing prompts (Appendix D). Students received scores using a 4-point scale writing rubric taken from the adapted version of *6+1 Traits of Writing* (Appendix E). On-demand writing prompts are defined as opinion, informative, or narrative writing prompts introduced to students after a topic study is completed within a specific time. Additionally, data collected from the pre-and post-assessment questionnaire Writer Self-Perception Scale (WSPS) (Appendix B) compared the impact of the intervention. Peer-collaboration and behavior observational tally sheet (Appendix C) adapted from *Hennessey's Homeroom 2015* recorded student participation, behavior, and engagement during peer-collaboration. A student-friendly version of the tally sheet has been part of the class resource list, and students were familiar with language associated with peer collaboration (Appendix F).

The study assessed the impact of social feedback (which included teacher, peer feedback, and observational comparison) on students' writing skills by comparing the pre-and post-assessment of the WSPS scale. The research also compared the pre-and post-intervention survey to assess the impact of peer-collaboration on students' self-perception as a writer. Further, the data collected evaluated the effect of peer collaboration on student's writing skills by comparing the writing scores between two writing prompts. Finally, the study measured student performance during collaboration by recording and comparing student participation, student engagement, and the usage of peer-collaborative language during peer collaboration.

Report of Findings

This study aimed to determine the effects of peer collaboration on students' writing skills and their attitude towards writing. The research used both qualitative and quantitative data.

Writing Proficiency

The research evaluated peer-collaboration effects on participants' writing skills by comparing their writing proficiency between the two writing prompts.

Figure 1 below shows each group's overall scores for the first writing prompt, “*Is our climate changing? What is the difference between climate and weather? In your words, explain why scientists believe there may be global climate change? Use details or facts from the article to support your reasons. Write at least four reasons.*” (Appendix D). The vertical line axis represents the overall paragraph (P1) score and Writing Score (WS1) for the first writing prompt, and the horizontal line represents the six groups. Group A received a writing score of 15 points, group E received 14 points, while groups B and F received 13 points, group C received 12 points, and group D received 9 points. As per the chart below, overall paragraph scores indicated the student groups A, B, C, E, F as exceeding writers. While D is analyzed as a proficient writer group.

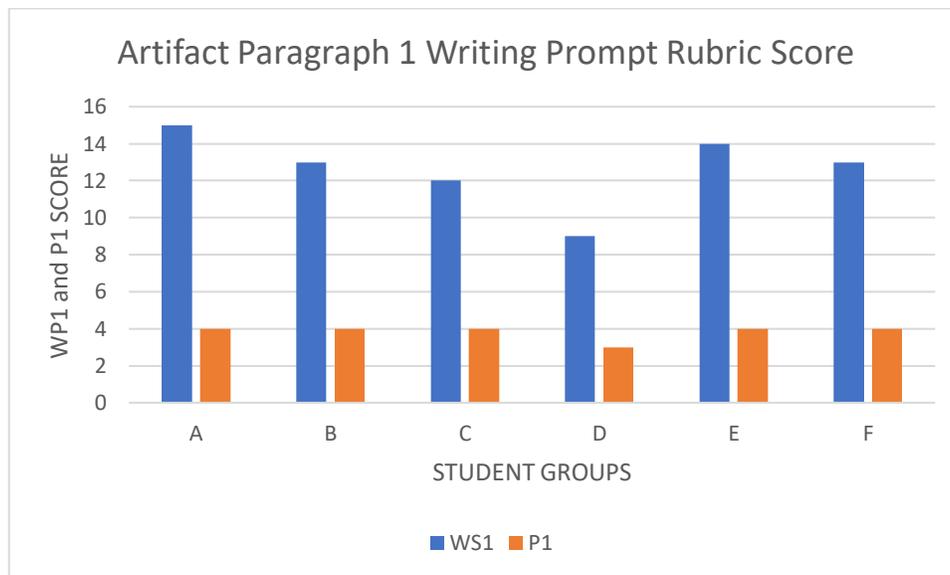


Figure 1: Writing Score (WS) of six student groups.

Table 1 and Figure 1 shows the comparison of scores six student groups scored between the first writing prompt and the second writing prompt in both writing scores (WS) and overall paragraph (P) scores. By the time students started working on the second writing prompt, they had completed two peer-collaborative sessions.

Table 1:

	A	B	C	D	E	F
WS1	15	13	12	9	14	13
P1	4	4	4	3	4	4
WS2	15	15	14	14	15	15
P2	4	4	4	4	4	4

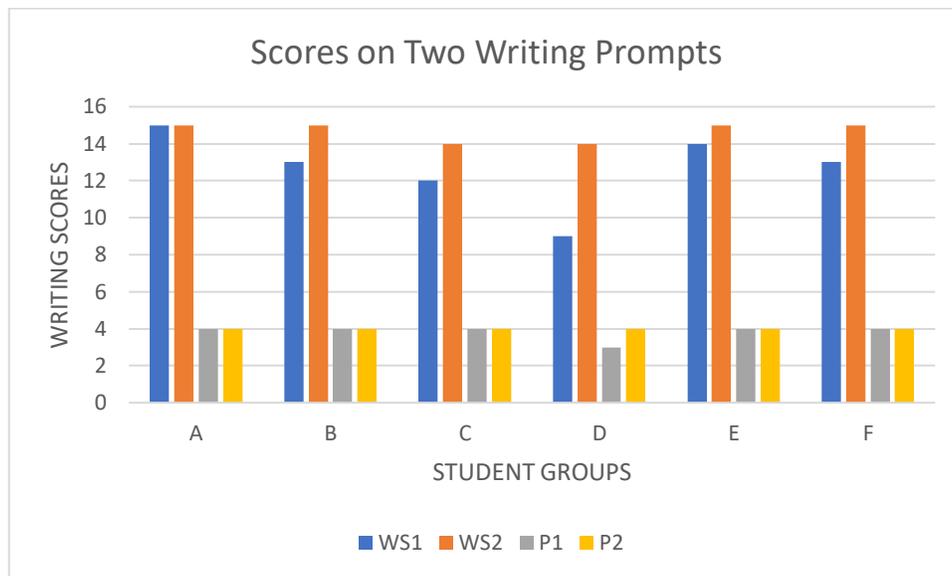


Figure 2: Comparison of writing and paragraph scores. (Appendix D).

In comparing the two writing prompts (Figure 2), the student's groups B, C, D, E, and F received higher scores in Ideas and Content, Word Choice and Fluency, and Voice for the second writing prompt than their first writing prompt. The writing scores increased from 13 to 15 points for group B, 12 to 14 points for group C, 9 to 14 points for group D, and 13 to 15 points for

group F for the second writing prompt. Notably, while working on the first writing prompt, all student groups except A focused more on completing the tasks, the conventions, organization of data, and gathering content. On the second writing prompt, the same groups collaborated further on what to write and how to form their sentences, impacting their scores. Only student group A maintained their scores and collaborated while focusing on all areas of the writing prompt.

Figure 3 below shows a line graph of the comparison writing scores on first (WS1) and second (WS2) writing prompts. The chart shows a 100% increase in the students writing proficiency on the second writing prompt. Scores analyzed determined that all groups experienced either the same score or an increased score between the first and second writing prompts.

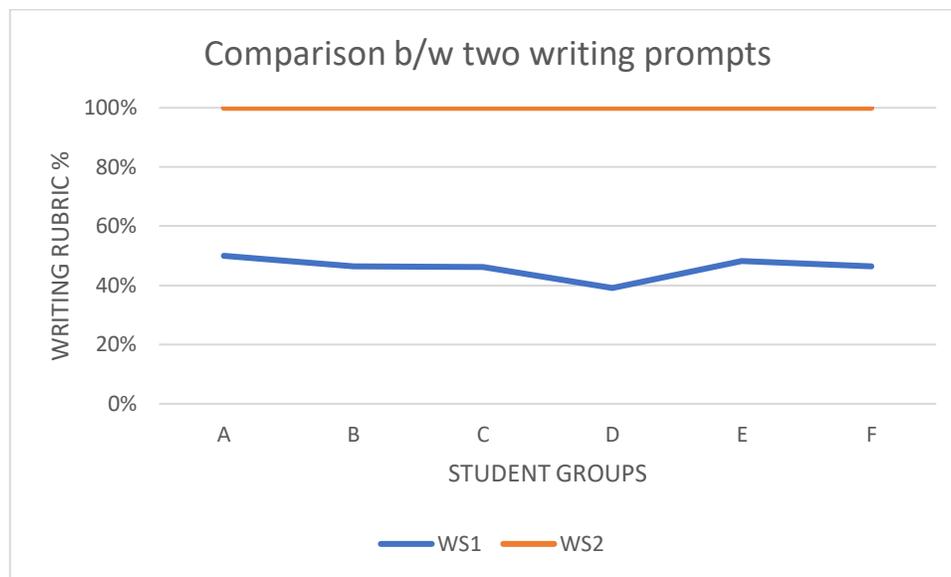


Figure 3 shows the percentage of increase on students writing skills.

Writer Self-Perception Scale

Data collected on the pre-and post-intervention survey recorded student attitudes using the Writer Self-Perception Scale (Appendix B). Although the original form addressed six categories, the researcher bucketed the data into three main categories for this research. The first main category measured students' attitudes on Social Feedback (SF) with sub-sections of

Teacher Feedback (TF), Peer/team Feedback (PF), and Observed Comparison (OC). The second main category measured students' attitudes on their Writing Progress (WP) with further subsections of General (GWP) and Specific Writing Progress (SWP), and the last main category measured Student Attitude (PS) as a writer. Answers in the survey included three choices with three points for *Agree*, two points for *Disagree*, and a *Not Sure* selection received one point.

Writing Progress

The research measured the students' perception of general and specific writing skills using the WSPS scale (Appendix B).

Figure 4 is a comparison of the participants on their general writing skills. Post-intervention, four students changed their opinion to *agree* with the statement “*My writing has improved*” while one student chose “*not sure*,” and one student *disagreed* with the statement. The change impacted the total student score from 38 for the pre-assessment to 44 for the post-assessment.

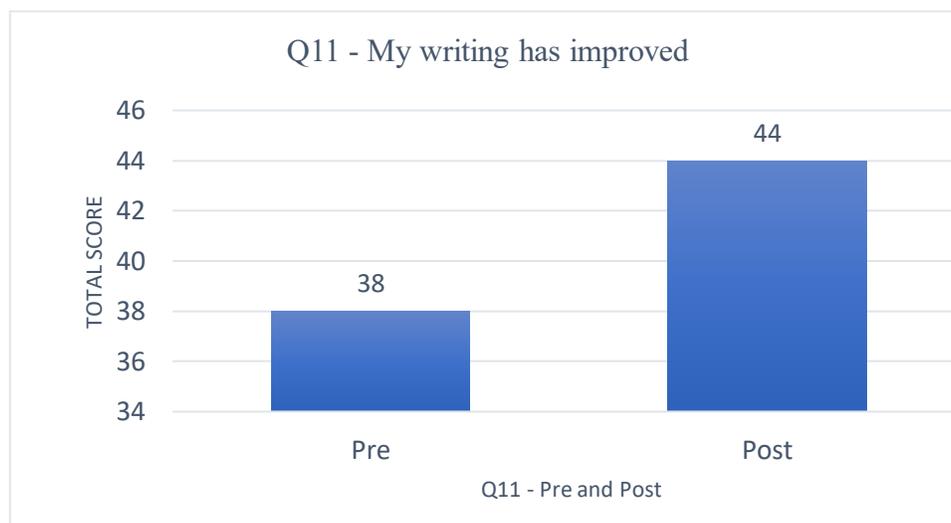


Figure 4. The total score of students for the Q11 from WSPS scale.

To examine the students' understanding of their specific writing skills, the research compared pre-and post-intervention student responses on two questions from the WSPS Scale

(Appendix B). Question 12 asked students to select *agree, disagree, or not sure* with the statement “*My descriptions were more interesting than before.*” And question 14 asked students to record their choice for the statement, “*The words I use in my writing are better than the ones I used before.*”

Figure 5 shows eight students agreed to the statement, and seven students recorded a not sure choice post-intervention. Students who disagreed with the views remained the same.

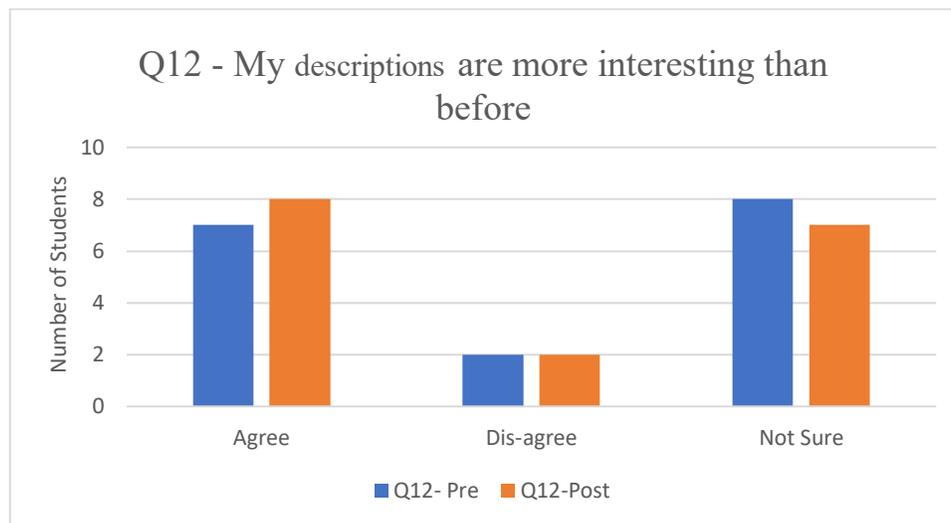


Figure 5. Total student choices for Q12 from the WSPS scale.

Figure 6 shows a change in student choices post-intervention. Post-intervention, four more students decided to agree that the words they use were better than before, thus recording a total score of 12 students. While seven students weren't sure of the words they used in writing, post-intervention, two students recorded a not sure answer for the statement. This concludes that the majority of students had a clear idea of their general writing skills. Students agreed that their writing has improved and that they are using better words than before. For Q12, eight students agreed, seven students disagreed, and two selected not sure option post-intervention. For Q14, twelve students agreed with the statement while two students selected the not sure option, and four students disagreed post-intervention. This concludes that the research impacts students'

understanding of their general writing skills, however, data is inconclusive to measure student's perception of *specific* writing skills. Although the data is inconclusive to determine students' specific writing skills, it is important to factor that some students may have agreed to the statement Q14 because the question asked them to compare their writing.

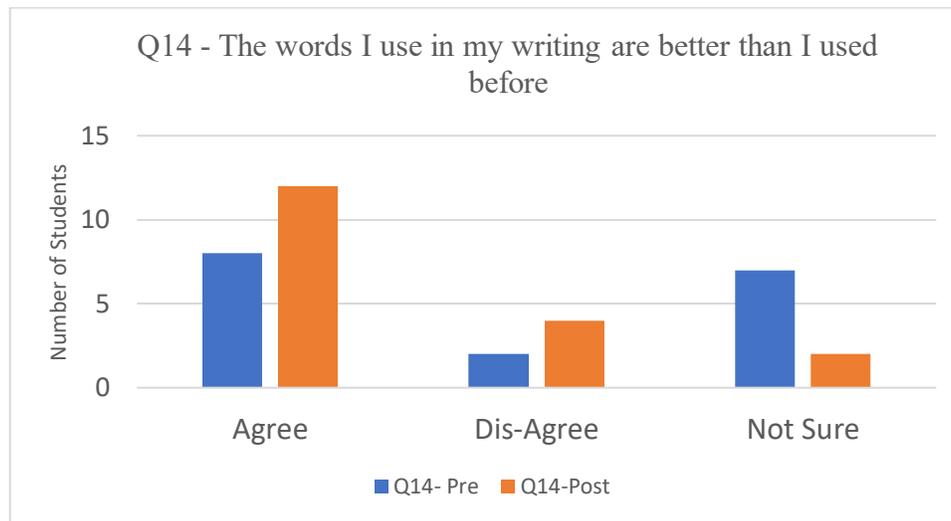


Figure 6. Total student choices for Q14 from the WSPS scale.

Attitude as a Writer

Psychological States (PS) questions from Writer Self-Perception Scale (Appendix B) adapted version of Bottomley et al.'s (1997/1998) recorded participant attitudes as a writer. The research compared the pre-and post-intervention students' choices to measure the impact of peer-collaboration on students' attitudes. This category had six questions represented in the WSPS questionnaire: question two, question six, question ten, question fifteen, question seventeen, and question twenty-seven. The research compared question six and question ten data.

Figure 7 shows the student choices for each of the two questions in the Psychological States (PS) category. This data analyzed student's attitude as a writer and the impact of peer-collaboration on their attitude. Pre-intervention five students (S1, S2, S4, S3, S11, S13) out of the seventeen disagreed with the statement (Q6), "When I write I am clam.", two students (S7,

S10) disagreed, and the rest of the nine students agreed to the statement. Post-intervention, fifteen students *agreed* to the statement noting a significant change in their attitude towards writing. Six out of these students were S1, S4, S5, S10, S11, and S13. S7 reported disagreeing post-intervention, which was a change from *not sure*. Six students were unsure of their attitude as a writer pre-intervention and post-intervention five of them selected to agree with the statement while one student disagreed.

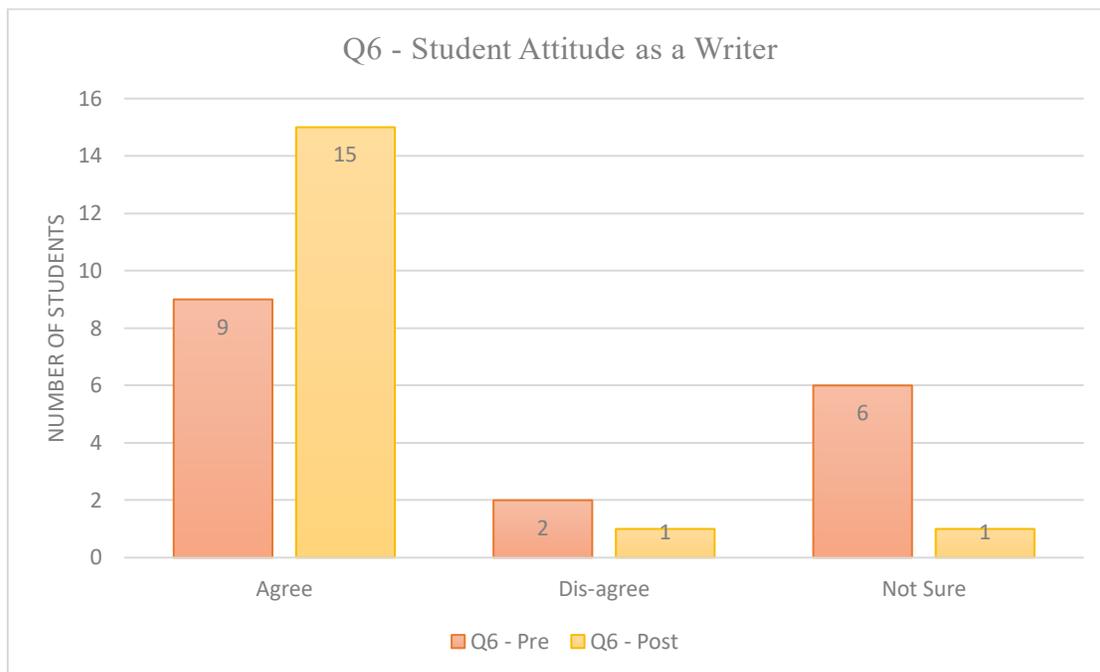


Figure 7. Student responses to Q6 on their attitude as a writer.

Figure 8 shows pre-intervention eleven students agreed to the statement (Q10) "*I think I am a good writer.*" Four students (S6, S11, S12, S17) reported they were *not sure* while two students (S7, S13) *disagreed* with the statement. Post-intervention data shows sixteen students agreed that they thought they were good writers out of these four new students who changed their perception were students S6, S11, S12, and S17 post-intervention. Student S7 changed their perception to agree that they were a good writer. S2 recorded disagreeing they were a good writer which was a change of perception from agree in the pre-intervention survey. This meant

that six students reported a changed perception as a writer post-intervention. Thus, the data concludes that the intervention impacted the majority of the student's attitude towards writing and their perception as a writer. In Figure 6, the vertical axis measured the student total scores for each question pre-and post-intervention, respectively.

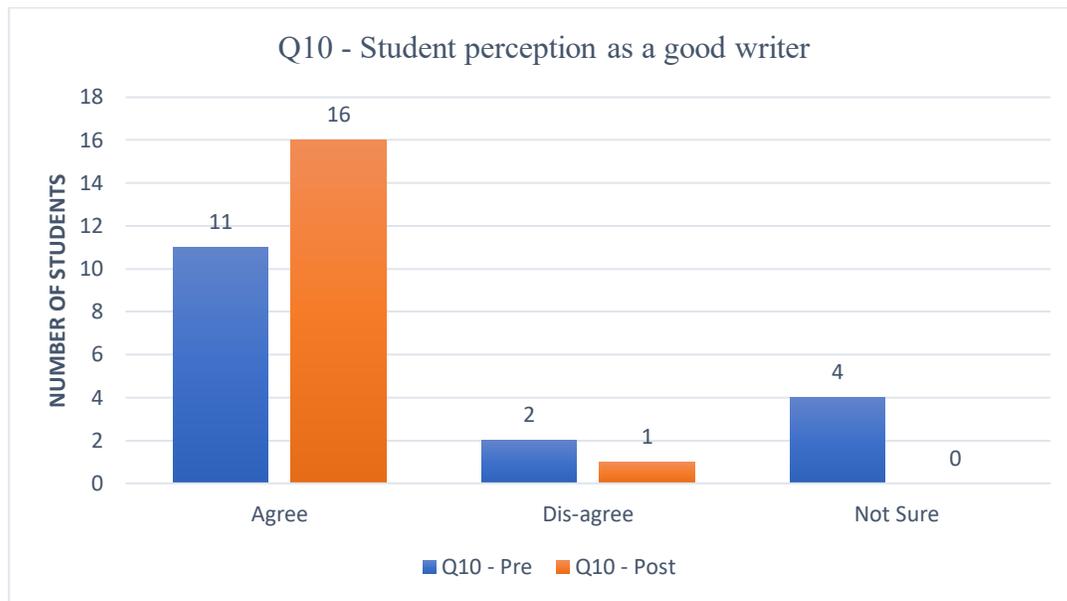


Figure 8. shows the total score of the students for Q10 from the WSPS scale.

Social Feedback

The social feedback (SF) main category from WSPS scale (Appendix B) was further divided into three sub-sections for data analysis. These sections were Teacher Feedback (TF), Peer Feedback (PF), and Observational Comparison (OC). For this study, the researcher used the formula $SF = TF + PF + OC$ to calculate students' feedback. After that, the researcher compared the data from the pre-and post-intervention survey. This comparison was used then to conclude the effect of social feedback on students writing skills.

Below, figure 9 reposts that student scores remained the same in teacher feedback and observational comparison sub-categories. Teacher feedback was addressed in the assessment in question seven (Q7), peer feedback was assessed in Q16, Q19, Q24, Q26 (Appendix B), and

observational feedback in Q5, Q8, Q23(Appendix B). Peer feedback reported an average of 1.9 pre-intervention and a 2.1 post-intervention on each of these sub-categories. This concludes that students relied more on their peer feedback than their teachers. This data analysis determined that a robust Montessori model exists within the sample. Students primarily relied on input from their exploration with materials and peer interaction rather than their comparison with students or teacher's feedback.

In the sub-category of teacher feedback pre-intervention for question 7, “My teacher thinks my writing is fine,” eleven students recorded a not sure answer, two students disagreed, and four students agreed to the statement. It is essential to note although nine students changed their choices post-intervention, the overall scores remained unchanged and clearly states that the majority of students continue to be unsure of their teacher’s feedback on their writing skills.

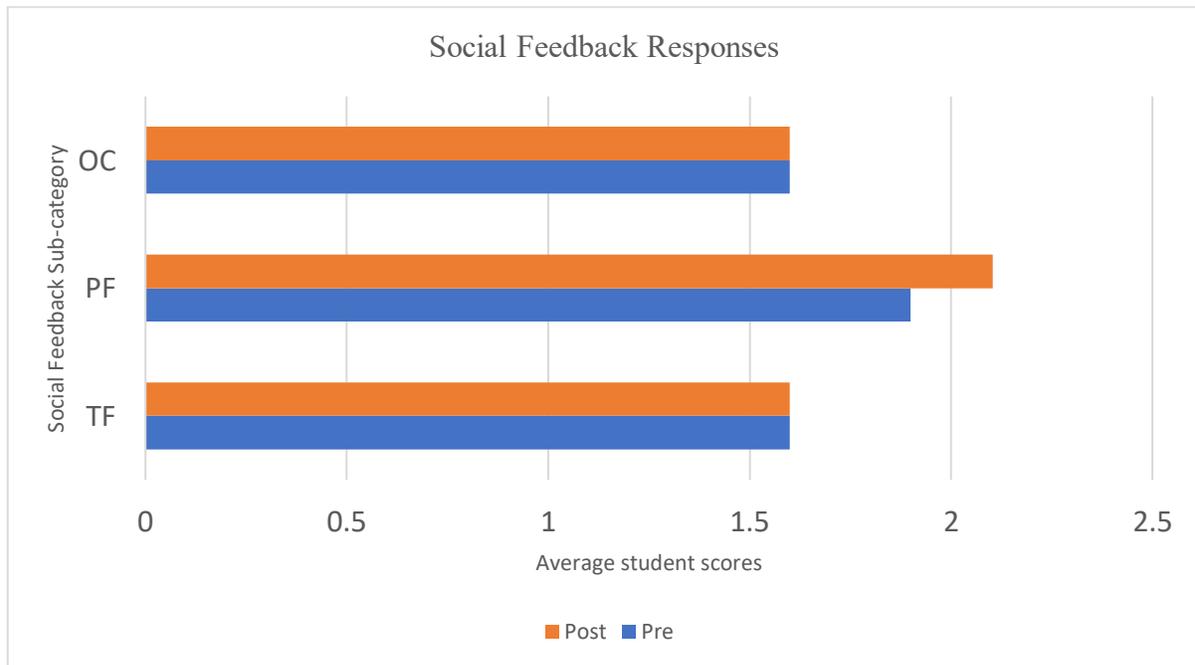


Figure 9. The average scores students reported in social feedback on pre-and post-intervention.

Peer Collaboration and Behavior Tally Sheet

Peer Collaboration (PC) tally sheet data adapted from *Hennessey's Homeroom 2015* (Appendix C) assessed two different data types, peer-collaborative language, and student behavior. First, the data was tallied under the sub-category of collaborative language observed during five-minute observation. Simultaneously, students' behavior, such as participation, active engagement, and distractions, were recorded using the form under the behavior sub-category. For each of the six student groups, the tally sheet was used on January 20th, January 27th, February 2nd, February 3rd, and February 10th, while students worked in collaborative writing. Each tally was given a 1 point. Each yes or no question was marked with one point for *Yes* and zero points for *No*. All students were present during all the sessions. Group D decided to do their research from websites that were not part of this intervention resource list. This research time impacted their task completion, and Group D's writing score (WS1) received a zero on some areas of their paragraph due to a non-complete submission.

Figure 10 below represents student participation. All students participated in all of the peer-collaboration sessions during the intervention period. Each row of colored bars represents a student group's participation over the intervention period, and a value of three meant all students attended and stayed on Zoom for the duration of the collaborative session throughout the intervention period. All students' groups received a value of three over the five-week intervention period and no absences were recorded.

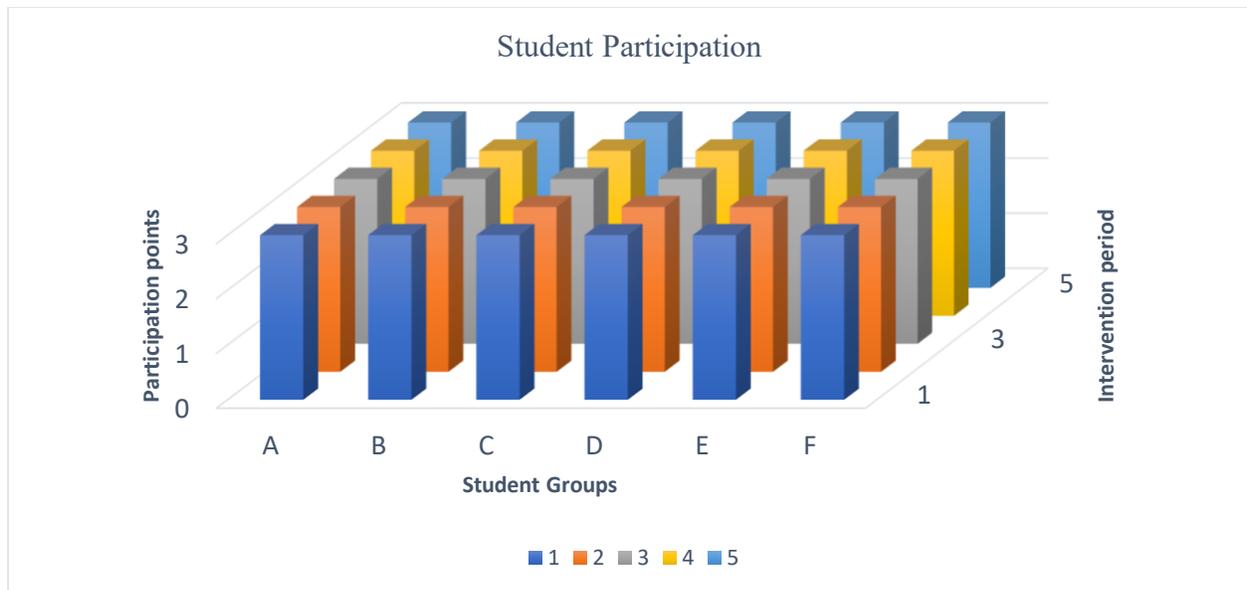


Figure 10. Student participation during the intervention period.

In groups B, C, D, and E, all the students were observed actively engaging in peer collaboration in all sessions. One student in Group A recorded distracting behaviors during the February 2nd and February 3rd sessions. One student in Group F recorded distracting behaviors during the February 3rd group session. Overall, 98% of the students were reported to be actively engaged in peer collaboration throughout the intervention period.

Figure 11 analyses peer-collaborative language tallied during the intervention. The figure specifically represents the total tally of disagreeing statements students modeled during the peer-collaboration sessions. Group F scored highest with 10 points. Group C scored second with 8 points, and Groups A and D scored 5 points. While Group B scored 3 points, Groups E did not use any disagreeing statements during the intervention period. This graph particularly shows an area of peer collaboration that a student group did not practice or use during the intervention period.

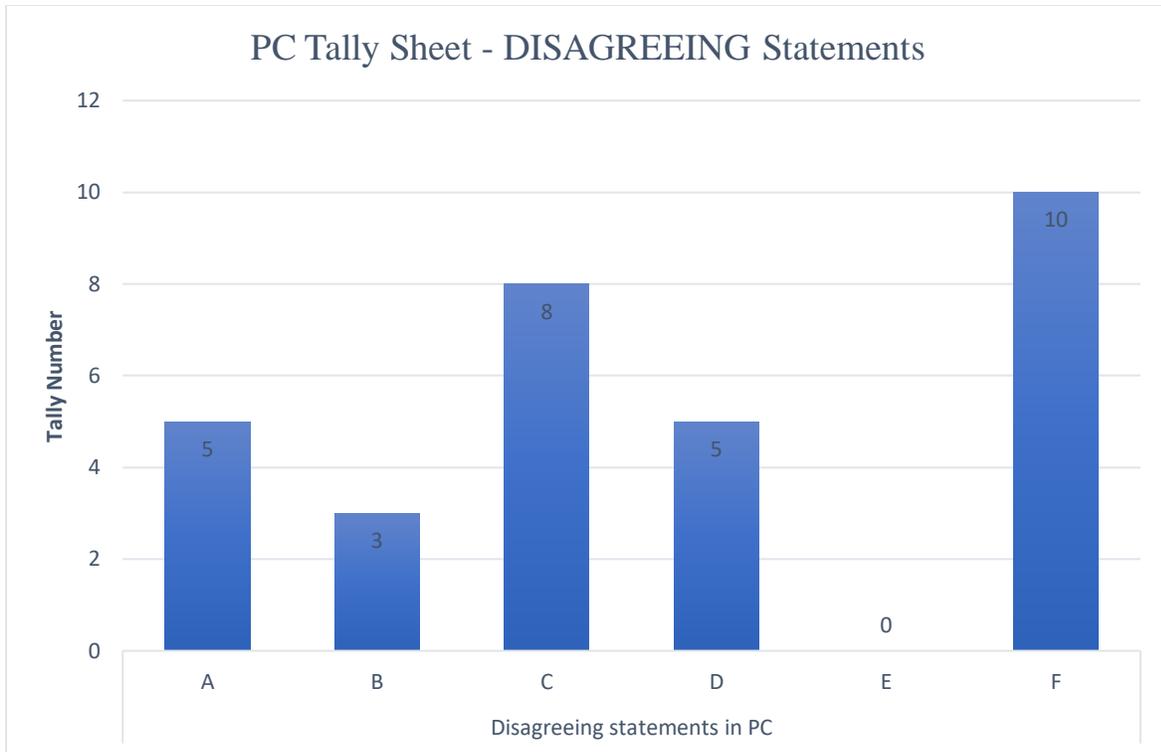


Figure 11. Total tally of disagreeing statements used by students during peer collaboration.

Opinion statements received a total tally of 121 points noted in Table 2. Of the agreeing statements, "I think we should....." and "In my opinion, we should....." were observed to be the most commonly used, especially at the beginning of each session. Asking for a response statements took second place with a total score of 96 points with "What do you think?", "Do you agree?" and "What are your thoughts?" being the most popular among them. Offering suggestions statements took third place with a score of 47, with "Maybe we could try____" being the most popularly used by participants. The agreeing statements with "I agree with (S1) on...." scored 40 points, and Group F did not contribute to this score. The above details are represented using a bar graph in Figure 12.

Table 2

Peer Collaborative Language Recorded

	Opinion Statements	Agreeing Statements	Asking for response Statements	Offering Suggestions	Disagreeing Statements	Clarification Questions/statements
Weeks 1 to 4	121	40	96	47	31	94

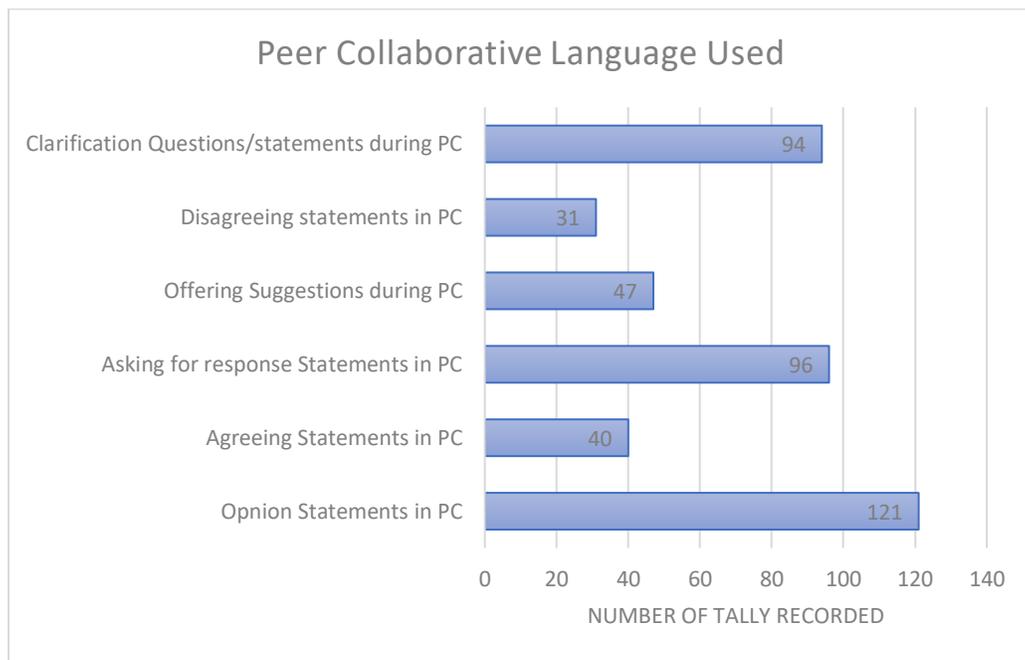


Figure 12. Peer collaborative language recorded during the intervention period.

Figure 13 shows "Offering a suggestion or solution" statements (Appendix F) modeled by student group B. The vertical axis indicates number of times the group used the language during a particular intervention session. The horizontal axis notes the dates of the intervention sessions. The vertical lines from the point of the graph to the horizontal axis denotes intervention days during a particular week. Data analyzed suggest that peer collaboration increased

significantly during February 2nd and February 3rd sessions while students were working on their second writing prompt.



Figure 13. Student group B's use of "Offering a suggestion or solution" statements (Appendix F).

While Figure 13 shows only Group B, Figure 14 shows the use of "Offering a suggestion or solution" statements (Appendix F) across all six student groups during the intervention period. The data shows increased peer-collaboration activity across all the groups while students worked on the second writing prompt.

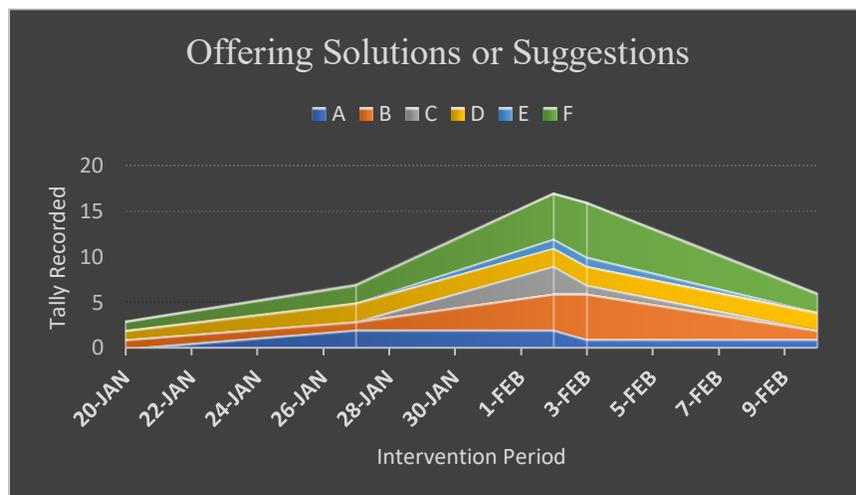


Figure 14. "Offering solutions" used by the six student groups during the intervention period.

Figure 15 determined each student's attitude towards peer problem-solving. Nine students recorded that they like peer problem solving and their attitude towards peer problem solving has not being impacted by the intervention. Three students S7, S8, and S14 recorded that they liked peer problem-solving post intervention. Notably, student S7 disliked peer problem solving prior to the intervention however, decided they liked peer problem-solving post intervention. One student S1 remained unsure of their attitude and S2 and S6 decided that they didn't like peer-problem solving post-intervention. S14 recorded a not sure choice towards peer problem-solving.

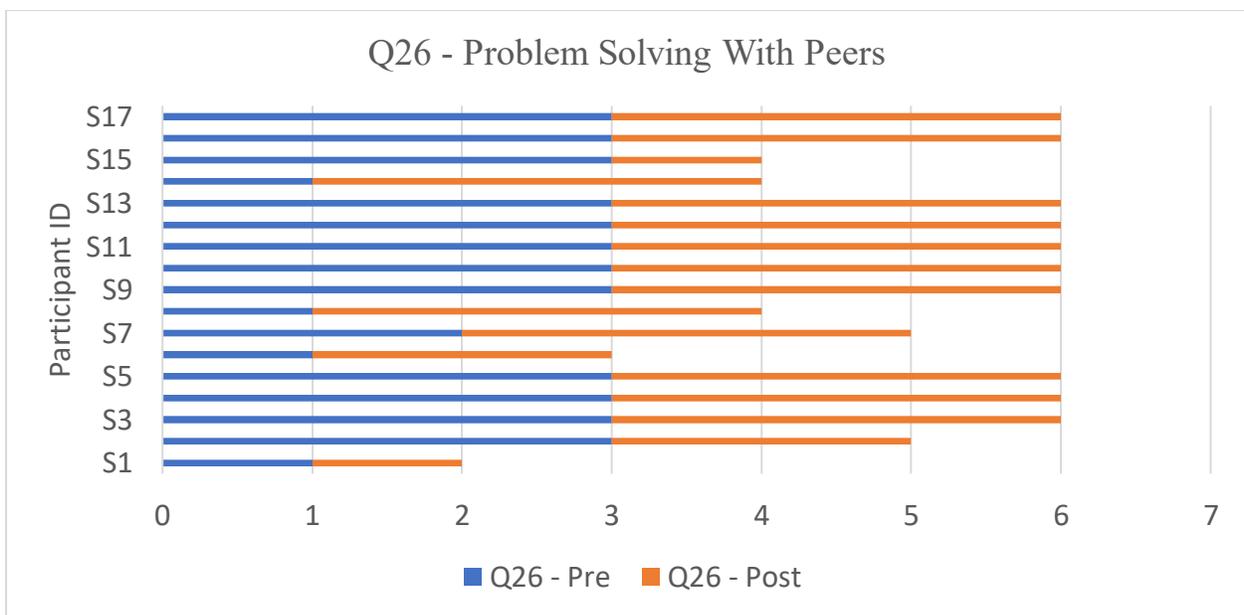


Figure 15. Answers recorded peer problem solving for pre- and post-intervention.

The study led to the discovery that students' attitudes towards writing, and their perspective as a writer positively impacted 98% of the sample. Particularly noteworthy was the impact the study had on student group D that scored an exceeding grade within the five weeks of peer-collaboration. The data showed that most of the students saw an increase in their writing scores from the first writing prompt to the second writing prompt. The overall paragraph scores, along with specific writing scores and self-assessed surveys, indicated that guided instruction nurtured stronger writers and creative problem solvers.

The Writer Self-Perception Scale data showed 99% of students reported they enjoyed writing, which increased significantly post-intervention. The Writer Self-Perception Scale showed an overall increase in general writing areas, peer feedback, student's perception as a writer, and peer-problem solving areas. The data collected showed 98% of students believed they were good writers.

The data collected from their peer-collaborative writing prompt and their peer-collaborative tally suggest that students looked forward to peer-collaborative sessions and displayed eagerness to type in the answers and add to the paragraph. The observation tally sheet data concludes that typing added an extra feature for students to look forward to and to see their peers' type were exciting and engaging at the same time. The writing rubric score assessed concludes that students wrote better than their first writing prompt, and peer collaboration peaked when the writing prompt required reasons explaining their choices.

Overall, the data collected in Table 1, Figure 10, and Figure 12 determined there was substantial increase in student peer-collaboration among the student groups. The alternate hypothesis derived from Figure 6 and Figure 13 indicates peer-collaboration significantly impacted majority of student attitudes and self-perceptions. Data recorded from Figure 7 concludes that students rely primarily on peers to better understand their environment and their materials. Finally, the analyzed data in Figure 2 and Figure 3 strongly suggests majority of students looked forward to group work thus concluding that the intervention positively impacted their writing skills. The result of intervention further indicates that peer-collaboration strongly impacted student's writing skills and their general attitude as a writer. As a result of this determination, the following section contributes application suggestions, as well as

recommendations for future action research. This suggests that peer-collaborative writing session is an effective supplement to Montessori language arts curriculum.

Action Plan

The purpose of this study was to determine the effects of peer-collaboration on writing proficiency and their attitude as a writer of second and third-grade students in a Montessori hybrid classroom. This study's data indicated that student's writing proficiency and students' attitudes towards writing increased due to the peer-collaborative writing sessions.

Although peer-collaborative writing sessions created student engagement and upliftment opportunities in students and for me, it is essential to consider the challenges faced. Students collaborated well and effectively through Zoom, however due to technical and time limitations, students' opportunities to read each other's non-verbal language or body language were minimal. Although most student groups used most of their intervention time to discuss and write actively, it is essential to consider that time was lost due to technical difficulties such as internet issues and never felt enough on Zoom. Technical difficulties such as wireless lagging and students missing out on their sessions due to lack of computer charge posed a challenge for at least one student per session. Additionally, taking the 45 minutes on Wednesday and 30 minutes on Tuesdays posed a challenge to balance their regular curriculum work completion.

However, the benefits of the study outweigh the positives that occurred due to the study on the students writing skills and their attitudes towards writing and as a writer. Having technology as a medium for them to collaborate allowed remote and hybrid students to be part of the research and intervention. If I were to replicate this research again, I would recommend implementing it with a smaller number of students than the whole class. This would allow group-specific attention in which teachers could model explicit or guided instruction to teach peer-

collaboration and collaborative writing. This would also help students at home get the necessary time to engage in social interaction rather than just writing focused discussion and engagement. The research allowed students to write collaboratively on Google Docs, which provided students with a common medium to express and type and see their end product with minimal mistakes. Students corrected most of their grammar mistakes as they typed because of the grammar suggestions provided by Google Docs.

It is essential to notice that this study significantly increased students' typing skills, strongly suggesting that students learn typing much faster when required to type for an assignment rather than just practicing typing through a program such as "Type to Learn." Working with peers in a collaborative environment and writing in a common medium such as Google Docs played a crucial role in positively impacting students typing skills. This was the biggest achievement and I conclude that students are fully capable of learning to type when the assignment is simple and requires them to type. This study has inspired me to play a key role in providing collaborative education opportunities in the classroom. It has boosted my students' confidence to write for success and produce their best-written work as a group. The study primarily provided a platform for students who are hesitant to come forward and express their ideas confidently as they were in breakout rooms without a teacher having to overlook them constantly. Students felt proud of their paragraph and are looking forward to presenting to the class.

To aspiring Montessori early educators or elementary teachers or non-Montessori teachers, I would highly recommend implementing this study in a small group of 3 and experience for themselves and the impact on their typing skills. I would also recommend that this study be implemented in the classroom without the technology writing collaborative in small

groups to create articles or newsletters for schools. This study could be implemented on a social justice topic or a topic that the students connect to within their environment. It could be based on a problem that students face and collaboratively work on the solution via research.

An astounding discovery the study had was on the students orderly thought process. The result of the study strongly solidifies the literature reviewed on Montessori's explanation of how orderly thought process work. Montessori (1917) explained that children's intelligence is displayed in their personal work and the organization of their written work is the result of the swift reactions expanding in an orderly thorough process leading to conscious behavior. This orderly thought process is clearly evident is the student group D's second writing prompt. This student group required two sessions to understand the requirements of the work. However, for the second writing prompt the students in the group worked orderly clearly expressing their ideas and providing their reasoning in a collaborative and collective way expanding their writing skills significantly when compared to their first writing prompt. This study confirmed the literature reviewed on Piaget's (1997) perspective on collaboration when he explained children would be motivated to resolve matters and attain a new level of equilibrium or experience when they worked in groups; thus, their minds becoming coextensive. Literature reviewed for the purpose of this study on Johnson and Johnson (1990) explained that collaboration is purposeful when there is a transparent exchange of ideas with interactive constructive feedback challenging each other's conclusions and reasoning and, most importantly, teaching and encouraging one another. They explained collaboration as a feeling of cooperation, community, and connection that should be part of everything that happens in the classroom. This study confirmed when students work in groups the existence of purposeful transparent exchange of ideas with clear evidence of constructive feedback from peers is a naturally occurring phenomena and thus a critical part for

group work to be based on equity and diversity of ideas. Although this study was successful in implementing peer collaboration for small groups during assigned intervention days, as Johnson and Johnson' (1990) confirms the importance of collaboration as an ongoing process integrated and implied within the classroom. Post study analysis confirmed that students worked to step in and help their peers when needed and also evidence of a sense of community was observed throughout the intervention.

As a Montessori teacher and a new Elementary teacher, I feel more confident in teaching writing. I am optimistic any teacher will be able to replicate this intervention and achieve positive results for their students. Writing is an area that creatively expresses children's uniqueness, and all children require multiple opportunities to write confidently, thus confidently expressing their ideas and opinions. Peer-collaboration, teamwork, and team projects play a pivotal role in creating such opportunities in children. Although, under the current circumstance technology acts as an expanding bridge to provide education, it is clear that technology cannot replace or take the place of a teacher nor take the place of a classroom. Thus, effective student engagement involving reading people's body language, making eye contact for increase self-confidence, understanding each other's thought process and creating long-lasting bonding between peers can only be created in traditional Montessori classrooms.

References

- Aghekyan, R. (2015). Questioning Patterns during Discussions in Collaborative Groups in Socioeconomically Diverse High Schools. *NERA Conference Proceedings 2014*. 6. https://opencommons.uconn.edu/nera_2014/6
- Bottomley, D., Henk, W., & Melnick, S. (1997). Assessing children's views about themselves as writers using the writer self-perception scale. *The Reading Teacher*, 51(4), 286-296. <http://www.jstor.org/stable/20201910>
- DeFord, D. (1981). Literacy: Reading, writing, and other essentials. *Language Arts*, 58(6), 652-658. <http://www.jstor.org/stable/41961383>
- Duke III, L.L., Waring, S. M., & Koorland, M.A. (2006). The blended course delivery method: The not-so-distant education. *Journal of Computing in Teacher Education*, 22(4). 153-158. https://stu.westga.edu/~djeffer3/8463_MEDT/8484-30ARTICLES/8.pdf
- Hodges, L. M., Denton, P. (2013). *The Power of Our Words: Teacher Language that Helps Children Learn*. United States: Northeast Foundation for Children, Incorporated. https://www.google.com/books/edition/The_Power_of_Our_Words/D3sdAgAAQBAJ?hl=en&gbpv=
- Hrastinski, S. (2008). Asynchronous & synchronous e-learning. *Educause Quarterly*, 31(4), 51-55. <https://www.learntechlib.org/p/101357/>.
- Institute of Educational Sciences. (2012). *Teaching elementary school students to be effective Writers*. National Center for Education Evaluation and Regional Assistance. U.S. NCEE 2012-4058. Department of Education. https://ies.ed.gov/ncee/wwc/Docs/PracticeGuide/WWC_Elem_Writing_PG_Dec182018.pdf

- Instructional Scaffolding. (n.d). <https://vygotskyetec512.weebly.com/instructional-scaffolding.html>
- Johnson, D. W., & Johnson, R. T. (1990). *Cooperative learning and achievement*. In S. Sharan (Ed.), *Cooperative learning: Theory and research* (p. 23–37). Praeger Publishers.
<https://psycnet.apa.org/record/1990-97501-002>
- Johnston, S. C., Greer D., & Smith S. J. (2014). Peer learning in virtual schools. *Journal of Distance Education*, 28(1), 1-31. <http://www.ijede.ca/index.php/jde/article/view/853>
- Miller, R. L., & Benz, J. J. (2008). Techniques for encouraging peer collaboration: Online threaded discussion or fishbowl interaction. *Journal of Instructional Psychology*, 35(1), 87-93.
https://www.researchgate.net/publication/234761292_Encouraging_Collaborative_Learning_Computer-Mediated_Conferencing_or_Fishbowl_Interaction
- Min, H. (2017). *Writing development: A process-oriented approach* (Publication No. 10620483). [Doctoral dissertation, State University of New York at Buffalo]. ProQuest Dissertations Publishing. <https://pqdtopen.proquest.com/pubnum/10620483.html>
- Molenaar, I., Roda, C., van Boxtel, C., & Slegers, P. (2012). Dynamic scaffolding of socially regulated learning in a computer-based learning environment. *Computers & Education*, 59(2), 515-523. <https://doi.org/10.1016/j.compedu.2011.12.006>
- Montessori, M. (1967). *The discovery of the child*. Random House Publishing Group.
- Montessori, M. (1917). *The advanced montessori method: Spontaneous activity in education*. Frederick A. Stokes Company.
https://www.google.com/books/edition/The_Advanced_Montessori_Method/V2mdAAAAMAAJ?hl=en

National Oceanic and Atmospheric Administration. (2017). *Talking to Children about Climate Change*. <https://oceanservice.noaa.gov/education/planet-stewards/talking-about.html>.

New South Wales Department of Education and Training. (2007). *Writing and spelling strategies: Assisting students who have additional learning support needs*. <https://images.template.net/wp-content/uploads/2016/07/26072610/Writing-and-Spelling-Strategies-Template.pdf>

Niesyn, M. E. (2011). *Collaborative planning and prewriting: The effects of structured peer collaborations on primary-age students' writing development*. [Doctoral dissertation, University of San Francisco]. University of San Francisco, Gleeson Library. https://repository.usfca.edu/diss/286?utm_source=repository.usfca.edu%2Fdiss%2F286&utm_medium=PDF&utm_campaign=PDFCoverPages

Nordhaus, K. (2017). Supporting narrative writing proficiency and engagement in a montessori upper elementary classroom through the writing workshop model and 6+1 traits of writing. Sophia Repository of St. Catherine University. <https://sophia.stkate.edu/maed/240/>

Nordlof, John. (2014). Vygotsky, Scaffolding, and the role of theory in writing center work. *The Writing Center Journal*, 34(1), 45–64. www.jstor.org/stable/43444147

Oliver, K., Kellogg, S., Townsend, L., & Brady, K. (2010). Needs of elementary and middle school teachers developing online courses for a virtual school. *Distance Education*, 31(1), 55-75. <https://doi.org/10.1080/01587911003725022>

Piaget, J. (1997). *The Moral Judgement of the Child*. United Kingdom: Free Press. https://www.google.com/books/edition/The_Moral_Judgement_of_the_Child/otUViaRG7TMC?hl=en

- Pratiwi, V.U. (2020). Improving students' writing skills through collaborative learning: A case study of senior high school veteran 1 of sukoharjo. *Theory and Practice in Language Studies*. 10(5). 527-535. <http://dx.doi.org/10.17507/tpls.1005.06>
- Roberts, J., & Eady, S. (2012). Enhancing the quality of learning: What are the benefits of a mixed age, collaborative approach to creative narrative writing? *Education 3 - 13*, 40(2), 205-216. <https://www.tandfonline.com/doi/abs/10.1080/03004279.2010.511624>
- Scribner, S., Souberman, E., Cole, M., John-Steiner, V., Vygotsky, L. (1978). *Mind in Society: Development of Higher Psychological Processes*. United Kingdom: Harvard University Press. https://www.google.com/books/edition/Mind_in_Society/RxjjUefze_oC?hl=en
- Silver, H. F., Perini, M. J., Strong, R. W. (2007). *The strategic teacher: Selecting the right research-based strategy for every lesson*. United States: Association for Supervision and Curriculum Development. https://www.google.com/books/edition/The_Strategic_Teacher/71CQf7WpjZcC?hl=en&gbpv=0
- Shute, V. J. (2008). Focus on formative feedback. *Review of Educational Research*, 78(1), 153–189. <https://doi.org/10.3102/0034654307313795>
- Vygotsky, L. (1980). *Mind in society: The development of higher psychological processes*. Harvard University Press, U.K.
- Wood, D., Bruner, J.S. and Ross, G. (1976). The role of problem solving. *Journal of Child Psychology and Psychiatry*, 17, 89-100. <https://doi.org/10.1111/j.1469-7610.1976.tb00381.x>

Appendix A

Parental Permission Form**January 7th, 2021**

Dear families,

In addition to being your child's Lower Elementary teacher, I am a student at St. Catherine University, MN, pursuing a Master of Education. As a capstone to my program, I need to complete an Action Research project. I will study the effects of scaffolded writing instruction and peer-collaboration in 2nd and 3rd-grade students' writing skills in a virtual setting.

In the coming weeks, I will be conducting a writing instruction unit as a regular part of my writing instruction. All students will participate in writing workshop lessons as members of the class. Students will complete feedback forms, respond to two writing prompts, which will then be followed by a peer collaborative writing session, which would include brainstorming ideas, drafts, edits, and end with a paragraph. To understand the outcomes, I plan to analyze this unit's results to determine if writing instruction and peer collaboration will impact students' writing skills.

Each child will be given a student id number to protect their identity.

The purpose of this letter is to notify you of this research and to allow you the opportunity to exclude your child's results from my study.

If you decide you want your child's data to be in my study, you don't need to do anything at this point.

If you decide you do NOT want your child's data included in my study, please complete the form on the last page and return it by **January 13th, 2021**. Note that your child will still participate in the writing workshop, but his/her data will not be included in my analysis.

To help you make an informed decision, please note the following:

- I am working with a faculty member at St. Catherine University and an advisor to complete this particular project.
- There are several benefits associated with this project. Writing activities are already part of your child's daily classroom activity. Consistent implementation of scaffolded writing instruction initially modeled with direct instruction leads to guided and independent writing. Consistent writing instruction followed by peer collaboration improves students' writing proficiency providing them with an opportunity to share ideas, expose to multiple perspectives, and leading to various solutions to a problem. Contributing feedback on the intervention should encourage students to feel empowered and have a voice in classroom activities. This study will inform my practice as a teacher moving forward, improving my writing instruction for students. This study could contribute to the body of work on the

impact of writing instruction for second and third-grade students and inform Montessori teachers and Teacher Training Centers on the effects of scaffolded writing instruction and peer-collaboration 2nd and 3rd-grade student's writing skills in a virtual setting. There are minimal risks to students involved in this study. Students of all abilities will have equal opportunities to participate and benefit from this study.

- I will be writing about the results that I get from this research. However, none of the writing I do will include the name of this school, any students' names, or any references that would make it possible to identify outcomes connected to a particular student. Other people will not know if your child is in my study.
- The final report of my study will be electronically available online at the St. Catherine University library. The goal of sharing my research study is to help other teachers trying to improve their teaching.
- There is no penalty for not having your child's data involved in the study; I will simply delete his or her responses from my data set.

Please feel free to contact me, Preetha Kingsview, at ms.kingsview@mhmontessori.org if you have any questions. Suppose you have questions or concerns regarding the study and would like to talk to someone other than the researcher(s), you may also reach out to my research advisor Olivia Christensen, PhD., Director, Early Childhood & Montessori Programs at 651-690-6219, otchristensen@stkate.edu. You may also reach out to Stephen Putnam, Education Director, Meeting House Montessori School at 781-356-7877. In that case, you may also contact Dr. John Schmitt, Chair of the St. Catherine University Institutional Review Board, at [\(651\) 690-7739](tel:(651)690-7739) or jsschmitt@stkate.edu.

Preetha Kingsview

Date

OPT-OUT OF RESEARCH STUDY FORM:

Parents, to exclude your child's data from the study, please sign and email on or before **January 13th, 2021**.

I do NOT want my child's data to be included in this study.

Student Name

Signature of Parent/Guardian

Date

Appendix B

THE WRITER SELF-PERCEPTION SCALE

Listed below are statements about writing. Please read each statement carefully. The circle the letters that show how much you agree or disagree with the statement. Use the following scale:

WSPS areas that will be assessed.

General Progress (GPR)	Specific Progress (SPR)	Observational Comparison (OC)	Social Feedback (SF)	Physiological State (PS)
------------------------------	-------------------------------	-------------------------------------	----------------------------	--------------------------------

General - GEN

No . of Questions per area.
PS – 5, GPR – 6, OC- 5, SF- 6, GEN- 1, SPR- 6.

A=Agree U=Undecided D=Disagree

Example: **I think Batman is the greatest superhero.** A NS D

If you are really positive that Batman is good but maybe not great, circle A (Agree).
If you can't decide whether or not Batman is the greatest, circle NS (Not Sure).
If you are really positive that Batman is not all that great, circle D (Disagree).

Scoring

To score the WSPS, enter the following point values for each response on the WSPS scoring sheet (Agree = 3, Not Sure = 2, Disagree = 1) for each item number under the appropriate scale. Sum each column to obtain a raw score for each of the five specific scales.

- | | | | | |
|--|---|----|----|---|
| 1. I think Batman is the greatest superhero. | | A | NS | D |
| 2. (PS) I like how writing makes me feel inside. | A | NS | D | |
| 3. (GPR)Writing is easier for me than it used to be. | A | NS | D | |
| 4. (GPR)I am getting better at writing | A | NS | D | |
| 5. (OC) When I write, the organization is better than
the other kids in my class. | A | NS | D | |
| 6. (PS) When I write, I feel calm. | A | NS | D | |
| 7. (SF) My teacher thinks my writing is fine. | A | NS | D | |

- | | | | |
|---|---|----|---|
| 8. (OC) My sentences and paragraphs fit together
as well as my classmates' sentences and paragraphs. | A | NS | D |
| 9. (GPR) I need less help to write well than I used to. | A | NS | D |
| 10. (GEN) I think I am a good writer. | A | NS | D |
| 11. (GPR) My writing has improved. | A | NS | D |
| 12. (GPR) My descriptions are more interesting
than before. | A | NS | D |
| 13. (GPR) It's easier to write well now than it
used to be. | A | NS | D |
| 14. (SPR) The words I use in my writing are better
than the ones I used before. | A | NS | D |
| 15. (PS) Writing makes me feel good. | A | NS | D |
| 16. (SF) Working with my team helps me write better
quality than working individually. | A | NS | D |
| 17. (PS) I feel comfortable when I write. | A | NS | D |
| 18. (SPR) My sentences stick to the topic
better now. | A | NS | D |
| 19. (SF) Interacting with my partners has increased my motivation to learn. | A | NS | D |
| 20. (SPR) My descriptions are more interesting than before. | A | NS | D |
| 21. (SPR) The order of my sentences makes
better sense now. | A | NS | D |
| 22. (SPR) When I write, the sentences and paragraphs
fit together better than they used to. | A | NS | D |
| 23. (OC) I write more often than other kids | A | NS | D |
| 24. (SF) I have benefited from my teammates' feedback. | A | NS | D |
| 25. (SPR) I choose the words I use in my writing
more carefully now. | A | NS | D |
| 26. (SF) I like solving problems with my teammates'. | A | NS | D |
| 27. (PS) I enjoy writing. | A | NS | D |

Appendix C

Peer Collaboration Tally Sheet

Student attendance: _____ Date: _____

Group Name/No of students: _____

Session Start time: _____ Session End Time: _____

Question type	No of times used	Question type	No of times used		
Opinion Statements		Asking for a Response questions			
I think/believe that.....		What do you think?			
In my opinion,		We haven't heard from you yet.			
From my viewpoint/ perspective		Do you agree?			
From my point of view,		What are your thoughts?			
Agreeing statements		Did the student(s) participate in collaboration?			
I agree with (a person) that.....		Student A Yes	No		
I share your point of view.....		Student B Yes	No		
My idea is built upon (a person)		Student C Yes	No		
Disagreeing statements		Behaviours during peer collaboration			
		Did the student actively engage in peer collaboration during this session?	A Yes No	B Yes No	C Yes No
I don't quite agree....		Lack of understanding of concept			
I disagree (completely or somewhat)		Talking			
I see it differently		Too much information to organise and read			
I have a different point of view		Deviating from topic			
Clarification questions		Topic not interesting to one or all			
What do you mean by _____?		Technology as a distraction leading to unnecessary choices			
Will you explain that again?		Disregarding groups ideas as its not one of their own.			
I have a question about		Disagreeing to other ideas as its not one of their own.			
I don't quite understand		Cannot agree to any of group's ideas or content of topic			
Sharing ideas		Offering a suggestion or solution			
Can I add an idea?		Maybe we could try_____			
I have an idea		You/We might want to think about _____			

Adapted from classroom collaboration sheet by Hennessey's Homeroom 201 taken from [https://www.pinterest.com/pin/538954280388529503/Hennessey's Homeroom 201](https://www.pinterest.com/pin/538954280388529503/Hennessey's_Homeroom_201).

Appendix D

Writing PromptsWeek 1

- Topic: Climate change: Children read about climate change article created by researcher.
- <https://climatekids.nasa.gov/climate-change-meaning/>
- **First Writing Prompt:**

Is our climate changing? What is the difference between climate and weather? In your words, explain why scientists believe there may be global climate change? Use details or facts from the article to support your reasons. Write at least four reasons.

Week 2

- Topic: Climate change: Children read about climate change article created by researcher.
- <https://climatekids.nasa.gov/climate-change-meaning/>
- **Second Writing Prompt:**
- **Is It True That People Are Causing the Climate to Change? Describe in your own words any four effects of climate change. Write in one sentence what will happen to our planet Earth if we ignore this changing climate.**

Post Intervention Group Writing as a Class

- **"What Can we as Kids Do to Slow Down Climate Change and make a positive impact towards climate change?" (problem-solving) (This writing prompt data wasn't part of the intervention data. Rubric wasn't assessed on this draft as it was meant as an post intervention activity.)**

Appendix E

Adapted 6+1 Traits of Informative Writing Rubric Second/Third Grade

Student Id: _____

Teacher's Name: _____

Date: _____

Weather: _____

Time: _____ am/pm

Writing scores will indicate the general performance in writing to a prompt.				
Standard score	Exceeding (4) 12-15	Proficient (3) 9-11	Developing (2) 6-8	Beginner (1) 1-5
Ideas & Content *main theme *supporting details	Topic sentence Main idea 3-4 facts/details/observations/evidence with supporting sentences. Conclusion Sentence. 5 points	Topic/Conclusion sentence At least 2 facts with supporting sentences. 4 points	Topic/Conclusion sentence. Few details present. Does stay on topic. 3 points	Missing or unclear details Does not stay on topic 2 points
Word Choice Sentence Fluency *rhythm, *flow *variety *precision *effectiveness *imagery	Strong use of interesting words. Imagery is clear and precise. Sentences have variety. 4 points	Uses a variety of interesting words. Imagery is present and developed. Sentence structure varies varieties in beginnings and lengths. 3 points	Beginning to use interesting words Some imagery Simple and/or repetitive sentences, little variety 3 points	Words are repetitive. Simple limited imagery. Incomplete/run-on sentences. 2 points
Voice *personality *sense of audience	Strong expression/feeling words present and relevant. 3 points	Appropriate expression/feeling words present 2 points	Beginning to show voice and express feelings 1 point	Lacks expression/feeling 0 point
Conventions and Presentation *age-appropriate spelling, capitalization, punctuation, grammar	Few or no errors in capitalization, punctuation, grammar, and spelling. Title. Date. Indent. Spacing. Title bold and underlined. Space after period and comma's. 2 point	Some errors in capitalization, punctuation, grammar, and spelling. Some Spacing. Some errors with space after period and inaccurate use of comma. 1 point	Errors in capitalization, punctuation, grammar, and spelling interfere with understanding Inconsistent spacing 1 point	Many errors in capitalization, punctuation, grammar, and spelling prevent understanding. Inaccurate Spacing 1 point

<p>Organization *structure *introduction *conclusion</p>	<p>Strong beginning and ending sentence. All parts connecting to main idea or topic. 1 point</p>	<p>Beginning, middle, and end are present. The writing is missing connection to main idea. 1 point</p>	<p>Some suggestion of beginning/ending. Few transitions. Some structure. Irregular paragraphing 0 point</p>	<p>Beginning/ending missing. No transitions. Incorrect structure. Lack of paragraphing 0 point</p>
--	--	---	--	---

Appendix F

Artifacts: Student Group A

Date: 1/20/21

Time: 1:10 pm

Group A Member Names: I, J, and A.

Today's Weather: Warm and sunny.

Writing Prompt 1

Is our climate changing? What is the difference between climate and weather? In your words, explain why scientists believe there may be global climate change? Use details or facts from the article to support your reasons.

This is our title:

Climate Change

Our climate is changing. To understand climate change we must first understand the differences between weather and climate. The difference between weather and climate is that climate happens over 30 years, and the weather is what's happening right now. Some people think that climate change is not real, but you have to look at what the temperature was for thousands of years to know if climate change is real or not. Climate change is bringing a lot of changes to Earth. When it is warm or hot out in the winter, it's melting some glaciers, causing rising sea levels and causing possible floods. Scientists think there may be climate change because of temperatures rising and the climate from before was colder than now. This is what my friends and I think about climate change.

Date: 2/03/21

Time: 1:10 pm

Writing Prompt 2

Is It True That People Are Causing the Climate to Change? Describe in your own words four effects of climate change. Write in one sentence what will happen to our planet Earth if we ignore this changing climate?

Effects of Climate Change

People's actions are causing climate change. Species of animals that live under the sea will get hurt by too many greenhouse gases trapped under the ocean. People are cutting down trees and digging fossil fuels causes climate change, some scientists say. The heat from climate change also is increasing the life span of harmful insects and parasites that are harming crops and agriculture. Snow on mountains usually melts and that gives us water, but with climate change, it is raining more than snowing and it gets absorbed by the ground before it can get harvested. If we ignore the changing climate the Earth will get really hot, and we wouldn't be able to live on it. This is what I and my friends think about why we shouldn't ignore climate change.

Date: 2/10/2021 Time: 1:00 pm

Post Intervention Group Writing as a Class - Writing Prompt 3

Collaborative writing as a class

- One student typed on Google Docs while sharing their screen on Zoom and the rest of the students contributed with their solutions. 17 students participated in the following group discussion paragraph building activity lead by students.

"What Can we as Kids Do to Slow Down Climate Change? Do you believe as kids these above solutions will make a positive impact towards climate change?"

These are some of the things we could do as a solution to slow down climate changes. One of the things we can do to slow down climate change is to walk, bike, or run instead of driving a car because the gases that come out of the car are bad for climate change. Another reason we can spread the word about climate is to send a letter to the president so the president can inspire other people to do the solutions we are suggesting slowing down climate change. While we are taking a shower or brushing our teeth or washing hands instead of running water the whole time, we can stop the water and do whatever we are doing and then turn on the water when we need it. Recycle plastic and glass bottles, cardboard boxes, and paper to try to reduce landfills. When it's winter, instead of turning the heat up, we can wear sweaters, layers of clothing and use blankets to reduce the release of carbon dioxide into the air. This also helps us breathe cleaner air in our homes. In summer, we could wear shorts and t-shirts instead of turning the air conditioner. Growing fruits and vegetables are healthy for us and also for the environment. Not using plastic will help the environment and will benefit us too. Using fabric shopping bags is a great way to help the environment. When you're in a hotel, if you get a towel, you should dry it instead of washing it. You should unplug your phone and laptop chargers when you're not using it, to reduce wastage of power. In winter close all doors inside your house to save heat from escaping. Those are some of the things that we all could do. We as children believe these solutions will bring better changes to our planet Earth and its climate.