2023

Art-Based Social and Emotional Learning Curriculum in the K-6 Classroom: A Mixed Methods Study

Michelle Fegeley
West Virginia University, mafegeley@mix.wvu.edu

Art-Based Social and Emotional Learning Curriculum in the K-6 Classroom: A Mixed Methods Study

Michelle Fegeley

Thesis submitted
to the West Virginia School of Art & Design
at West Virginia University

Masters of Arts in
Art Education

Terese Giobbia, Ph.D
Annie McFarland, Ph.D, ATR-BC
Patrick L. Jones, MA, MFA

Departments of Art Education

Morgantown, West Virginia
2023

Keywords: Art Education, Social Emotional Learning (SEL), Stress Reduction

Abstract

Art-Based Social and Emotional Learning Curriculum in the K-6 Classroom: A Mixed Methods Study

Michelle Fegeley

Preparing elementary school students to succeed in a learning environment that was significantly transformed by a global pandemic will require a major investment in new curricula that focuses more on social and emotional learning and less on standards that primarily emphasize just knowing and doing. This research investigates how the implementation of social emotional learning and SEL-based art activities in the art classroom can help to lower student stress levels in the elementary school art classroom. By providing learners with an opportunity to grow socially and emotionally, teachers may help students understand their feelings and use artmaking as a way to help better understand, adapt, and relieve stressful emotions.

Across the United States, educators are seeing a rise in the mental health crisis and need for more Social and Emotional Learning being implemented into the curriculum. The need for SEL implementation in schools and students needing help regulating and working through their emotions has been heightened by the COVID 19 pandemic and the virtual schooling over the last two years. Students are having trouble managing, expressing, and regulating their emotions because students are more stressed than ever before. Studies have shown that including SEL into the curriculum has benefited students and evidence that supports SEL practices being implemented in the art education classroom. There are still gaps in research with much of the research following SEL in the fine arts classroom focusing around music, dance and theater, and little written about the implementation in the art classroom. While there are some SEL art curriculums written, like *Art with Heart*, there is a gap in research backing up SEL-centered art curriculums. This mixed methods study promotes the implementation of SEL art curriculum and how it can help reduce stress in students. This research centers around four case studies focusing on SEL completed in first, fourth and sixth grade art classrooms. Finally, this research examines the benefits to implementing an art curriculum focusing on SEL to promote stress reduction in students and help students to begin to regulate and manage their emotions in the school setting.

Acknowledgement

Throughout the writing of this thesis, I have received a great deal of support and assistance. I would like to express my sincere gratitude to Terese Giobbia, my committee chair, and committee members Patrick Jones and Annie McFarland for their guidance and contributions throughout the writing process.

I would like to acknowledge my colleagues and the community at Barrackville Elementary and Middle school for their support throughout this process. I would particularly like to thank my administrators, Vicki Bombard and Sarah Episcopo, for their support, our school counselor Sallie Minor for her collaboration and support. I am grateful I had the opportunity to conduct my research at Barrackville Elementary and Middle School.

The completion of this thesis would not have been possible without the constant support and love of my parents, family, and close friends. I would like to thank my parents for their constant support, wise counsel, and sympathetic ear. You both are always there for me, and I am eternally grateful for all you both have done and continue to do for me. Finally, I want to thank my siblings for their love and support throughout this research project.

Table of Contents

List of Figures

Personal Narrative

My interest in incorporating social and emotional learning practices into my art curriculum began during the 2020-2021 school year. I began working at Barrackville Elementary and Middle School, a rural school in West Virginia outside the city of Fairmont, that year and had a blended group of students. This group consisted of students who were learning fully remotely and a group of students who came to school part time, and then were learning virtually and eventually came back for four days a week during the spring of 2021 that school year.

During that year, I began to see the effect virtual learning was having on my students: students were stressed with the amount of work they were having to do in addition to learning online. At the beginning of the 2021-2022 school year, the school counselor was also seeing how students were struggling socially and emotionally now more than ever as a result of the pandemic and the virtual/hybrid learning methods, advocating for social and emotional learning opportunities for our students. As students slowly acclimated back to face-to-face learning, they were having to relearn social behaviors and relearn being in the classroom full time, on top of learning their regular subjects, which included math, reading, writing, science, history, music, art, etc. Due to the various ways students were learning over the last two years, the gap both academically and socially in students became apparent this year.

During my first year teaching at Barrackville Elementary and Middle School, my students, especially the middle schoolers, expressed how they were stressed. That year, I was lucky to have small groups of students due to the in-person pupils being split into different cohorts by last names, so I got to form close relationships with my students and connect with them in a more meaningful way. In particular, in one of my sixth grade classes, I had two boys in the cohort who began expressing their struggles that year and from the previous year when

learning went virtual. Students who were typically getting A's or B's in their classes were starting to see that they were receiving B's and C's. These students expressed how difficult it was to work remotely for three days and then come in person for two days. They were struggling to grasp their schoolwork as easily compared to the previous years they've been in school. The amount of work they needed to complete online was a lot for them too, and they were struggling to catch up after switching to emergency remote learning in 2020. The students expressed that they were always excited to come to my class and their other elective classes (music or media) because they felt these classes allowed them to de-stress from their other classes. Knowing that the students were stressed, I began looking for projects online to help them further. That year, I came across neurographic art from a Facebook group for art teachers and read about how the process is meant to help the artist de-stress or release tension or worries. These students expressed how they found the neurographic project very relaxing and how it helped them de-stress even more than the work they usually did in my class.

When I began my graduate classes and began thinking about what direction to go in for my thesis, I was thinking about the stress and pressure being put on students as they were reentering the classroom, some for the first time in over a year, and I was also enrolled in art therapy courses. These courses helped to show effective ways to incorporate art therapy techniques or projects into the art education classroom. Through these courses, I gathered a stronger understanding of Social and Emotional Learning (SEL) and began to formulate the idea to focus my research on SEL in the art education classroom to see the effects these practices had in helping students, and to encourage students to find different ways to help them process and deal with the extra stress they were under.

During this research project, I got to discuss and understand how stress affects students in first, fourth, and sixth grade. It was interesting to see and hear the students express what stressors existed in their lives, the ways they worked to de-stress (some without even realizing it before) and learn how art can be another way for them to deal with their stress. A lot of students' stress came from either their schoolwork or from additional responsibilities they had outside of school during that time. One student expressed to me that even though the project was helpful to decrease stress, they still felt very overwhelmed because they had sports practice after school and then had to clean their room and help their parents out at home. Towards the end of the research, I saw a spike in stress for my students, especially in the fourth and sixth graders. During the last group I worked with, students were completing their last math and reading diagnostic tests (i-ready) for the year, which was putting pressure on them as they wanted to perform well. Students, especially in fourth grade, were also overwhelmed with getting their last projects and assignments turned in on time. One fourth grader expressed to me that they were stressed because they had a few assignments that were not done or completed when they were due earlier that quarter and had to complete them all for a grade.

For the outside stressors, some students found that their extracurricular activities added additional stress. Some students were participating in a play being put on at the local state college and they had rehearsals every day after school for several hours. A lot of students, especially in first and fourth grade, also had sports going on, like t-ball or baseball. Students either had games or practice after school for their sports, and those were usually every day; having the sports practices and games or rehearsals made their time after school very busy along with having schoolwork to complete and any other responsibilities at home. Some students would have chores to complete or would need to help their parents with taking care of younger

siblings. Some of the chores would be fixing their bed or cleaning up their toys; some of the older students would help their parents with cleaning up the house like putting dishes in the sink after dinner.

After completing this research, I found that these lessons helped students decompress and helped them find some relief from the pressures that they are under. I feel that these lessons will help students be able to recognize their feelings and find ways to help emotion regulation outside the art room on their own.

Chapter 1: Introduction

Introduction

Preparing elementary school students to succeed in a learning environment that was significantly transformed by a global pandemic will require a major investment in new curricula that focuses more on social and emotional learning and less on standards that primarily emphasize just knowing and doing. This research investigates how the implementation of social emotional learning and SEL-based art activities in the art classroom can help to lower student stress levels in the elementary school art classroom. By providing learners with an opportunity to grow socially and emotionally, teachers may help students regulate their feelings and use artmaking as a way to help better understand, adapt, and relieve stressful emotions.

Statement of the Problem

Since 1926, the field of art education has relied heavily on artmaking as experience (Dewey, 1934). Across the country, we are seeing a rise in stressors and mental health issues among students in the K-12 classrooms. This is primarily due to the changes in traditional learning platforms caused by a global pandemic (*Putting Kids First*, 2021). Educators, school staff, pediatricians, and mental health care workers are seeing K-12 students struggle with mental health, ultimately making the return to classrooms more challenging for educators and the strained health-care system as educators adjust to fit the mental health needs of K-12 students (Yum, 2022). According to Dr. Vera Feur (as cited in Yum 2022), vice president of school mental health at Cohen's Child Medical Center in Long Island, there has been a 40% rise in mental health admissions seen in children's emergency rooms since the pandemic started in 2020. Feur noted that middle and high school students were behaving at lower emotional and social levels than before the pandemic, impacting their behaviors negatively towards peers,

authority figures and themselves. As face to face learning resumed in the classroom, the loss students experienced from being out of their social environments showed just how remote learning negatively impacted their social development and growth (Yum, 2022). As Evans Jr. explains in his testimony, the public health crisis that we see now as an aftereffect of COVID-19 is consistent with the stress and anxiety seen post-crisis, like after a hurricane (*Putting Kids First*, 2021). According to the testimony, the growing behavioral health needs of children and adolescents predated COVID-19 but the effects of the pandemic have exacerbated the behavioral and mental health of the children in the United States, and suicide rates among children aged 10 and older have climbed significantly each year since 2007, making suicide the most common cause of death among adolescents before the pandemic and growing evidence is showing mental health continues to deteriorate in the current environment, including among those who did not previously exhibit symptoms of a behavioral health disorder. The social isolation, financial uncertainty, and disruption in routines placed considerable strain on children and families, ultimately affecting the mental health and well-being amongst children and youths in the United States (*Putting Kids First*, 2021).

Research Questions

The purpose of this research is to examine whether social and emotional learning standards could inform elementary school art curriculum and enhance the teaching practices of elementary school art educators. The following research question was investigated in this research: How can the implementation of social emotional learning in the art education classroom help reduce stress? This research also looked at the following two sub questions: Will the implementation of SEL-based art activities in the art classroom help reduce student stress? And which SEL-based art activities impact student stress levels the most per grade?

Significance of the Research

This research is designed to help students understand their feelings and to use art making as a way to help understand and better adapt to and relieve stressful emotions. The significance of this research in the field of art education is to show the close relationship between art and the social and emotional curriculum and highlight the importance of art for our students. By having these resources and SEL practices in the art education classroom, the students' overall academic performance will improve. This research is important because it provides project-based art lessons following an SEL curriculum to promote stress reduction in students. The goal of this research is to implement current SEL curriculum into the art education curriculum already in place based on the significant need in stress reduction as seen for the students in first, fourth and sixth grade. The goal of this research is to create and implement a student-focused curriculum that is based off of the SEL standards in the art education classroom. This research will help teachers to develop ways to assist students in relieving stress that they might feel or be under from school or stressors from outside the school setting. The hope is to show students that art can be an outlet for stress through the process of creating. This research will hopefully also help students be able to better self-regulate their emotions and be able to visually express or visually make connections to help express how they might be feeling in a safe, healthy way through creating art.

Definitions of Terms:

The following terms are defined based off of the research cited at the end of this paper.

Art Therapy- a form psychotherapy involving the encouragement of free self-expression through drawing, or modeling, used as a remedial activity or an aid to diagnosis.

Art with Heart- organization whose mission is to help children overcome trauma through creative expression, turning pain into possibility as children build social and emotional skills that will serve them for life. Established in 1996, Art with Heart is a nonprofit; collaborates with both mental health experts and award-winning illustrators, develops life-changing, innovative books and programs that benefit children and teens.

Art based research- using artmaking as a primary mode of systematic inquiry.

Art education- process of teaching and learning how to create and produce the visual and performing art.

Stress- feeling of being overwhelmed or unable to cope with mental or emotional pressure.

Mandalas- means 'circle' traditionally a geometric design or pattern that represents the cosmos or deities in various heavenly worlds.

Neurograpical art- simple way to work with the subconscious mind through drawing. Process of drawing to recreate the outer from the inner; creative method of transforming the world. Discovered by Pavel Piskarev, Russian psychologist and creative entrepreneur.

Inside weather – DrawTogether project that helps students express visually and explain how they are feeling using weather as a metaphor.

DrawTogether- an art show/class that is supporting schools and community organizations to combine imagination, growth mindset and instilling creativity, emotional self-awareness, and confidence.

Social and emotional learning (SEL)- involves children's ability to learn about and manage their own emotions and interactions in ways that benefit themselves and others, and that help children and youth succeed in schooling, the workplace, relationships, and citizenship.

Self-awareness- recognizing one's emotions and values as well as one's strengths and challenges.

Self-management/ self-regulation- managing emotions and behaviors to achieve one's goal.

Chapter 2: Literature Review

Introduction

This chapter presents a literature review that offers a background for understanding the connections between art education and art therapy and the impact of social and emotional learning in the art education classroom. First, this literature focuses on the importance of social and emotional learning (SEL), the mental health in the United States, SEL in the art education classroom and how it affects their overall learning in school. Following this discussion, the literature defines both art education and art therapy and then shows how the two fields connect. Finally, this chapter gives background knowledge connected to the different case studies performed in this research; giving a background on *DrawTogether* and its connection to SEL, describing the art curriculum *Art with Heart* that helps incorporate social and emotional learning for students at all age levels and helps understand the benefits found in the creation of neurographic art mandalas.

Social and Emotional Learning

Social and Emotional Learning (SEL) involves children's ability to learn about and manage their own emotions and interactions in ways that benefit themselves and others, and that help children and youth succeed in schooling, the workplace, relationships, and citizenship (Jones & Doolittle, 2017). The core competencies of SEL, defined by the Collaborative for Academic, Social, and Emotional Learning, are relationship skills, self-management, social awareness, and responsible decision making (*Advancing Social and Emotional Learning*, 2022). The competencies that will be the focus on the SEL curriculum in this research are self-awareness and self-management. Self-awareness is the "ability to accurately recognize one's own emotions, thoughts, and values and how they influence behavior; the ability to accurately

assess one's strengths and limitations, with a well-grounded sense of confidence, optimism, and a 'growth mindset'" (*Advancing Social and Emotional Learning*, 2022). Self-management is defined by CASEL as, "the ability to successfully regulate one's emotions, thoughts, and behaviors in different situations – effectively managing stress, controlling impulses, and motivating oneself. The ability to set and work towards personal and academic goals" (*Advancing Social and Emotional Learning*, 2022). These competencies help people identify emotions, create an accurate self-perception, recognize strengths, build self-confidence and self-efficacy, impulse control, stress management, self-discipline and self- motivation, goal setting and organizational skills (*Advancing Social and Emotional Learning*, 2022) .

Research has shown that SEL has grown in popularity. As Kimberly A. Schonert-Reichi states, "We've learned that we can promote students' social and emotional competence, and that doing so increases not only their SEL skills but also their academic achievement" (Schonert-Reichl, 2017). SEL promotes positive development and reduces problem behaviors which in turn helps students in all areas: academically, socially and health related behaviors as well. Through SEL "people acquire and effectively apply the knowledge, attitudes, and skills to understand and manage their emotions, to feel and show empathy for others, to establish and achieve positive goals, to develop and maintain positive relationships, and to make responsible decisions" (Schonert-Reichl, 2017). SEL allows students to learn skills to both manage their own emotions and navigate social settings as well. Not only does SEL help promote success for students academically, SEL skills can also help improve the health of students by reducing the likelihood that they'll experience behavioral or emotional problems in the future (Jones & Doolittle, 2017). Just like with other subjects or skills, it is important to build and grow on SEL skills and incorporate SEL into the curriculum in schools at developmentally appropriate levels to allow for

growth and understanding. As Jones and Doolittle (2017) state, "Neurological and physical changes dictate which SEL skills are most important at a given developmental stage and when mastery should be achieved" (p. 8). In early childhood, incorporating SEL in play-based programs has been successful; in middle childhood, incorporating SEL in classroom-based activities seems to be the best approach, and in adolescence it is successful when the need for autonomy and respect is given (Jones & Doolittle, 2017).

The Emergence of the Social and Emotional Learning Standards in K-12 Schools

Research conducted in urban schools during the 1970s helped pave the way for the emergence of Social and Emotional Learning within the K-12 general education classroom (McClure, 2020). Dr. James Comer, one of the founding figures of SEL, earned his A.B. degree from Indiana University, his M.D. from Howard University's College of Medicine in 1960, and his Masters of Public Health from the University of Michigan's School of Public Health (*The History Makers*, 2004). Comer completed his training at the Yale School of Medicine, the Yale Child Study Center, and the Hillcrest Children's Center in Washington, D.C. after completing his M.P.H. (*The History Makers*, 2004). While working as the Maurice Falk Professor of Child Psychiatry at the Yale School of Medicine in 1976, Comer developed the Comer Process, which focused on children in inner-city schools and has been utilized in more than six hundred schools in eighty-two school districts across twenty-six states (*The History Makers*, 2004). This process led to the founding of the Comer School Development Program (*The History Makers*, 2004). Comer is nationally and internationally known for the creation of this program in 1968 that promotes the collaboration of parents, educators, and community to improve student development and help students achieve greater academic and overall school success (Comer,

2019). Comer's research paved the way for the emergence of Social and Emotional Learning (McClure, 2020).

Dr. Comer believed in addressing developmental issues of poor Black youth. He recognized the racial trauma experienced by Black youth and the unequal opportunity available to them academically, economically, and politically (McClure, 2020). Dr. Comer stated, "at one time, the nature of the community really aided the social and psycho emotional development of children. The authority that adults needed to help children to grow was there" (J.P. Comer, 1989). Through his research, Comer has proven how focusing on building up the community in schools helps improve child development and their performance academically. This was seen directly in his research in New Haven elementary schools which showed a drastic improvement regarding performance in the schools when putting resources in place to improve students' experiences at home and school (McClure, 2020).

Dr. Comer also believed it was important for students to form a loving relationship with a caregiver, and that the lack of a loving relationship with a caregiver resulted in unaddressed developmental needs of the students, especially poor Black youth, which lead to poor academic achievements and economic opportunities (McClure, 2020). Dr. Comer believes the key to improving student achievement is to pay attention to their development. If this factor is overlooked in any new approaches in curriculum, instruction, and assessment, all three will have little chance of succeeding (J.P. Comer, 2005). A good school culture provides positive relationships and a sense of belonging, and when these are present, students are given the confidence, comfort, and motivation to learn (J.P. Comer, 2005).

Dr. Comer's work helped pave the way for SEL in schools, therefore contributing to the fields of both art therapy and art education. Most of Comer's research is seen in education but is

directly related to art therapy through his research's influence to SEL. Comer's research focused on supporting the "whole child" in schools beginning in 1968, and by the 1980s the focus on supporting the whole child proved to decline behavior challenges and improve academic performance. This led to the superintendent of New Haven Public Schools, John Dow Jr., to encourage a district-wide focus on social development, which led researchers and educators in 1987-1992 to partner together and create the New Haven Social Development Program which set the foundation of SEL strategies across K-12 classrooms (*Our History,* 2021).

Mental Health and Stress in the United States

Since the beginning of the pandemic, there has been a rise in stress levels across the United States seen in both adults and in children. According to the article, "Stress in America, Money, Inflation, War Pile on to Nation Stuck in COVID-19" the vast majority of adults (87%) can agree that the constant stream of crises over the last two years has left them overwhelmed and stressed (American Psychological Association, 2022). With adults facing higher levels of stress, one of the leading concerns for parents is children's development. Both mental and physical health is continuing to decline as a result. With seeing a rise in stress and the decline of mental and physical health in adults, it's also concerning to see the effects it is having on children across the United States. Parents are fearing that children are losing developmentally and that there will be both long- and short-term impacts on these younger generations. 73% of parents are concerned about their children's social life or development, 71% are concerned about their academic development and 71% are concerned about their emotional health and development. This means that more than two thirds of parents are concerned about the impact the pandemic will have on their child's cognitive development and physical health/development (American Psychological Association, 2022).

The rise of parents wishing their child could have benefited from mental health services is equal to more than half (57%) of parents to 13-17 aged children. These concerns of parents are backed by research on the pandemic's impact on youth mental health, as we are seeing children struggling who have previously not displayed symptoms of behavioral disorders. Between April and October 2020 there has been a rise in both children between the ages of 5 and 11 (24% increase) and adolescents aged 12 to 17 (31% increase) visiting the emergency room for mental health crises. And in the beginning of 2021 these visits continued to increase by 14% for mental health related emergencies and 42% for self-injury or suicide (American Psychological Association, 2022).

With students returning back to the classroom, research shows schools across the country are overwhelmed with the K-12 students struggling with mental health problems (Yum, 2022). Supporting and promoting student mental health is not only important to overall student health but also to academics (CDC, n.d.). With the impact of the COVID-19 pandemic and school closures having effects on mental health and academic outcomes both in near- and long-term it is important to put into place plans and resources to assist students with their mental health (CDC, n.d.).

According to the CDC, mental health is an important part of children's overall health and well-being, including children's mental, emotional, and behavioral well-being (CDC, 2022). The way children typically behave, learn, or handle emotions all affect their mental health, and any serious changes can be signs of mental disorders (CDC, 2022). Some of the most common mental disorders in children are ADHD, anxiety problems, behavior problems, and depression, with increased diagnoses being seen in children over the past few years (CDC, 2022). The growing behavioral health needs of children and adolescents pre-dates COVID-19 but the effects

of the pandemic have exacerbated the behavioral and mental health struggles of the children in the United States and growing evidence is showing mental health continues to deteriorate in the current environment, including among those who did not previously exhibit symptoms of a behavioral health disorder (Evans Jr. 2021).

According to Kantawala, a crisis is defined as, “something that most people are not prepared for until you are thrust into the situation. It is devastating and impacts the community” (2022). With the rise in mental health needs seen in our society, there is a correlation with school shootings and the need for mental health services in schools now more than ever (Kantawala, 2022). In research from Kantawala, implementing Social and Emotional Learning practices into the art education classroom helps assist students in crisis and through art, art educators can prompt resilience and allow students to find healthy ways to work through the crisis we find our country in (2022).

Current SEL Practices

Stress reduction through artmaking

Stress can negatively impact children, often resulting in health problems, school failures and youth delinquency (Creedon, 2011). According to Dennis W. Creedon, “high stress levels have been associated with a variety of health problems, including asthma and depression” (Creedon, 2011). The arts can help students reduce and manage their stress, fear, and anxiety. Fear and anxiety can hinder a child's development and are linked to children’s performance in schools: “stress directly affects ‘attention, memory, planning, and behavior control’” (Creedon, 2011). According to the article by Girija Kaimat, Kendra Ray, and Juan Muniz, art making shows a lowering of cortisol levels. Cortisol is a glucocorticoid hormone and one widely studied marker of stress (Kaimal et al., 2016). Cortisol is the hormone that helps regulate the levels of

stress humans face. When the brain experiences high levels of cortisol levels, it affects the hippocampal neurons which are associated with learning and memory. It helps the mind create a buffer against traumatic experiences, helping us from being controlled by our past negative experiences, but when cortisol cannot be kept balanced, the mind can and will stop learning (Creedon, 2011).

The arts can help reduce cortisol levels in students because they produce a group of hormones called endorphins which counteracts cortisol and helps students focus. The production of endorphins enables students to manage stress and enhances their learning potentials, and in turn it can help their recall and memory (Creedon, 2011). Creedon states that, “cognitive research shows that a well-structured music and arts education program enhances the emotional well-being of children, enhances their readiness for learning, reduces stress, and reduces negative social behaviors" (Creedon, 2011). Having music and art education programs in schools helps students in all areas of their education. Not only does it help build their critical thinking and improve their performance in their other subjects, as Creedon cites, there was an improvement in reading and writing in Anna Alejandro’s classroom when music and art were incorporated (Creedon, 2011). Along with improving student’s performances in other subject areas, the arts help students socially; Creedon states, “integrating the arts with other subjects can nurture an emotional positive social context” and “for the social context to blossom with positive stress reduction, active learning processes are needed that invite children to engage with music, dance, drama and the visual arts” (Creedon, 2011, p.35).

Art and Regulating Emotions

Participation in the arts helps young children develop strong social and emotional skills. Increasing the use of the arts can benefit children’s learning in language and literacy, math and

science, and most importantly aid in social-emotional development. During early childhood, participating in visual arts, like playing with building blocks, drawing, painting, finger-painting, sculpting clay or playing with sand helps children build fine motor skills that enable them to construct tactile and tangible creative objects. Young children participating in scribbling is a precursor to writing and drawing distinct and recognizable objects and letters, which are important for their overall development. Growing research suggests that at virtually every stage of life, the arts help people grow developmentally, foster openness to novelty, encourage connections with people, places, things and concepts, and promotes the ability to take multiple perspectives. The arts also promote emotion regulation and the development of social and emotional skills. Social and emotional development involves social skills, and the arts help foster environments helping students learn: helping, sharing, caring, and empathizing with others. Activities that promote social and emotional development in young children can be children playing and building with blocks and even playing with their parents. Children having classes in art, music, and dance promotes in young children emotion regulation, where young children can start to learn and show improvement in teacher rated positive and negative emotion regulation. With older school aged children using drawing as a method to distract and help children speak of past events that make them feel upset or disappointed, it helped to improve and regulate their mood. Overall, arts activities are positively related to early childhood social emotional competencies; arts participation focuses on pro social behaviors, general social skills and better emotion-regulation skills (Menzer, 2015). Art can help children empathize and understand their emotions and through the use of art therapy, is very important to mental health of our students and helps reduce the stigma around mental health services in today's youth (Rogers, 2019).

An important part of children's development is learning how to regulate and express emotions. Children can regulate emotions in a variety of ways, like problem solving, comfort seeking, distraction, escape, and information seeking. One tool students can use to regulate their emotions is drawing. A study done by Jennifer E. Drake and Ellen Winner saw that one of the most common emotion regulation strategies children used was distraction, primarily through behavioral distraction which can be done through drawing. Drawing when discussing a negative situation or to counteract negative moods allows children to regulate their emotions and assists them in reliving and telling negative situations; art making can be used as a mood repair. Drake and Winner's research backs that drawing is a form of distraction; the mood was improved over drawing an image depicting their negative emotion or mood or venting through drawing. The study showed that younger children's moods improved more when using drawing as a distraction when discussing negative emotions or situations but that could be due to younger children being absorbed in the act of drawing more than older children. Children responded well to having a prompt, drawing a house, as a form of distracting over venting and copying or drawing the reason for the negative emotions. Drawing can be used as a way to initiate a dialogue and make sense of their emotions or the trauma they might have (Drake and Winner 2013). Elementary years are the years where children's neurological development is an optimal time to build relationships, connectedness, empathy, self-awareness, and resilience which leads to mentally healthy children and adults. Art is a powerful tool to help teach these skills to students, allowing students to learn how to express themselves, communicate, and ultimately find a better way for conflict resolution and problem solving. Art, especially with elementary aged students, gives students a nonverbal way to communicate how they are feeling, especially when students are having trouble communicating with words (Rogers, 2019).

Art Education and Art Therapy

For this research it is important to highlight the differences seen in art education and art therapy before looking at how the two are similar. In art education, "Art teachers use their artistic skills to teach techniques or art processes and support their students' growth and development" (Kay, 2020, p.66). The roles, education and training, purpose, and goals for artmaking differ. In art education the role of the art educator is to teach techniques and processes seen in art to help students build on the skills learned and encourage creativity. Art teachers help foster environments to encourage the development of social, cultural, and learning skills through visual expression and assist in helping students translate their ideas into images (Kay, 2020). Art teachers typically complete an undergraduate degree in art education, completing coursework that covers art, curriculum, education, and pedagogy along with going on to obtain a masters and continuing education credits throughout their career (Kay, 2020). Art education is defined by the National Art Education Association (NAEA) as "traditional fine arts such as drawing, painting, photography, and sculpture; media arts including film, graphic communication, animation, and emerging technologies; architectural, environmental design, and industrial arts such as urban, interior product, and landscape design; folk arts; and works such as ceramics, fiber, jewelry, works in wood, paper, and other materials" (*National Visual Arts Standards*, n.d.). The NAEA outlines the importance of art education as providing for American children sources of aesthetic experiences, human understanding, a means of developing creative and flexible forms of thinking and means of helping students understand and appreciate art (National Art Education Association [NAEA], 2016). The NAEA says art "is a rendering of the world and one's experiences within it. In this process of making art forms, one's experience with it must be trapped, probed, and penetrated. The search is both inward and outward" (NAEA, 2016, p. 4).

Kathy A. Malchiodi (2007) defines art therapy as "a modality that uses the nonverbal language of art for personal growth, insight, and transformation and is a means of connecting what is inside us – our thoughts, feelings and perceptions – with outer realities and life experiences" (p. ix). Art therapy is a mix of visual arts and psychology and in the United States it dates from the 1940s when Margaret Naumburg, who is seen as the mother of art therapy when she combined both fields (Junge, 2016). As a profession, art therapy is a hybrid profession where the art therapist is required to be knowledgeable with the art part and the therapy part, and how these two aspects are integrated in their application to assessment and treatment (Andrus, 2006). Art therapy has been seen since the 1930s in England and therapeutic rituals can be seen in visual arts connected to ancient cultures from hundreds of years ago as seen in Navajo sand paintings and African sculptures (Junge, 2016). The origin for art therapy seen today was influenced by pioneers of modern art education such as Franz Cizek, Viktor Lowenfeld, and Florence Cane when there was a shift in arts education where there was an emphasis on child's creativity and emphasis on the arts and connections being made between child's intellectual development and creative development (Junge, 2016). While art educators teach art skills, an art therapist might assist in teaching how to use different mediums; their main goal or job is to treat their patients and to help their clients communicate, understand themselves and others, and mature psychologically (Kay, 2020). Even though artmaking is a large part of the process used in art therapy for art therapists, the purpose in art therapy is to create a safe environment for their clients to examine interpersonal problems and strengths through the art process and facilitate the development of social and emotional learning skills (Kay, 2020). As Andres (2006) says, "Art therapists must know how to bring art and therapy together in harmony to assist clients and attain their goals of treatment" (p. 181). Unlike art educators being able to start in their field after

obtaining a bachelor's degree, art therapists need a master's degree and need to become nationally registered and board certified and licensed in some states (Kay, 2020). Their education focuses on courses including art, psychology, counseling, and group psychotherapy (Kay, 2020).

After looking at both art education and art therapy separately, now it is important to look at the commonalities and overlap between the two disciplines. The biggest overlap of the two disciplines is artmaking, which is important to both disciplines. As Junge stated, art therapy was influenced by pioneers of modern art education such as Franz Cizek, Viktor Lowenfeld, and Florence Cane (Junge, 2016). The 1940s saw the merger of art education and art therapy with Viktor Lowenfeld coming to the U.S. Lowenfeld "laid a psychological foundation for the way children develop in and through art" (Drachnik, 1976). Lowenfeld brought attention to the idea that everything affects the child as a total human being and that the lack of security in one area will affect the child's artistic expression (Drachnik, 1976). Edith Kramer, a pioneer in art therapy, states, "what links art therapy to art education is understanding of the productive process and genuine respect for the products which are the results of children's creative efforts" (Kramer, 1980). Both Lowenfeld and Kramer are right--the creative efforts of the child in the art education classroom or art therapy session connect both art education and art therapy while the development of the child and the connection of the lack of security can be seen through the creative process of the child. Kramer brought art teaching into art therapy while Lowenfeld brought ideas from art therapy into art education (Drachnik, 1976).

There are also similarities seen in the creative process and the therapeutic process. In *Creative Process/Therapeutic Process: Parallels and Interfaces,* Malchiodi (1988) states, "on some level creativity is involved in all therapeutic relationships" (p. 52). This is because of the nature of art therapy and the connection to using visual arts to express and understand oneself,

and the idea that art therapists need to use creativity when providing support and treatment to their clients (Malchiodi, 1988). Mariagneese K. Cattaneo states, “in both creativity and therapy there is encounter – the encounter with the vision, the issue, the obstacle, the core of the problem etc. This encounter, however, cannot be forced” (Malchiodi, 1988, p. 53). Like in artmaking, in art education and art therapy, the process or ‘encounter’ as Cattaneo describes the process, cannot be forced and that the creativity needs to come from somewhere or from guidance from the art educator or art therapist helping to guide the student or client through the artmaking process.

In both fields, art education and art therapy, there is attention placed on the emotional needs of students allowing them to explore themes related to self-identity and self-expression to help the students communicate and understand themselves. Through the process of art making students can find comfort and awareness, build self-confidence, self-advocacy, and healthy emotional regulation (Rogers, 2019).

History of Art Education Curriculum

For as long as the arts have been seen in society, artists have been educated for their roles in all cultures. Visual arts education practices have grown throughout time and the education of the arts was influenced by socially powerful individuals to further social, moral, and economic aims. Just like now, the access to instruction limited those who were taught the arts, and access has changed based on the culture and society throughout history (Efland, 1990). As Efland researched, some societies thought it was a privilege to learn the arts so only the societal elite were taught, while in some societies it was seen fit for slaves and children of artisans to learn the arts (1990). Then, in the nineteenth century working-class women in Europe studied decorative arts and the men (unless under unusual circumstances) studied the fine arts; throughout the

history of art education, the access to instruction was heavily influenced and affected by class, gender and general social status (Efland, 1990). Along with the way art education was taught throughout society, the academies, the school of design, and the introduction of art education, the effects of history and society allowed for several movements in art education which influenced the curriculum: romantic idealism, social efficiency, expressionism, reconstructionism, accountability, excellence and critical theory (Perkinson, 1991).

Looking at the history of Art Education Curriculum in the United States, the push for art education really began in 1792 when Benjamin Franklin advocated for art education in his book *Proposed Hints For An Academy* (*Historical Perspectives in Art Education,* n.d). Then, in 1825 the publication of William Bentley Fowel's, *An Introduction to Linear Drawing,* showed the first documentation of art education in public schools which included basic instructions for simple exercises including perspective drawing, drawing lines, angles, geometry, simple moldings, classical forms, and architectures. By 1826, art education was beginning to be introduced into public schools, mostly in the East. In the 1840s, art education was seen as an exercise to train the eye and hand: "Drawing was seen as a technical skill that supported industry and kept idle hands busy" (*Historical Perspectives in Art Education,* n.d). In 1860, Massachusetts was the first state to adopt the arts as part of the general education program and in 1873 the first school, The Massachusetts Normal art school, opened to prepare teachers in drawing instruction. Guidelines for teachers to follow in the classroom to teach art were available in 1883 after The National Education Association designated a Department of Art.

In 1896 John Dewey, an American philosopher and psychologist, influenced the push towards allowing children to grow mentally, physically, and socially while becoming creative. Dewey believed children should grow as individuals and experiment with natural talent. By

1900, there was a focus on technique in art with The Picture-Study Movement, and in 1904 the Arts and Crafts Movement began and blended art and manual training. In 1910 The Child-Study Movement began using art to study emotional and cognitive growth of children. The first well-known book on art education was written by Margaret E. Matthias in 1924 called *The Beginnings of Art in the Public Schools* which discussed the importance of art education in primary school, specifically in kindergarten through second grade. John Dewey wrote, *Art as Experience,* in 1934 which describes art as the vehicle for developing general creative abilities.

In 1947 Viktor Lowenfeld wrote *Creative and Mental Growth* detailing the natural stages of development in art. The National Art Education Association (NAEA) was founded in 1947. Teaching for Artistic Behavior gained support in art education in the 1980s and by 1984 Discipline Based Art Education (DBAE) was recommended by The Getty Center of Education. DBAE is the approach in art education that focuses on the four art disciplines: art production, art history, art criticism, and aesthetics (Dobbs, 1992). In the 1990s there was a shift in focus on evaluating student learning and performance in the field of art education and by 1995 Visual Thinking Skills (VTS) was introduced and gained popularity (*Historical Perspectives in Art Education,* n.d). VTS focuses on teaching students how to describe, analyze, and interpret artwork through observation and discussions (*Visual Thinking Strategies - Art Gallery - Grand Valley State University*, n.d.). In the 2000s Lois Heland developed *Studio Thinking* leading to a discussion on visual culture and its role in art education (*Historical Perspectives in Art Education,* n.d).

The Studio Thinking framework focuses on how art educators can help students be good thinkers, focusing on the eight Studio Habits of Mind: Develop and Craft (Technique and Studio Practice), Engage and Persist (Finding Passion and Sticking with It), Envision (Imagining and

Planning), Express (Finding and Showing Meaning), Observe (Looking Closely), Reflect (Question and Explain and Evaluate), Stretch and Explore (Play, Use Mistakes and Discover), and Understand Art Worlds (domain and Communities) (*The Framework*, n.d.). By 2010, STEM (Science, Technology, Engineering, and Math) began to transition to STEAM to include 'art' (*Historical Perspectives in Art Education,* n.d).

DrawTogether

DrawTogether is an interactive show, a support program for schools and community organizations combining imagination, growth mindset, silly dances, and instilling creativity, emotional self-awareness, and confidence in kids (Draw Together, 2022). Draw Together started as an impromptu art class on the internet to support kids and parents during the Covid-19 school closures but now is offering an interactive show, a support program for schools and community organizations, and to share resources from special guests, creators, and educators (Draw Together, 2022). This program was created by illustrator and social worker Wendy MacNaughton or Wendy Mac. MacNaughton started *DrawTogether* in March 2020 when the world was shutting down, creating a platform for kids of all ages to tune into while being home all day now and create art together (Weil, 2022b). Along with included segments covering both art skills like reviewing the primary colors and creating funny drawings, she also used her masters in social work to check on the kids' emotions: "Together, they drew 'inside weather' charts: sunny, rainy, stormy, windy, cloudy. This gave even preschoolers a way to name and share what was going on in their COVID- confused hearts and minds" (Weil, 2022b). With this program, MacNaughton was able to bring arts into the homes of kids of all ages and from around the world, giving them a place to both be creative and express and work through any emotions they were experiencing that they did not fully understand.

DrawTogether's shows are uploaded to YouTube for educators, communities, organizations, or parents to use. The *DrawTogether* video, Inside Weather, helps guide kids through the process of using drawing to symbolize feelings. From 2:50 to 9:16 the video shows examples of giving different weather drawings meanings to different feelings (wendymac, 2021). At 5:10 Wendy starts creating a weather chart to represent her own feelings, the examples she used for different emotions are: sunny for happiness, rainy weather for sadness, stormy can represent anger, windy can be excitement or silliness or maybe overwhelmed, puffy little clouds can be happy, the 'rainbowy' one can represent a few emotions at once like a little down (cloudy) and sunny (rainbow breaking through) (wendymac, 2021).

Art with Heart

Art with Heart curriculum has been around for over 20 years using therapeutic, art-based curriculum and books to promote healing in kids and youth (*About*, 2021b). *Art with Heart* has four different books and curriculums to follow for different age groups. The three books and curriculums that are important to their research are *Magnificent Marvelous Me!*, *Draw It Out* and *Ink About It* (*About*, 2021b). *Magnificent Marvelous Me!* is created for kids in grades kindergarten through second grade so the first graders in this research will be following along with this curriculum (*About*, 2021b). *Magnificent Marvelous Me!* follows the SEL standards of self-awareness, self-management, and social awareness. For this research, students' projects using the Art with Heart Curriculum focused on the self-awareness and self-management SEL standards. *Draw It Out* is created for students in grades third through fifth grade, so the fourth graders in this research followed the *Draw It Out* curriculum. The *Draw It Out* curriculum follows the SEL standards of self-awareness and self-management allowing students a creative place to explore their complex and confusing emotions (*About*, 2021b). *Ink About It* is written for

middle school aged kids in grades sixth through eighth grade following the SEL standards of self-awareness, self-management, and social awareness. For the purpose of this research, the projects that students in sixth grade completed focused on self-awareness and self-management SEL standards.

Neurographic Art

To understand neurographic art, first let's define neurographic or neurographica. Neurographica: “Neuro speaks about the brain and its many-neural connections. Neurographica combines human existence, hand plasticity, art, and meaning” (Psychology of Creativity Institute, 2021b). This method of art making was created by Russian psychologist Pavel Piskarev (*NeuroGraphicArt and Life*, n.d.). To create neurographic art, the artist needs to think of what is stressing them out or the negative emotions weighing them down to then draw a continuous line that overlaps across the surface of their paper, letting the negative or stressful emotions go as they draw. Next, the artist will soften or round out the edges of the organic shapes created by the overlapping lines so there are no sharp edges or connections. Lastly, the artist will use color to fill in the shapes. This drawing method directly connects our emotions and impressions in a thought-free way and through the process of rounding the corners of the overlapping black lines leads to the relaxation in the mind and release of tension in the body allowing for a change in perception (Smolyansky, 2021).

Mandalas

Mandalas are circular forms; in Sanskirt the word mandala means “sacred circle” and in Eastern cultures it is used for visual meditation (Malchiodi, 2007). Mandalas are found throughout history in all cultures and according to Carl Gustav Jung, mandalas have a calming and centering effect upon the maker or viewer (Slegelis, 1987). I have always thought of

mandalas as circular geometric designs and found them intimidating. Mandalas are simply a drawing in which artists create a design using a circular outline (Stinley, et al., 2015).

Art therapists utilize mandalas in therapeutic practice to provide focus, engagement, and relaxation; they also use them to address physiological and psychological components of the acute pain phenomenon (Stinley, et al., 2015). Mandalas have been used to help patients and art therapists to analyze their mandalas or artwork and pull out symbols that speak to why they are feeling emotions like depression, anxiety, or negative moods. Art therapist Carl Gustave Jung was known for employing the process of creating mandalas in his own therapy as well as his patients' therapy; he felt that the mandala or circular art form had a calming and centering effect on both the viewer and creator of the mandala. Jung considered the mandala to be an archetype of coming from the collective unconscious where he believed culturally inherited images and universal symbols resided (Slegelis, 1987). Maralynn Hagood Slegelis states about Jung, "He believed that the mandala was a pictorial statement to the psyche and a key to the process of individuation, a major concept in Jungian theory. To Jung, the mandala was a universal archetype – a visual symbol capable of being expressed by all people" (Slegelis, 1987, p.302). After creating six mandalas throughout a course I took in Fall 2021, I find this statement to be true. I did not believe that I was capable of creating a mandala, going back to my belief of mandalas only taking geometrical and radial designs, but I was able to create mandalas expressing myself and found common symbols or themes throughout all six.

Mandala drawings have also been used to help engage children with Attention-Deficit Disorder (ADD) or Attention-Deficit Hyperactivity Disorder (ADHD) as a centering exercise. A study that was completed by Valerie Smitheman-Brown and Robin P. Church found that over time, the mandala exercise they conducted helped individuals diagnosed with ADD or ADHD

decrease impulsive behaviors and increase attention abilities, allowed for better decision making, completion of task, and expression of growth and interest in personal aesthetics (Smitheman-Brown & Church, 1996).

Gaps or Missing Areas in Available Research

Parallels of improved academic performances, behavior and health improvement can be seen in students when they have any form of arts education programs in school. There is, however, a gap in currently available research in regards to SEL as most of the studies have been done in urban settings. This research hopes to show the importance of the arts in rural environments as well.

Chapter 3: Methodology

Introduction

The purpose of the study is to examine the impact a curriculum using SEL has on students who have experienced trauma or stress in reaction to the COVID-19 pandemic. To address this a mixed methods approach was used. This mixed methods research is divided into four case studies with projects aligning with the SEL standards. This chapter includes the research design and rationale.

Research Design and Rationale

This research was prompted by seeing the need for an SEL curriculum being implemented at a higher degree in my school after the last few years of a global pandemic that negatively impacted student learning. Studying art therapy and incorporating therapeutic techniques in the art education classroom prompted further research into SEL curriculums, specifically how they can be incorporated and implemented in the art education classroom. This led me to find curriculums such as *Art with Heart* and *DrawTogether* as a segue into introducing the new SEL art curriculum for first, fourth, and sixth grades.

This research was prompted by the following questions: How can the implementation of social emotional learning in the art education classroom help reduce stress? Will the implementation of SEL-based art activities in the art classroom help reduce student stress? And which SEL-based art activities impacted student stress levels the most per grade?

Participants

This research consisted of approximately 76 first, fourth, and sixth graders. All participants live in the rural town of Barrackville, West Virginia. Due to the covid repercussions, this is the first full school year these students have had full-time, in-person learning since schools

shut down in March 2020 and turned to virtual schooling. Overall, there is an increasing need for social and emotional learning seen in my school that reaches students from kindergarten through eighth grade. The grades in a higher need of these resources are first, fourth, and sixth grade, which were identified by the guidance counselor who would benefit the most. This research consists of implementing social and emotional curriculum into the current curriculum for first, fourth, and sixth graders. This research took place in the art classroom the students have been in all year with their current art teacher.

Data Collection Plan

The research took place over a four-week period of time where the students had class once or twice a week, over 7-8 class periods because of how the schedule works out. The first and fourth graders rotate through art, music, and library, creating a three day rotation of when they would be in art leading to being in the art room once or twice a week. The sixth graders schedule allows them to have art twice a week on the same day. This gave me the flexibility with planning to work around any interruptions in the class schedule that might arise, like state testing or assemblies.

This research project analyzes content found in literature and available data surrounding art education, the connection of therapeutic art techniques in the art education classroom, and incorporating social and emotional learning to reduce stress on students. The information collected through in-class observation, in-class discussions, and photographs of artwork represents the qualitative data of this research and is supported by the data found in the literature review section.

The participants were recruited from the current pool of students in my art classes. The group of participating students were selected with the assistance of the school's guidance

counselor for the focus of this study. Working closely with the school guidance counselor helped to narrow the focus of the research to better reach and assist students overall in the learning environment, not just in the art classroom. Through discussions with the school's guidance counselor, we discussed how the students in first, fourth, and sixth grade were struggling the most with coping and readjusting to the effects of the pandemic-related stress, specifically socially and emotionally which in turn was affecting their academics. This research used the *DrawTogether* 'inside weather' activity to help track how students are feeling at the beginning and the end of the research, along with informal questions asked during the case studies.

I introduced this research by first introducing students to an 'emotion thermometer' (Appendix A), where students could visually show by marking after each project in order to document how they feel before creating art and how they feel afterwards. I used this data to help see any correlation between students' emotions improving and art making. This research incorporated three case studies to gather data for the research on reducing stress, in students using SEL curriculum and SEL-based projects.

The first project students created to introduce the SEL curriculum and introduce the idea of visualizing emotions is a project from the *DrawTogether* (Appendix B). Students drew their 'Inside Weather' chart showing six different emotions as weather, giving them a way to visually describe a range of emotions that they might feel but have trouble expressing. This was a good guide for students to use when expressing or explaining how they feel. Next the *Art with Heart* curriculum to introduce SEL curriculum and art-based projects in the classroom was incorporated (Appendix C). Through both the journals provided by *Art with Heart*, as well as lessons in their curriculum, the students started connecting and using art making as a vehicle to communicate or express their emotions and as a way to process emotions and de-stress or let

their emotions go. This also facilitated their ability to process and de-stress, as sometimes even manage the emotions they experienced. The project and journal entries the students used and worked on focused on the SEL standards of self-awareness and self-management. After completing the project, the students completed an emotional thermometer to indicate their stress level after completing the artwork.

The third set of projects was neurotrophic art; students learned about the process of neurographic art, with the intent to release stress through creating and the process of creating (Appendix D). Students took a few seconds to use a sharpie marker to slowly draw large looping lines across the page that crossed over each other. Students then softened the lines, anywhere they overlapped so there were no corners, only curves that created organic shapes similar to circles or ovals. Then students took watercolors, choosing colors that brought them happiness or peace to color in the shapes. After completing the project, the students completed an emotional thermometer to indicate their stress level after completing the artwork.

The last group of projects were mandalas which students in first, fourth, and sixth grade completed (Appendix E). Students learned a brief history on mandalas and the different types of mandalas that can be created. Students were able to choose the materials they used, working inside a pre-drawn circle so all their mandalas were the same size. Students worked quietly, listening to relaxing instrumental music while creating their own unique mandala. In the ten to twenty minutes they had, students were prompted to listen, and let the process of creating to the music guide their mark making. They were encouraged to let go of their thoughts and give into the art making. First graders had the choice between markers, colored pencils, and crayons; fourth and sixth graders also had the choice to use sharpie markers or watercolors. After

completing the project, students completed an emotional thermometer to indicate their stress level after completing the artwork.

The data from this research is a combination of both qualitative and quantitative data based on the following methods of collecting data. I took photographs of the different projects and artwork collected throughout the research. I collected photographs of their inside weather, Art with Heart projects, neurographic art, and mandalas from each grade. I also gathered images of students' emotional thermometers and inside weather drawings that were used to assess students' feelings and emotions from beginning to the end of the research, and at the beginning and end of each group of projects. Students also partook in pre-test and post-test surveys, using the emotional thermometer tracker, to enable me to read and understand the stress of the students throughout the research.

Quantitative data came from individual student ratings from the emotional thermometer tracker (Appendix A). The students completed their first emotional thermometer to show their stress levels, giving a baseline data. After completing each week's art activity, students completed an additional stress thermometer worksheet. Once scores were collected from all grades over four weeks, a one-way ANOVA was run to determine if a significant difference exists between weeks 1-4. If the ANOVA showed significance (with 95% confidence level), a pairwise comparison was performed for all groups to analyze which groups are different from one another. These statistical analyses helped to pinpoint if student stress levels decreased over the four-week period.

Chapter 4: Data Analysis

Introduction

The background information for this research was gathered by researching Social and Emotional Learning (SEL) in schools, specifically in the art classroom. It was prompted by my experience over the last two years of noticing student stress while learning in a hybrid environment. The hybrid options for students were attending school part of the week and learning online the rest of the week, or learning online the whole school year, and then return to full in person learning. Through taking art therapy courses and incorporating my new found knowledge into the art education classroom, I was able to identify the students' need for the SEL curriculum to be incorporated into the existing art curriculum for first, fourth, and sixth grade students. The goal and purpose of this research is to implement the SEL curriculum in order to help reduce stress in students.

The following sections will analyze what I saw with the integration of the following SEL activities, Inside Weather, *Art with Heart*, neurographic art, and mandalas, into the current art education curriculum. The artwork produced by the students in the four case studies created the qualitative data, while the emotional thermometer created the quantitative data for all groups.

Participants and Site

The site where this research took place was in Barrackville, WV, where I am the sole art teacher to kindergarten through eighth grade. At the time the research was completed the school had a population of 463 students. The elementary students are broken up into three groups per grade and rotate between art, music, and library, with eight through fifteen students per period depending on the grade level. The middle school students who take art are separated differently: all fifth graders take art, and then in sixth, seventh, and eighth grade students choose their

classes. Art classes in middle school range from six to twenty-three students per class depending on the grade. The sixth graders who take art are divided into two classes depending on their specialist choices. As the art teacher, I have a total of thirty-five different classes that I am responsible to teach, teaching each class one to two times a week depending on the elementary rotation and the middle school schedule per semester.

After discussions with the school counselor, I identified three grades that would potentially benefit from having SEL curriculum incorporated into the current art curriculum. For this study, I focused on students in first, fourth, and sixth grade. The first and fourth grade classes ranged from 12 to 18 students, and there were six to ten students in sixth grade classes. Out of the 93 students that I see in first, fourth, and sixth grade, 76 students were able to participate in the study after receiving written parental consent. Only 76 students out of the 93 students in the three grades participated in the study. All students participated in the artmaking part of the activities and for the seventeen students who could not participate, artwork and emotional thermometer activities were not collected as part of the data for the study.

As mentioned above, participants of this study were given consent to participate from a parent or legal guardian. In order to protect the identities of the participants, students were given pseudonyms, and are referred to by those pseudonyms in this study. None of the photographs documented show any identifying characteristics.

This study took place in the art classroom located at Barrackville Elementary and Middle School. The classroom is set up with six groups of tables taking up the majority of the space in the classroom; the six groups of tables are separated by an aisle going from the door to the teacher's desk at the back of the classroom with three groups of tables on either side. Each table can fit four students comfortably, allowing for each student to have room to work and see the

whiteboard along one wall where the projector points. I used the projector to project presentations, videos, images, and demonstrations were projected by using a document camera. Supplies are stored along the outer three walls of the classroom on shelves, in file cabinets, bookcases, or cabinets. Students have access to the supplies for each project either from the supplies laid out on their desk, the shelves where supplies are stored that they can help themselves to, or from their art boxes they bring to each art class.

Procedures/data collection results

This research was divided into four different case studies throughout a four-week period, allowing for seven to eight class periods for each group to be able to complete the four case studies. For each first, fourth, and sixth grade class, the first case study was the *DrawTogether* lesson to introduce the students to different types of emotions and how you can use art to visually express emotions. The next case study involved using the *Art with Heart* curriculum and each lesson was chosen based on age-appropriateness. This curriculum used at least one or all SEL standards: self-awareness, self-regulation, or self-management. The *Art with Heart* lessons implemented were as follows: Feeling Grumpy (first grade), Salt, Paint, & Music (fourth grade), and Positive Future Prints (sixth grade). In the third case study, each grade learned about neurographic art and the idea behind this art process to help de-stress. In the fourth and final case study, all students learned about mandalas and the process for allowing meditation, relaxation, and the release of stress through the creation of a mandala.

This research is a mixed methods research study, having both qualitative and quantitative data. The qualitative data was taken from the artwork produced by the students during the four case studies, informal discussions, and questions between the student and myself. This was documented through photographs of the artwork and then field notes during the case studies; I

would jot notes down on sticky notes, on the computer or in my planner when possible. The quantitative data collected was taken from the emotional thermometer, which was the pre and post-test assessments. For the first data collection the students filled out the emotional thermometer before the artmaking process (Inside Weather activity) and then for the following three after the artmaking process.

Qualitative Data

Case Study 1: DrawTogether

For all first through sixth grade classes, I introduced a PowerPoint to explain the idea or concept of using art to show emotions visually. Through discussion, students looked at various artwork samples to describe what emotions they thought the artist was trying to convey. Eventually, I moved the dialog forward to explain how the students could use art to show their own emotions through imagery as well. I then played the *DrawTogether* 'Inside Weather' video created by Wendy Mac, who demonstrates how her use of weather images express different types of emotions she feels. Students followed along and created six different drawings of weather to show an assortment of emotions they may feel. Students used pencil or thin sharpie markers to draw out weather changes, and then used watercolor paint to paint and add color to their artwork.

Results The *DrawTogether* lesson showed students were able to connect different emotions to several types of weather. Students came up with the symbolism between different emotions and weather from class discussion and inspiration from the Inside Weather video by Wendy Mac. After discussing and viewing the students' artwork, it became apparent the different emotions shown on their "inside weather" charts reflected the following feelings: happiness, sadness, calm, anger, stress, fear, depression, excitement or being overwhelmed or "okay". For

the happier emotions, students used images of a big bright sun, sunset/sunrise, rainbow, and partly sunny to symbolize these emotions. For anger or fear, students used storm clouds, tornadoes, or hurricanes as symbols. Some students also used a tornado or hurricane to represent being overwhelmed or stressed, while some students used the wind to communicate that they felt "there is a lot going on". Rain was used to symbolize sadness for most students. For feeling "okay" or down, students used fog or just clouds to symbolize these emotions. Overall, most students were able to use weather as symbols to connect their emotions to visual images.

When looking at some first graders artwork, (Figure 1), some students were able to connect emotions with their drawings but when creating the visual, did not use the colors typically seen in the different weather. For example, in Student 2's artwork (Figure 1), they colored the rain purple, when typically, blue is used, and in their storm clouds they used the red when storm clouds are typically gray.

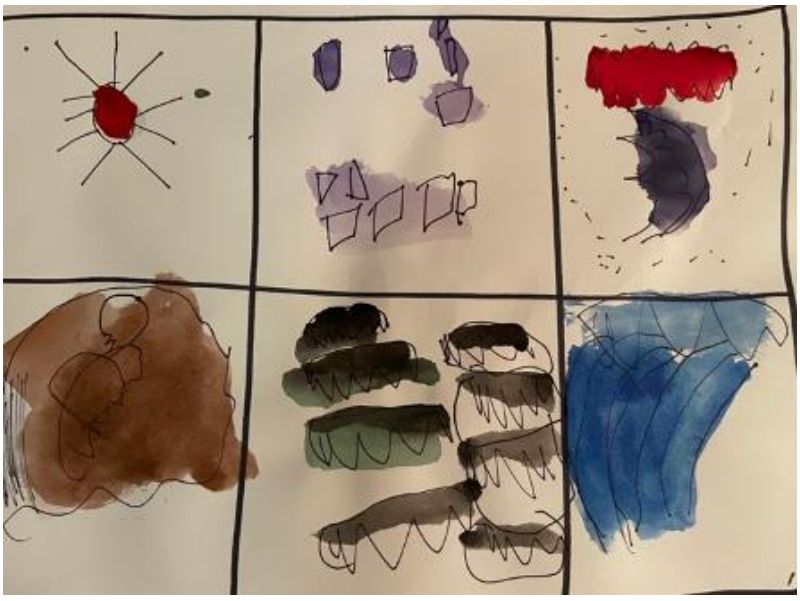


Figure 1: Student 2's Inside Weather

Some students even went ahead and labeled their images to connect the image to the emotion it represented for them. This can be seen in the following student's artwork below

(Figure 2 and Figure 3). Student 39 (Figure 2) is a fourth grader who also visualized more than the six emotions by adding two more drawings of emotions they feel. Student 12 (Figure 3) is a first grader's example of labeling their inside weather symbol with the connecting emotion.

Figure 2: Student 39's Inside Weather

Figure 3: Student 12's Inside Weather

While students in fourth grade and first grade used more of their imagination or were creative with their color choices, emotions, number of emotions to show, etc., the sixth-grade students kept to the guidelines and directions from the *DrawTogether* video. While the sixth graders kept following the steps exactly how it was said in the video, they showed more detail in the visualization of their weather, which can be seen in the student artwork below, Students 68 (Figure 4) and 67 (Figure 5).

Figure 4: Student 68's Inside Weather

Figure 5: Student 67's Inside Weather

Even though some first and fourth graders added their own personal touches to their artwork, the majority of students created their six weather drawings symbolizing emotions with natural colors, no labeling, and following the directions in the video. We can see that below in the fourth-grade students' artwork, Students 62 (Figure 6) and 35 (Figure 7), and in the first grade students' artwork, Students 1 (Figure 9) and 71(Figure 8).

Figure 6: Student 62's Inside Weather

Figure 7: Student 35's Inside Weather

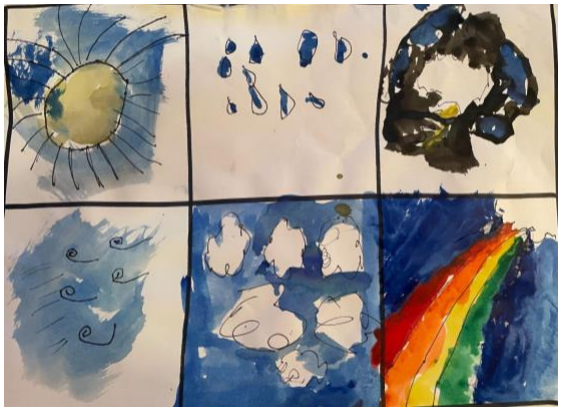


Figure 8: Student 71's Inside Weather

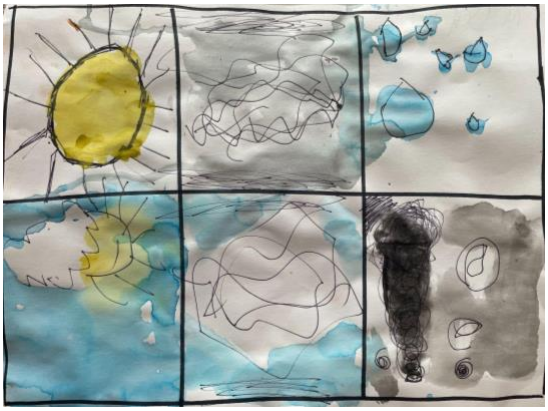


Figure 9: Student 1's Inside Weather

Case Study 2: Art with Heart Lessons

First graders created artwork based on the lesson for their age group from the Art *with Heart* curriculum called *Feeling Grumpy.* This lesson was selected because it addressed the SEL

competency of self-management. This was chosen as the focus for this lesson for this particular age group based on observation of students and discussions with the first grade teachers, along with the school counselor. We concluded students have struggled to express their emotions or understand their emotions this year based on an increased sense of neediness and a lack of normal social behaviors. To introduce the lesson, I introduced the idea of frustration to the students by comparing the emotion to how we feel overwhelmed when we have a lot of things we need to do and worry about it. I collaborated with the first-grade teachers to come up with the metaphor of describing it like having a “full plate of responsibilities”. I described how when our “plate" is full, we can easily get frustrated because it is overwhelming seeing all of the things we have to do and that this frustrated feeling is not a nice or fun way to feel. Through the discussion, students described different responsibilities they have such as feeding their pet animals, helping their parents clean up around the house, homework, extracurricular activities, and helping their parents with their younger siblings.

Students were then given the supplies for this lesson based on the supplies listed in the *Art with Heart* lesson, but modified to supplies available in the art classroom. In this case, white drawing paper and oil pastels were used. Students were instructed to take any color(s) of oil pastels they liked and begin scribbling all over the page. I demonstrated this step to allow for full understanding since a lot of students were shocked when told they could scribble. Once completed, students were told to put the oil pastels away in the cup and look up at the board to watch the next step. Students watched as I took my example and ripped it up, explaining that this was done to further allow us to let go of our frustrations and negative emotions. Afterwards, I passed out black construction paper and showed them how to layer the ripped pieces on the new

piece of paper, turning our frustration art into a collage. The next step involved adding in sequins, feathers, and other random items with glue for added decoration.

Results Having the metaphor of a "plate full of responsibilities" and relating that to feelings of being overwhelmed and frustrated when there's a lot going on seemed very successful for students to understand those feelings. The students seemed to enjoy being able to scribble and rip up their paper since this is so unusual for them. Students were excited and had grins as they scribbled and were able to go "crazy" with their coloring of scribbles. Students are typically encouraged to complete their work neatly and "color in the lines" in all school settings so this activity allowed them to enjoy having freedom not to have their mark making be expected to look a certain way at the end. When looking at each participant's artwork at the end of the case study, all students' work was successful. Especially when I looked at Student 15's artwork from this lesson (Figure 10 and Figure 11).

Figure 10: Student 15's Art with Heart

Figure 11: Student 15 Inside Weather, Mandala, Neurographic Art

This particular student seemed to struggle over the course of completing their artwork for all the case studies but with this case study, they were able to not only keep pace with their peers but finished the artwork as well. From looking at Student 15's artwork it can be seen that with completing the artwork for this case study, Feeling Grumpy *Art with Heart* Lesson, allowed students to let go of anything stressing them out, or worrying them. This was observed through informal discussions between the students and me. It allowed them to focus on just creating their artwork without the pressure of them thinking it should turn out a certain way. Below you can also see other examples of first grade student artwork from Student 28 and 20 (*Figure 12* and *Figure 13*). These students also added more details by gluing down embellishments like feathers and sequin gems. Students were given the choice to add the extra decorations, but it was not required.

Figure 12: Student 28's Art with Heart

Figure 13: Student 20's Art with Heart

Fourth graders created artwork based on the lesson for their age group from the *Art with Heart* curriculum called *Salt, Paint, & Music.* This lesson was chosen because it focuses on self-management and self-awareness SEL standards; these SEL standards were chosen by me to help the students let go of their tendency for any work to turn out "perfect" and this lesson lets the students "let go" and experiment with the materials. To begin, I opened with a discussion on how artists can show emotions in art based on the influence of things around them, and how it makes them feel, especially with music. The students looked at artwork by the artist Wassily Kandinsky (1866-1944), who is a well-known Der Blaue Reiter and Abstraction who created artwork based on music. The students were then told that they would be creating artwork inspired by music and their responses to the music by experimenting with uncommon supplies. Before turning on music and allowing students to begin, I demonstrated the different steps. The first step was for students to listen to music of different tempos to respond through mark making based on how the music made them feel. Having the students focus on responding to the music through their mark making allows them to forget about getting their work to look "perfect" or just like my example. Through observations, the students enjoyed the music and were excited to experiment with the materials based on the tempo to guide their lines. Once the music was started, they would use liquid glue to create lines or marks on their paper based on how they felt and responded to the music. Once they felt they had enough glue, the second step was for students to use the salt on the tables to sprinkle over the glue. Step three required the use of pipettes to drip liquid watercolors onto the page to see how the liquid reacted to the glue and salt. Lastly, students had the option to add glitter on top of the color, salt, and glue.

Results During this lesson, students were engaged in guessing the emotions that they thought were being expressed in the artist's examples. They were also able to express what

emotions might be behind the colors, or the mark making or lines. All students were excited to experiment with different materials in a fun "messy" way to create art while listening to music. Several students even expressed a desire to create art in a similar way again. The students were all engaged listening to the music and letting it guide their artwork. Students elected to use the materials in a variety of ways. Some students used a lot of glue and salt, others used a little bit of salt and glue, some used all of the colors of the liquid watercolors and others used just some drops of color on their artwork. In each artwork you can see movement and how the students let the music influence their work. All students were successful when creating this artwork and enjoyed experimenting with the choice materials. During the lesson, I observed students enjoying creating their artwork through experimenting, and listening to music based on their conversations together, their laughter, and their expressions. It allowed all students to be successful and proud of the artwork that they created. Viewing various outcomes of each artwork, along with student response to the stimuli of the music and the materials, coupled with their ability to make this project unique to themselves was interesting and rewarding.

Figure 14: Student 53's Art with Heart

Figure 15: Student 62's Art with Heart

Figure 16: Student 35's Art with Heart

Figure 17: Student 56's Art with Heart

Sixth graders created artwork based on the lesson for their age group from the *Art with Heart* curriculum called *Positive Future Prints,* which focused on SEL standards self-management and self-awareness. Students were first introduced to the artmaking process of printmaking, and the many techniques used to create a variety of prints with numerous materials. Next students engaged in a discussion of positivity, while naming positive activities or things they are looking forward to. I introduced how the students will take this positive future activity, idea, thought etc. that they are looking forward to and then use an image or symbol to depict this using the following materials: styrofoam, pencils, pens, washable markers, paper, water, and a paintbrush. I demonstrated the technique of taking a sketch, drawing it on styrofoam with pencil lightly, then twice again with a pen to make sure the image will show when printed. Next color/ink is added using the washable markers, and lastly pressing their print onto the damp paper to transfer the color onto their page. Afterwards, students worked on the steps listed above and created a series of prints first using just black marker, then exploring using a variety of colors. Through the process of printmaking, students worked through frustrations and trial and

error process while being encouraged to keep a positive mindset and keep trying again to see what went wrong to fix the problem.

Results Overall, the results of the *Positive Future Prints* show that the students were successful in creating the prints using just a black washable marker to first create monochromatic prints. After the students created and experimented with black, they were able to create prints using multiple colors. To be successful students were tasked with creating a clear print of their design. Through this process of printmaking the students were able to learn how each print comes out differently and are made aware that each print might be distinct depending on the amount of water used, pressure in printing the styrofoam, etc. As students practiced creating more prints, they were able to create clearer images and prints.

An example showing the process of trial and error is Student 66's (*Figure 18*) artwork in this case study. Throughout the process the student struggled to create a print that transferred enough of the ink onto the pages to allow the image to be clearly printed. When looking at Student 66's prints, you can see the progress of each print getting clearer and the student becoming more successful as she kept experimenting and creating more prints. In the first two attempts in black and first attempt in purple, we can see that the image is not clear, and the ink is not transferred all of the way. But in the last ones of both black and purple, we can see that both the image and transfer of the ink was more successful.

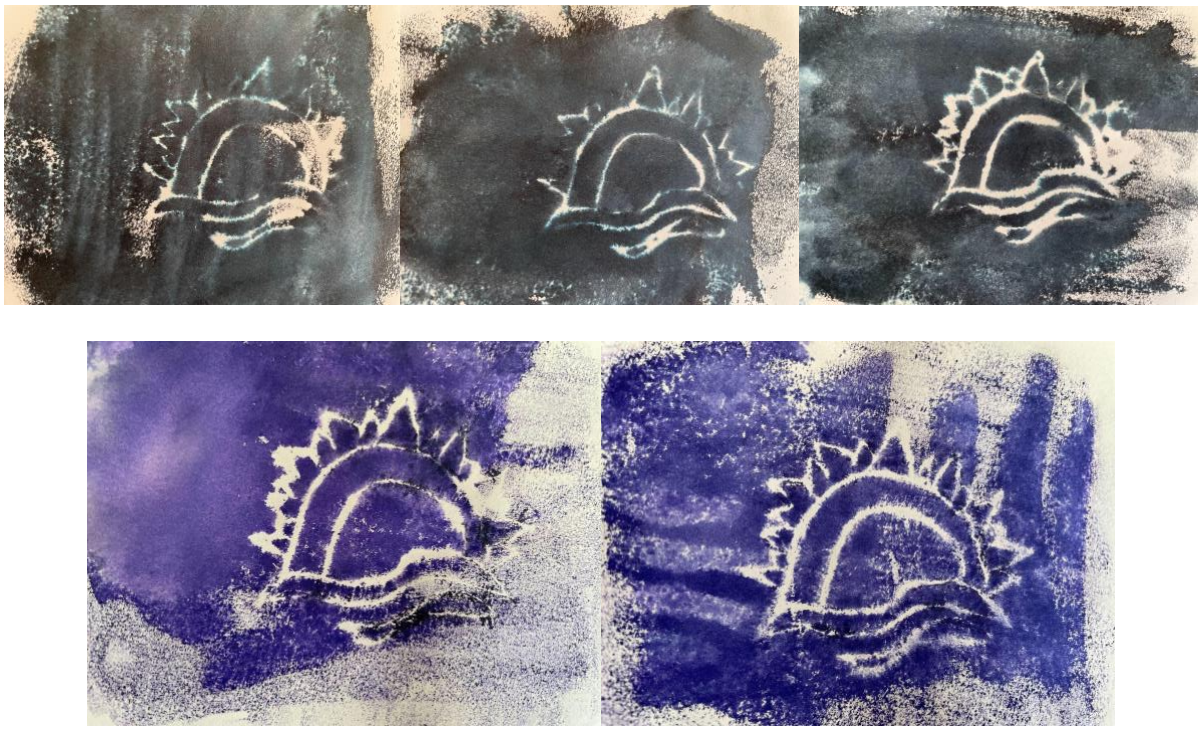


Figure 18: Student 66's Art with Heart

It can also be seen in Student 68's (*Figure 19*) artwork that there were a lot of trials and exploring with colors when creating their prints. Comparing the first two prints with the last two, it can be seen the student was experimenting to find the right balance between ink and water to create their prints. Eventually, they were able to find the right balance in their two bottom prints. It is interesting to see the comparison between all four of their prints and to be able to watch the students work through the process to create their artwork. While this student also struggled during the process to get their prints right, they ultimately were able to successfully create clear prints with the desired outcomes.

Figure 19: Student 68's Art with Heart

While both Students 66 and 68 expressed their struggle or frustration with creating their prints, it did not seem to affect their stress levels after completing their artwork. On the other hand, Students 41 (*Figure 25*), 44 (*Figure 24)*, 45 (*Figure 22*), 63 (*Figure 21*), 64 (*Figure 23*), and 67 (*Figure 20*) expressed having either some difficulty with creating their prints or showed their frustration through their stress levels (marked in their emotional thermometer).

Figure 20: Student 67's Art with Heart

Figure 21: Student 63's Art with Heart

Those students who expressed frustration through their emotional thermometer only showed slight increases or decreases in their stress levels after creating their artwork compared to the initial stress level. Students who struggled with this project were Students 67 (*Figure 20*), 45 (*Figure 22*), and 41(*Figure 25*).

Figure 22: Student 45's Art with Heart

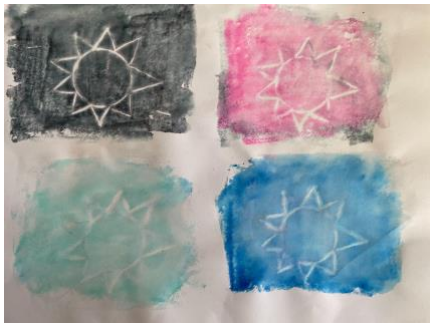


Figure 23: Student 64's Art with Heart

During this case study, these students expressed similar frustration with creating their prints, and in turn felt that this project was too stressful for them to complete. Students 63(*Figure 21*), 44 (*Figure 24),* and 64 (*Figure 23*) also marked higher levels of stress after creating their prints. These students' stress levels marked on their emotional thermometers went up by one point or half a point compared to their initial stress levels: Student 64 marked "high stress", Student 63 marked between "high stress" and "moderate stress", and Student 44 marked "moderate stress". Based on discussions with them during this case study, part of the reason for their elevated levels of stress was partly due to the project, but mostly because of outside stressors.

Figure 24: Student 44's Art with Heart

Figure 25: Student 41's Art with Heart

Case Study 3: Neurographic Art

For the third case study, all students in grades first, fourth and sixth learned about neurographic art through a brief PowerPoint discussion, step-by-step images, and a demonstration. The students learned how to take a negative emotion or worry (test or project, fight with a sibling) and learn to let go of those emotions as they draw the loops and lines for the neurographic process. Then they are encouraged to soften where the lines overlap or create an "X" to get rid of all of the sharp edges. The students completed these two steps with sharpie markers, after being prompted not to "scribble" or have too many lines. Students then had the choice to pick their medium: oil pastels, markers, watercolors, crayons, or colored pencils to color in the sections or spaces created by the black lines.

Results During this lesson, I found that the first graders had an easier time with the process when creating their artwork. When creating neurographic art, the step before adding color is to soften where the lines overlap and create an "X" to produce smooth transitions in the shapes. The first graders were able to soften the sharp intersections, they did not worry as much if it was not "perfect", and just allowed themselves to focus on the process. The first graders created more of a circular shape when softening the "X's", while the fourth and sixth graders tried to mimic the exact process I demonstrated. These students were focused more on how it would or should look, versus just trying and doing the best they could to create a successful neurographic art piece, students were to create looping lines across the page showing control, soften the "X's", and add color in their medium of choice. It was interesting seeing a difference in the grades, but at the end of the case study all students were successful and were able to focus overall on the process.

For this lesson the students could use an assortment of drawing materials and fourth and sixth graders also had the option to use watercolors. Student 71 (*Figure 26)* started to add color and saw an image of a dog emerge from their artwork and used that to influence how they finished their work. The looping lines at the top look like ears, two big eyes and the snout. This led the student to focus on adding color only to just the areas they saw the dog, leaving the background white to emphasize their discovery. It is amazing how this first grader was able to see and pick out a dog from this abstract artwork. Due to external factors (i-ready diagnostic tests, transition to second grade) Students 2, 28, and 29 marked "high stress" or "moderate stress" while the rest of the students marked "moderate stress" to "no stress", like Student 71.

Figure 26: Student 71's Neurographic Art

While some of the first graders, like Student 71 (*Figure 26*), were able to create images out of their neurographic art, the fourth and sixth graders embraced the abstract work they created during this process. Below are examples of some fourth grade work, Students 61 (*Figure 27*) and 35 (*Figure 28*). Overall, almost all of the fourth grade students chose "some stress" to "no stress" for this assignment except for one student, Student 61 (*Figure 27*). This student chose "moderate stress" because this student struggled with the process for this case study. This student

struggled with creating the looping lines initially and then struggled with softening the lines, which we can see in their artwork below.

Figure 27: Student 61's Neurographic Art

Figure 28: Student 35's Neurographic Art

Most fourth graders used either paint or colored pencils to create their artwork for this case study, which we can see in Student 35's example (*Figure 28*). The student added color using colored pencils and even tried creating value in the different shapes. Student's 55 (*Figure 29*) and 39 (*Figure 30*) are good examples of paint usage. These students showed good control over the paint by staying inside the black lines to keep colors from blending together and getting muddy. Other students had less control over the medium, they experienced issues of the colors from different shapes blending together and over the black lines.

Figure 29: Student 55's Neurographic Art

Figure 30: Student 39's Neurographic Art

The sixth graders who completed this lesson had the opportunity to use any drawing materials or use watercolor to add color and fill in the organic shapes of their neurographic artwork. Two students who marked higher stress levels for this case study were Students 44 (*Figure 31*) and 68 (*Figure 32*). While these students both marked "moderate stress level" on their emotional thermometer, these were the highest stress levels out of all of the sixth-grade students. When I engaged these students in a discussion about this during this case study, these students expressed that it was both from outside stressors and their struggle with this lesson itself. The rest of the students marked "little stress" or "no stress" when completing their emotional thermometer.

Figure 31: Student 44's Neurographic Art

Figure 32: Student 68's Neurographic Art

Case Study 4: *Mandala*

For case study four, students in first, fourth, and sixth grades were to create a mandala drawing. A mandala is a drawing inside a circular shape, traditionally it has radial symmetry and is created using different lines and geometric shapes to create the design. For this case study, I traced the same size circle on the paper with pencil for each student so that each circle was uniform. Before beginning the project, students seemed to be engaged in the presentation and participated in discussion about the history of mandalas. Part of the presentation involved

watching a video on the origin or traditional way to create mandalas. Students also were able to connect the mandala to nature, as it was explained to them that the mandala is a circle because it is seen as the most natural geometric shape seen on the planet. Students viewed examples of mandalas found all around us in our environments, as well as drawn images of mandalas for inspiration. I explained that the students can create a more traditional mandala using radial symmetry and shapes to create a pattern, or they can create any sort of asymmetrical or organic drawing inside. While creating their mandalas, I played instrumental music. From observations during the other case studies (*Art with Heart*) and previous classes, I saw students focused more when listening to students. For each class, the same instrumental music was played while students worked. The hope was also to create a calm and relaxing space for students to work on their mandalas. Students had the option to use any materials to complete their mandala: oil pastels, markers, watercolors, crayons, or colored pencils. The choice was up to the students, they were able to pick the materials they were most comfortable with using or wanted to experiment with.

Results When looking at the mandalas, most students decided to create non-symmetrical mandalas by letting their creativity show through and having fun working inside of the circle. Mandalas traditionally use radial symmetry, but for this study students were encouraged to focus on creating inside the circle. However, when comparing each grade level, many students who created a more traditional style mandala were found in first grade, followed by fourth grade, and then only two students in sixth grade. These students focused on using geometric shapes to create radial symmetry.

Figure 33: Student 1's Mandala

In the examples above we can see that these first grade students created their mandalas using radial symmetry. Each student used a circle in the center of their design and added other shapes and lines to create a radial pattern. These students in particular focused on shapes to create their radial design and then used color primarily to color in the shapes and spaces inside the circle. In Student 47's (*Figure 35*) example we see that the student focused on using color to draw and create their radial pattern instead of coloring in their shapes. While Student 1 (*Figure 33*), and Student 10 (*Figure 34*) used color to fill in their shapes inside their design.

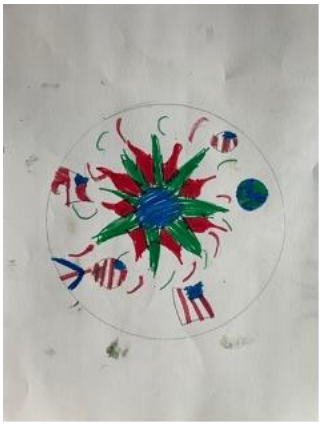


Figure 34: Student 10's Mandala

Figure 35: Student 47's Mandala

Figure 36: Student 20's Mandala

*Figure 37:*Student 22's Mandala

Then first grade students, Student 7 (*Figure 39*), Student 20 (*Figure 36*), Student 22 (*Figure 37*), and Student 23 (*Figure 38*), created radial symmetry in their mandalas but their designs focused more on creating a design using lines going around in a circle. Each of these mandalas have a circular form in the center of their mandala but these students used more lines to create their design. Student 20 (*Figure 36*) created a mandala using both lines and shapes combining the methods that students 7 (*Figure 39*), 20 (*Figure 36*), 22 (*Figure 37*), and 23 (*Figure 38*), 1 (*Figure 33*), and 10 (*Figure 34*) used.

Figure 38: Student 23's Mandala

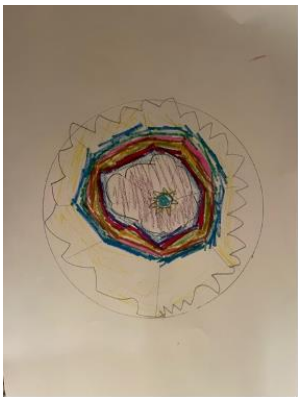


Figure 39: Student 7's Mandala

Figure 40: Student 39's Mandala

Figure 41: Student 74's Mandala

The fourth graders who created mandalas with radial symmetry can be seen in work by Student 31 (*Figure 48*), Student 33 (*Figure 42*), Student 39 (*Figure 40*), Student 57 (*Figure 44*), Student 59 (*Figure 45*), Student 73 (*Figure 46*), Student 74 (*Figure 41*) and Student 75's (*Figure 47*) artwork. Student 39's (*Figure 40*) artwork we can see they divided the circle into sections and then used lines and shapes to create a radial design. The student used a lot of circles and triangles to create their design. In Student 74's (*Figure 42*) they also divided their mandala into sections and used color to show the separation. This student also used circles and added organic shapes inside the circles to create a design. In Student 33's (*Figure 43*) artwork the student used a circle in the center of their mandala and then used lines to divide their circle into sections. Student 33 also used lines and color to fill in their sections of their mandala. In Student 57's (*Figure 44*) artwork the student used shapes to create a radial design and used color to create value in their shapes.

Figure 42: Student 33's Mandala

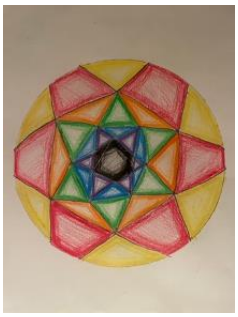


Figure 43: Student 57's Mandala

Figure 44: Student 59's Mandala

Figure 45: Student 73's Mandala

In Student 59 (*Figure 44*) the student used both shapes and colors to show their radial design, using a circle to have their design centered on. Student 73 (*Figure 45*) also used a circle to have lines radiate out from the center with heart shapes around the outer edge. Both Student 31 (*Figure 47*) and Student 75 (*Figure 46*) also used a circle in the center of their mandala to focus their pattern around. Student 31 (*Figure 47*) also used organic shapes and lines in their design along with triangles. Student 75 (*Figure 46*) used lines and shapes to create tehri design and it looks like the center circle is an eye that their design is centered around.

Figure 46: Student 75's Mandala

Figure 47: Student 31's Mandala

Student 70 (*Figure 48*) and Student 68 (*Figure 49*) were the only two sixth graders who created a mandala using radial symmetry. Student 70 (*Figure 48*) used organic shapes to create a radial design while Student 68 (*Figure 49*) used lines and color to create a radial design.

Figure 48: Student 70's Mandala

Figure 49: Student 68's Mandala

The rest of the sixth grade students created abstract mandalas, letting their creativity show. This can be seen in artwork created by Students 40 (*Figure 51*), 42 (*Figure 52*), and 43 (*Figure 50*). Student 42 (*Figure 52*) created an outer space scene showing part of a planet with a ring and some moons in the distance. Student 40 (*Figure 51*) created a neurographic mandala and Student 43 (*Figure 50*) created a mandala using colorful organic shapes and thick black lines overtop.

Figure 50: Student 43's Mandala

Figure 51: Student 40's Mandala

Figure 52: Student 42's Mandala

Figure 53: Student 37's Mandala

The majority of students across all grade levels chose to create their own mandala design using their creativity and a variety of materials. Some students chose to create more abstract mandalas, while others created drawings of outer space Student 42 (*Figure 52*), a baseball field Students 14, 71, and 72 (*Figure 54*), an underwater scene Student 37 (*Figure 53*), a donut Student 48 (*Figure 55*), and a soccer field Student 12 (*Figure 56*).

Figure 54: Student's 14, 71, and 72 baseball Mandalas

Figure 55: Student 48's Mandala *Figure 56:* Student 12's Mandala

For the students who created abstract mandalas, some focused on using lines and shapes like Students 40 (*Figure 51*) and 43 (*Figure 50*), creating designs with different objects filling up the space. Other students created a checkered looking pattern filling the full circle Student 9 (*Figure 57*) and Student 58 (*Figure 58*).

Figure 57: Student 9's Mandala *Figure 58:* Student 58's Mandala

Overall, most students created their mandalas using markers, crayons, or colored pencils. Some students used watercolors and oil pastels. I was surprised that more students used drawing materials versus using watercolors to paint. Typically, students are eager to use paint, but based on observation drawing materials do lend themselves better for creating mandalas because they allow students to have more control over the materials. While watching students create their

mandalas, I observed a sixth grader, Student 68, who experimented using watercolors but was struggling to create the mandala and kept starting over. Student 68 then tried using washable markers and water at one point, before trying one last time, using crayons. Below you will be able to see two of the three attempts Student 68 created before creating the mandala on the right as their final product. This student's chosen stress level after this case study reflects their frustration while creating the mandala. This student chose "some stress" as their stress level while the majority of the students in sixth grade chose "a little" to "no stress".

Figure 59: Student 68's attempt 2 and 3 for their Mandala

Quantitative Data:

The quantitative data for this research was collected using the emotional thermometer (Appendix A). The emotional thermometer allowed students to use visuals of smiley faces corresponding to a number to represent how stressed the students feel. This allowed the students to track their emotions, in particular stress levels, throughout the four different case studies. During case study 1: Inside weather was used to gather a base level to work from and will be used to compare the data. After the following three case studies students were asked to fill in the emotional stress thermometer based on how they feel after completing each artwork. When just looking at the responses of stress levels, all levels of stress were chosen for a baseline at least once in the baseline case study between all grade levels. When comparing the twenty eight first

graders who were able to participate in the study, the baseline stress levels were divided by the following: eight students chose five as their baseline stress level, four students chose four as their baseline stress level, one student chose three and a half as their baseline stress level, four students chose three as their baseline stress level, three students chose two and a half as their baseline stress level, four students chose two as their baseline stress level and seven students chose one as their baseline stress level. Of the thirty fourth graders who were able to participate in the study, six chose five as their baseline stress level, two students chose four and a half as their baseline stress level, two chose four as their baseline stress level, three students chose three and a half as their baseline stress level, nine chose three as their base stress level, five choose two as their baseline stress level and one student marked one as their baseline stress level. Out of the fourteen sixth grade students who were able to participate in the research, seven chose four as their baseline stress level, three chose three as their base stress level, one chose two and a half as their base stress level, one chose two as their baseline stress level and one student marked one as their baseline stress level.

When comparing the highest stress level of five on the emotional stress thermometer, there is a large drop from fourteen as a baseline stress level to four students choosing five in the last case study. And to compare the stress levels on the opposite side of the scale, eleven students chose one as the baseline stress level, and by the end of the study thirty-nine students chose one or less as their stress level at the end of the last case study. When comparing just the quantitative data there is a significant difference seen in the stress levels when looking at the emotional stress thermometer.

Looking at the data for all case studies, (including the baseline, in case study three when students created neurographic art) this is the only case study where no student chose five as their

stress level. And in case study two, only one student chose five as their stress level. When looking at the second two case studies, there can be seen a significant difference in the stress levels chosen compared to the baseline data, and there is a slight spike in stress levels during the last case study. This can be explained by the factors outside (tests, finale projects, responsibilities) the artmaking process itself and explained in informal discussions between student and teacher. The student expressed how they were worried about the i-ready diagnostic tests (an online program assessment test that is individualized for each student's levels in both math and reading) because they felt pressured to show their growth over the last few months of school.

Overall, after engaging students in informal discussions, most of the time students chose the number based on their stress level from outside factors which may account for an increase in students' stress levels throughout the different case studies. Tests, i-ready diagnostic tests, and final projects were some of the main causes for spikes in stress found in students across all grades when related to the school environment. Another cause for stress levels to increase throughout the study was seen when students struggled with one of the lessons or were dissatisfied with the outcome of their artwork. Factors outside the school environment such as helping parents with chores, sport practice and games were some of the factors that caused spikes in stress levels in the students. While some students marked a spike in stress level during case study two, three and four, those students explained that it was the outside factors that influenced their stress levels that day but indicated that the artmaking process did allow for some stress relief in most cases. Some students had trouble distinguishing between the stress or emotions they had experienced that day overall, compared to how they felt in the moment after creating art.

The primary reason behind this study was to promote stress reduction in students through creating artwork during the art making process. To do so, I first had to develop an understanding of art therapy in the art education classroom. This led me to research and further understand Social and Emotional Learning and how to implement SEL curriculum into the current art curriculum.

Quantitative Data Results

Quantitative Data was collected using the emotional stress thermometer, seen in Appendix A, to gauge students stress levels throughout the course of this study. The emotional stress thermometer was used to collect the pre- and post-survey data. The initial stress level was taken during the Inside Weather case study lesson. Students were engaged in a discussion about stress and how artists can use art to express their emotions, then they were asked to indicate how they felt overall that day by shading in the thermometer to the corresponding number and face that represented their stress level. The scale indicated on the thermometer was 0-5 with 0 indicating no stress, and 5 indicating high stress. For the remaining case studies each grade completed the lesson, and at the end of the lesson indicated their stress level and how they felt after completing the artwork.

For this study, ANOVA tests were used to analyze the data collected in the case studies completed by participating first, fourth, and sixth grade students. For an overall understanding of the data between the three grades, an ANOVA two-way factor without replication was used to determine the P-value signifies if the results match the hypothesis I created, or if the results match the null hypothesis. The ANOVA two-way factor without replication test was used for the overall comparison of data between the three grades because there was a variation in the number of students participating in the study per grade level. First grade had a total of 33 students

participating in the study, while fourth grade had a total of 29 students and sixth grade had a total of 15 students. The large variation of participating sixth grade students compared to the first and fourth grade students is due to the smaller sample size, which is based on the sixth grade students enrolled in art and therefore participate in the study.

I also ran an ANOVA two-way factor with replication test to analyze the data by grade level. The ANOVA two-way factor with replication test was run per grade level, because to use this type of test, the number of participants needs to be the same, allowing me to determine the effect of the case studies and SEL curriculum have on each different grade level. These tests seen in Appendix F-J compare the average stress level in each case study individually by grade. The three different results were then taken to compare in the graph shown Appendix F to analyze the stress levels of each different case study by grade.

After running the ANOVA two-way factor without replication, the graph indicates that there was a significant decrease in the overall stress levels in first, fourth, and sixth grade students who participated in this study (Appendix F). Over the course of the case studies, there is a drop in stress level overall from the initial case study, (inside weather) that was used to create baseline data. As seen in the graph, there is then an overall steady decrease in stress levels of the students resulting in the average, indicating less than a two for their level of stress indicated by the emotional stress thermometer. When analyzing the P-value, the ANOVA two-way factor without replication resulted in 2.473E-12 which is less than the specified significance level of 0.05, which was used in this test, when analyzing the data between case studies. The test resulted in P-value of 1.478E-6, which is also less than the specified significance level of 0.05 when analyzing the overall stress levels by student. These results, which are mirrored in the graph found in Appendix F, prove that the null hypothesis can be rejected, and the hypothesis that the

SEL curriculum-based case studies show an overall decrease in stress levels of the participating students.

Like with the overall results for each ANOVA two-way factor with replication we can see that the P-values are less than the specified significance level of 0.05 that was used when running the tests. The ANOVA test resulted in first grade with a P-value .027562359, fourth grade P-value of .000000687331, and sixth grade rounded to P-value of .003625. This is reflected in the decline seen in the line graphs in Appendixes G-I. When analyzing the graphs put together, (Appendix J) shows that in both fourth and sixth graders there is a more significant drop of stress seen in students overall, while first grade shows a steady decline in stress. In both fourth and sixth grade we see after the neurographic case study an average of the lowest stress levels and a spike after the mandala case study. Overall, fourth grade students on average showed the most significant drop in stress levels during the study with a significant drop from the initial case study between the second and third case studies.

An ANOVA with replication test was also performed using the statistical program SPSS to analyze the results from the baseline data taken during case study 1: Inside Weather with the other three case studies: *Art with Heart*, neurographic art, and mandala art. When the ANOVA test was run for Inside Weather case study and *Art with Heart*, the P-value was smaller than 0.05 showing a significant decrease from the baseline data to the data collected in case study 2. This can be viewed in the graphs and table in Appendix K. The table labeled *Pairwise Comparisons*(Appendix K) shows the P-values are less than .05.

In the tables and graph for analysis between the baseline data, Inside Weather, and case study Neurographic Art (Appendix L), it shows a significant decrease too with a P-value of less than 0.05. This test also showed a significant interaction between the grades, this means the

changes between the pre (Inside Weather) and post (neurographic art) measures varied by grade levels. For each grade level (first, fourth, and sixth) there is a significant decrease from the Inside Weather data to the neurographic art data collected. The significant difference is seen among first grade and fourth grade when comparing the initial stress levels to the stress levels collected in the neurographic art case study, the P-value is less than 0.05. When analyzing the graph (Appendix M) this means that the fourth graders, compared to the first graders, had significantly lower stress levels after the neurographic art case study. This is also the only analysis that shows a significant interaction between grades for each case study. When analyzing the mandala art case study to the initial case study, Inside Weather, it also shows a significant decrease in stress levels, with the P-value being smaller than 0.05 which can be seen in the *Pairwise Comparisons* (Appendix N) table for the ANOVA test.

Summary

After analyzing both the qualitative and quantitative data collected during the study, the data proves the benefits of implementing SEL into the art education classroom. The qualitative data proves, through informal discussions, that students overall find artmaking to help relieve stress. The quantitative data proves using the data taken from the emotional thermometers, that overall students' stress levels reduced from the initial data collection during the first case study Inside Weather compared to the following three case studies: *Art with Heart*, neurographic art, and mandalas. This is proven in the ANOVA tests, all of the P-values are less than 0.05, which is statistically significant.

Chapter 5: Discussion and Implications

Introduction

The primary motive for this mixed methods research was to highlight the importance of incorporating social and emotional learning into the art education classroom as well as the need for a shift in the arts education curriculum to be SEL based. To do so, I looked at the connection between both art therapy and art education to find lessons that best incorporate the SEL standards of self-management and self- awareness in the art classroom. Through the use of SEL curriculum and available lessons, I was able to develop four case studies based on my research, which spanned four weeks and observed students in first, fourth, and sixth grade. While this is not a new concept or practice (*Art with Heart*), it is new with the perspective of the COVID-19 pandemic, for art educators to implement SEL into their curriculum. This research highlights the need for SEL to be a larger focus more commonly used in the art education classroom. Qualitative and quantitative findings provide evidence that incorporating SEL into art curriculum helps to promote stress reduction in students. This study supports the findings in previous studies done, as seen in Mezner's (2015) work, that incorporating SEL into the classroom, particularly with the arts, helps students with emotional regulation. This study reinforced the importance of including SEL in art curriculums in order to help their students manage their stress levels with a healthy creative outlet.

Explanation of findings

After analyzing the results and looking at both the qualitative and quantitative data, there is a clear correlation between stress reduction and art making. When comparing the average results of the ANOVA tests from the initial to the last test taken after students finished the final case study, there was a clear decrease in the stress levels when analyzing the three grade levels as

a whole and looking at each grade separately (Appendix F-N). The first graders had a gradual decrease in stress levels, while the fourth and sixth graders saw a spike in stress levels during the third case study. Based on information gathered through discussions I had with the students, the students overall still felt a reduction in their stress levels after completing the art projects. However, the amount of stress that decreased depended on factors outside of the art classroom such as, other classes or stressors outside school.

After running the ANOVA two-way factor with replication and the ANOVA two-way factor without replication, the overall stress of students decreased from the first initial case study to the last case study. As previously discussed, the case studies that had the greatest impact on decreasing student's stress levels overall were the neurographic art and mandala activities. When looking at the number of students from each grade who picked a higher stress level, at least one first grader for each case study said they were experiencing high levels of stress. While overall the number of students who chose "high stress" decreased in first grade from the first case study to the last. It was unexpected that students as young as first grade were experiencing such high levels of stress. First grade's data showed a steady decline in stress levels overall from the first case study to the fourth, while both the fourth and sixth grade students showed a rise in stress levels during the last case study overall as grades. This result seemed to be due to their opportunity to complete late work for other subjects and diagnostic tests being given during the final week that the research took place. This was especially true for fourth graders. From the first case study to the third case study there was a steady decline in stress. In the first case study most, students choose between "high stress" and "some stress" and in the third case study most students marked between "no stress" and "some stress". Then during the last case study, some students marked "high stress", "moderate stress", and "some stress", enough to see a rise in

stress in this grade overall. Sixth grade selected “high stress” the least, which surprised me. Sixth grade students experience more stressors; however, most sixth grade students marked their stress levels as “moderate stress” or lower. The majority of sixth grade students marked a higher stress level during the first case study; seven out of fourteen sixth graders chose “moderate stress”. In the last two case studies, no sixth grader marked their stress above “some stress” on their emotional thermometer. This suggests these students are able to manage their stress levels and/or emotions better than the younger students.

Based on the existing research and literature [Mezner (2015), Rogers (2019), and Drake and Winner (2013)], the study findings support the previous findings of existing research. As seen through these case studies, students used SEL to understand their emotions, which corroborates with the findings Mezner (2015) found in their study that children were able to regulate their emotions when participating in an art activity; like drawing a house when talking about a negative memory allowed children to improve their mood compared to children who were instructed to draw the negative memory or copy another drawing. This corroborates with the findings in this study which exhibits that art allows students to regulate their emotions and creates positive outlet for students or children to work through negative emotions, like stress. As seen in the literature review, a lot of the existing research is based on SEL curriculum or practices being implemented in the general education or performing arts classroom. As Mezner (2015) states in their work, far more research focuses on music and dance, while little is written about the visual arts, the little amount of research written primarily focuses on early childhood development in children in preschool. In the existing literature there is a decrease in stress levels and positive results of the implementation of SEL in the classroom. This study further supports

the existing literature shows that as a whole, students positively benefit from SEL implementation and practices.

The questions for this research were the following: How can the implementation of social emotional learning (SEL) in the art education classroom help reduce stress? Will the implementation of SEL-based art activities in the art classroom help reduce student stress? In addition, which SEL-based art activities impact student stress levels the most per grade? After completing this research, I have found that through the implementation of an SEL art curriculum, that overall students were able to de-stress through art making. Through art making, students can express, explore, and let go of their emotions or stress. While the data shows that some students' stress did spike during the middle of the research, a lot of the spikes were from stressors outside the art classroom (sports, school, home responsibilities) and students still found that creating art helped them decompress even if they were still feeling some level of stress.

From looking at the data and through talking with students, it seems that most students found the last three case studies the most beneficial to relieving stress. The Art with Heart case study showed 19 out of 76 students experienced “some stress” to “high stress” levels with 47 out of 76 students expressing less than “some stress” to “no stress” when filling out the emotional thermometer. During the neurographic art case study, 20 out of 76 students marked “some stress” to “high stress” levels, while 56 students marked experiencing little to no stress. After the mandala case study 21 students marked “some stress” to “high stress” and 55 students marked little to no stress.

According to the data, the case study that showed the stress levels dropping the lowest, with much of the student population marking “little stress” to “no stress”, was the neurographic art case study. It is interesting to note that the neurographic art case study was the one where

many students found the most stress relief. I would have thought that the last case study, the mandala, would have resulted in the students finding the most stress relief because of my own personal artmaking experiences. I thought when I was coming up with the projects for the four different case studies that the mandalas would allow the students to de-stress the most, which was why I chose it to be the last case study. I personally have found that creating mandalas in my personal practice has allowed me to release stress and has been a relaxing process for me. I find it freeing and fun to create art inside the circle, and found it gives me a feeling of satisfaction. So, I believed that this would create the same effect for my students. I found that students' stress increased during the last case study because of end of the year projects and i-ready diagnostic tests. Also, I noticed that some students like Student 68 struggled to produce the vision they had for their mandala (Figure 50) or were not happy with the end results. While the two case studies are just off by one number, it is clear to see that as students focused on the art making, they found a decrease in stress overall through this case study.

This research demonstrates the interconnectivity between art therapy and art education. By implementing SEL practices into the art education classroom, it helps to assist students in crisis through art; art educators can prompt resilience and allow students to find healthy ways to work through the crisis (Kantawala, 2022). Through the SEL curriculum in the art education classroom there are multiple benefits for the students. One of these benefits is emotion regulation and positive social behaviors which can also be seen in Menzer's (2015) research. Within my own research emotional regulation and positive social behaviors were observed through conversations and data from the emotional thermometer showing their stress levels during each case study. Students expressed through informal discussions that they were able to relax or de-stress when they were creating art. Even if they were nervous or worried about a test or a project

they needed to finish, they found that when creating art, they could forget about those worries for the moment. Showing that through the process of artmaking, it can help improve students' mood, and help to create dialogue when talking about a stressful time (Drake and Winner 2013). Between the neurographic art and the mandala case study, this can be seen especially when there was a jump in stress levels (specifically the fourth graders). The fourth graders were finishing up end of the year projects and also completing their end of the year i-ready diagnostic test. Students expressed that creating art (the mandalas) helped, but they were still holding onto some stress during this case study. The qualitative data from this study revealed that there were multiple stressors for many students.

Discovery of Multiple Stressors

Outside stressors

When analyzing the data of the research it is apparent that most students' stressors come from outside the school environment. Most students, especially first grade students, saw stressors as coming from outside of school. Stress from their home life really affected their behavior and their academic performance in the school setting. With the stress that these students are under, there is a need for students to learn ways, like creating art, that can help them reduce stress and cope with the stressors they face. Some students face stressors from either sports practices or rehearsals. While these were positive physical activities for students to participate in, the demanding schedules of extracurriculars placed on students bring additional stress into their lives.

Students' stress was heightened during the COVID-19 pandemic, they had to adapt to new ways of learning and completing assignments. Just like everyone, their worlds turned upside down and it was hard for them to adjust and understand. The COVID-19 pandemic has caused an

increase in stress in America for all ages (American Psychological Association, 2022). My students were expressing their struggles academically; typically, straight A students were getting lower grades, yet students felt like they were completing so much more work. Finding it harder to learn in a virtual environment, students expressed their frustration with online learning and how it was affecting their grades. Students were feeling the pressure to perform at high levels, but with the uncertainty and unusual learning environment it was unnerving for students who thrive on routine and face to face social interactions. As seen in *Back to School*, this correlates with the short- and long-term effects of the school closures has had on students mental health (CDC, n.d.). Students also missed out on big social and emotional development because of the COVID-19 pandemic. A big part of students' education is learning how to coexist with peers in the classroom and work on the social skills of working together. Students not being able to interact with peers for months or over a year hurt their social and emotional growth. Yum's (2022), discussed how support for students' mental health has grown since the beginning of the pandemic, which corroborates with the struggles students are facing.

Stressors from school

It is a given that students are stressed with schoolwork, as seen during the last two case studies. After completing the research and reflecting on the information formally gathered through the emotional thermometers and informally through discussions with students, they are also stressed about their academic performance. While the stress from school for first grade students was not as apparent, it was seen in both fourth and sixth grade students. Students in fourth grade were stressed with end of the year diagnostic tests for reading and math, completing the final projects, tests, or making up work. The group of fourth grade students that participated in this research in particular were very concerned about their academic performance. Most of the

students in this grade worried about their grades and completing work. This was seen in several students towards the end of the study; students 37, 49, and 58 all had a spike in their stress level at the end of the study.

Stress of creating perfect art

Throughout the study, it was common to see students struggling with their attempts to make their artwork look "perfect" versus experiencing the process and being engaged. Prior to the research, I observed this through all grades, kindergarten through eighth grade. One example was when first grade students were working on a project showing the order of the color wheel; students were struggling with drawing different sized square or rectangular shapes. Students were worried about getting the shapes to be "perfect" or exactly like my example. This was also seen in the three different grade levels followed in this study, particularly during the *Art with Heart*, neurographic art, and mandala case studies. During the *Art with Heart* case study, some sixth grade students became frustrated during the process when their print wasn't successful the first time. As the students kept trying, their confidence and success grew as they figured out the process. Both fourth and sixth grade students struggled during the neurographic art project with softening the edges or the "X'" in their artwork. During the mandala case study, in particular Student 68 struggled with creating their mandala. Student 68 expressed that they wanted to experiment, but ultimately was not happy with the work they were producing. I believe that this student was struggling to come up with ideas, they thrived when working on projects with a set end goal or when having a reference picture to be inspired by.

Between the case studies, as seen with the neurographic art, fourth grade students struggled the most with trying to make their artwork look "perfect" and similar to examples in the demonstrations I created with them. The fourth graders wanted to make their softened "X's"

"perfect"; on the other hand, the first graders were able to focus on the process without stressing over how it should look. I observed the students focusing on their art making and trying to "perfect" the technique. I believe that this is in part due to the high standards the group of fourth graders hold themselves to and feeling pressure to produce a "perfect" artwork. While I encourage students to produce the best work possible that they can create, I do not expect them to create "perfect" artwork. As an educator during these case studies, I encourage students to practice and try different techniques during the art making process. As I have discussed before, the first graders struggled with wanting to create "perfect" artwork all year long. This group of students did embrace the idea of using art as an outlet and were able to focus on the process over the product by the end of this research.

End result of artwork

When analyzing the finished product from each student in the different case studies, the quality of the work or end product did not have a large impact on the student's stress level. As discussed in the section above, some students strived to produce "perfect" artwork for each case study or worried about getting their artwork to look exactly like my example for projects. Overall students were able to embrace the process of art making and let go of the stress of creating the "perfect" artwork and focused on the creative process and activity. Student 68 seemed to be the one student who struggled with the end result of their mandala, but when talking with this student, it was not necessarily about a struggle to create the "perfect" mandala; the student struggled to produce the mandala they wanted to create or envisioned in their mind.

An example of how the stress levels compared to the end results of artwork did not correlate with Student 15 (*Figure 60*). As we can see, the artwork produced by Student 15 (*Figure 60*) all but Case Study 2 (*Art with Heart*) feel or look unfinished. This student's inside

weather does not have any color at all and both the projects from the neurographic art and mandala case studies look unfinished. After talking with Student 15 and knowing their history of needing one-on-one assistance in my classroom and frequent reminders to work, the reason for most of his work looking unfinished came from a number of reasons: lack of motivation to complete work and being frequently absent. Prior to the study, Student 15 often did not finish class projects. This student often works slower than others, but also has a tendency to shut down when given redirection or when prompted to continue the project. Other times, Student 15, would be satisfied with partial completion of artwork.

Figure 60: Student 15's Artwork: Inside Weather, Art with Heat, Neurographic Art, Mandala

While some students over the three grades stressed about the end results of their artwork, during the case studies, it was not a stressor for all students. Overall, most students embraced the art activities during the case studies and the artmaking process. Even though some students stressed about the end results of their artwork, it did not affect their stress levels.

Limitations

A limitation to this research was the quantity of students. The number of participants created a limitation; the overall size of participants was small, having only 76 participants. Having a larger pool of participants could better demonstrate the effectiveness of SEL art curriculum. The research occurred in a small rural community, where all of the students came from a similar background. It would benefit the field to have similar studies completed on a larger scale in rural, urban, and suburban areas. This would allow researchers to compare and contrast the results to see how art making can help reduce stress in multiple settings. Differences of stressors in students in other parts of the country could change the effectiveness of the SEL curriculum, possibly having a greater impact on the participants.

This study observed only three grade levels of students, which is another limitation. Working with first, fourth and sixth graders allowed for a nice range between grade levels to show the impact between the elementary and middle school grade levels. It would be interesting to see the impact of incorporating SEL curriculum in the art classroom of upper middle schoolers and even high school students.

One challenge found in this study was students' inability to separate their overall stress (outside stressors) from how they felt during the artmaking process. When filling out their emotional thermometer, some students marked a stress level that reflected a stress level from their entire day instead of how they felt in that moment after creating art. This was mostly seen with the first graders, these students struggled to separate their emotions from prior to completing the artwork to afterwards. Some students said even though they marked a higher stress level that the process of creating art had helped lower their stress levels.

The duration of the study also poses another limitation. This research took place over the course of a four-week period. The research was only done over a short period of time following a small group of students. Having a longer time range could really highlight the positive effects of the SEL curriculum being implemented in the art education classroom. By having a longer time range it would have allowed for further SEL activities to be incorporated into the art curriculum to see more of the benefits of SEL within their behavior and academic performance throughout the school.

Recommendations for future research

For further research on the implementation of SEL in the art education classroom, it would be beneficial to see this research done with a wider variety of students in different grades. This research primarily focuses on students in elementary school with a small group of students from middle school. It would be beneficial to the art education field to see the impacts on upper middle and high school students. Similarly, extending the duration of the implementation of SEL art curriculum would allow for stronger findings of the benefits of SEL. A suggestion would be to dedicate a quarter, a semester, or even a whole year to implementing and observing the incorporation of SEL in the art education classroom.

When conducting this research, I worked full-time and was in grad school part time. This created a lot of stress while trying to manage my time between my job and graduate school. A recommendation would be for researchers to consider being a full-time graduate student to dedicate their full attention to their research.

For future research, another recommendation would be to take more detailed field notes. When collecting the qualitative data, I took brief field notes on information I knew I wanted to

remember. If I was to do this research again or similar research, I would make sure to take more detailed field notes to be able to recall more information when analyzing the data.

Conclusion

In this research I used a mixed method to collect both qualitative and quantitative data to see if there would be a reduction in stress in students in grades first, fourth, and sixth. The data was collected using an emotional thermometer (quantitative data) and the artwork and informal discussions (qualitative data) over four case studies. Following the virtual and hybrid schooling as a result of the COVID-19 pandemic, students are more stressed than prior to the pandemic and this research proves artmaking allows students to release stress. The ANOVA tests ran, support that the students' stress levels have lowered after artmaking. All the pValues from the several ANOVA tests were less than 0.05 showing statistically significant change in stress levels in this study. After analyzing the data of the 76 participants over the three grades, it shows that the need for a SEL in the art classroom is necessary.

Incorporating SEL into the art education curriculum is the most important finding from this research. Having an SEL curriculum incorporated in the art classrooms allows students in both elementary and middle school to help become self-aware and learn to self-manage their emotions. SEL in the art classroom gives students a safe place to learn what emotions they are feeling and to express their emotions. Art is a great way to allow students to express themselves and de-stress from the various stressors they experience throughout their day. Positive student outcomes and engagement is fostered through SEL centered art curriculum. Based on the findings in this study, art educators should shift from focusing on formal standards to an SEL centered curriculum, to help benefit the overall well-being of students.

References:

About. (2021b, September 16). Art with Heart. https://artwithheart.org/about-us/

Advancing Social and Emotional Learning. (2022, January 5). CASEL. https://casel.org/

American Psychological Association. (2022, March 10). *Stress in America: Money, inflation, war pile on to nation stuck in COVID-19 survival mode*. https://www.apa.org/news/press/releases/stress/2022/march-2022-survival-mode

Andres, L. (2006). Art education, art therapy and therapeutic teaching: definitions, distinctions and common ground. In B. Levett Gerber & Guay (Ed.), Reaching and teaching students with special needs through art (pp. 177-188). Reston, VA. National Art Education Association

Babouchkina, Anastasia, and Steven J. Robbins. "Reducing Negative Mood through Mandala Creation: A Randomized Controlled Trial." *Art Therapy*, vol. 32, no. 1, 2015, pp. 34–39., https://doi.org/10.1080/07421656.2015.994428.

Back to School 2021 | DASH | CDC. (n.d.). Retrieved October 31, 2022, from https://www.cdc.gov/healthyyouth/back-to-school/feature.htm

Brackett, Jeffrey M. "Mandalas, Meditation, and Mindful Mark-Making." 2016.

Creedon, D. W. (2011). Fight the Stress of Urban Education with the ARTS. *The Phi Delta Kappan*, *92*(6), 34–36. http://www.jstor.org/stable/25822811

Comer, J. P. (1989). Child Development and Education. *The Journal of Negro Education*, *58*(2), 125. https://doi.org/10.2307/2295587

Comer, J. P. (2005). Child and Adolescent Development: The Critical Missing Focus in School Reform. *Phi Delta Kappan*, *86*(10), 757–763. https://doi.org/10.1177/003172170508601008

Comer, J. (2019, July 15). *What I Learned in School: Reflections on Race, Child Development, and School Reform*. Yale School of Medicine. https://medicine.yale.edu/profile/james_comer/#:%7E:text=Dr.,School%20Development%20Program%20in%201968.

Data and Statistics on Children's Mental Health | CDC. (2022, June 3). Centers for Disease Control and Prevention. https://www.cdc.gov/childrensmentalhealth/data.html

Dobbs, S. M. (1992). *The DBAE handbook : an overview of discipline-based art education. Getty Center for Education in the Arts.Draw Together*. (2022, February 1). *Draw Together* -. https://drawtogether.studio/

Dr. James Comer's Biography. (2004, August 18). The HistoryMakers. https://www.thehistorymakers.org/biography/dr-james-comer-39

Efland, A. D. (1990). *A History of Art Education: Intellectual and Social Currents in Teaching the Visual Arts* (Reprint). Teachers College Press.

Historical Perspectives in Art Education. (n.d) [Infographic]. The Art of Education University. https://uploads.theartofeducation.edu/2015/06/Historical-Perspectives-in-Art-Education.pdf

Jones, S. M., & Doolittle, E. J. (2017). Social and Emotional Learning: Introducing the Issue. *The Future of Children*, *27*(1), 3–11. https://doi.org/10.1353/foc.2017.0000

Junge, M. B. (2016). History of art therapy. In D. E. Gussak & M. L. Rosal (Eds.), *The Wiley handbook of art therapy* (pp. 7–16). Wiley BlackwellKaimal, G., Ray, K., & Muniz, J. (2016). Reduction of Cortisol Levels and Participants' Responses Following Art Making. *Art Therapy*, *33*(2), 74–80. https://doi.org/10.1080/07421656.2016.1166832

Kantawala. (2022). Art Educators at the Quiet Center of the National Horror of America's School Shootings: A Plea for Social-Emotional Learning. *The Journal of the National Art Education Association*, *75*(5), 4–7.

Kramer, E. (1980). Art Therapy and Art Education: Overlapping Functions. *Art Education*, *33*(4), 16. https://doi.org/10.2307/3192418

Lisa Kay. (2020). *Therapeutic Approaches in Art Education*. Davis Publications, Inc.

Malchiodi, C. (2007). *Art Therapy Sourcebook*. McGraw Hill Professional.

Malchiodi, C. A. (1988). Creative Process/Therapeutic Process: Parallels and Interfaces. *Art Therapy*, *5*(2), 52–58. https://doi.org/10.1080/07421656.1988.10758841

McClure, B. M. (2020, July 29). Did You Know that SEL Emerged Because of A Black Man? The True History of SEL. Lessons For SEL. https://www.lessonsforsel.com/post/did-you-know-that-sel-emerged-because-of-a-black-man-the-true-history-of-sel

Menzer, M., (2015). *The Arts in Early Childhood: Social and Emotional Benefits of Arts Participation*. National Endowments for the Arts. https://www.arts.gov/sites/default/files/arts-in-early-childhood-dec2015-rev.pdf

National Art Education Association. (2016). *Learning in a Visual Age: the Critical Importance of Visual Arts Education*. https://www.arteducators.org/advocacy-policy/learning-in-a-visual-age

National Visual Arts Standards. (n.d.). National Art Education Association. https://www.arteducators.org/learn-tools/national-visual-arts-standards

National Art Education Association. (2021, January 22*).* National Art Education Association - Unofficial Informational Website. National Art Education Association | Unofficial Informational Website. https://www.naea-reston.org/

NeuroGraphicArt and Life. (n.d.). NeuroGraphicArt and Life. https://www.neurographicart.life/about

NPR Cookie Consent and Choices. (2022, January 7). NPR WNYC. https://choice.npr.org/index.html?origin=https://www.npr.org/sections/health-shots/2022/01/07/1070969456/kids-are-back-in-school-and-struggling-with-mental-health-issues

Our History. (2021, September 9). CASEL. https://casel.org/about-us/our-history/

Perkinson, H. J. (1991). Arthur Efland's "A History of Art Education." *The Journal of Aesthetic Education, Vol. 25*(No. 2), 38-40 (3 pages). https://www-jstor-org.wvu.idm.oclc.org/stable/pdf/3333071.pdf?refreqid=excelsior%3A618d322a8e2c1767dbcf5e8204b2ae81&ab_segments=&origin=&acceptTC=1

Psychology of Creativity Institute. (2021b, April 24). *The history of the birth and development of.* Neurographica. https://www.neurographica.us/post/the-history-of-the-birth-and-development-of-neurographica

Putting Kids First, U.S. House of Reps....(2021) (testimony of Arthur C. Evans, Jr.). https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Witness%20Testimony_Evans_OI_2021.09.22.pdf

Rogers, S. (2019) *Art Therapy and Art Education: A Conversation - A Critical Review of the Literature* (Publication No. 192) [Masters Thesis, Lesley University] https://digitalcommons.lesley.edu/expressive_theses/192

Slegelis, Maralynn Hagood. "A Study of Jung's Mandala and Its Relationship to Art Psychotherapy." *The Arts in Psychotherapy*, vol. 14, no. 4, 1987, pp. 301–311., https://doi.org/10.1016/0197-4556(87)90018-9.

Smitheman-Brown, Valerie, and Robin R Church. "Mandala Drawing: Facilitating Creative Growth in Children with Add or ADHD." *Art Therapy*, vol. 13, no. 4, 1996, pp. 252–260., https://doi.org/10.1080/07421656.1996.10759233.

Smolyansky, A. (2021). *About Nerographica and NeuroGraphic Art*. Nerographica and NeuroGraphic Art. https://www.neurographicart.life/about

Stinley, Nora E., et al. "Creating Mandalas for the Management of Acute Pain Symptoms in Pediatric Patients." *Art Therapy*, vol. 32, no. 2, 2015, pp. 46–53., https://doi.org/10.1080/07421656.2015.1028871.

The Framework. (n.d.). STUDIO THINKING. https://www.studiothinking.org/the-framework.html

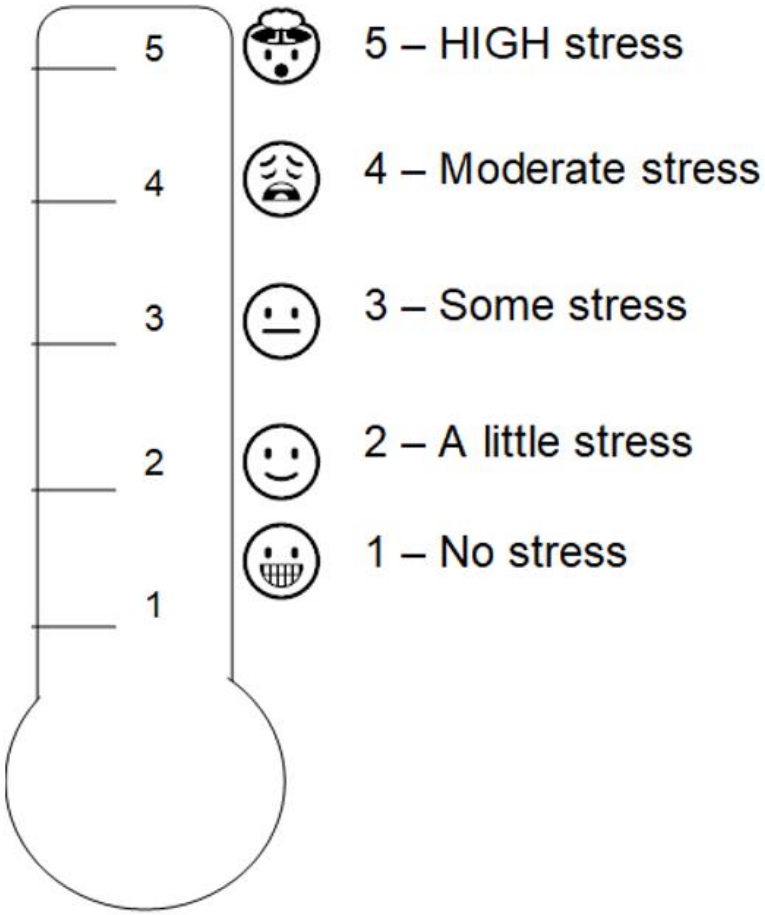
Van der Vennet, Renée, and Susan Serice. “Can Coloring Mandalas Reduce Anxiety? A Replication Study.” *Art Therapy*, vol. 29, no. 2, 2012, pp. 87–92., https://doi.org/10.1080/07421656.2012.680047.

Visual Thinking Strategies - Art Gallery - Grand Valley State University. (n.d.). https://www.gvsu.edu/artgallery/visual-thinking-strategies-152.htm

Weil, E. (2022b, February 3). *Wendy MacNaughton’s Drawing Lessons*. The Cut. https://www.thecut.com/2022/02/wendy-macnaughton-drawtogether.html

wendymac. (2021, March 12). *DrawTogether Inside Weather* [Video]. YouTube. https://www.youtube.com/watch?v=rWCcjpnzPBk

Yum, L. D. (2022, April 22). *Kids Are Back in School — and Struggling With Mental Health Issues*. CHC Resource Library. https://www.chconline.org/resourcelibrary/kids-are-back-in-school-and-struggling-with-mental-health-issues/


5
4
3
2
1
5 – HIGH stress
4 – Moderate stress
3 – Some stress
2 – A little stress
1 – No stress

Appendix A

WEEK 1: Inside Weather Activity

1st Grade:	
Instructions	Introduce the idea of stress to the students through a discussion about responsibilities, using it as a metaphor, and stress. Explain the Emotional Thermometer and how to fill it out. Introduce the project, Inside Weather, from the *DrawTogether* video.
Student Activities	Complete the first Emotional Thermometer based on their current stress level. Artmaking- create their own inside weather illustrating 6 different emotions/feelings using weather as a metaphor.
SEL-Focused Standard(s)	● Self-management ● Self-awareness
Assessment	*Formal*: Emotional Thermometer tracker *Informal*: Artwork and discussion
4th Grade:	
Instructions	Engage in discussion about stress and what situations or things bring them stress. Explain the Emotional Thermometer and how to fill it out. Introduce the project, Inside Weather, from the *DrawTogether* video.
Student Activities	Complete the first Emotional Thermometer based on their current stress level. Artmaking- create their own inside weather illustrating 6 different emotions/feelings using weather as a metaphor.
SEL-Focused Standard(s)	● Self-management ● Self-awareness
Assessment	*Formal*: Emotional Thermometer tracker *Informal*: Artwork and discussion
6th Grade:	
Instructions	Engage in discussion about stress and what situations or things bring them stress. Explain the Emotional Thermometer and how to fill it out. Introduce the project, Inside Weather, from the *DrawTogether* video.
Student Activities	Complete the first Emotional Thermometer based on their current stress level. Artmaking- create their own inside weather illustrating 6 different emotions/feelings using weather as a metaphor.
SEL-Focused Standard(s)	● Self-management ● Self-awareness
Assessment	*Formal*: Emotional Thermometer tracker *Informal* Artwork and discussion

Appendix B

WEEK 2: Art with Heart Activity

1st Grade:	
Instructions	Start class with *Art with Heart* Project and end with Emotional Thermometer activity
Student Activities	Students will scribble away their negative feelings- stress, sadness, anger, etc. on a white piece of paper. Afterwards students will take that paper and rip it apart. This shows them that these feelings don't last forever and is a metaphor for letting these feelings and emotions go. Students then take these pieces and collage onto a black piece of construction paper along with feathers and gems. Students will reflect on how they feel/ where their stress level is after creating their artwork by filling in their Emotional Thermometer.
SEL-Focused Standard(s)	• Self-management • Self-awareness • Responsible Decision making
Assessment	*Formal*: Emotional Thermometer tracker *Informal*: Artwork and discussion
4th Grade:	
Instructions	Start class with *Art with Heart* Project and end with Emotional Thermometer activity
Student Activities	After a discussion on using art and music to show emotions, students will react to the music and let it guide their artwork. Students will start by swirling glue on to their paper and experiment how the liquid watercolor reacts to the glue and glitter. Students will reflect on how they feel/ where their stress level is after creating their artwork by filling in their Emotional Thermometer.
SEL-Focused Standard(s)	• Self-management • Self-awareness
Assessment	*Formal*: Emotional Thermometer tracker *Informal*: Artwork and discussion
6th Grade:	
Instructions	Start class with *Art with Heart* Project and end with Emotional Thermometer activity
Student Activities	Students will create a sketch symbolizing positivity. Students will then transfer their sketch to styrofoam and carefully trace over their lines in the styrofoam to make sure the image will print. Next students will create black and white prints by coloring their styrofoam with black washable markers, take a paintbrush, dampen their paper, and press their styrofoam (inked side down) onto the paper and rub. When the styrofoam is lifted up, a print of their positive drawing will be left. Students will repeat this process to create more black and white prints and also colorful prints using colorful washable markers. Students will reflect on how they feel/ where their stress level is after creating their artwork by filling in their Emotional Thermometer.
SEL-Focused Standard(s)	• Self-management • Self-awareness
Assessment	*Formal*: Emotional Thermometer tracker *Informal:* Artwork and discussion

Appendix C

WEEK 3: Neurographic Art Activity

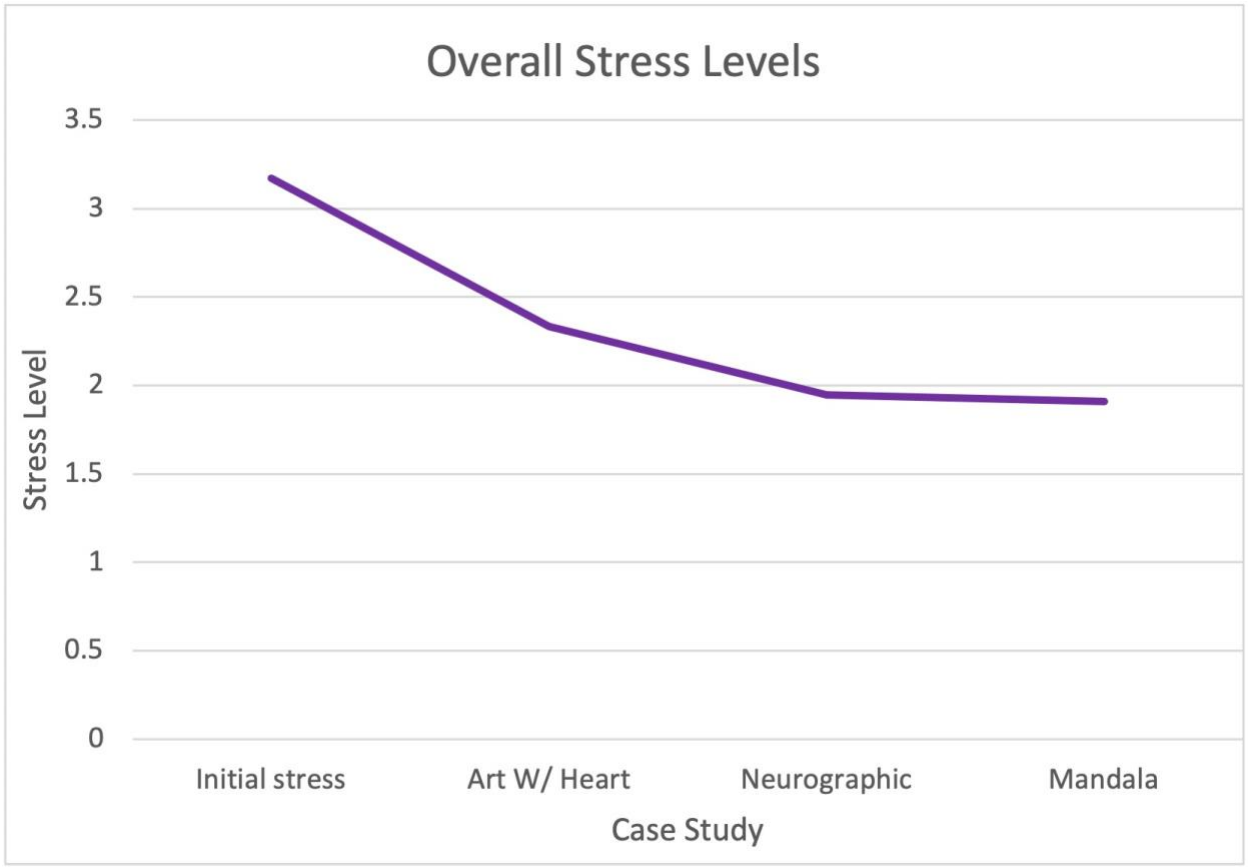
1st Grade:	
Instructions	Start class with a presentation discussion about neurographic art and the history and science behind the process. The teacher will give a demonstration and remind students to let anything troubling them go as they work through the neurographic art process.
Student Activities	Students will start with a sharpie and create a controlled scribble (overlapping lines looping around/across the whole page). Then students will 'soften' any 'X's' or anywhere lines cross using their sharpies. Then using the drawing material of their choice to fill in the different sections created by the looping lines. After, students will fill out their third Emotional Thermometer based on how they feel after creating neurographic art.
SEL-Focused Standard(s)	• Self-management • Self-awareness
Assessment	*Formal*: Emotional Thermometer tracker *Informal*: Artwork and discussion
4th Grade:	
Instructions	Start class with a presentation discussion about neurographic art and the history and science behind the process. The teacher will give a demonstration and remind students to let anything troubling them go as they work through the neurographic art process.
Student Activities	Students will start with a sharpie and create a controlled scribble (overlapping lines looping around/across the whole page). Then students will 'soften' any 'X's' or anywhere lines cross using their sharpies. Then using the drawing material of their choice to fill in the different sections created by the looping lines. After, students will fill out their third Emotional Thermometer based on how they feel after creating neurographic art.
SEL-Focused Standard(s)	• Self-management • Self-awareness
Assessment	*Formal*: Emotional Thermometer tracker *Informal*: Artwork and discussion
6th Grade:	
Instructions	Start class with a presentation discussion about Neurographic Art and the history and science behind the process. The teacher will give a demonstration and remind students to let anything troubling them go as they work through the neurographic art process.
Student Activities	Students will start with a sharpie and create a controlled scribble (overlapping lines looping around/across the whole page). Then students will 'soften' any 'X's' or anywhere lines cross using their sharpies. Then using the drawing material of their choice to fill in the different sections created by the looping lines. After, students will fill out their third Emotional Thermometer based on how they feel after creating neurographic art.
SEL-Focused Standard(s)	• Self-management • Self-awareness
Assessment	*Formal*: Emotional Thermometer tracker *Informal*: Artwork and discussion

Appendix D

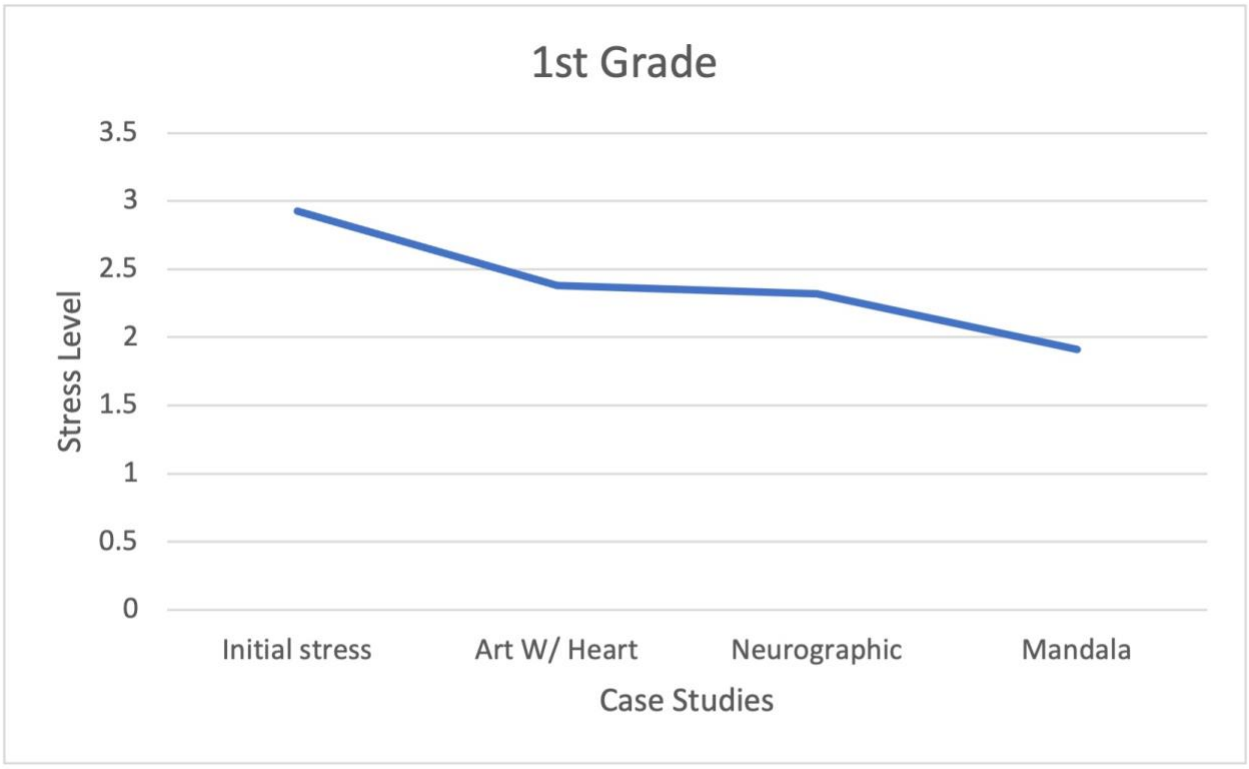
WEEK 4: Mandala Activity

1st Grade:	
Instructions	Start class with the introduction to the Mandala project. Students will be engaged in a presentation and discussion on the history of mandalas and the different ways they can design their mandala.
Student Activities	Students will create a design or drawing inside the pre-drawn circle. Students will choose their own drawing materials to create their mandala. After completing their mandala students will fill out their last Emotional Thermometer page.
SEL-Focused Standard(s)	● Self-management ● Self-awareness
Assessment	*Formal*: Emotional Thermometer tracker *Informal*: Artwork and discussion
4th Grade:	
Instructions	Start class with the introduction to the Mandala project. Students will be engaged in a presentation and discussion on the history of mandalas and the different ways they can design their mandala.
Student Activities	Students will create a design or drawing inside the pre-drawn circle. Students will choose their own drawing materials to create their mandala. After completing their mandala students will fill out their last Emotional Thermometer page.
SEL-Focused Standard(s)	● Self-management ● Self-awareness
Assessment	*Formal*: Emotional Thermometer tracker *Informal*: Artwork and discussion
6th Grade:	
Instructions	Start class with the introduction to the Mandala project. Students will be engaged in a presentation and discussion on the history of mandalas and the different ways they can design their mandala.
Student Activities	Students will create a design or drawing inside the pre-drawn circle. Students will choose their own drawing materials to create their mandala. After completing their mandala students will fill out their last Emotional Thermometer page.
SEL-Focused Standard(s)	● Self-management ● Self-awareness
Assessment	*Formal*: Emotional Thermometer tracker *Informal*: Artwork and discussion

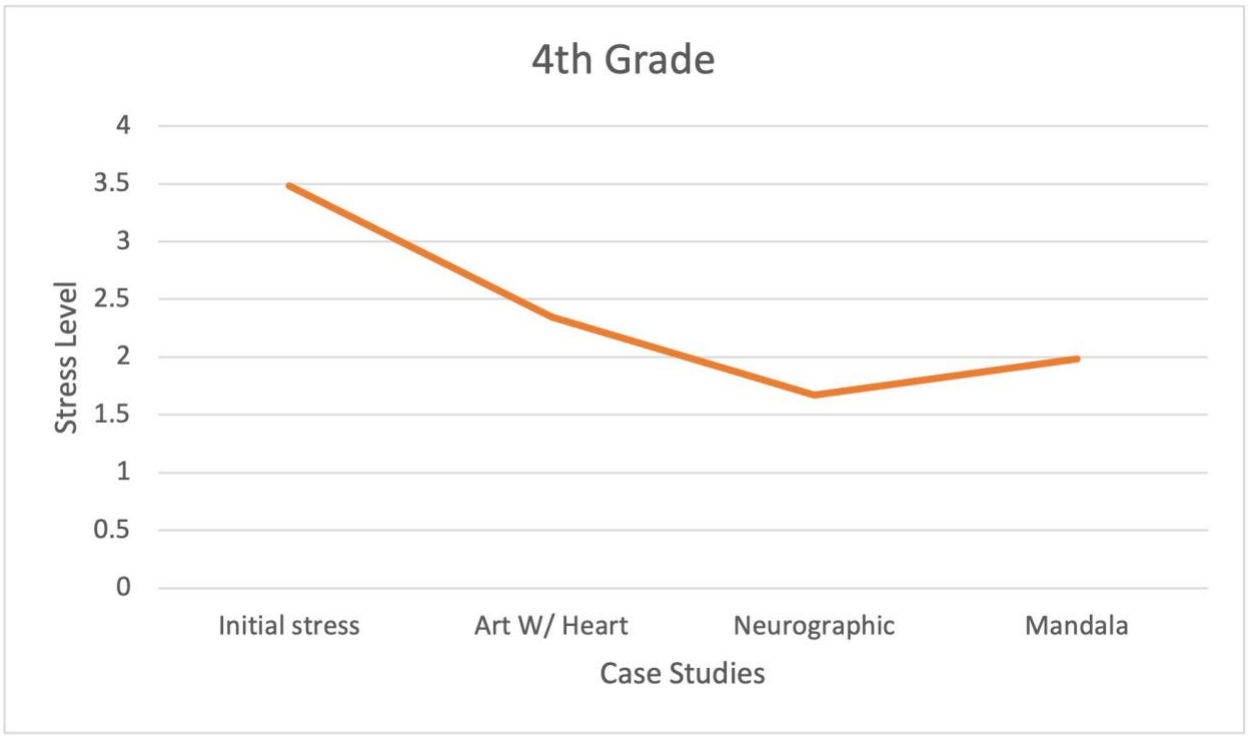
Appendix E


Overall Stress Levels
3.5
3
2.5
2
1.5
1
0.5
0
Stress Level
Initial stress
Art W/ Heart
Neurographic
Mandala
Case Study

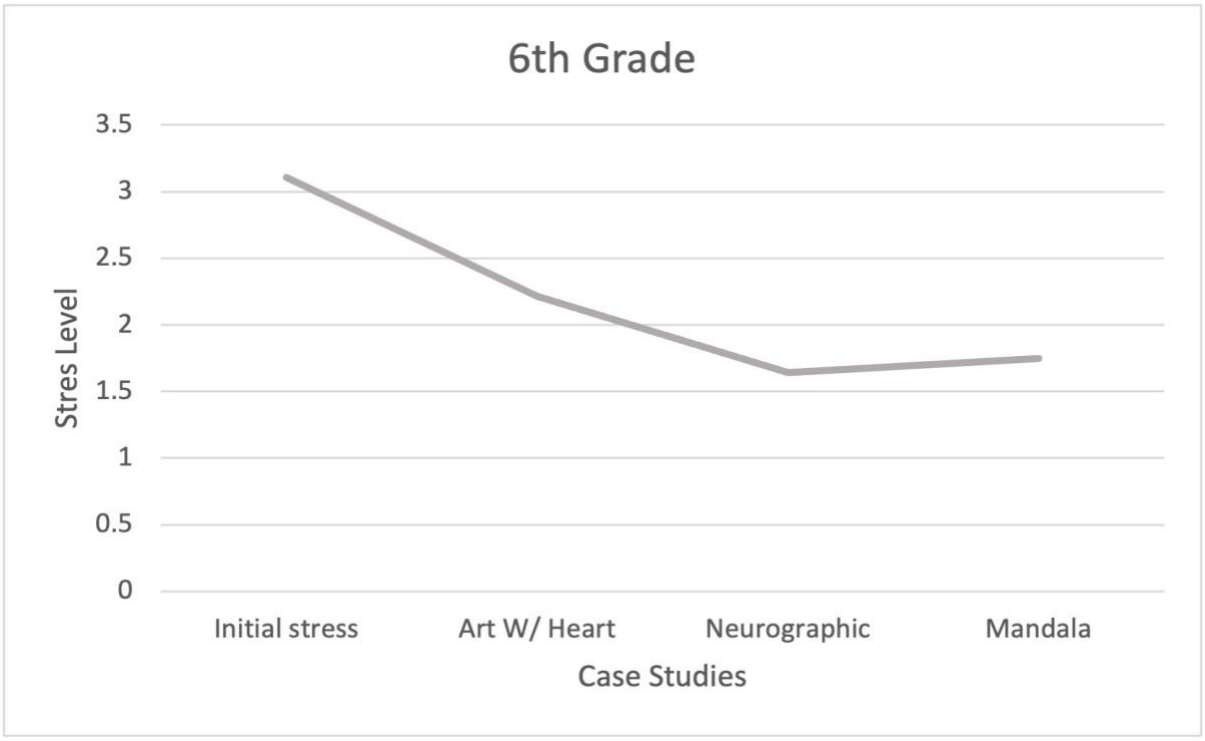
Appendix F



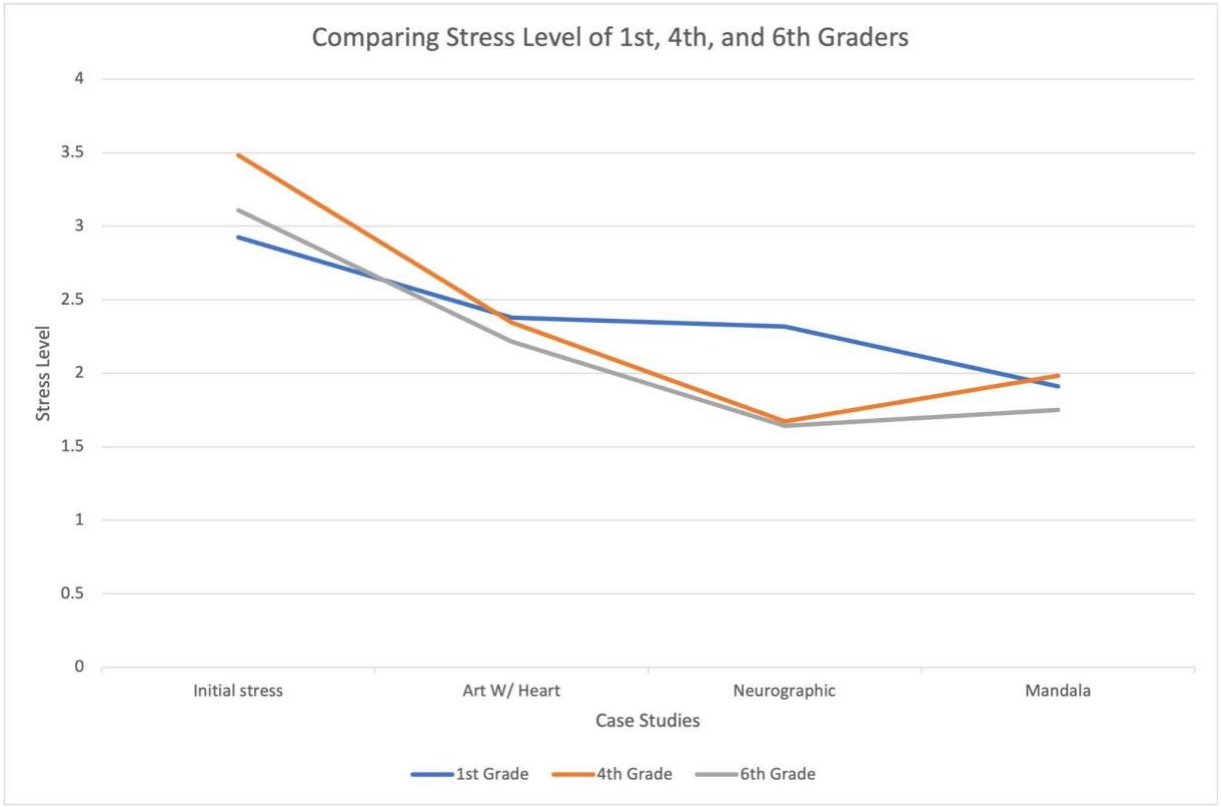
Appendix G



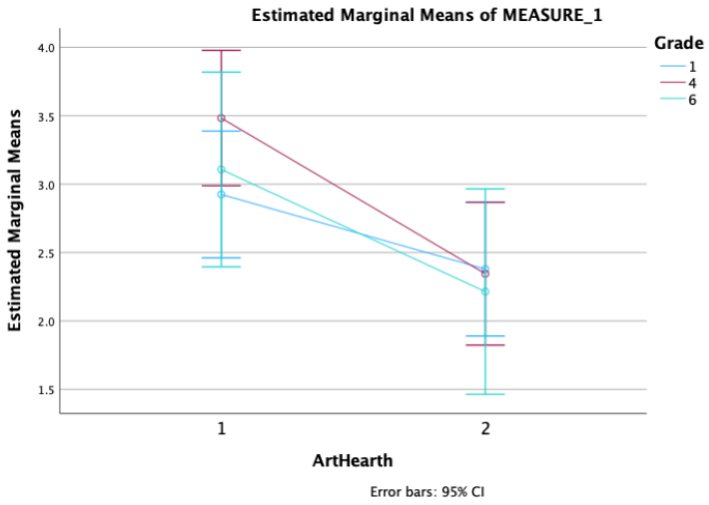
Appendix H



Appendix I



Appendix J



Estimates

Measure: MEASURE_1

Grade	ArtHearth	Mean	Std. Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
1	1	2.924	.233	2.461	3.388
	2	2.379	.245	1.890	2.868
4	1	3.483	.248	2.988	3.977
	2	2.345	.262	1.823	2.866
6	1	3.107	.357	2.395	3.819
	2	2.214	.377	1.464	2.965

Pairwise Comparisons

Measure: MEASURE_1

Grade	(I) ArtHearth	(J) ArtHearth	Mean Difference (I–J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	95% Confidence Interval for Difference[b] Upper Bound
1	1	2	.545*	.269	.046	.009	1.082
	2	1	-.545*	.269	.046	-1.082	-.009
4	1	2	1.138*	.287	<.001	.565	1.710
	2	1	-1.138*	.287	<.001	-1.710	-.565
6	1	2	.893*	.413	.034	.069	1.717
	2	1	-.893*	.413	.034	-1.717	-.069

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

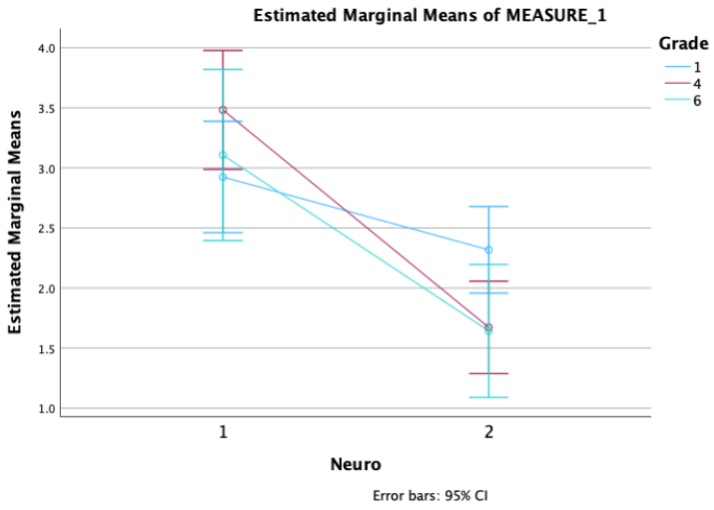
Grade		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
1	Pillai's trace	.053	4.102[a]	1.000	73.000	.046	.053	4.102	.515
	Wilks' lambda	.947	4.102[a]	1.000	73.000	.046	.053	4.102	.515
	Hotelling's trace	.056	4.102[a]	1.000	73.000	.046	.053	4.102	.515
	Roy's largest root	.056	4.102[a]	1.000	73.000	.046	.053	4.102	.515
4	Pillai's trace	.177	15.690[a]	1.000	73.000	<.001	.177	15.690	.974
	Wilks' lambda	.823	15.690[a]	1.000	73.000	<.001	.177	15.690	.974
	Hotelling's trace	.215	15.690[a]	1.000	73.000	<.001	.177	15.690	.974
	Roy's largest root	.215	15.690[a]	1.000	73.000	<.001	.177	15.690	.974
6	Pillai's trace	.060	4.663[a]	1.000	73.000	.034	.060	4.663	.568
	Wilks' lambda	.940	4.663[a]	1.000	73.000	.034	.060	4.663	.568
	Hotelling's trace	.064	4.663[a]	1.000	73.000	.034	.060	4.663	.568
	Roy's largest root	.064	4.663[a]	1.000	73.000	.034	.060	4.663	.568

Each F tests the multivariate simple effects of ArtHearth within each level combination of the other effects shown. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

b. Computed using alpha = .05

Appendix K



Estimates

Measure: MEASURE_1

Grade	Neuro	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1	1	2.924	.233	2.461	3.388
	2	2.318	.181	1.958	2.679
4	1	3.483	.248	2.988	3.977
	2	1.672	.193	1.288	2.057
6	1	3.107	.357	2.395	3.819
	2	1.643	.278	1.090	2.196

Pairwise Comparisons

Measure: MEASURE_1

Grade	(I) Neuro	(J) Neuro	Mean Difference (I–J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
						Lower Bound	Upper Bound
1	1	2	.606*	.267	.026	.074	1.138
	2	1	-.606*	.267	.026	-1.138	-.074
4	1	2	1.810*	.285	<.001	1.243	2.378
	2	1	-1.810*	.285	<.001	-2.378	-1.243
6	1	2	1.464*	.410	<.001	.647	2.281
	2	1	-1.464*	.410	<.001	-2.281	-.647

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

Grade		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
1	Pillai's trace	.066	5.150[a]	1.000	73.000	.026	.066	5.150	.610
	Wilks' lambda	.934	5.150[a]	1.000	73.000	.026	.066	5.150	.610
	Hotelling's trace	.071	5.150[a]	1.000	73.000	.026	.066	5.150	.610
	Roy's largest root	.071	5.150[a]	1.000	73.000	.026	.066	5.150	.610
4	Pillai's trace	.356	40.381[a]	1.000	73.000	<.001	.356	40.381	1.000
	Wilks' lambda	.644	40.381[a]	1.000	73.000	<.001	.356	40.381	1.000
	Hotelling's trace	.553	40.381[a]	1.000	73.000	<.001	.356	40.381	1.000
	Roy's largest root	.553	40.381[a]	1.000	73.000	<.001	.356	40.381	1.000
6	Pillai's trace	.149	12.754[a]	1.000	73.000	<.001	.149	12.754	.941
	Wilks' lambda	.851	12.754[a]	1.000	73.000	<.001	.149	12.754	.941
	Hotelling's trace	.175	12.754[a]	1.000	73.000	<.001	.149	12.754	.941
	Roy's largest root	.175	12.754[a]	1.000	73.000	<.001	.149	12.754	.941

Each F tests the multivariate simple effects of Neuro within each level combination of the other effects shown. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

Appendix L

4. Grade * Neuro

Estimates

Measure: MEASURE_1

Grade	Neuro	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1	1	2.924	.233	2.461	3.388
	2	2.318	.181	1.958	2.679
4	1	3.483	.248	2.988	3.977
	2	1.672	.193	1.288	2.057
6	1	3.107	.357	2.395	3.819
	2	1.643	.278	1.090	2.196

Pairwise Comparisons

Measure: MEASURE_1

Neuro	(I) Grade	(J) Grade	Mean Difference (I–J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
						Lower Bound	Upper Bound
1	1	4	-.559	.340	.31	92	.275
		6	-.183	.426	1.00	27	.862
	4	1	.559	.340	.315	-.275	1.392
		6	.376	.435	1.000	-.690	1.441
	6	1	.183	.426	1.000	-.862	1.227
		4	-.376	.435	1.000	-1.441	.690
2	1	4	.646	.264	.051	-.002	1.294
		6	.675	.331	.135	-.136	1.487
	4	1	-.646	.264	.051	-1.294	.002
		6	.030	.338	1.000	-.799	.858
	6	1	-.675	.331	.135	-1.487	.136
		4	-.030	.338	1.000	-.858	.799

Double-click to activate

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests

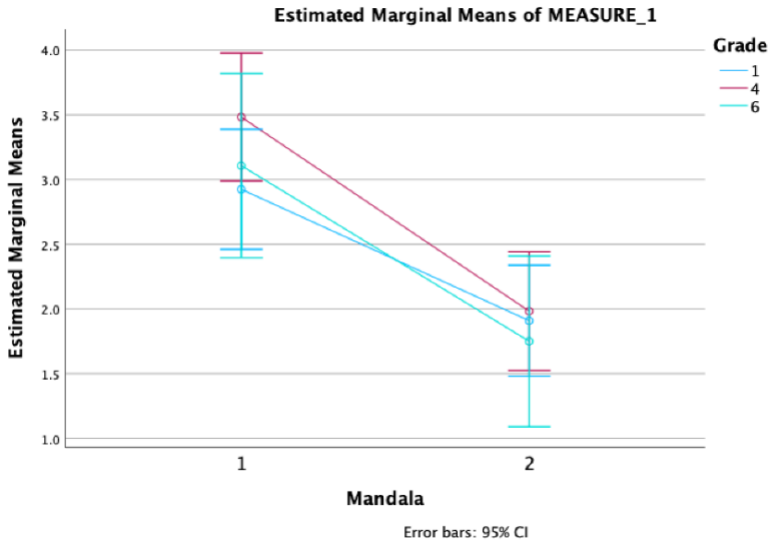
Measure: MEASURE_1

Neuro		Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
1	Contrast	4.885	2	2.443	1.367	.261	.036	2.735	.286
	Error	130.391	73	1.786					
2	Contrast	8.028	2	4.014	3.720	.029	.093	7.441	.665
	Error	78.761	73	1.079					

Each F tests the simple effects of Grade within each level combination of the other effects shown. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Computed using alpha = .05

Appendix M



4. Grade * Mandala

Estimates

Measure: MEASURE_1

Grade	Mandala	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1	1	2.924	.233	2.461	3.388
	2	1.909	.215	1.480	2.339
4	1	3.483	.248	2.988	3.977
	2	1.983	.230	1.525	2.441
6	1	3.107	.357	2.395	3.819
	2	1.750	.331	1.091	2.409

Pairwise Comparisons

Measure: MEASURE_1

Grade	(I) Mandala	(J) Mandala	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
						Lower Bound	Upper Bound
1	1	2	1.015*	.246	<.001	.525	1.505
	2	1	-1.015*	.246	<.001	-1.505	-.525
4	1	2	1.500*	.262	<.001	.978	2.022
	2	1	-1.500*	.262	<.001	-2.022	-.978
6	1	2	1.357*	.377	<.001	.605	2.109
	2	1	-1.357*	.377	<.001	-2.109	-.605

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

Grade		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
1	Pillai's trace	.189	17.067[a]	1.000	73.000	<.001	.189	17.067	.983
	Wilks' lambda	.811	17.067[a]	1.000	73.000	<.001	.189	17.067	.983
	Hotelling's trace	.234	17.067[a]	1.000	73.000	<.001	.189	17.067	.983
	Roy's largest root	.234	17.067[a]	1.000	73.000	<.001	.189	17.067	.983
4	Pillai's trace	.310	32.747[a]	1.000	73.000	<.001	.310	32.747	1.000
	Wilks' lambda	.690	32.747[a]	1.000	73.000	<.001	.310	32.747	1.000
	Hotelling's trace	.449	32.747[a]	1.000	73.000	<.001	.310	32.747	1.000
	Roy's largest root	.449	32.747[a]	1.000	73.000	<.001	.310	32.747	1.000
6	Pillai's trace	.151	12.941[a]	1.000	73.000	<.001	.151	12.941	.944
	Wilks' lambda	.849	12.941[a]	1.000	73.000	<.001	.151	12.941	.944
	Hotelling's trace	.177	12.941[a]	1.000	73.000	<.001	.151	12.941	.944
	Roy's largest root	.177	12.941[a]	1.000	73.000	<.001	.151	12.941	.944

Each F tests the multivariate simple effects of Mandala within each level combination of the other effects shown. These tests are based on

Appendix N