Building Self-Efficacy in Fifth Grade Art Students Through Authentic Assessments and Self-Regulating Strategies

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Abstract

This research explores solutions and challenges pertaining to a child's development of self-efficacy. After working with fifth grade students in a public education setting, Inoticed an increased reliance on teachers for both creative and procedural directions. This paper explores research of educators who examine the internal and external factors that influence the development of a child's self-efficacy. The study measures the development of self-efficacy over a two-month period, after a Studio Habits of Mind (Hetland, et al., 2013) Checklist and self-regulating strategies have been integrated into the curriculum. Data is collected through the use of pre-and post-metacognitive surveys, the Studio Habits of Mind (Hetland, et al., 2013) Checklist, observations, and post- interviews. The data collected from the pre- and post-metacognitive surveys is inconclusive. The other data collected through student written and verbal statements, conversations, and interviews demonstrates that by creating a classroom environment that incorporates the Studio Habits of Mind (Hetland, et al., 2013) students' self-efficacy can be improved. This study then outlines specific assessment and instructional strategies that can help teachers incorporate the Studio Habits of Mind (Hetland, et al., 2013) into any elementary art program.

Key Search terms: art education, self-efficacy, self-regulation, metacognition

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Chapter I: Introduction

Background to the Problem

Since the 1980's, most elementary art classrooms have been structured around the disciplines of art (Dorn, 2003.) In the disciplines-based art education model, one unit contains content about artists, vocabulary, and an art project that demonstrates technique, art history, and aesthetics. The art teacher spends a great deal of time considering the unit to ensure all students can successfully create the project. Students are assessed based on their ability to follow the directions of the project, time management, and technique. This model of teaching provides students with background knowledgeof how art has developedyet has not taught students how to make decisive, reflective, and artistic decisions. Students lack confidence to express opinions, take risks, or envision alternate solutions to visual problems. Instead, students rely on their teachers to provide answers to their questions and guide them to the next step in the process.

My early art education was formed under this model. As a student, my elementary and middle school art classes were exceptionally teacher driven. I relied on my instructors to give me the steps for completing my projects. Their feedback would then drive my artistic choices. Only in high school did I realize that I enjoyed art when given the independence to reflect on my successes and set goals for future projects.

Now that I am an adult, I do not have teachers directing my artistic creations. Without another's affirmation, I discovered the fear of making something badhas impacted my desire to make art. I get a drawing pad in front of me and I freeze up, or I overwork a piece of art because I cannot seem to make it good enough. My desire for

correctness and exactness has crippled my risk-taking and confidence. If I am in a studio class, I am dependent on my teacher's feedback to move forward. Instead of approaching art-making confidently, I find myself needing constant validation of artistic direction. Only when a professor recognizes my potential and encourages me to make choices, am I empowered to make. The teachers that evaluate my work based upon my personal goals and experimentation encourage me to continue to create.

Through my research, discovered how to help my students view themselves as confident art makers. By exploring varied instruction and assessment strategies, within a disciplines-based art education model, I redefined my student's understanding of success. I want to give other art teachers the tools I have found, to infuse their classroom environment with opportunities for students to gain confidence, use risk taking, and increase achievement.

Problem Statement and Research Questions

The topic area of this research explores the relationships between instructional strategies, authentic assessments, and self-efficacy in an art class for fifth graders. This topic introduces ways teachers can build self-efficacy in their students.

My claim is when art teachers use authentic assessments such as critiques, self-reflections, and studio checklists, they help build positive self-confidence in their students. These specific tools can be directly implemented into the curriculum to affect students' perceptions of ability. This perception will then motivate artistic exploration and risk taking. Albert Bandura [1993], a pioneer in self-efficacy in education research, emphasized that when teachers provide challenging, meaningful, and student driven

experiences, students formulate confidence that is exhibited in risk-taking, goal-setting and problem-solving (Bandura, 1993.) By implementing authentic assessments in the art classroom, students are given a range of strategies and mindful thinking activities to evaluate their progress and confidently make artistic decisions. This mindful thinking strengthens their self-efficacy.

During the literature review, I explored two major veins of research: art assessment and the development of student self-efficacy. The field of K-12 art assessment has a detailed body of research concerning development, quality, and implementation alongside a variety of different curriculums. Throughout this study, I referred to authentic assessments as "the ability to use relevant knowledge, skills and processes for solving open-ended problems during meaningful tasks" (Dorn 2003, p. 77). I also explored *Studio Habits of Mind* by Lois Hetland, Ellen Winner, Shirley Veenema and Kimberly Sheridan (2013.) This framework for thinking helps students develop problem- solving strategies that are specialized for art-making while teaching the values of the contemporary art trends. These thinking patterns help students make transferable learning connections between projects while helping them define their strengths and weaknesses. By defining their strengths and weakness, students will be able to appropriately analyze their learning and set goals for future learning. These self-regulatory skills will help students develop strong self-efficacy.

I have noticed there is very little research exploring the integration of authentic assessments in the elementary art classroom; and more specifically to a child's artistic self-efficacy. While conducting research on a child's development of self-efficacy, I

noticed the art classroom is rarely discussed. This study will bridge the gap between these two fields.

I acknowledge this topic is complicated due to the many variables that contribute to a child's self-efficacy. A child's self-efficacy is formed through a number of external factors including parents, teachers, and peers (Bandura, 1986). As a teacher, I recognize I cannot control the influence from outside sources, such as peer relationships, parental opinions, and cultural influences. What I can do is encourage thinking that will help students gain confidence in their art-making. These habits of mind will help students create a lens of self-efficacy through which to question the external comments they receive about their artwork. Through this lens, they will be able to discern what comments are helpful to their development versus what are simply critical.

For the implementation of my study, six elementary art classrooms were used located in two separate schools. I first surveyed the students' general education teachers and asked them to consider their student's level of self-efficacy and how assessment is used for student self-reflection in their classrooms. As stated earlier, the inclusion of self-reflection is an essential component to facilitating student self-efficacy. I then collected approximately 140 student perspectives of their own self-efficacy using pre- and post-surveys. At the conclusion of the study, some students were randomly chosen to complete video interviews.

I met with approximately 75 of the students and introduce the *Studio Habits of Mind checklist* (Hetland, et al., 2013). This checklist outlines the ways artists process and consider an artwork's success. First, I modeled how to use the *Studio Habits of Mind* (Hetland, et al., 2013) checklist and discussed examples of each studio habit before using

a variety of formative assessments to ensure the students' understanding of the checklist. Next, they were asked to utilize this checklist as a reference to reflect on their own projects. Students were provided a copy of the checklist. At the end of each fifty-minute class, students were asked to record a studio habit they developed and set a goal for the next class. The projects were presented from a discipline-based art curriculum. At another elementary school, the other 75 students created the projects with the same curricular objectives without the use of the *Studio Habits of Mind* checklist (Hetland, et al., 2013). All of the results from the pre- and post- metacognition surveys from both groups of students were compared. The analysis of this comparison indicated whether a fifth grader's artistic self-efficacy can be strengthened by a teacher integrating authentic assessments and self-regulating strategies into the classroom.

I recognize the need for this research within my elementary art classroom. At times, the most creative and innovative students are also the ones that are the least confident. Often when students approach art-making, they are so focused on precision that they become resistant to risk-taking. They are so intent on following the directions that they rarely embrace divergent thinking. I question if they have experienced an art education that emphasizes a value in following directions over creative thinking and problem solving. Alternatively, I have students who put forth minimal effort. These students confess they believe they "are not good at art." I wonder if this type of thinking is crippling their desire to take risks and become invested in the work. By performing this study, I was able to provide teachers with the tools to help students become confident art makers.

Knowing the above, I ask the following research question:

Given that students with a strong self-efficacy are more engaged in the process of learning (Bandura 1993) and are more likely to demonstrate self-regulation strategies, (Zimmerman, 2003) in what ways might instructional and assessment strategies impact the self-efficacy of students as they create and analyze personal artworks?

Theoretical Framework

I intended on understanding how a child's self-efficacy is formulated and what internal and external stimuli influence such development. Through literature, I began this investigation by first examining specific techniques researchers suggest for building self-efficacy within the classroom. The effect of integrating self-reflection and self-regulating strategies into a classroom environment was examined because I was interested in discovering if students are able to concretely establish their academic and social self-efficacy through these approaches. I then began to research art educators who integrated these same self-efficacy building strategies into their classroom culture. So far, I have found only one study examining the growth of self-efficacy within an art class. Veronica Hicks (2010) explored how art making can improve the self-efficacy of adolescents with special needs. Few of the studies I found specifically focus on self-efficacy, but instead are interested in building self-regulating and self-reflection skills in students. The studies outline the importance of these skills to a student's ability to evaluate the success of their artwork. This train of thought led me to research the development of art assessments. I noted much of the education research pointed out that a teacher's feedback directly influenced a child's ability to regulate and assess learning. The literature was examined

for examples of authentic assessments which evaluate technical skill as well as cognitive reflections.

Next, I planned to research curricula and assessment models that integrated techniques proven to strengthen self-efficacy. The model I was most interested in was Louis Hetland, Ellen Winner, et. al. (2013) model which incorporates a few of the cognitive practices other researchers had found to build self-efficacy. The curriculum model teaches artistic dispositions, self-reflection, and self-regulating strategies that I believed could help art students build a stronger sense of self-efficacy.

Significance of Study

The purpose of my study was to explore the effects of self-regulated learning strategies and authentic assessment techniques on a student's self-efficacy in the fifth grade art room. This was explored through reflections of thought processes recorded on the *Studio Habits of Mind* checklists (Hetland, et al. 2013) to be completed by students.

This research is valuable to art teachers who are interested in building confidence, achievement, and risk-taking within their students. By promoting self-regulating strategies, students will be equipped with mindful tools to better face challenges and take risks independently instead of heavily relying on teachers for the next step. Teachers will then be able to effectively teach goal-setting and reflection techniques through proven instruction techniques, such as direct instruction, modeling, and practice. Additionally, teachers will be equipped with assessment strategies that are authentic measures of progress as well as product. After reflecting on the process and products of their projects, a strong student self-efficacy will be formed.

After this study, students became more self-aware of their artistic abilities and learning needs. The *Studio Habits of Mind* (Hetland, et al., 2013) checklist helped provide a student-centered environment that several studies have found to produce confident art makers.

Limitations of the Study

My study contains specific limitations to make it a successful study. First off, to limit my study to a constant, I solely focused on fifth graders in my school district. The fifth grade year is a time in which many students are discovering the balance between ability and effort. Each group of fifth graders had art 3 fifty-minute sessions within 12 school days. This is believed to be adequate time to integrate new self-regulating strategies and self-assessment tools while maintaining the curriculum.

The curriculum is another limitation to my study. My school district has a standards based discipline based art curriculum which all the elementary schools must implement. This is a positive limitation because it provided a control group for my study. The students from both elementary schools experienced the same unit, including the same learning objectives and similar project outcomes. Yet, the other elementary school in the school district participated in the study without implementing Studio Habits of Mind (Hetland, et al., 2013) checklist and self-regulating strategies. Students from both schools completed the pre- and post- metacognitive surveys where data then revealed the impact of the study.

I triangulated my data to ensure that a range of diverse student perspectives was considered. There is a possibility that there will be other angles that I did not include due

to human error. Because of this, I demonstrated flexibility while collecting data to ensure that I was as inclusive as possible. I waited to determine what self-regulating strategies to introduce based on the findings of the metacognitive surveys, ultimately allowing me to best respond to my students' needs and ensure that I was integrating proactive strategies. I also referred to studies of similar topics to ensure the rubrics and assessments that I made are accessible, appropriate, and accurate. As I analyzed the data, I was conscious of the influences that may impact my results.

There are also a few limitations that I needed to be aware of that could affect the study. The quality of the methods I used to teach self-regulating strategies could have directly affected my study. My confidence in my literature research and personal experience as an art teacher, ensured I used proven teaching strategies, such as visuals of the self-regulating strategies, and examples of each strategy. If one of the self-regulating strategies was not understood I retaught the material in a manner that was accessible to all students. Vocabulary from the *Studio Habits of Mind* (Hetland, et al., 2013) checklist were defined and demonstrated. The study's methods were adapted throughout to respond student needs.

Finally, I have personal connections to my students, so I was limited in my ability to be completely impartial. If I was not careful this could have directly affected my interpretation of the research.

Definition of Terms

agency. A child's beliefs about their ability to control their actions within environments. (Bandura, 1986, Zimmerman,1990)

authentic assessments. Authentic assessments are "performance based and include real-life decisions and behaviors of professionals in a discipline." They are tools that "focuses on the ability to use relevant knowledge, skills and processes for solving open-ended problems during meaningful tasks" (Dorn 2003).

criteria. "Represents the standards to which performances and artifacts will be judged. They create the central focus of the assessment and provide boundaries or limitations of the assessment" (Dorn, 2003).

metacognition. “Thinking about thinking or knowledge related to self-appraisal and self-regulation of one’s thinking and actions” (As sited in Bland, 2005: Paris & Ayers, 1994/ 1999).

self-efficacy. "A person's beliefs about their capabilities to exercise control over their own level of functioning and over events that affect their lives" (Bandura 1986)

self-regulating skills. The ability of a person "to seek out information when needed and take the necessary steps to master it" (Zimmerman, 1990).

Assumptions to Be Debated

- Given that elementary students are reluctant to take risks in art-making and it is assumed that students have the ability to improve their level of risk-taking, the impact assessments have on a child's development will be debated because of evidence that students who take risks exhibit a strong self-efficacy.

-Given that a child's self-efficacy can be affected by art teachers' informal and formal assessment, and it is assumed this happens due to the child's exposure to many external inputs that inform self-efficacy, the criteria teachers use will be debated by its authenticity in both the art curriculum and field.

-Given that assessments used by art teachers are diverse and it is assumed that selections of assessment tools used to evaluate learning is made for a variety of reasons, the issue of what is an authentic assessment for a Discipline Based Art program will be debated because of the variety of opinions from teachers, students, and artists.

-Given that elementary students develop a sense of agency over time, is is assumed that all students will develop an understanding of self, but the rate of development for fifth graders will be debated because as it is not clear how a transition to adolescence influences self-efficacy and self-regulation for every child.

Assumptions Not to Be Debated

-Given that a child's development of self is impacted by factors inside and outside the classroom, and it is assumed these factors affect a child's choices in the art room, the affect of such factors will not be debated because of the inability to identify all external influences for every child.

-Given that children learn differently and it is assumed that when teachers integrate a wide variety of activities that target specific learning styles more students retain and transfer knowledge, it will not be debated that the teacher will consider learning styles as she teaches strategies of self-regulation and implements the *Studio Habits of Mind* (Hetland, et al., 2013) checklist.

-Given that student driven art projects provide opportunities for students to problem solve, it is assumed that students will develop a strong self-efficacy through the process, therefore it will not be debated that a choice-based education model helps to build self-efficacy.

Summary/ Roadmap of Chapters

The first chapter outlined the importance of this study. Assumptions to be and not to be were presented. The second chapter will outline a review of literature that helped develop the methods of this study. Within the second chapter self-efficacy will be defined, I will outline external and internal factors that affect the development of self-efficacy, and I will examine curriculum models which incorporate specific techniques outlined in other research sources. In the third chapter, I will outline my methodology. Describing the procedures of my study that will explore a possible answer to my research question. I will use pre- and post- surveys along with checklists to teach students self-regulating strategies they can use to direct their learning. Through my procedures, my study will reveal if self-efficacy is improved through self-regulation instruction and *Studio Habits of Mind* (Hetland, et al., 2013) checklists. The fourth chapter will outline the data collected from the study along with the findings. Lastly, the fifth chapter will conclude the study with future considerations for further research.

Chapter II: Review of Literature

Introduction

The literature review for my study will begin by exploring the background of self-efficacy. Ideas from theorists like Albert Bandura (1983, 1999), Barry Zimmerman (1990), and Dale Schunk (1990), will be presented due to their experience in the field. The literature review will introduce the developmental changes in a child's perspective of social and academic self-efficacy. I will examine how teachers influence student self-efficacy, what researchers have studied self-efficacy in the art classroom, and will then demonstrate how assessment and teacher feedback can influence self-efficacy. Finally, I will investigate one curriculum framework, which integrates techniques to boost self-efficacy, introduced by researchers in both the general and art education fields. By performing this research, I will be taking Ron Hargrove's (2011) advice:

> "Design educators should ask themselves how effective current design education is at developing students with strong creative thinking abilities, and how this potential connection between creativity and metacognition can translate into an educational model that will encourage a disposition for creative thinking." (p. 9)

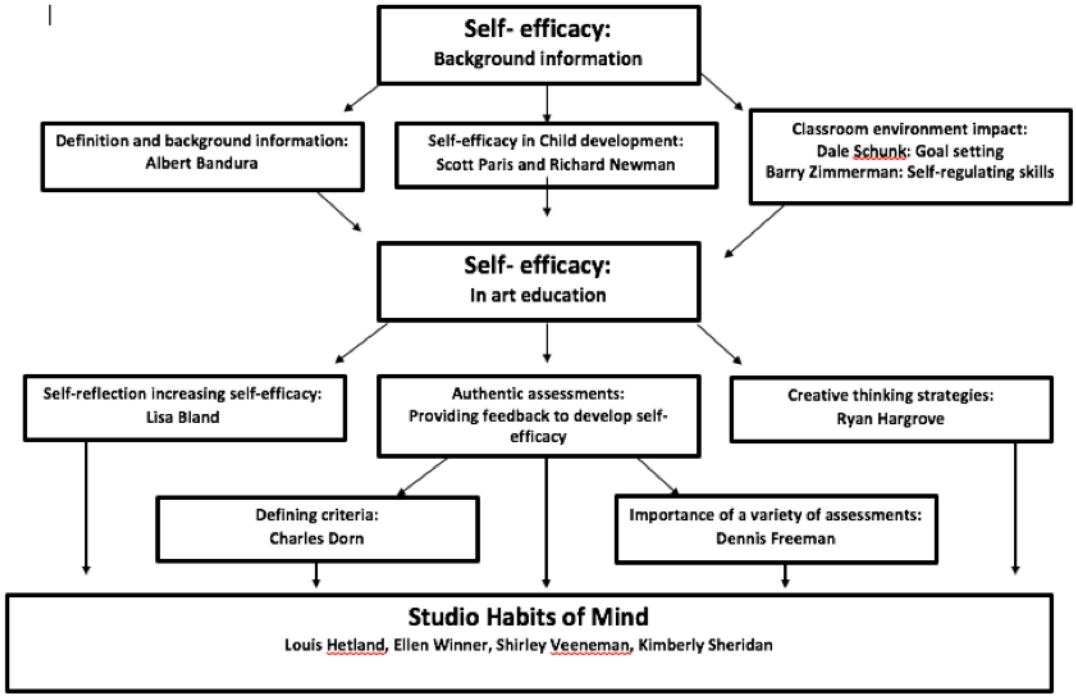


Figure 1. Visual Organization of Literature Review
This is a graphic organizer that showing the map for my literature review.

Understanding the Background of Self-Efficacy

To gain greater understanding of what was occurring in my classroom, I began by studying educational researchers and theorists who have studied self-efficacy. Since the 1980s, theorists have spent a great deal of time working with students from all age groups within a varied range of disciplines examining how students are motivated and respond to academic challenges.

Albert Bandura (1986 & 1993) was one of the first educational researchers to explore the topic of self-efficacy. He defined self-efficacy as, "a person's beliefs about their capabilities to exercise control over their own level of functioning and over events that affect their lives" (p. 120). Bandura describes self-efficacy as an internal system that individuals engage when facing academic, social, or emotional challenges. When

individuals believe they can personally engage a problem and find success, a strong self-efficacy is built. This strong self-efficacy then provides confidence when new challenges are presented. Bandura has done numerous studies on this subject. One that I examined concerned high school math students (1993). Bandura surveyed students before and after a challenging math task to determine the student's level of self-efficacy. Bandura found that there are a wide range of factors that affect a child's perception of self-efficacy. These include external factors like family, peer, and teacher feedback, as well as internal developmental factors. Though a teacher cannot control all of the influences a child encounters, the environment the teacher creates directly impacts the growth of agency and self-confidence. When teachers empower their students with specific self-regulating and learning strategies, a student's self-agency or "ability to control their actions within environments" (Bandura, 1993, & Zimmerman,1990) helps them filter through external feedback. After developing a strong self-efficacy, students are then able to effectively redefine their abilities by approaching new challenges with a range of tactics.

Bandura (1993) also noted that the understanding of self-efficacy changes as a child develops. When children are young, their academic self-efficacy directly connects to social forms of self-efficacy, but these two categories can diverge and become less dependent as a child ages. (Bandura, 1990, p. 136). A study from Scott Paris and Richard Newman specifically explored how a child's self-efficacy changes with age. The study they performed examined a group of third, fifth, and seventh grade math students. The students' level of perceived confidence and motivation was examined in contrast to their likelihood to seek help. Through the study, they found a student's approach and response to achievement depends on their age. Like Bandura, they noted as students develop into

adolescents, their views of self-efficacy change. For instance, "young children often believe that trying hard, completing tasks, and receiving teacher praise are signs of high academic competence" (Paris & Newman, 1990, p. 89). In contrast, John Nicholls noted that "as students get older, they see high effort as compensation for low ability and thus success with hard work is valued less than success with minimal effort" (as cited in Paris and Newman, 1990, p. 90). In summary, younger students believe when they put forth a high level of effort and receive their teacher's affirmation, they must have achieved academic success. However, as students age, they begin to believe the exertion of more effort is a sign of a lack of ability. This notion can lead students to lack motivation and avoid tasks that require more effort. Their beliefs in their faculties or self-efficacy is weakened due to their misunderstanding of artistic aptitude. Dweck and Elliott (1986) further explored this point:

> "[Young children are] characterized 'incremental theorists,' because they believe that increments in effort yield increments in ability. But this theory of effort changes by 12 years of age when they become 'entity theorists' and they believe that people have a fixed amount of intelligence or ability that is relatively unaltered by the degree of effort." (as cited in Paris and Newman, 1990, p. 91)

This research will focus on the importance of embedding routines and strategies into lessons to increase a student's self-efficacy.

Teacher Impact on Student Self-efficacy

In his studies, Bandura (1993) comments on the role the teacher plays in developing a child's self-efficacy. Teachers who create environments where students are

taught to believe learning can be acquired, have developed a system where self-efficacy can be developed. This confidence in abilities can equip students with the motivation and determination they need to face and persevere through challenges (Bandura, 1993.) Teachers can help their students acquire cognitive strategies to tackle diverse problems by teaching thinking the same way academic material should be instructed. Bandura's (1993) study found:

> "Guided mastery series as the principal vehicle for the cultivation of competences (A. Bandura, 1986). In this approach, cognitive modeling and instructive aids are used to convey relevant knowledge and strategies in graduated steps. Diverse opportunities are provided for guided practice in when and how to use cognitive strategies in the solution of diverse problems. Activities, incentives, and personal challenges are instructed in ways that ensure self-involving motivation and continual improvement. Instructive aids are progressively reducing as children's competencies are expanded. Self-directed mastery experiences are then arranged to strengthen and generalize the sense of personal efficacy." (p. 139-140)

According to Bandura (1993), "learning environments that construe ability as an acquirable skill, deemphasize competitive social comparison, and highlight self-comparison of progress and personal accomplishments are well suited for building a sense of efficacy that promotes academic achievement" (Bandura, 1993, p. 125). The emphasis of personal reflection and progress is where a strong self-efficacy is nurtured. When students compare their abilities and successes to their peers, they tend to formulate an unhealthy view of learning. Instead, teachers should provide opportunities for students to reflect upon their accomplishments and set goals for the future.

Some researchers have spent time looking at the direct correlation between goalsetting and levels of self-efficacy. Dale Schunk worked alongside of Bandura to explore how learned goal-setting impacted a student's academic self-efficacy. Like Bandura, Schunk has performed numerous studies exploring this topic. In 1983, Schunk conducted a study with sixth graders with learning disabilities. These students were divided into three groups: one group was asked to set their own goals, another was given comparable goals, and the last had no goals at all. The self-set goals lead to the highest self-efficacy. The students who had no goals displayed the lowest self-regulated achievement. In Schunk & Rice (1987, 1989, & 1990) readers were taught strategies to answer comprehension questions. The researchers examined the effect of teacher feedback after a specific strategy was taught. The integration of feedback and strategy instruction promoted, "the best sense of control over their comprehension, which can raise self-efficacy." (Schunk, 1990, p. 72) Schunk's basic findings were that when teachers assist students in setting specific learning goals, students are more likely to build self-efficacy to regulate and motivate learning (1990). The goals set should be precise performance goals due to the fact, "specific goals boost performance by great specification of the amount of effort required for success and the self-satisfaction anticipated" (Schunk, 1990, p. 74). Schunk also discovered that teacher feedback on assessment can impact motivation for future challenges. If students feel that their teacher will only praise them for high test scores, they will feel less likely to study if they doubt the likelihood of performing well (1990). In contrast, Schunk found that when teachers conference with students about their goals, the teacher can help students recognize their capabilities and set difficult yet achievable objectives. After successfully achieving a

difficult goal, students will notice the most growth. This reflection will lead to a strong self-efficacy.

Barry Zimmerman (1990) approached the question of self-efficacy by interviewing high school students on ways they face academic problems. He performed unstructured interviews to ensure that the students provided a diverse range of responses. Zimmerman collected the students' responses and then assigned them a self-efficacy score based upon their responses. He found the students who incorporated self-regulating skills into their work were the ones who were most successful in facing academic problems. Zimmerman defines self-regulating skills as, "the ability of a person 'to seek out information when needed and take the necessary steps to master it'" (Zimmerman, 1990 p. 7). Self-regulating strategies include: "self-instruction, verbal elaboration, text comprehension monitoring, goal setting, and self-recording" (Zimmerman, 1990, p.7). Zimmerman argues that when a teacher instructs a content strategy alongside a self-regulating strategy, students are able to achieve higher academic success and then transfer those skills to other lessons. This helps students reflect on not only what they are learning, but how they are learning it. The realization of how, builds self-efficacy that can then be applied to other learning opportunities. Students become more likely to seek out other opportunities where they can apply their newly found learning strategy (Zimmerman, 1990).

Upon reading this research, I realized that if self-efficacy improves in my art classroom, that same improvement may impact other subject areas. By providing my students with cognitive strategies during artmaking, I can help my students gain a self-efficacy that will transfer into other artistic achievement. I can equip them with specific

tools to help them embrace challenging aesthetic problems. After getting a broad picture of academic self-efficacy research and what teachers can do to build self-efficacy, I decided to to look for similar findings in art education research.

Self-Regulating Strategies in Art Education Research

As I began researching self-efficacy in art education I noticed much of the research looked at secondary or higher education students, with very little research focusing on elementary and middle school students. Despite this, I believe this research is important because of the introduction of important cognitive and self-regulating techniques that can be directly applied to art education. I was interested to learn much of the research I found in the art education field, does not use the words self-efficacy, but instead spends time defining metacognitive and self-regulatory strategies. Metacognitive strategies are defined as, "thinking about thinking or knowledge related to self-appraisal and self- regulation of one's thinking and actions (Paris & Ayers, 1994/ 1999 as cited in Bland, 2005). Because many of these strategies are the same or similar to the suggestions of other general education self-efficacy researchers, it is assumed that by incorporating the metacognitive or self-regulatory strategies described by art education researchers, a child can develop a strong self-efficacy (Zimmerman, 1990, Bandura, 1983, Schunk, 1990.)

In 2005, Lisa Shawn Bland performed a study in which the impact self-reflection on the artistic performance of 50 middle school students was examined. Bland states, "The aim for this study was to strengthen the metacognitive and reflective skills of students to assist them in adopting strategies and reflective processes that enable them to

define, plan, and self-monitor their thinking through problem solving" (Bland, 2005, p. vi). Bland believed that by emboldening a student's reflection skills, students would be equipped with strategies that could be drawn upon when faced with future challenges. She found that instructing self-regulating skills along with art content helped to build metacognitive knowledge. Bland (2005) noted that, "when a student acquires more, better organized, and more refined metacognitive knowledge, self-assessment becomes more accurate" (p. 2). By being able to self-assess, students can accurately define their current progress and develop a plan for future improvement. Her research aligns with my claim that by defining and developing a plan students demonstrate a strong self-efficacy.

Ryan Hargrove, a professor at the University of Kentucky, performed a study in which he explored the impact of metacognitive and self-regulatory instruction on collegiate design students. Hargrove argued that creative thinking strategies are a necessary part of design curricula (2012). Students must be able to engage cognitive creative strategies to find success in all visual disciplines. He argues that the main strategies to increase cognition are planning, monitoring, and evaluating (Hargrove, 2012). Hargrove provided an opportunity for each of his students to be exposed to each cognitive strategy through direct instruction and modeling. He then gave them time to reflect individually and with peers about the implementation of the creative strategy. The students were also provided an opportunity to analyze the creative and cognitive skills of expert designers as a case study. At the end of the semester, the students had to provide evidence that they had implemented each strategy. They did this by creating an artifact that visually represented their cognitive process. He was then able to assess the depth of their thoughts as it applied to their artwork. His study supported that:

> "Teaching designers to explore their own cognitive processes in a systematic way helps them manage their own creative thought processes and develop their metacognitive knowledge. This knowledge provides designers with the knowledge of when, where and why to use specific thinking strategies or cognitive approaches. Through an understanding of their thinking, designers can trace the success or failure of a decision back through a process of thinking and build knowledge through past experience" (p. 9).

Artistic Feedback to Build Self-Efficacy

Another trend I recognized in both general education and art education research was the need for assessment reform. Bandura emphasizes the feedback that students receive directly impacts the students' views of self (Bandura, 1990). Teachers should create feedback that emphasizes the student's growth and progress instead of weaknesses. If the assessment only examines the student's academic inadequacies, students will be directed to focus on the deficiencies in the present instead of the progress for the future(Bandura, 1986). Teacher feedback should model how students approach their learning. Feedback should be given on the product that the child produces as well as the thought process behind the work.

At the end of his study, Hargrove describes the importance of assessing cognitive development. In his mind, "Assessment is utilized as a tool to create the optimal educational experience for students. It serves to first make students aware of the level of metacognitive thinking that they are practicing, and then of what is needed to reach a higher level" (Hargrove, 2012, p. 22). Art teachers should ensure that they are not only

helping their students see their artistic growth, but also their cognitive growth. (Hargrove, 2012) This recognition of growth will empower students to set growth goals in the future and grow their self-efficacy (Bland, 2005.)

Assessment in Art Education

These trends led me to think about art assessment as a general topic. I wondered how art assessments in the past embodied self-regulating and self-reflective principles. First, I examined the work of Dennis Freeman. Freeman performed a study in which he surveyed a selection of art teachers and students in Wyoming to discover general beliefs, assumptions and implementations of art assessments.

Freeman surveyed secondary art teachers to assertain what assessment strategies they used in their classes (2002). Students were also surveyed to determine if the students felt the same goals and outcomes were assessed. One of his primary goals was to determine if the teachers surveyed were truly performing authentic assessments. Freeman defines authentic assessment as assessments that, "include[s] recording evidence of the learning process, applications in products, perception of visual relationships, integration of new knowledge, reflecting on one's own progress, and interpreting meaning in consideration of contextual facts" (Freeman, 2002, p. 3). Freeman found that most teachers surveyed did not understand the term authentic assessment (2002). He also found that most teachers in his study measured the success of art projects based upon standards. Eighty-seven percent of all teachers noted that effort and participation should be included as a form of assessment. A large majority of teachers also noted the importance of validity in terms of assessing critiques. Ninety-one percent of the teachers

studied confirmed that they performed conferences with their students. Ninety-five percent of the teachers believed that students should be involved in the assessment of their own work while only seventy percent believed that students should be involved in the grading of their own work (2002). When Freeman compared the responses of students to the same question he asked teacher he found similar answers for some of the students and a great difference for others. Freeman noted this could be diversified approaches of teachers. After analyzing his data, a major finding was that there was a discrepancy between the teacher's and student's understanding of authentic assessments.

In the study's conclusion, Freeman recommends teachers receive more training on implementing affective authentic assessments. He suggests, "as teachers, we need to consider how to make the evaluation process more integral to instruction and learning, less likely to derail the process and more student-centered" (Freeman, 2002, p. 57). This recommendation can be fulfilled through further exploration of authentic assessments and how they can be integrated into the learning process.

Charles Dorn, along with Stanley Madeja, and Robert Sabol, were tasked by the National Art Education Association (NAEA) to perform a study examining the possibility of using portfolios as a standardization method for artistic assessment (2003). Their study became an expansive project examining 1,000 students and art teachers from seventy school districts across Florida, Illinios, and Indiana. Through their study, Dorn uncovered interesting findings concerning the nature and success of art assessments.

When defining their intent, Dorn, Madeja, and Sabol made it a point to search for authentic ways of assessing artistic learning. They defined authentic assessments as assessments that, "focus on the ability to use relevant knowledge, skills and processes for

solving open-ended problems during meaningful tasks" (Dorn, 2003, p. 77). Their study explored how participating teachers defined authentic assessment. First, they asked art teachers, students, and artists to name the qualities of a successful art project. This criteria differed between each group. The teacher's most common reason for selecting criteria was, "How well the criteria matched the objectives of the lesson and how well the criteria matched the content or concepts taught in the lesson" (Dorn, 2003, p. 29). Some of the most common criteria that teachers used to evaluate artwork included, "effort, problem-solving ability, improvement or growth, classroom behavior, self-motivation [and] initiative" (Dorn, 2003, p. 26). When students were asked to define important criteria for evaluating a project's success, they named, "the elements of art, skill, following the teacher's directions, [and] details in the work and neatness" (Dorn, 2003, p. 30). Next when asked about the artwork the students made at home, nearly all of them used other criteria to define success. The most common answer referred to the amount of enjoyment the students had while creating their work (Dorn, Madeja, & Sabol, 2003). After, artists were asked what criteria they used to evaluate success many artists named, "originality… improvement or growth; composition; development of personal style, expression, or aesthetic; technical skill with media; development or expansion of previously use ideas; successful communication of ideas; effective use of the principles of design; and effective use of the elements of art" (Dorn, 2003, p. 31). Dorn noted the obvious disconnect between these criteria. He commented on the fact that the teachers seemed to be mostly driven by the aesthetic objectives of the assignments instead of the holistic growth of students. According to Dorn (2003,) this could be due to the pressure

of standardization. In the findings section of his study he encouraged teacher to consider how a project's criteria might guide student reflections of their development

> If we do not emphasize the things arts consider important, such as the purposes of their evaluations and their evaluation criteria, and if we do not consider them important to similar degrees as arts do, then we are not providing the guidance and knowledge to help children grow in the direction we believe they should grow (Dorn, Madeja, & Sabol, 2003, p. 37).

Dorn says that by changing the criteria of assessments teachers can increase student engagement and improve student achievement. Students should consider their artwork in the same way craftsmen and professional artists approach their work. The teacher must be sure they are not viewing the artwork produced as the sole production of their classroom. Instead, the teacher should view the student's work as evidence of how the child is developing as an artist.

Dorn's findings and reflections present an interesting question to my study. Most professional artists evaluate their artwork in a reflective, progressive nature instead of using fixed criteria like elements and principles of art. In this way, most professional artists have developed a strong self-efficacy that they use to evaluate their progress. If teachers do not use criteria that encourages reflection and goal-setting for future progress, an opportunity will be missed to encourage cognitive development and a growth of self-efficacy.

Embedded Self-Regulated Strategies in Studio Habits of Mind Model

As I consider the importance of developing criteria to give constructive feedback to art students, I choose to research some classroom models in which self-reflective and self-regulatory practices are embedded in the curriculum and evaluation models. This idea was presented to me at the 2016 Pennsylvania Art Education Conference in Philadelphia, PA. At this conference two professors shared the valuable tools they use to promote artistic thinking and cognitive growth. Dr. Leslie Gates from Millersville University and Dr. Mary Elizabeth Meier from Mercy-Hurst College discussed the model they use for teaching and evaluating their collegiate art students. This model is based upon Louis Hetland, Ellen Winner, Shirley Veenema, and Kimberly Sheridan's framework called Habits of Studio Mind (2013). This framework outlines eight Studio Habits of Mind that the authors argue help teachers connect professional art goals to the traditional classrooms. These categories include: developing craft, committing, thinking in images, expressing meaning, observing, questioning and evaluating, exploring beyond expectations, and understanding communities (Hetland, Winner, Veenema, & Sheridan, 2013). Each of these categories ask students to reflect on the reasons behind their artistic choices while promoting goal-setting. This model seems to intentionally integrate self-regulation, self-reflection, and goal-setting in a way that creates authentic criteria for evaluating artwork that students produce. In the book Studio Thinking 2 (2013) a teacher named Jim describes the process he teaches when creating art. In his words, "it is not [only] the skill of drawing that they are learning. It is very much the marking of a mark in the world as expression; and, to me, that might be something that is more interesting and more exciting for them" (Hetland, et al., 2013, p. 69). In Jim's words, Studio Habits

of Mind encourages art students to not only consider the product being made but also the idea that the artwork is going to express and that cognitive thought has as much value as the product. In another category, students are asked to question and explain their work. He reflects, "Artists reflect metacognitively when they explicitly consider their works or what they are trying to do, why they used a particular technique or color or composition, what meanings they are trying to convey, and so on" (Hetland, et. all, 2013, p. 81). This metacognitive reflective strategy is a self-regulatory method outlined by general education researchers. The authors go on to expound on the value of the reflective framework

> "Students learn about themselves and their reactions and judgments as they evaluate work, whether their own or that of others. And both involve consideration of quality: Describing work is prerequisite to evaluating elements of varying levels of effectiveness" (Hetland, et al., 2013, p. 81-82).

These metacognitive processes help students develop tools to engage their own artistic production with intentionality and reflection that can help build self-efficacy to engage future projects.

Conclusion

To begin my literature review, I explored the background of self-efficacy research. I examined both internal and external influences to the development of a strong academic self-efficacy before analyzing the benefits of integrating self-regulating strategies into curriculum. I then presented art education research that studied the effects

of self-regulating strategies on art classes and explored studies that examined the impact that feedback and authentic assessments have on student self-efficacy. Finally, I outlined a studio curriculum framework that integrates self-regulating strategies, self-reflection, goal-setting, and authentic assessments. In Chapter III, I will describe the methodology for completing my study.

Chapter III: Methodology

Design of the Study

The research I performed is a bounded study. It is a study that can be replicated within other schools, but is unique since there is both a task and control group. I began by outlining methods that will be used to collect data that will answer this study's research question. I then outline how I analyzed the data to reveal findings.

Setting

This study was conducted at Rose Tree Media School District in Media, PA. Two elementary schools within the district were included in the study. Each school serves approximately three-hundred-eighty students from small, upper-middle communities. Media Elementary School (Hereinafter known as MES) functioned as the control group in this study. The students were taught the same project using the same teaching materials. The only difference between the schools was the students at Rose Tree Elementary School (Hereinafter known as RTES) had self-regulating strategies and Studio Habits of Mind (Hetland, et. al, 2013) checklists integrated into the instruction.

A typical day of elementary art in Rose Tree Media School District began with a review of techniques, art history, and aesthetics. The teacher introduced new ideas, techniques, and project applications for approximately ten minutes. Students worked on their projects for the remaining class time. The students sat at tables designed for four students per table. Due to the size of the classes, more or less students occupied the tables. Exemplars of the art projects, vocabulary, and techniques, were listed on a large white board in the front of the room. Projects and sketches were stored in table folders,

distributed at the beginning of class. Basic art materials were housed on shelves that students could access. The students were familiar with the routines and expectations of the art class. At RTES, students were invited to retrieve materials during projects; the teacher welcomed students to choose their own materials once the daily art goal was completed. The art teacher at MES distributed supplies at the beginning of the studio time. The researcher analyzed the data collected from both schools, to reveal whether introducing Studio Habits of Mind (Hetland, et al., 2003) checklists and self-regulating strategies improved self-efficacy.

Participants

There are approximately 150 students from Media, Pennsylvania who participated in this study, ranging in ages from ten to eleven years old. Media has a demographic spread of 86.5% white, 11% black, and .6% Asia, and 1.9% other. The median household income is $53,115 (United States Census Bureau, 2011-2015.) For this study, I worked with fifth graders between two elementary schools. There were three sections of fifth grade for a total of sixty-two students at RTES. There were four sections of fifth graders at MES. I chose to work with this particular age group because these students are on the cusp of adolescence where distinguishing ability from effort becomes more clear (Paris and Newman, 1990). These students have begun recognizing which academic and nonacademic skills come naturally, and which ones need more attention. This is developmentally the best age to begin introducing self-regulating skills as to build a child's self-efficacy (Paris & Newman, 1990). Teaching self-regulatory skills could

prevent students from experiencing artistic frustration, which can lead to a weakened self-efficacy (Bandura, 1993.)

Researchers Role

At Rose Tree Elementary, I served as an active participant in the study by teaching self-regulating skills and implementing studio checklists. I introduced rubrics and checklists to my classroom environment. I asked the students to utilize their checklists and reflect upon their abilities. Then, I triangulated all of the students' comments and artwork from the study to analyze the development of self-efficacy. At MES, I only analyzed the data points retrieved on the pre- and post- metacognition surveys and look for growth.

Research Procedures

First, all participating students took a metacognitive survey. This pre-assessment helped me assess the level of self-efficacy the students possess as well as which self-regulating strategies they use. I also surveyed the general education teachers at both schools concerning their observations of their students' self-efficacy. Then, at RTES, I began integrating Studio Habits of Mind (Hetland, et al., 2013) checklists and self-regulation strategies. Before beginning their studio time, students were asked to review their personal goals, which were recorded on their Studio Habits of Mind (Hetland, et. al., 2013) Checklist. I encouraged the students to reach this goal by the end of class. Before dismissal, participants reassessed their accomplishments and set a goal for the next day. Next, I integrated direct instruction on self-regulation strategies; this

teacher intervention happened once every four days. The students were shown an approach managing their own learning. Throughout the study, I then collected formative assessments to help measure their understanding and integration of the strategies. I recorded observed conversations and the student's abilities in a notebook which was used as an additional source of analysis. At the conclusion of the study, students from both schools completed the same initial metacognitive survey, to see if there was a change in cognition. Students were interviewed in a semi-structured format in the art room before regular school hours. I asked the students to share their perspective on the growth of their self-efficacy. Although set of questions was created in advance to address the specific issues of the study, I intended to use prescribed follow-up questions and prompts. The student responses were recorded with an audio recorder, and then transcribed to be used during analysis.

Ethical Considerations

The student participants in my study were provided a permission slip that was signed by a parent or guardian. On this permission slip, some of the teaching interventions were listed so parents are made aware there was no threat to their child's safety. I asked the parents to approve the recording of their child's narrative for qualitative analysis. No students were put in jeopardy by participating in this study, and no payments or other benefits will be given or promised. All data was maintained through a password-locked computer, with any paper artifacts stored in a secured cabinet off-campus.

As a researcher, I needed to be cognizant of biases, especially my own. I am very passionate about this topic because of personal growth in self-efficacy. I think this study will greatly impact the creative confidence of my students, yet I needed to ensure that this belief did not impact the interpretation of my data. I used a constant comparison method of data analysis to ensure that I am collected data in an ethical manner. By triangulating the data and analyzing it, I can be sure not to attach personal biases. I also created a coding system to look for key words within rubrics and checklists. This code helped to ensure I am not inventing connections that did not arise in the data.

Research Methods

Type of Study

In the world of standardized testing, children feel the pressure of having the right answer. Students struggle to recognize that artistic achievement may not be measured the same as academic achievement. While standardized testing champions the right answer, art education emphasizes creative thinking and problem-solving. Students' self-efficacy is impacted by this change of pedagogy (Dorn, 2003). Students do not feel confident to take risks fearing they will have the wrong answer. Instead, they rely on their teacher's feedback and assurances to affirm their artistic decisions. Art teachers must ensure that creativity and risk-taking are championed in their classroom. By building a student's artistic self-efficacy, students will have the self-confidence to reflect and set personal artistic goals. This study demonstrates how to build a student's self-efficacy which, in turn, affects their art-making.

Without a strong self-efficacy, students could lose motivation and inspiration. Art-making could become another assignment to simply complete instead of a creative, inspired, self-driven venture. Students might not be inspired to become life-long makers, and their fear of over making mistakes could cripple their desire to make art.

By introducing self-regulating strategies into the curriculum, I encouraged student to invest their learning. I equipped them with strategies to use when they face challenges so that they can confidently recognize their personal achievements and set future artistic goals. This study provided students with tools to make artwork freely without fear of failure. The main research method I used to accomplish these goals are metacognitive surveys, Studio Habits of Mind (Hetland, et. al., 2013) checklists, and semi-structured interviews.

Pre and Post Metacognitive Survey

A metacognitive survey is one of the most effective ways to assess a student's self-efficacy. The metacognitive survey I used is one adapted from the research of Lisa Shawn Bland (2005). Bland (2005) created a metacognitive survey in which students used a Likert scale to respond to fifty questions assessing their understanding of what mental processes they used while creating art. After reading the suggestions of Bland (2005), I adapted the survey so that the document contained less questions. She questioned the integrity of the fifty question survey because of the amount of time the survey required (Bland, 2005). I chose twenty-four questions because it ensured all eight categories of knowledge and regulation of cognition could be questioned at least three times. Bland emphasized that levels of cognition include declarative knowledge,

procedural knowledge, conditional knowledge, planning, information management, monitoring, debugging, and evaluation (Bland, 2005, p. 95). I selected the questions based upon the maturity of my population and the ease of integrating each of these techniques into my curriculum. Some of the wording of the questions were changed to accommodate a fifth grader's vocabulary.

The general education teachers took the same metacognitive survey as the students. This form of survey asked the teachers to assess their students' general dispositions, based upon the teachers' observations of student behaviors in the classroom. The questions and cognitive categories reflect that of the metacognitive form given to the students. The teacher's feedback will be evaluated with the students' pre-test answers to determine what self-regulation strategies need improved within the population of fifth graders.

These surveys help to explain how and why these students make decisions. Some of the results may describe processes students struggle to put into words. The results of this survey affected the self-regulating strategies I integrated. I chose specific skills that enhanced the area of cognition that seems to have the largest student deficiency. For instance, one of the regulation of cognition strategies outlined by Bland (2005) is planning. If there was a proven deficient for student planning skills within the data, I responded by introducing self-regulating strategies such as timing each task, brainstorming ways to solve problems, and personal goal- setting. These self-regulating skills have been shown to contribute to an artist's ability to plan out projects. (Hetland, et al., 2013). These self-regulating strategies were introduced independently and in conjunction to the Studio Habits of Mind Checklist (Hetland, et al., 2013).

At the conclusion of the study, students took the same metacognitive survey to measure any change in the disposition towards learning. A positive change in disposition provided evidence of growth in self-efficacy.

Checklist Assessment

The Studio Habits of Mind Checklist is an important research method because it introduces an authentic assessment that will help students equate themselves as artists. This checklist was formulated from ideas that Louis Hetland, Ellen Winner, & et. al., argue are cognitive artistic processes. These are processes which contemporary artists incorporate into their practice. By training students to think like artists, students were encouraged to approach their art work as an artist would, and establish similar types of goals, as well as engage in self-assessment and critique. The Studio Habits of Mind Checklist (Hetland, et al., 2013) provided students with another way to assess success as an artist. This checklist helped students redefine their understanding of success in art.

Observations

Observations and conversations between teacher and student as well as student and student were recorded. These teacher observations were recorded as directly as possible to ensure there is not bias introduced. The conversation students have with one another about their work could reflect a realigned understanding of success. These comments could also reveal unexpected outcomes. After the observations are recorded, they were analyzed using a coding system. I read through the transcriptions marking the negative and positive comments made during art. Special notes were taken of comments

made about abilities. The teacher also noted times that students reached to a neighbor for peer feedback, or experimented with a different technique to problem solve. These specific behaviors indicate self-efficacy.

Interviews

The last method I used is semi-structured interviews. At the conclusion of the study, I randomly selected 9 students from the participants to whom I asked very specific questions such as: what is one challenge you faced during this project? What activities, that we've done have helped you be successful? What is something that I did to help you be successful? At what point did you feel the most confidence during this project? I will asked students about specific changes in their thinking while making art. I recorded these interviews via recorder and then transcribed them. The student's statements helped evaluate if the implementation of Studio Habits of Mind (Hetland, et al., 2013) checklists and self-regulating strategies improved the students' self-efficacy.

Data Collection

Context of Study

The purpose of my study was to explore the effects of self-regulated learning strategies and authentic assessment techniques on students' self-efficacy in the fifth grade. As I integrated the Studio Habits of Mind (Hetland, et al., 2013) checklist and self-regulating strategies, I ensured this purpose is the motivation for all classroom activities and teacher interactions. No student received a grade based off of this study. The elimination of academic reward alleviated some achievement pressure and

allowed me to redefine art achievement. I also integrated the checklist and self-regulating strategies using routines that were familiar to the students. The familiarity helped to seamlessly integrate the study into their expectations for art class. I helped alleviate any extra pressure and duress that students may experience.

Literature Sources

The literature that I examined uses similar data collection. Studies collected from Bland (2005) and Freeman (2002) used surveys to assess their students' perspectives of art-making. Bland (2005) specifically used a metacognitive survey to examine the amount of reflection students are putting into learning. She suggested that future researchers limit the number of questions on metacognitive surveys so that students will answer every question with integrity. Hargrove (2008) integrated learning matrices into his study to measure student growth over time. Students were asked to reflect on their learning decisions so they could make better artistic choices in the future. The description of his matrices aligns with my use of the Studio Habits of Mind Checklist (Hetland, et al., 2013). Hargrove emphasized that there are specific cognitive categories that students use when creating artwork. By teaching students how to access these cognitive points, students can then produce more creative ideas. (Hargrove, 2011)

Methods of Data Collection

Data was collected in a few specific ways to determine if my students experienced a growth in self-efficacy. The observation data collection was the most flexible method I used. When I observed the students using the Studio Habits of Mind (Hetland, et al.,

2013) checklist, or another self-regulating strategy, I recorded any comments I overheard or participated in. These conversations were used as evidence for student growth. Specifically, I looked for conversations framed around developing goals and strategies. This recording occurred when the students were working independently or right at the end of class. I do not think the students who observed me recording a conversation, interfered with the study. They did not have a context for my typing and were occupied by the projects they were working on.

As stated above, semi-structured interviews were another method utilize. I asked questions that cause students to share reflections about the project and their abilities. Depending on the student, I may have asked some prompting questions to spark a conversation. The questions and prompts can be viewed in Appendix J. Eligible students were chosen at random, based upon the completion of returned permission slips and their availability to be interviewed.

These interviews occurred in the art room before the school day and lasted approximately five to ten minutes in length. The student and I sat at one of the art tables. Here, I showed the student the work they've created during the study as well as their checklists. The interview then proceeded with questions outlined on the interview protocol. I was flexible and respond with probes or prompts if the student does not seem to understand the question, or to receive a more detailed answer.

There were a number of artifacts collected as data. First, I collected the pre- and post-metacognitive surveys. Students from both MES and RTES completed surveys that I then use to code for levels of self-efficacy. I the collected the students' checklists to analyze for growth and independent goal-setting. Checklists will be divided by the

artistic, cognitive skills that are described in *Studio Habits of Mind 2* (Hetland, et. al., 2013), including: Developing Craft, Engage and Persist, Thinking in Images, Express Meaning, Observation, Reflect, and Stretching Boundaries (Hetland, et al., 2013). These characteristics are listed in check-list form including a definition and an example. Beneath each cognitive skill are examples of the implementation of the skill. For example, one of the skills is *Envison: Thinking in Images*. This category lists the following actions that students can perform to demonstrate this cognitive trait: "imagines different ways the lines, colors, shapes, or compositions can vary," "works from mental images to develop an artwork," and "explores what a work of art would look like with specific revisions." (See Figure 2)

Envision: Thinking in Images

- ☐ Imagines different ways the lines, colors, shapes, or compositions can vary.
- ☐ Works from mental images to develop an artwork.
- ☐ Explores what a work of art would look like with specific revisions.

Figure 2: A portion of the *Studio Habits of Mind* (Hetland, et al., 2013) checklist.

At the end of the study, I reviewed the checklists and looked for trends. I examined each child and noted if the goals that are being set on the checklists related to the cognitive categories. I also assessed the appropriateness of the goals and if the goal reflected the artistic development of the child. The ability to accurately assess one's progress is a sign of self-efficacy (Bandura 1993). These documents were scanned and filed so that they could be referred to throughout the analyzing process.

Limitations

Next, I will outline data collection limitations. During the time of the study, each student created two to three artworks; they also completed two metacognitive surveys. This clarifies any changes that occurred during the duration study. Each day, the students filled out a studio checklist to track growth over time. A self-regulating strategy was introduced every four art classes. An assessment to measure the adaptation and integration of that strategy was then given every three art classes. Only two to three strategies were shared during the length of the study. This limited number of strategies allowed for direct instruction, implementation, and translation to other projects. By only including 2-3 strategies, my analysis explored the effects of each. Observations conducted were recorded in real time, allowing for unexpected outcomes to occur. I collected interviews from 15 randomly selected students. By using 25% of my students, the change of recording different types of growth increased. All of these limitations helped ensure that the data collected was clear and easily analyzed.

Data Analysis

Organization of Data

Data was organized in a way where each data set was analyzed differently as per its type and form. I created a specific plan to interpret and code the data in order to examine possible growth in self-efficacy.

Coding of Data

The first-step, completed at the beginning of the study was to complete the pre-test. I transcribed each student's responses and compared similarities between answers. It was interesting to see if there are trends found in student answers. At the end of the study, I used these data points to compare to student responses.

The goal of using the *Studio Habits of Mind* (Hetland, et. al, 2013) checklist was to help students redefine success in the art room. As stated above the checklist included characteristics such as: Developing Craft, Engage and Persist, Thinking in Images, Express Meaning, Observation, Reflect, and Stretching Boundaries (Hetland, et. al., 2013). Six of these characteristics are very cerebral—a student has to cognitively reflect on these concepts while they are working on techniques. The ability to recognize one's thinking and then translate those thoughts into tools for revision and motivation is a sign of a strong self-efficacy (Bandura 1990, Zimmerman 1990).

Hetland, Winner, Veeneman, and Sheridan's (2013) characteristics will be laid out in check-list form including a definition and an example. At the beginning of class, students were asked to retrieve the previous day's checklists and examine the personal goals they have set. Initially some students required prompting to generate ideas and instruction on how to properly use the checklist. This goal were relevant to the project and to the cognitive goals of the checklist. For instance, and example of one goal was, "I want to develop my watercolor technique so that I can express the movement of water." Another goal might be, "I want to use my time better so I can finish my project next time." At the end of class, students checked a box if they completed the goal before writing a new goal for the next class. I kept track of the amount of time I spent

explaining the checklist to the students. The time that I took to introduce and interact with the checklists helped to demonstrate the student's understanding of the tool. I also kept track of the validity and relevance of their goals in relation to the project objective and their own artistic objectives. I looked for a change in complexity of goals over time. For example, one of the first goals a student may have made would be to learn the directions for the project. As the study continued, I looked for goals that were individualized for each student, paying close attention to goals that could transfer from project to project.

At the conclusion of the study, I randomly selected 9 students for semi-structured interviews. I asked specific questions, such as: What is one challenge you faced during this project? What activities, that we've done have helped you be successful? What is something that I did to help you be successful? At what point did you feel the most confidence during this project? I recorded these interviews and then transcribed them. Once they were transcribed, I looked for specific strategies outlined in Bandura (1993), Schunk (1990), and Zimmerman (1990), that detail goal-setting, problem-solving, motivation, and application of self-regulating strategies. I also was vigilant watch for other themes and trends that arose during the study. Such themes may point to a growth in self-efficacy.

Methods of Analysis

The body of evidence collected during my study may illustrate if there is a change in student perspectives. The captured conversations and thoughts from writing reflections, checklists, and interviews helped illustrate the development of self-efficacy. Given that it the data is triangulated, the flexibility of my study could allow for

many outcomes to emerge. There is enough data collected whereby unexpected trends that are identified can be explained. In future chapters I present the data focusing on the comparisons of the results of students from both elementary schools. The difference between these two groups of students exemplify how teachers can build self-efficacy in their elementary art classrooms.

CHAPTER 4
RESULTS OF THE STUDY

Overview:

Research question: Given that students with a strong self-efficacy are more engaged in the process of learning (Bandura 1993) and are more likely to demonstrate self-regulation strategies, (Zimmerman, 2003) in what ways might instructional and assessment strategies impact the self-efficacy of students as they create and analyze personal artworks?

The research study began on January the 30,th 2017 and continued through April 7th. During this time, I introduced cognitive and self-regulation strategies that encouraged students to reflect upon their artistic development while creating work. I hoped that through this reflection, students would begin to recognize the artistic choices they had made lead to their success. According to Bandura (1986) this then would then contribute to building a positive self-efficacy which would motivate self-confidence and risk-taking.

To create a picture of the student's self-efficacy prior to this study, forty-two Rose Tree Elementary (Hereinafter known as RTES) students and nineteen Media Elementary (Hereinafter known as MES) students completed a pre-metacognitive survey assessing their cognition during art class. The RTES students then met for nine fifty-minute sessions and reflectively produced one project. Approximately sixteen students were audio- recorded from each class. These students were selected based upon returned permissions. I provided feedback to all participants, throughout referring to both technique and mental processes. The student reflections and teacher's feedback were

audio recorded and transcribed for use during analysis. At each phase of the study, written and verbal student statements were collected using open ended questions.

At the study's conclusion the MES and RTES students completed the same version of the metacognitive survey. The answers from the pre- survey were compared to the post-survey's results to indicate a growth in cognition during art making. Nine students at RTES were selected to participate in semi-formal interviews post-study to gain more insight on individual perspectives from the study. The following data collected will answer answer the question of how and which instructional and assessment strategies can help develop a child's self-efficacy.

Unit Plan Summary:

During this study, both groups of students participated in a unit of study which explored value. The objective of the unit was to create a value study that depicted the ocean. I briefly showed the students an example of the completed project, which was then displayed on the white board in the front of the room for the extent of the project. The students at RTES were given the opportunity to use any material they chose to complete this objective. The students at MES were limited to using paint. After completing the painting, students from both schools were encouraged to add ocean animals and fish.

After viewing the pre-metacognitive surveys and reviewing the classroom teacher's observations, I determined top areas of metacognitive need: planning, monitoring, and evaluating. The unit was then structured into phases which explored each cognitive area through specific activities aiming to enhance the students'

metacognitive process. Please reference the Appendix __ for the specific lesson plans. Students were led through many guided practice activities so they could apply cognitive strategies to the steps of creating the project (Bandura 1986.) This unit provided students the opportunity to access previous knowledge, and learn artistic skills and processes that could be applied to many different materials (Dorn, 2003.)

Pre-Study Data:

Pre-Metacognitive Surveys

The study began by students completing a pre-metacognitive survey. This survey was adapted from the work of Lisa Bland (2005.) This survey asked students to reflect on cognitive strategies they used to create art. The protocol for administering the Pre-Metacognitive surveys can be found in Appendix B. The students rated the trueness of the statements using the Likert scale. The class's averaged responses are displayed below. The scores displayed are the average student responses in each category. See Appendix A or C for the definition of each metacognitive category.

	Monitoring	Planning	Procedural Knowledge	Conditional Knowledge
Class A	4.88	5.21	5.24	5.74
Class B	4.04	4.33	5.1	5.098
Class C	4.38	4.86	5.03	6
Class D	5.27	5.37	5	5.3
Class E	4.79	5.08	5.04	5.96
Class F	3.22	3.61	5.17	5.06

	Debugging	Declarative Knowledge	Evaluation	Information Management
Class A	5.85	6	5.18	4.61
Class B	4.25	5.47	5.08	4.021
Class C	6.01	5.84	4.77	4.17
Class D	5.2	5.2	5.13	5.2
Class E	5.25	6.08	6.33	6.33
Class F	5.06	5.72	5.33	3.44

Table 1. Averaged Student Pre-Study Scores for each Category of Metacognition
The pale blue cells are the classes from RTES. The bright blue cells are the classes from MES.

Teacher observations

The general education teachers of the students were asked to complete the same survey. Their scores and observations helped to create a picture of the student's cognitive processing outside of the art room. Below is a table containing their observations and comments:

Teacher	Observations and Reflections
Class A Teacher	This group as a whole is less reflective. There are students who take their learning seriously and are more reflective. The maturity of this group is much lower than other fifth grade classes I've taught-which accounts for some of the lower ratings. I foster/teach/encourage/praise the pausing and reflecting of progress/growth. This group hasn't "brought in" as much as I would have liked…but there's still time! I'm hopeful!
Class B Teacher	This particular class (on a whole) didn't plan out their science fair projects well. They do tend to collaborate with each other to complete group projects. Students do check with the teacher to see if they are satisfying expectations. Students (this group) seem more concerned with grades or teacher feedback than learning for the

	sake of learning or having a true educational experience.
Class C Teacher	My class learns best when clear expectations are given. They also like examples or anchor pieces for their work. When given a task, most get busy right away. However, I do not think they are aware of the personal solving (thinking strategies.) They just solve the problem, without self-reflecting- (most of them)
Media Elementary Teacher (name not disclosed)	My students are willing to ask for help. Some of my students crave reassurance that they are on the right track. My students often jump right into an activity without planning. Many of my students struggle with time management. My students can be self-motivated when they are interested in the topic.

Table 2. Above are the written reflections and observations of the classroom teachers. Teacher included these comments after completing their own version of the of the metacognitive survey based on observations of the cognitive approach of their students.

Mind mapping

To better understand my student's depth of understanding on value, I led the students through a mind mapping activity. A large piece of paper was placed in the middle of the table. Students were instructed to put the word "value" in the middle. I then encouraged the students to include as many facts, images, and ideas about value as they could. First, the students referred to the board for images and examples. They seemed to be uncertain at how to approach the task. I walked around and added questions and comments to the students brainstorming. This seemed to spark more conversation and action. I also made a class announcement that students could add thoughts and comments to each other's ideas. This silent activity encouraged students to visually think and connect ideas about value. The students worked for approximately 20 minutes on this activity. At the conclusion of the activity, the students were encouraged

to walk around the room and view similarities and differences on the mind-maps. In Class A, time permitted for students to share their observations from the activity in a class discussion.

This activity revealed that some of the students remembered value scales that were made during a fourth grade project. Some students replicated the value scales on the mind maps.

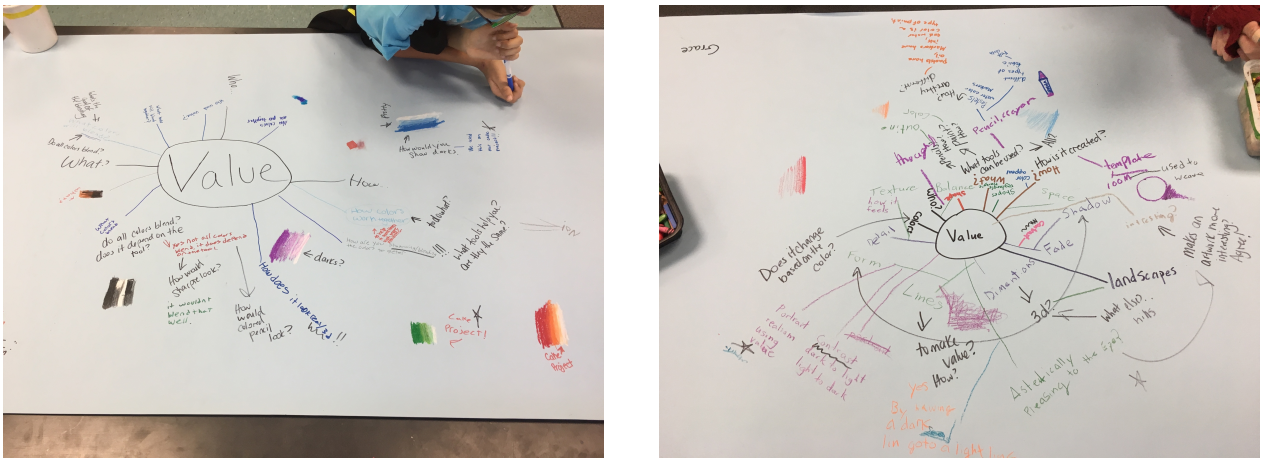


Figure 3. Student artifacts from the mind-map activity.

Pre-planning Reflections

Another part of the pre-study data includes open-ended pre-planning questions students have completed, referring to thought processes and strategies that they predicted they would utilize. The questions were as follows: What are some skills you need that will help you be successful with this project?; What might you have to remember or think about to be successful with this project?; and What steps do you think you need to take to complete this project?

The first question was, "*What are some skills you need that will help you be successful with this project?"* 98% of the students answered this question. Included in the responses were twenty different mentions of self-regulating strategies like pacing and focus. Answers also included asking for help, and mentally picturing the end result. Students mentioned nineteen distinctive objects and elements of art they wanted to include in their final products. Finally, sixteen different skills such as blending, and adding details were mentioned.

The second question was, "*What might you have to remember or think about to be successful with this project?"* 83% of the students provided answers to the second question. Within those answers were nineteen particular mentions of self-regulation with answers referring to behavior, time management, and pacing. There were nineteen different references to objects or elements of arts the students wanted to include. Most of the images to included such as color, shape, form, texture and line. Only four skills were mentioned. One student made a personal connection to an experience his family had on their boat. Another student made a statement about being able to draw aquatic animals correctly.

The third question was, "*What steps do you think you need to take to complete this project?"* 60% of the students answered the third question. Only fourteen of the answers included a list of steps, the rest of the students continued to list self-regulating strategies, images to include, and skills. Within those answers self-regulation techniques such as going slowly, being careful, and watching time were mentioned sixteen times. Students mentioned specific elements of art six times. Finally, skills such as shading, and process were mentioned eleven times.

Analysis of Pre-Study Data:

After reviewing the pre-metacognitive surveys, I recognized that the mean of the student answers hovered around the middle of the Likert scale. At first glance, the averages did not tell me specifically what cognitive categories the students seemed to be struggling with. When I referred to the teachers comments I noticed there was a general consensus that the students did not plan before working or reflect during the process. Instead, the classes of fifth graders seemed to reach out for feedback questioning procedure and whether or not they had reached expectations. According to the teachers' responses the students did not seem to ask for feedback to improve personal artistic goals.

When answering the pre-planning questions students appeared to give vague answers of what strategies or plans they needed to use. From the audio recording, I heard students asking each other what to write down. Some told their peers to write down the random words they saw at the front of the room. This informed me that some of the students did not have specific strategies to use. I also noted that the majority of the students left the steps portion blank. This seemed to indicate a lack of cognitive engagement with the question.

After analyzing this data, I introduced planning, monitoring, and evaluation techniques to help students engage in reflective activities to emboldened self-efficacy. The following data presented will outline the activities that were introduced during each phase. I will also be presenting student comments and findings throughout to help indicate levels of cognitive engagement.

Stage 1—Planning

To begin I introduced planning through the introduction of the objective. The objective of the unit was chosen by the Rose Tree Media School District Elementary curriculum, which was to learn how to use value to create a monochromatic ocean scene. This objective was intentionally left vague so that students had the opportunity to make creative choices. An example was created by the department, which I used to model a potential outcome of the project. The perspective of the example was from the bottom of the ocean looking to the surface of the water. The students were encouraged to try this perspective, but were given the freedom to change the view if they wanted. The example laid out the values of the concentric circles. See Figure 4 to view the example.

Figure 4. Teacher example of ocean project.

The students were motivated and enthusiastic when told they could use any material for the project. I then told the students they needed to choose the best material to communicate the idea of the ocean. I led the students in an activity in which students worked in groups to list out all of the materials that could be used to show value. The entire class brainstormed together, and the students came up with two different ways of showing value: changing

the pressure and adding white/black. The students then experimented with each material and used both techniques to show

value. Students were advised to record their findings on a provided worksheet. Figure 5 is an image this worksheet.

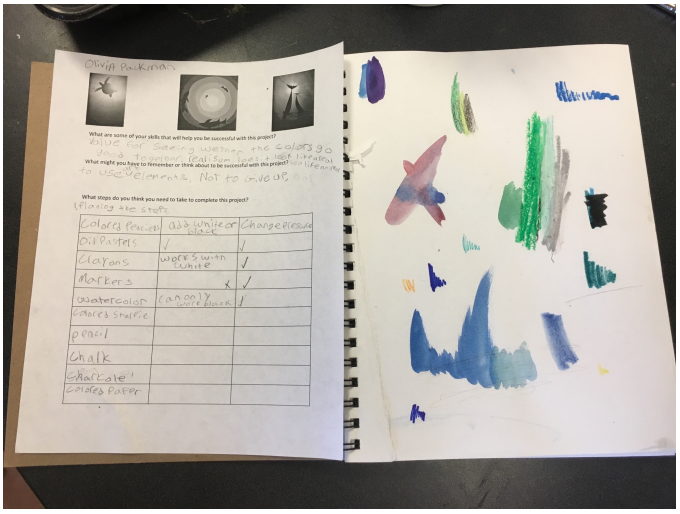


Figure 5. Image of student experimentations with value

At this point in the project, I gave no feedback on techniques the students used to create value. The only guidance given was a specific suggestion of how to use marker to show value. Marker was one material that did not work with student determined techniques. To help expand the students understanding of value, I showed them a completed value scale using marker, along with an artwork created with markers. I asked prompting questions like, "How did this artist use marker to show value?", to elicit student observation and reflection.

After the students experimented with approximately eight materials, the students were introduced to another planning activity. Students were asked to pick three of the materials and create a gradual value scale. First, they were shown an example of the value scales and asked to discuss what process the artist went through to achieve their gradual change form light to dark.

The students were then provided a worksheet with value scales and a variety of materials. Students worked to create value scales showing a range of value. Students were permitted to move around the room so they could sit with others who choose a similar material. After each student completed their first value scale, I provided feedback and offered technical advice through modeling to improve the student's accuracy. Some examples of advice given included, mixing small amount of the dark hue into the lighter as well as avoiding mixing white, blue, and black together. The students created a new value scale in their sketchbook to improve on their technique. Below is are examples of student practices.

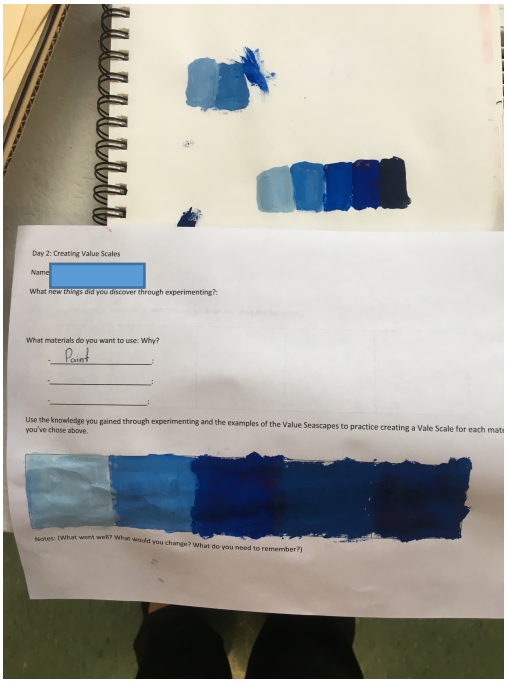


Figure 6 (Left) Student Practice with painting a value scale
The student was encouraged not mix white with the blue when making darker values. The student responded to my feedback by creating the second version of the value scale.

Figure 7 (Right) Student Practice with painting a value scale.
The teacher encouraged the student to have a clean paint brush to ensure that they are creating the most change between the values. The student reexamined the value scale and changed the darkest two values.

I noticed from their conversations that the students were starting to decide which material they wanted to use after they completed one value scale. Some of the students also began choosing their materials based off of their peer's experimentation. After listening to the audio recordings there seemed to be a strong indication that conversation with peers affected students' material and composition choices. Through audio recording I was able to capture one conversation from this group in which the students reasoned together about which materials to use:

SF: Oil pastels are good because you can show details for the animals.
AJ: You can show light colors.
SF: And you can still show value.
AM: Darkness, and lightness…
SF: And it will look beautifulness.
AM: Yeah.
SF: Like paint is like blobby and you can't really make like details.
AM: Sometimes if you do water color you can spread it around.
BW: or paint.
SF: And then you can like… plus you can show—remember how we did the cakes?
AM: I'm going to show that much detail to a lot of things.

The student decisions of what materials to use occurred organically, so I chose to allow the students to practice with one material instead of three. The expectation was that they had to practice using the material they would use in their final copy. Most of the students gave verbal reasoning on how their value scales were improved. I asked them to explain what made one better than the other as a way of helping students to self-regulate.

Another planning technique was the watching of Blue Earth produced by BBC. This documentary was streamed for 3-5 minutes through Netflix was projected onto a screen. The students watched the film while considering the materials that they had been working with. The students were instructed to reflect on their observations they noticed in the water and equate the observations with their own materials. One class of students recorded observations of the water as they watched the film.

At the end of the art class students were asked to make a choice about which material would be best for showing the ocean scene and why. From two of the classes I found that 74% of the students had selected the material that they ended up using for the extent of their project. When introducing this prompt to the third class the I phrased the question differently and elicited different responses. At this point in the study 35% of the students chose to use a material different than the painted example. Of the thirty-one participants, sixteen made specific references to how the material could help communicate the idea of water. Some answers included,

"Oil pastels will help the water blend together like water movies." LL

"When I use paint it looks smooth and flowing like the ocean." TM

"When I use water color it is soft like the ocean and shows lots of detail." EG

At the end of the planning period, I asked students to reflect on the four different planning activities. The students were asked to consider which of the four was most helpful in building confidence for the project. Thirteen students were either absent for the activity or did not answer the question on topic. The following pie chart demonstrates the

student responses:

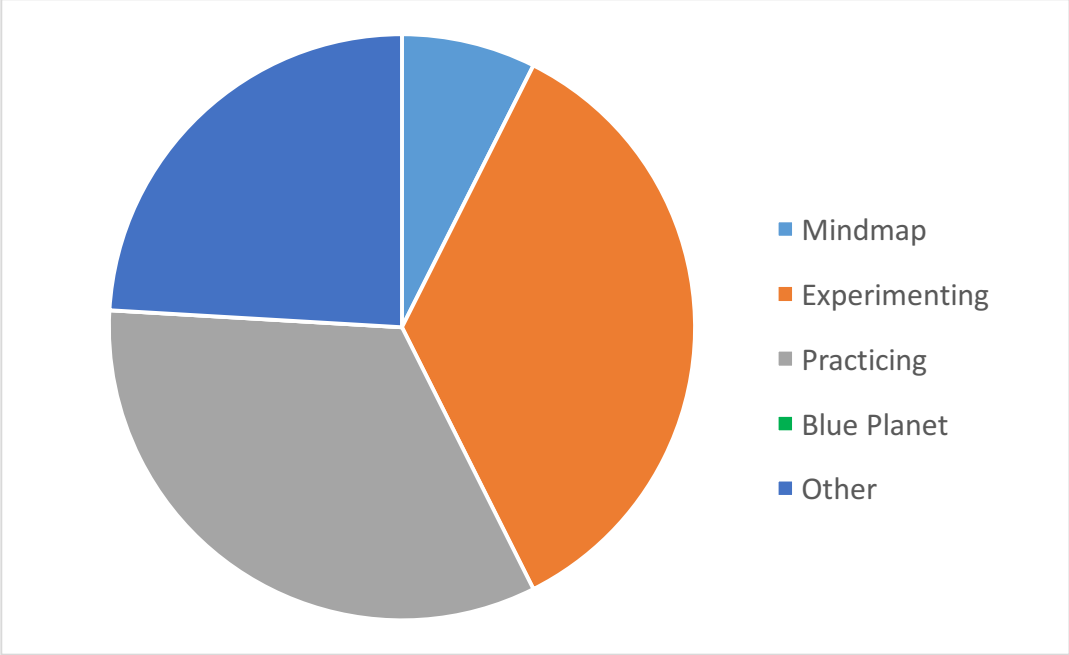


Table 3. Student Responses to Which Planning Activity was Most Helpful

Stage 2—Monitoring

After the planning stage, each student selected the material they thought would best represent the ocean. The students then began working on their final copies. The teacher provided students with compasses to begin creating concentric circles on their pages. Many students began experimenting with the compasses in their sketchbooks without being directed. I realized that the students had never used a compass before so they had no previous knowledge. There was a high level of frustration during this class. In Table 4 displays the percentage of students that verbally expressed frustration with using compasses. Also expressed is the methods students used to solve this challenge.

As seen in Table 4, all three of the classes had a high percentage of student's express verbal frustration. As seen above the majority of the students from Class A problem solved independently and through peer feedback. Almost an equal amount of

students from Class C used all three approaches. In Class B, students' problem solved independently or through teacher feedback. Verbal data was not collected from all tables due to recording errors.

Class and Table Color	Number of students who expressed frustration	**Independently** problem solved	Solved problem through **Peer feedback**	Solved problem after receiving **Teacher feedback**
Class A: Green	4/4	1/4: 25%	2/4: 50%	1/4: 25%
Class A: Yellow	4/5	2/4: 50%	2/4: 50%	0/4: 0%
Class B: Green	2/2	0/2: 0%	0/2: 0%	2/2: 100%
Class B: Purple	1/2	1/1: 100%	0/1: 0%	0/1: 0%
Class B: Red	2/3	1/2: 50%	0/2: 0%	1/2: 50%
Class C: Green	3/3	2/3: 67%	0/3: 0%	1/3: 33%
Class C: Purple	4/4	1/4: 25%	1/4: 25%	2/4: 50%
Class C: Yellow	3/4	1/3: 33%	2/3: 67%	0/3: 0%

Table 4. Exploration of problem solving using compasses

Studio Habits of Mind (Hetland et al., 2013) Checklist

During the creation of their final copy, I intended for students to use the Studio Habits of Mind (Hetland, et al., 2013) checklist to monitor and self-regulate their artistic process. I introduced the checklist and realized upon reflection that the checklists were not age appropriate. During the methodology process I formatted the checklists to include age appropriate language. What was not considered was the cognitive level needed to read the terms, interpret the vocabulary, and finally look for personal examples within art class. The checklists were not an activity that could be done independently.

Instead, some of the students required the teacher to point out examples. Because of the time limitations of this study, the checklist were not again utilized in for this purpose.

Throughout the monitoring process, the teacher encouraged the students to use principles found within the Studio Habits of Mind (Hetland et al., 2013) checklist. Below is a table that includes specific examples of how the Studio Habits of Mind (Hetland et al., 2013) was integrated into the monitoring phase of the study:

Studio Habit of Mind (Hetland et al., 2013)	Monitoring Phase
Developing Craft: Technique & Studio Practice	Students learned how different materials blend to show value. Students chose the correct size paint brush to best control paint. Students chose a paper blending tool to help blend oil pastels. Students chose a spoon to help remove excess oil pastel to adjust color.
Reflect: Question and Explain, Evaluate	Students asked each other for feedback on progress and process. Students defended artistic decisions to peers and teacher. Students changed technique mid-stream to respond to an unexpected outcome. Students began evaluating success of work after self-reflection and receiving feedback from their peers and teacher.
Stretch and Explore: Taking a Leap	Students experimented with different ways of controlling paint. Students created the composition from a different angle than the example.
Engage and Persist: Committing to Follow Through	Students tried different methods when projects were not looking as hoped. Students repainted or redrew rings if they were not pleased by the color outcome.

Observe: Really seeing not just looking	Practiced showing value in sketchbook. Students gave feedback to peers about specific improvements. Students asked for help improving specific sections of their work.
Understand Art Worlds: Domain Communities	(No observed examples)

Table 5. Observations of Studio Habits of Mind (Hetland, et al., 2013)
This chart compares the Studio Habits of Mind (Hetland et al., 2013) cognitive categories to specific instances within the art classroom through the duration of the study.

Categories such as Developing Craft, Reflect, Stretch and Explore, and Engage and Persist happened organically between students. Audio recordings picked up evidence of these habits in their self-talk, and within conversations with their teacher and peers. These three students will serve as a case studies later during analysis.

The students wrote a goal at the end of each art class. The teacher then provided feedback to each goal. The feedback mostly asked the students to share more details to what techniques they might use to achieve the goal. After the first goal was set and feedback provided, I used direct instruction on how to set a specific goal. A specific goal was defined as a plan that outlines a visual change or improvement made to meet an objective. The goal served as a formative assessment for the teacher to use to determine the level of cognition. Most of the students set a goal that included a number of rings or drawings to be completed. Many of the students named finishing as an important goal. See Figure 4.20 for an example of growth in goal setting.

Stage 3—Evaluating

The last self-regulating strategy to be focused upon was evaluation. Before the evaluation activity, students seemed to be assessing their successes by creating value.

Within the audio recording most of the students made comments about the success of their value scales. Some of the student's evaluations directly impacted the techniques they used for drawing. After verbally assessing their work some students began sketching the ocean animals and fish in their sketchbooks. Other students began directly painting without sketching. Based on their conversations I observed some students sketched to preserve the quality of their painting. They recognized that if they first painted they would not be able to erase if they made a mistake. For other students I observed they expressed so much confidence on their value scales, they did not see the need to practice drawing their ocean animals and fish.

To ensure that all students were evaluating their work with appropriate criteria, I designed an activity which the students could "teach the class." Students selected three or four peers, who used the same material, and reflected on three questions. The questions were: What advice would you give someone who wants to use your material?; What is one tool that helped you be successful?; and What did you learn about yourself? Some students chose to write down their answers, while other groups practiced delivering their answers. After five minutes, the students were invited to the rug and to sit in their groups. On the board was a display of the classes' works. Students were told they could use the artworks to demonstrate their points if it would be helpful. They were also encouraged to ask each other questions at the conclusion of each group's presentation.

Each class responded differently to this activity. In Class B, the students choose to have each student answer one question. The answers were short and concise. They were on topic but very few details were given connecting their artwork to their their thinking. No students referred to the artwork hanging on the board. There were only one or two

repeated responses. Four of the students shared negative thoughts on their abilities. I encouraged them to consider the growth they've obtained rather than viewing their difficulty as an indicator of a fixed level of ability. In another class the students' answers were lengthy. Answers included personal reflections on process as well as an evaluation of the final outcomes. Students did not ask each other questions.

The Class A and Class C showed total student engagement. Most student groups encouraged all group members to participate. Students spoke eloquently about their project. In Class A, I had to model how to participate in group discussions due to students interrupting each other. It seemed that students talked on top of each other if they felt their groupmates were not giving adequate details. During this class I noticed that I asked only a few questions. Instead of asking questions I used the students answers to offer reminders about techniques. In Class C, four students referred to their projects, or other projects on the board. I gave much more praise during this group and encouraged specific moments of risk-taking and problem-solving. For instance, one student chose to change her technique in the middle of her project because her original technique was not creating a change in tones. I also took the opportunity to praise a neighboring student who offered advice. Thirteen follow-up questions and comments were shared by the audience. These comments ranged from technique questions to praise. Only one student made a negative comment about abilities. Three other students made comments that their projects exceeded their expectations.

Post-Study Data

Post-Study Interviews

After the students completed the evaluation portion of the study, I randomly selected three students from each class to participate in a post-study interview. Some students were beginning to work on drawing ocean animals and fish, while others had only finished their value scales. During this interview, I asked the students four questions. The Interview Protocol can be viewed in Appendix E. Table 6, displays the transcribed verbal responses of two of the four questions asked during the post-interviews. Four of the nine students specifically mentioned a challenge relating to the techniques used while painting a value ring. Those four students then mentioned feeling most confident after they faced that challenge and began painting the last two rings of their value scales.

Participant	What is one challenge you faced during your project? How did you overcome this?	At what point did you feel the most confident during this project?
MH	It was--when I was--like show value by the color to make the smooth edges—the paint wasn't.... and the paint brushes weren't making the smooth edge I wanted, so yeah.	I'd like to say after the first three rings because it like—knowing that I already did it and I had only a few more to go was really just—it was like really hopeful kind of in a way because I knew that once I was done I could just paint the black and be done.
MW	I tried to add water to make the lines neater but then it started running all over the paper and the paint didn't stay. It wasn't very neat. I wiped off the water and I started over using the small paint brush instead of the water to make the lines neater.	Probably when I started adding my last ring and started doing my animals because I realized that I was finished and I only needed to add one more color and then I could be finished.
CMK	I faced the challenge that it was kind of, I was kind of a little struggling with the color pattern because I was trying to make it a little darker but if it went too light I had to add more and when I did sometimes it would be too dark instead.	When I was done my circles and after I started the fourth color. Because I knew that this one would be a little darker and this one I just used the regular blue and then the outside is just blue and black.
LL	Trying to get the lighter colors like this row, trying to get it to look lighter than that row. And doing that [pointing to the animal] I	Doing the last row because I was just—yes I actually did this.

	always kept messing up and having to erase it.	
MK	Trying to make this one darker-but not—make it darker than this but not black. That was really hard.	When I started drawing fish and swordfish.
TF	During the sharks and tiny fish. [I] made them bigger so it would be easier. I didn't put that much detail.	When I was using the compass.
CJ	Well doing the circling with that thingy [compass.] It was hard for me to go around the circles, but I was trying to do it and I finally got it. So I tried to use this one and it didn't work so kind of at the edge at the end of it so I erased half of it and then I drew it.	While doing the animals.
AM	The lines because I couldn't really get the lines straight like. I had some trouble with the compass but I did figure out how to use it.	I felt confident when I was using the tortillon [paper blending tool] because I think it looked more smoother and actually like using white and black to show the different parts of the water.
NS	Well the second to last line because when I put too much black on it I didn't exactly mix with this one. So that's the part that I had to use the knife to scrape it off and I also put purple in here to make it blend easier.	When I was finishing up animals, I really liked the way they looked when I started to finish up with the animals and everything.

Table 6. Transcribed student responses to 2 of 4 questions from post- study interviews.

Another question I asked, which is not pictured above, was "*What feedback helped you be successful?"* The students responded by listing technical suggestions such as the adding more water to paint or using a new tool. These tips and tools provided them with more resources to problem-solve. Students also answered questions about which instructional activity they felt helped them to be successful. The chart below outlines their responses:

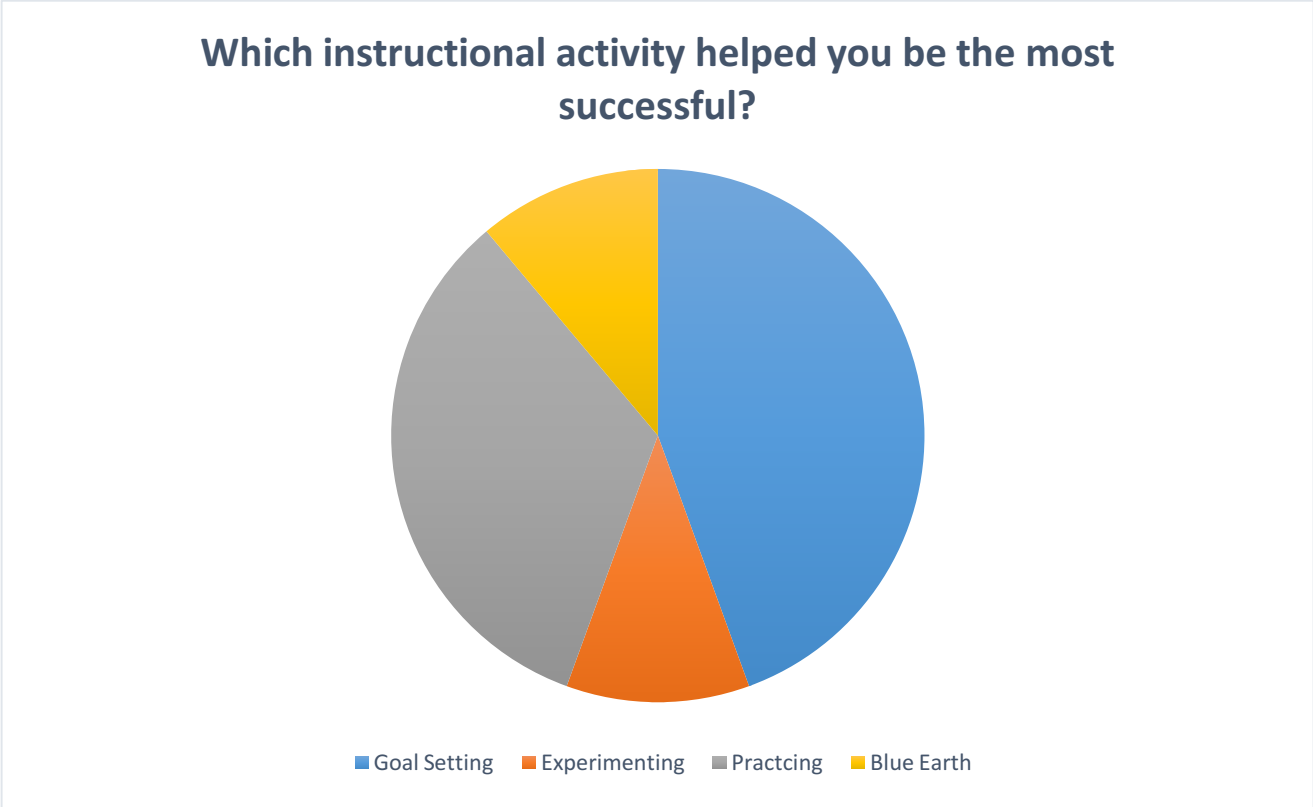


Table 7. Student responses to which planning activity was most helpful.

Post-Metacognitive Surveys

At the conclusion of the study, students completed a post-metacognitive survey. This survey was the same version of the survey given at the beginning of the study. Instead of completing this survey over two classes, as outlined in the protocol for the pre-metacognitive survey, the students completed the survey during one art class. This survey asked students to reflect on cognitive strategies they used to create art. The students rated the accuracy of the statements using Likert scale. The class' averaged responses are displayed below:

	Monitoring	Planning	Procedural Knowledge	Conditional Knowledge
Class A	4.96	5.42	5.68	6.22
Class B	4.08	4.36	4.99	5.05
Class C	4.48	4.69	5.67	5.9
Class D	5.067	5	5.2	5
Class E	4.75	4.90	5.23	5.90
Class F	4.07	4.4	3.93	5.27

	Debugging	Declarative Knowledge	Evaluation	Information Management
Class A	5.46	6	5.59	5.11
Class B	4.21	4.69	4.71	4.04
Class C	5.275	5.75	5.25	4.61
Class D	5.67	5.33	5.33	5.07
Class E	5.67	6.29	5.5	4.17
Class F	4.53	5.67	4.33	3.33

Table 8. Averaged student post-study scores for each category of metacognition.
The light blue cells are the names of the teachers working at RTES. The bright blue cells are the names of the 5th grade teachers working at MES.

Student artworks

Figures 8, 9, and 10 display classes of student artworks. The photos were taken just after the students completed the monitoring phase. In Figure 8 it can be seen, 55% of Class A took a risk by using a different material than shown in the teacher's example. 15% of the students chose to show a different perspective under the water. These students were sitting at the same table. 5% of students chose to use a different color than demonstrated.

Figure 9 displays the artworks from Class B. 24% of the class took a risk by using a different material than shown in the teacher' example. 18% of the students chose to show a different perspective under the water. 12% of students chose to use a different color than demonstrated.

Figure 10 shows the artwork from class C. 61% of the class took a risk by using a different material than shown in the teacher's example. 17% of the students chose to show a different perspective under the water. These three students were seated at the same table.

Figure 8. Finished value studies from Class A.

Figure 9. Above are the finished value studies from Class B.

Figure 10. Above are the finished value studies from Class C.

Analyzing Pre- and Post- Study Data

The following portion of my research will analyze data from student surveys, student written reflections, artworks, observations, transcriptions, and post interviews. The data will be analyzed for trends pointing to a growth in student self-efficacy after an implementation of instructional and assessment strategies. First, I will present an analysis based upon the results collected from the pre- and post- metacognitive surveys. Then, I will examine three different students, one taken from Class A, B, and C. Student growth will be demonstrated through the charting of metacognitive surveys, examining artwork for evidence of risk taking, and examining written and verbal feedback of the process.

Metacognitive Surveys

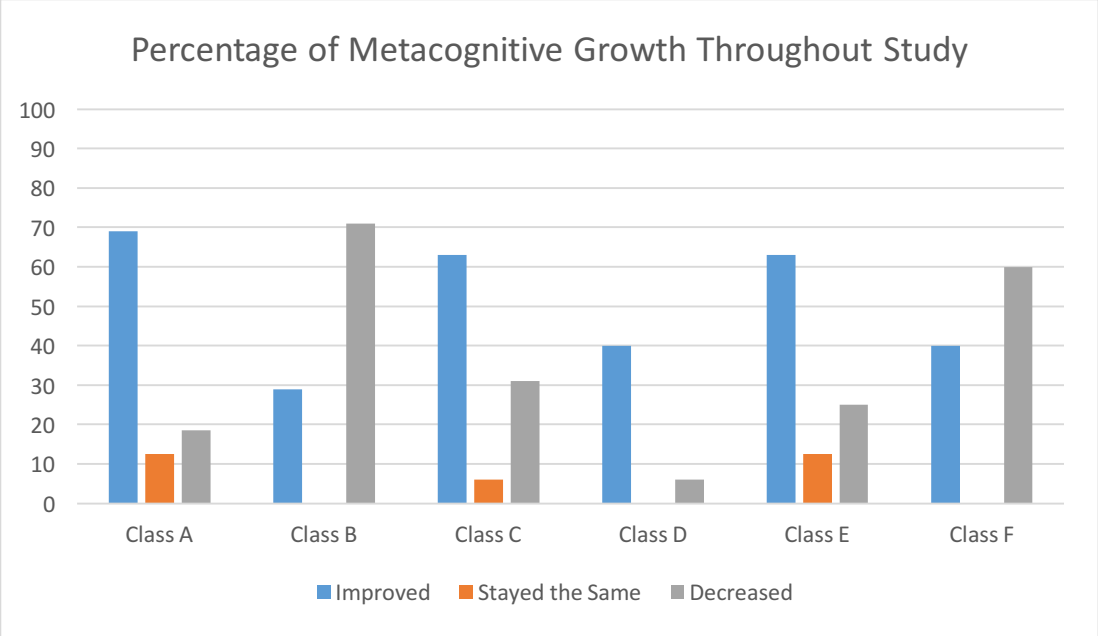
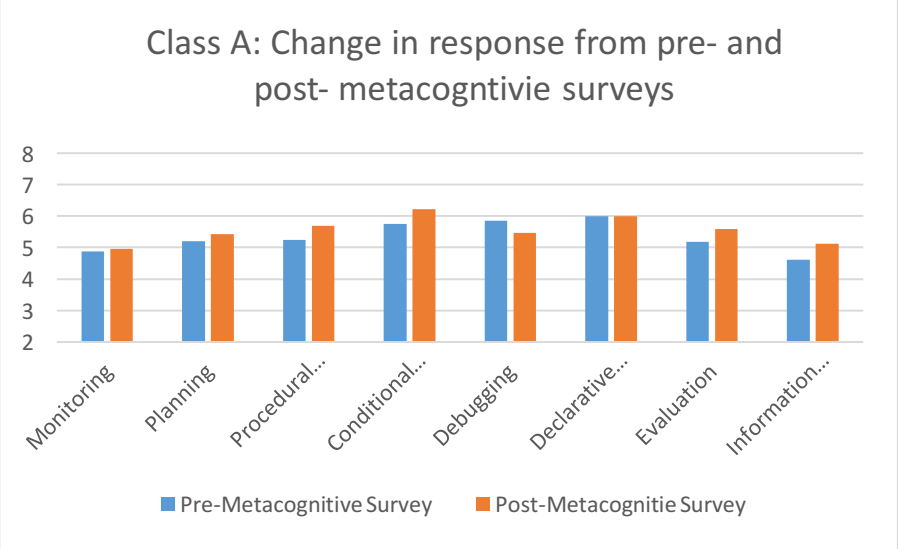
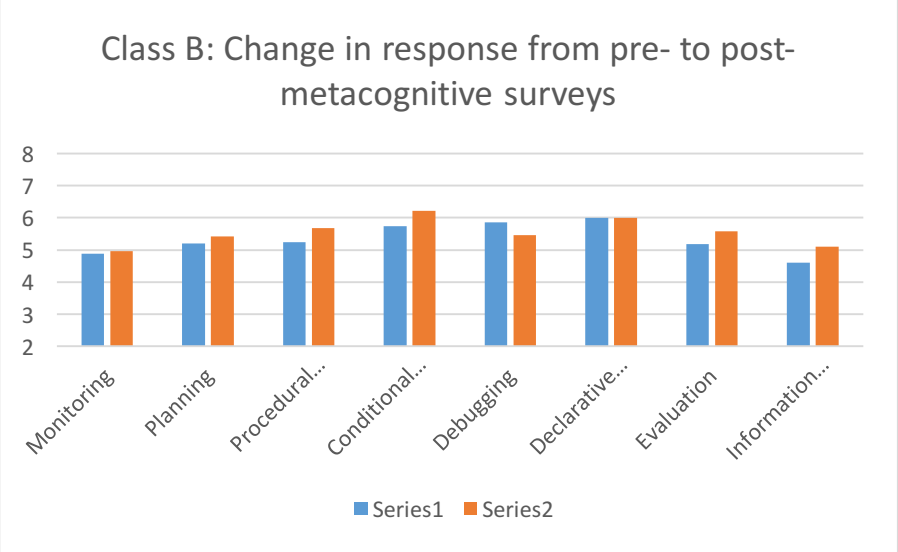


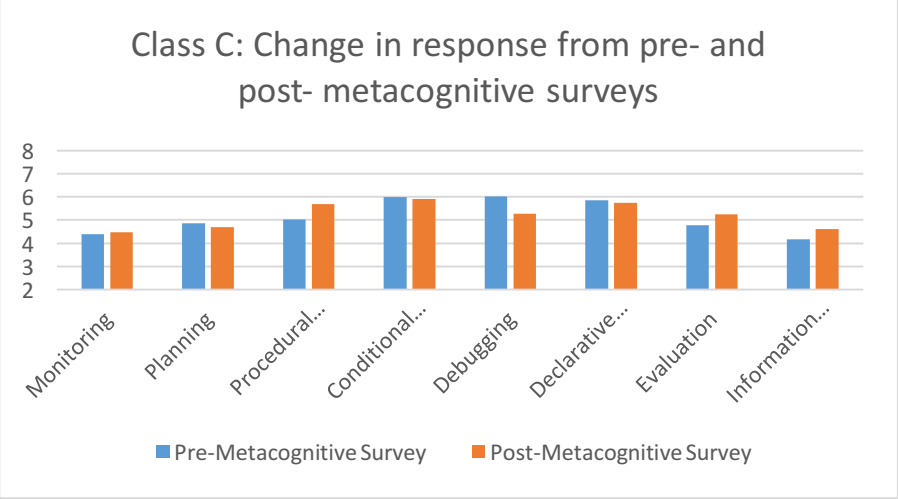
Table 9. RTES Percentage of Metacognitive Change throughout Study

In Class A and C, over fifty percent of the students showed metacognitive growth. In Class B a majority of student's demonstrated a decrease in metacognition. After running the data through statistical analysis it was found that there was not statistical difference between the scores on the pre- and post- surveys. There was no statistical difference when comparing all of the students, also when comparing classes.

Though it is expected that the classes from MES would decrease or stay the same in percentage of metacognitive growth, this data seems to indicate inconsistencies. Two of the classes (Class D and E) seemed to show growth in self-efficacy. Class F showed the highest decrease in self-efficacy.

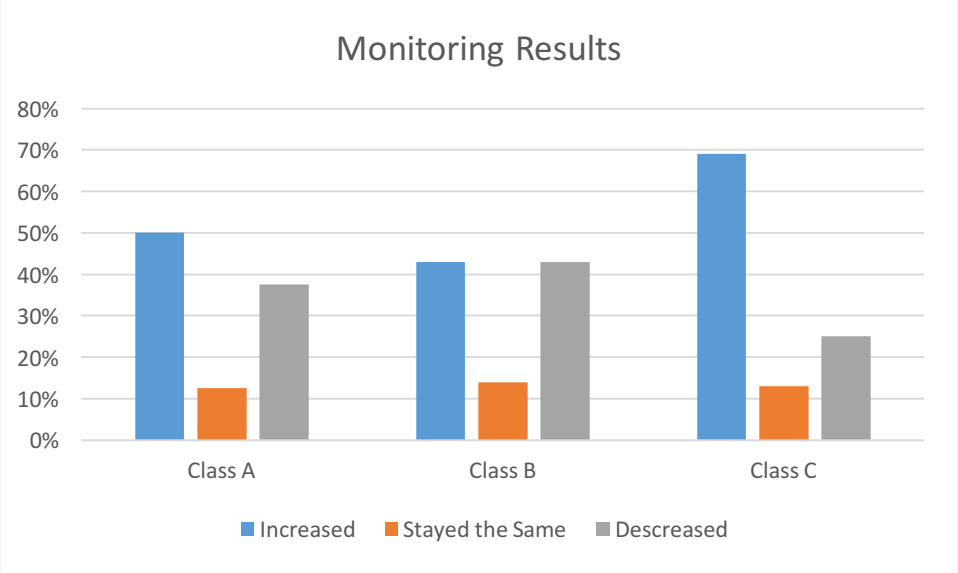

Class A: Change in response from pre- and post- metacogntivie surveys
8
7
6
5
4
3
2
Monitoring
Planning
Procedural...
Conditional...
Debugging
Declarative...
Evaluation
Information...
Pre-Metacognitive Survey
Post-Metacognitie Survey

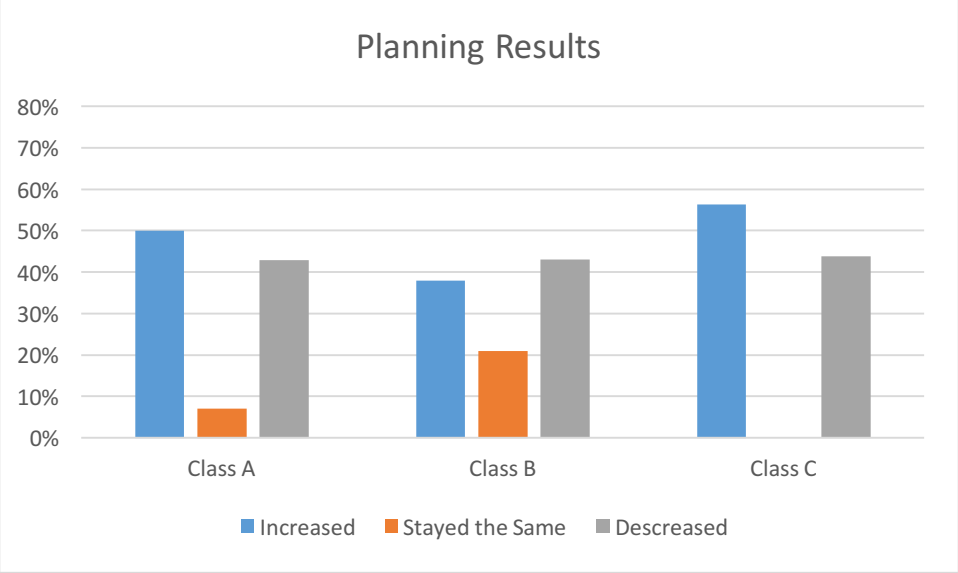

Class B: Change in response from pre- to post- metacognitive surveys
8
7
6
5
4
3
2
Monitoring
Planning
Procedural...
Conditional...
Debugging
Declarative...
Evaluation
Information...
Series1
Series2

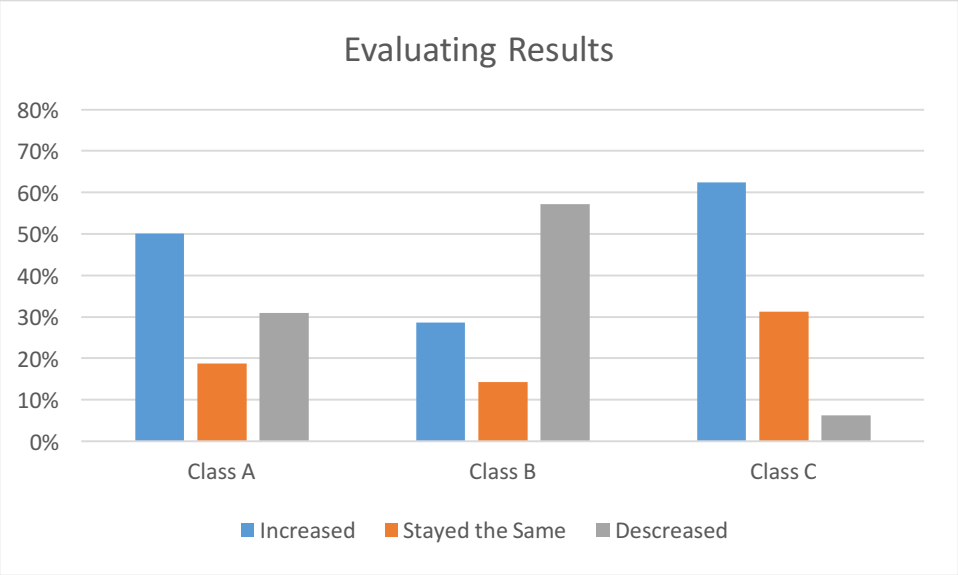

Class C: Change in response from pre- and post- metacognitive surveys
8
7
6
5
4
3
2
Monitoring
Planning
Procedural...
Conditional...
Debugging
Declarative...
Evaluation
Information...
Pre-Metacognitive Survey
Post-Metacognitive Survey

Tables 10-12. Change in metacognitive scores displayed by class.
These three charts show the change in scores for each class. The charts demonstrate change in each metacognitive area.

The average increase or decrease demonstrated above seems to be very slight. The reader must remember that these scores are collected and averaged using a 7-point scale. Because of this, even a small bit of change is important and noteworthy.







Tables 13-15. Change in metacognitive scores displayed by category. These three charts show the percent change for each class, while looking closely at the three categories in which interventions were applied.

This data could be due to a number of factors including but not limited to, the date of delivery, the comprehension of questions, and other external influences. Because of the time limitations of the study, the post-surveys had to be distributed before all students were completed with their projects. The students had finished creating the value scales, but many students had not yet completed adding animals to their projects. Another factor influencing this data were other educational demands impacting the student's cognitive processing. All of the elementary students at RTES completed their post-metacognitive survey during the week of state testing. The students were asked to reflect on their cognitive processes after spending over three hours of high stakes testing. The physical fatigue the students experienced could have contributed to results of the data.

It is important to note that other data collected indicates high levels of cognitive processing. These moments during the study indicate student cognitive engagement which helps to show reflective qualities which have been proven to show a growth in

self-efficacy. (Bandura, 1986) After viewing the results of the pre- and post-metacognitive surveys I decided to look closely at one student and chart her metacognition based off of the statements she made during art making.

Case Studies

The following case studies examine specific students' metacognitive growth throughout the course of the study. It includes data collected from the pre- and post-metacognitive surveys along with other sources such as teacher observations, student written and spoken responses. I have also used the students' phrases as evidence of cognitive practices. Then I counted the number of times each student uses each Studio Habit, and charted the frequency.

One student from each class was chosen as to represent the population. Each student was selected due to the fact they had been randomly selected for a post-interview. The students not only represent their class population, but also represent the range of metacognitive growth. One student was selected to represent those students that showed a decreased metacognitive growth and two were chosen to represent an increase of cognitive growth. No students randomly selected for post-interviews maintained the same level of self-efficacy.

Student W Case Study from Class A

The following case study examines the growth of self-efficacy and metacognition in Student W. Student W was randomly selected from Class A to participate in post-interviews. The following data displays evidence of her growth throughout the study.

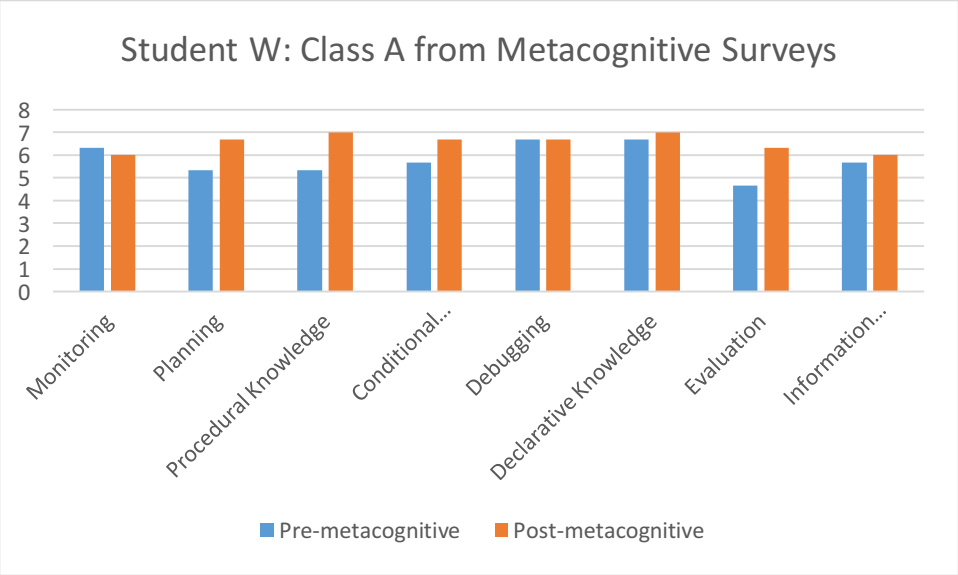


Table 16. Student W from Class A: Results from Metacognitive Surveys
The table shows a change in scores from the pre-metacognitive to the post-metacognitive survey.

When averaged together Student M's averaged scores from the pre-metacognitive and the post-metacognitive survey increased by 10.72%. As you can see from Table 16 Student W increased metacognitively in the planning, procedural knowledge, conditional knowledge, declarative knowledge, evaluation, and information management. Her scores stayed the same in the debugging category. The only category that showed a decline in self-efficacy was monitoring.

After viewing these results, I was interested to see the level of growth that might be indicated by evidence of the Studio Habits of Mind (Hetland, et al., 2013). Table 17 shows the specific studio habits that Student W exhibits through the course of the study.

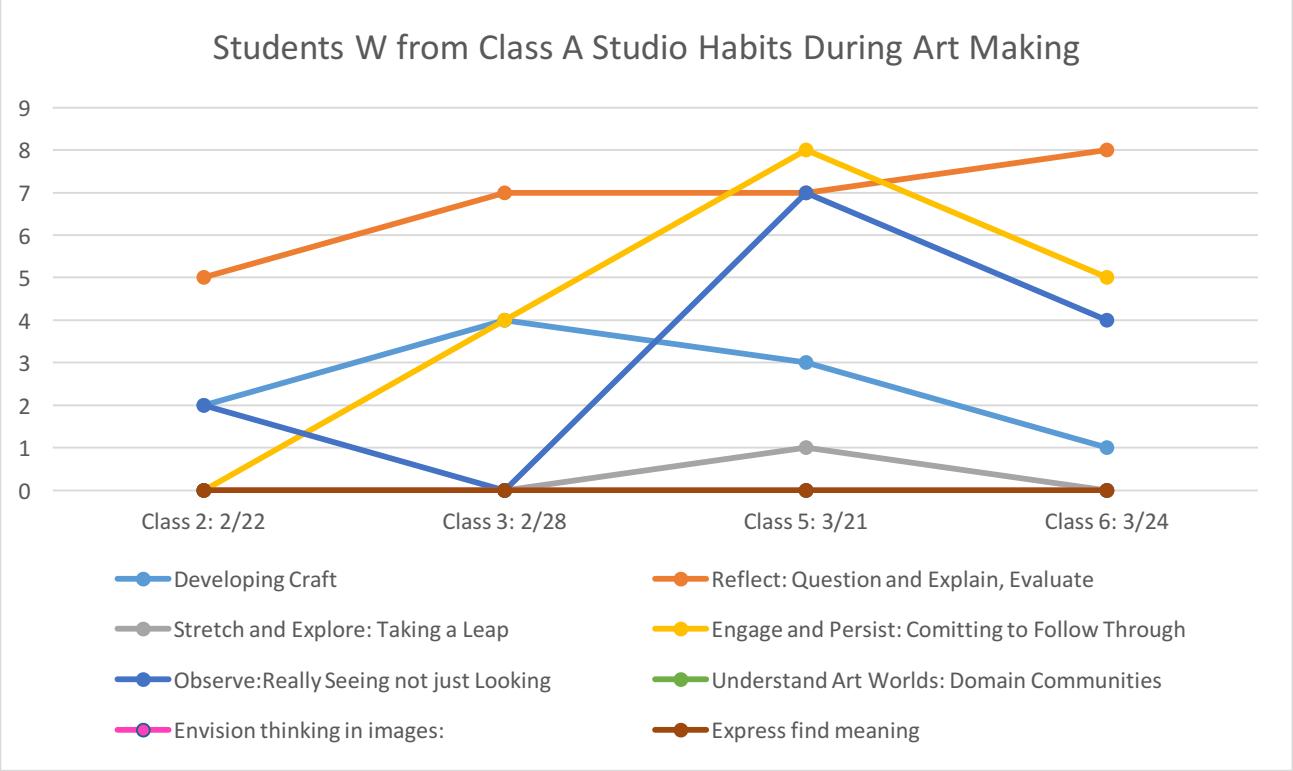


Table 17. Student W from Class A: Evidence of Studio Habits During Art Making. Chart outlines the frequency each Studio Habit of Mind (Hetland et al., 2013) is utilized throughout study.

It can be noted from Table 17, that Student W reflected consistently through the entire duration of the study. The trend line Reflect: Question and Explain, Evaluate holds steady at the top of the chart with few rises and falls. One trend line that had a dramatic rise was the Engage and Persist: Committing to Follow Through. The student used this habit of mind 9 times in contrast to the zero times during class 2. It should also be noted that this trend line begins to decline during Class 6. Another trend line that shows a dramatic increase is Observer: Really Seeing not just Looking. This trend line also rises

Date	Observation from Student Conversation
Class 2	Student decides which colors she is going to use.
Class 2	Student verbalizes that she needs black to show value.
Class 3	Student expresses frustration while making a lighter value.
Class 3	Student gives another peer advice on how to make the water look lighter.
Class 3	Student asks neighbor if she likes her color.
Class 3	Student states: "Neatness is not one of my good qualities." Teacher responds by encourage her to work on it so that it can be improved.
Class 3	Student asks a classmate, "If I blend it together, doesn't it look good?"
Class 3	When student is encouraged to get a smaller paint brush to better control paint application she says she doesn't feel like it.
Class 3	Student asks teacher what she should do after finishing her painting.
Class 5	Student sets a goal of completing two circles and finishing.
Class 5	Student asks if they are allowed to start drawing animals.
Class 5	When student does not put her circle in the middle she then chooses to change the design of her composition.
Class 5	Student decides she is going to mix the colors first because that's "the hard part." Then she plans to paint the white circle in the middle.
Class 5	Student advises a peer not to paint her ocean purple because then it wouldn't look realistic.
Class 5	Student shares that it's challenging to hold the paper down while painting. She solves this problem herself by putting her fingers on dried paint.
Class 5	Student advises peer: "It will dry and you can make it neater. Don't worry it will work."
Class 6	Before beginning to create animals, Student W reflects if she is going to have to re-paint the ring's edges.
Class 6	A peer encourages Student W to fix some white spots. She responds by looking closely and making the change.
Class 6	Student questions whether she needs to add more blue to the base color to match a color mixed from the previous class.
Class 6	Student makes a plan of adding turtle and a mermaid to her work.
Class 6	Student W praises a specific painting technique that a neighbor is using.
Class 6	When the teacher offers unsolicited advice on how to improve the student's turtle drawing, she defends her work by saying, "This is how I want it."

Class 6	Student warns a peer that, "You're not supposed to be doing that yet. You should draw it in your sketchbook."

Table 18. Table of Teacher Reflections While Coding Studio Habits of Mind
These comments were expressed by Student W throughout the study. Comments from Class one, four, and seven are not included due to recording problems.

dramatically from Class 3 to Class 5, and then begins a decline during class 6. Student W expressed no evidence of Understand Art Worlds: Domain Communities, Express to find meaning, or Envision thinking in Images within the study.

To understand what specifically happened during each class I recorded quotes and personal observations while coding the Studio Habits of Mind (Hetland et al., 2013). These observations and quotes are included in Table 18.

Included with the recorded observation was a general statement that the student asked frequently for teacher feedback. There are at least two different interactions between myself and the student during each class. Sometimes the feedback is asked for by the student, while in other times I provide unsolicited comments. Another general observation is the student moved very quickly through the experimenting process and began painting before the peers at her table. She made quick decision about what material and colors she planned to use. The student's pace seems to slow as she begins to mix specific colors for each ring.

Something notable for the third class is an expression of frustration. The student verbally expresses frustration in mixing a lighter value. Soon after the student offers advice to a neighbor concerning the same technique. This may indicate the student solved her own problem and is confident with her results. During this class the student also makes a statement about ability. She declares that, "Neatness is not one of my good qualities." Though when provided with a tool that could help her improve the

smoothness of her application she declares, “She doesn’t feel like it.” This string of comments may indicate that the student does not want to truly improve her neatness, just explain why her artwork looks “messy.” Later in class five, the student encourages another peer by telling her, “It will dry and then you can make it better. Don’t worry it will work.” To be able to give this advice the student may have experienced success and making her rings neater. She then may have had the confidence to share her experience with her neighbor.

While examining Table 17 and 18, I noted that the most cognitive activity seemed to occur during classes 5 and 6. During class five the student continued to refine the color and value of her rings. There seems to be the most peer interactions during this class. The students at the table ask for feedback from each other as well as offer specific pieces of advice for improvement. This may indicate that positive peer interactions spur cognitive activity and builds self-efficacy.

During the planning stage of the study Student W did not answer any of the questions. As stated before in the pre-planning section of data this may have been due to not understanding the meaning of the questions. Many students from her table asked each other questions of what to include and looked to the board for random words to write on the page. At the end of the planning period the student claimed she, “like experimenting best because you can use anything to find value anyway.” This seems to demonstrate a new discovery about the uses of materials.

Throughout the monitoring stage, the reader can note in Table 18 that the student set a few goals prompted by the materials or tasks at hand. The student asked questions to her peers and to the teacher to monitor her color mixing accuracy. Table 19 displays

some of the goals Student W wrote during the goal setting activity. My responses to her goals are also provided.

	Student Goal	Teacher Feedback
Class 4:	To make my work neater and show value.	How would you know your work was neater?
Class 5:	Left blank	Left blank
Class 6:	I want to make the edges of my turtles neater and finish filling in the animals.	What techniques or tools will you use to meet your goal?

Table 19. Student W's Goals and Feedback Created During Monitoring Phase
The chart above displays the student's goals over time. The student did not write goals during Class 5 due to the time it took to fill out the Studio Habits of Mind (Hetland et al., 2013) checklist.

It can be seen in Table 19, the student begins to respond to my feedback. The first goal written uses the word, "neater." After receiving feedback the student makes the word more specific by referencing the "edges of my turtles." This change may indicate that the student is able to define specifically what needs to be improved. In the future this could help the student better problem solve when again faced with needing to refine edges.

During the Evaluation Phase of the study the student shared extensive advice to her peers. She references that she expressed different things about her ocean because she used dark colors. This is evidence of the Studio Habit of Mind (Hetland, et.al, 2013) category of Express: Find Meaning. This was not shared verbally during the Monitoring phase. When prompted by the teacher to share what hers specifically expressed she shared, "These look like they're deep in the ocean because of all the dark solid blues but

mine—I don't think—I don't know, it kind of looks like it's more near the top of the ocean because the colors are lighter, since I mixed greener it looks lighter and it looks different than anyone else." The student again emphasizes that she chose to do something different than anyone else. Based on these comments and comments from Table 18, creating a project different than everyone else's seems to be an overall priority for this student. She also shared, "You have to be very careful making each ring so it will look neat and then smear it after—like smear it around to blend it after you've made each individual ring to make it look neater." She seems to continue to emphasize the importance of being neat, yet she uses the word "smear."

The importance of being neat was also emphasized in the post-interview. When asked about a challenge the student mentioned, "I tried to add water to make the lines neater, but it started running all over the paper and the paint didn't stay." This seems to indicate the student's attempt to problem solve, but the solution was unsuccessful. When asked how she ended up fixing the problem she shared, "I wiped off the water and I started over using the small paint brush instead of the water to make the lines neater." This technique was suggested by the teacher. When the suggestion was given the student responded by declaring she didn't feel like it. (See Table 18) This may indicate the importance of teacher to continue to give feedback even if it is not met with a positive response. In this case the student responded negatively to the comment, yet when reflecting back on the project the student could point to that tool as a way of improving her work.

Student M Case Study from Class B

As seen from Table 20, metacognitive growth improved in the monitoring, procedural knowledge, debugging, and evaluation categories. The student's responses showed a decrease in metacognition in the planning, declarative knowledge, and information management categories.

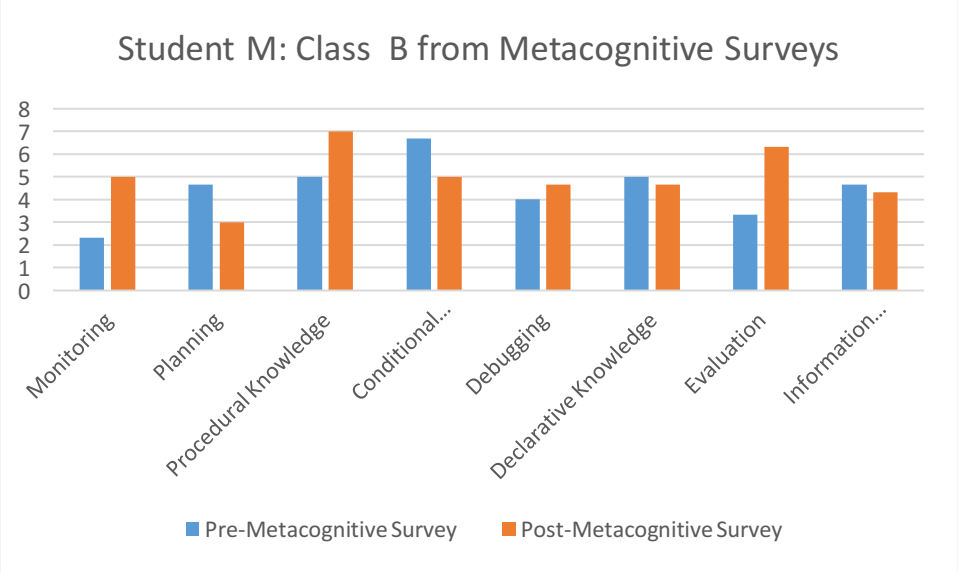


Table 20. Student M from Class B: Results from Metacognitive Surveys
The table shows a change in scores from pre-metacognitive survey to the post-metacognitive survey.

When averaged together the surveys seem to reveal that Student M increased metacognitively by 9%. With this in mind, I was curious to see if other data collected pointed to similar findings. Table 21 charts Student M's engagement with the Studio Habits of Mind (Hetland, et al., 2013):"

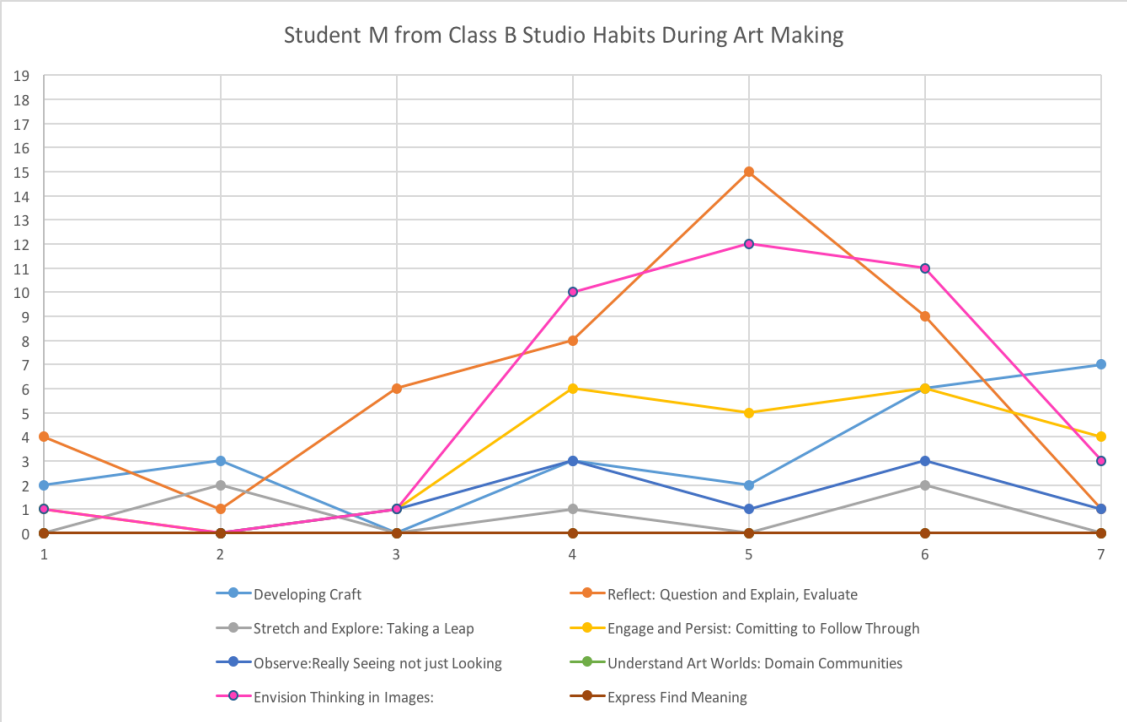


Table 21. Student M from Class B: Evidence of Studio Habits During Art Making. Chart outlines the frequency each Studio Habit of Mind (Hetland et al., 2013) is utilized throughout study.

In Table 21, it can be seen that Student M reflects and thinks in images the most throughout the study. There is no evidence of Understanding Art Worlds, and Express to Find Meaning. Stretch and Explore: Taking a leap, along with Observe: Really Seeing not just Looking, have similar trend lines during classes four through seven. Developing craft seems to also follow a similar trend line, then shows an increase during the last two classes.

Class five seems to be the class in which the most cognitive practices were utilized. During this class, the student mixed colors to represent values. This student verbally processed the mixing with a neighbor. He also began envisioning what animals he hoped to add to his image. The student than began practicing in his sketchbook the animals that were to be drawn onto his final copy. During this class, the student

verbalized mini-goals, and plans for accomplishing the goal. For instance, at one-point Student M says, "I want to make mine a tiny bit more neater and so I'm going to take out those little-- the baby paint brush." After setting a personal goal, the student determines which material will help him accomplish his goal. More of his comments can be seen below in Table 22.

During the coding process of Student M's comments I recorded observations relevant to the development of his self-efficacy. The student does a lot of self-talk and coaching during this project. It should also be noted that the student spends more time thinking and planning how to draw the fish for his project rather than considering how to best show value. These comments can be seen in Table 22.

Date	Observation from Student Conversation
Class 1	Student recognizes that he might smear his paint when he closes his experimentation. He problem solves to prevent this and save his experimenting.
Class 2	Teacher encouraged the students to focus on making art instead of talking to one another.
Class 3	Student sets a goal: "I'm going to add a tiny bit more detail."
Class 3	Student turns to a neighbor to confirm that his project looks messy.
Class 4	Student seems to set a personal goal of being neat.
Class 4	Student choose independently to to experiment with making extra circles in his sketchbook.
Class 4	Student is "so scared" of not putting the center of the circle in the middle of the page.
Class 4	Student wants to start on the other side of the paper rather than erasing.
Class 5	Student makes a statement about art making abilities: "I'm not good at drawing Pokemon."
Class 5	Student evaluates his work after drawing a shark. "Nah I can do better."
Class 5	"I want to make mine a tiny bit more neater and so I'm going to take out those little—the baby paint brush."
Class 5	When warned there may not be a Megalodon to reference the student problem solved by claiming he could use the image of a Great White Shark.
Class 5	Student asks for feedback on his plan to add sharks to his image.

Class 6	"Now I need to learn to draw a tuna."
Class 6	Student chose an alternate animal after advice from a peer to draw a swordfish instead of a tuna.
Class 6	"I wish I could just look up on an ipad how to draw a swordfish."
Class 6	Student asks a peer which part of the swordfish to start drawing.
Class 6	Student practices drawing but still feels anxiety about drawing on his final copy. After drawing a sword fish he claims that practicing helped him draw it well.
Class 6	Student declares he is going to practice drawing sharks more before drawing them on his final paper.
Class 7	Student expresses frustration because he does not follow his plan from the class before. He forgets to practice drawing sharks before drawing them on his final copy.
Class 7	"First I was planning to put like a Megalodon attacking a whale or something, but then again I thought that was going to be too hard."
Class 7	Student alters the narrative of his painting because he reflects that he drew his swordfish too large.
Class 7	Student reflects on the value shown on his project. He claims he didn't want to take a risk of adding more shadows because of the amount of time it took him to paint.

Table 22. Table of Teacher Reflections While Coding Studio Habits of Mind.

According to Table 21 and Table 22, class one and two have the least amount of cognitive practices. During these classes the student was experimenting with a variety of different materials. It is noted from the teacher's observations that during class one and two, the student had extensive conversations with a neighbor about non-art topics. I had to redirect the student numerous times to make sure he was focusing on art making. I also had to encourage the student to experiment with the materials in a meaningful way. It seemed that the student was randomly experimenting with materials instead of intentionally trying to discover the best means of creating value. For instance, he was choosing to mix green and orange together to "find out what happened." Once the student began working with a specific material to obtain a visual goal, he seemed to be much more focused and cognitively engaged.

Something notable in the observations is the student's approach to the project. The student completed the painting of the project during the first two days. He seemed to work quickly with little reflection. After he completed the painting he spent two and a half classes planning, executing and reflecting on drawing sea life. He seemed insistent on creating a backstory for his artwork. He is much more cognitively engaged with the backstory than he was with creating value. The student also changed what animal he wanted to add based upon a prediction of difficulty. Instead of facing the challenge of drawing a Megalodon, the student changed his plan to something "simpler." During class seven, Student M completes his project and I encouraged him to draw a Megalodon in his sketchbook. I encouraged him to take the challenge with no pressure added. He seemed to begin this process, but did not reflect on his drawing to the degree he did as he drew swordfish or sharks.

During the planning stage, the student mentioned that drawing animals is an important skill to have to be successful with this project. He mentions something similar when asked what he needs to remember or think to be successful. He states, "You have to be good at aquatic mammals." According to this, the student seems claim that an ability is necessary to be successful at the project. This may be part of the reason he chose not to draw the Megalodon. From this comment we might be able to ascertain a belief that if an aquatic animal is too hard to draw, it will look bad and lead to a failed project.

When asked what steps would be needed to complete this project the student gave the same answer as his neighbor, "value in the sunshine." This response does not answer the question or and may indicate an inability to envision the steps for the project.

As noted above in Table 22, the student expressed many verbal comments which indicated monitoring of success. He created goals for himself within steps after reflecting on past artistic choices. He also changed his goals based upon the success of his drawings. Instead of problem solving and trying to fix the size of the sharks, the student determines that the work is still successful. The formalize goals that the student wrote were much less specific as seen below in Table 23:

	Student Goal	Teacher Feedback
Class 4:	To make my value scale neater and add more colors.	[Teacher feedback unavailable]
Class 5:	To draw sharks and fish in the value scale	I think you can even begin painting your animals.
Class 6:	My goal next class is to finish the sharks I'm drawing.	What about painting them? I bet you could finish!

Table 23. Student's goals and teacher feedback offered.

The student's comments from Table 23 show little change after teacher feedback. The student mentions no self-regulating strategies, and instead outlines technical changes he hopes to make to the artwork. This along with data from his pre-planning questions may indicate that Student M's level of self-efficacy is directly related to his beliefs about what he is able to draw or accomplish. This belief may be supported by data collected during the evaluation activity.

Student M chose to answer two of the questions during the evaluation activity. First, he encouraged his classmates to layer the paint to achieve the desired value. In response to the question of which tool helped him be successful he stated that, "Compass, I'm bad at drawing in the lines." The student seems to indicate that by using the compass he was able to compensate for his inability to draw lines. He may be referring to the challenge of drawing rings on the paper. This comment is curious due to the amount of

lines he used to confidently draw sharks and a swordfish. This may indicate that the teacher should frame the purpose of using a tool like a compass.

During the post-interview the student noted specific strategies he used to sharpen the edges of his rings. He did not verbalize these techniques in the recordings. He mentions that I helped him the most when I helped him sharpen the edges of his value. He also noted that he was most confident when he started drawing his fish and swordfish. This comment is confirmed by the cognitive strategies he used during this process and other comments seen in Table 22 and Table 23.

Student N Case Study from Class C

As seen from Table 24, the metacognitive surveys displayed no cognitive growth in the monitoring, conditional knowledge, and evaluation categories. She increased in metacognition in the declarative knowledge and Information Management categories. She decreased in cognition in planning, procedural knowledge, and debugging.

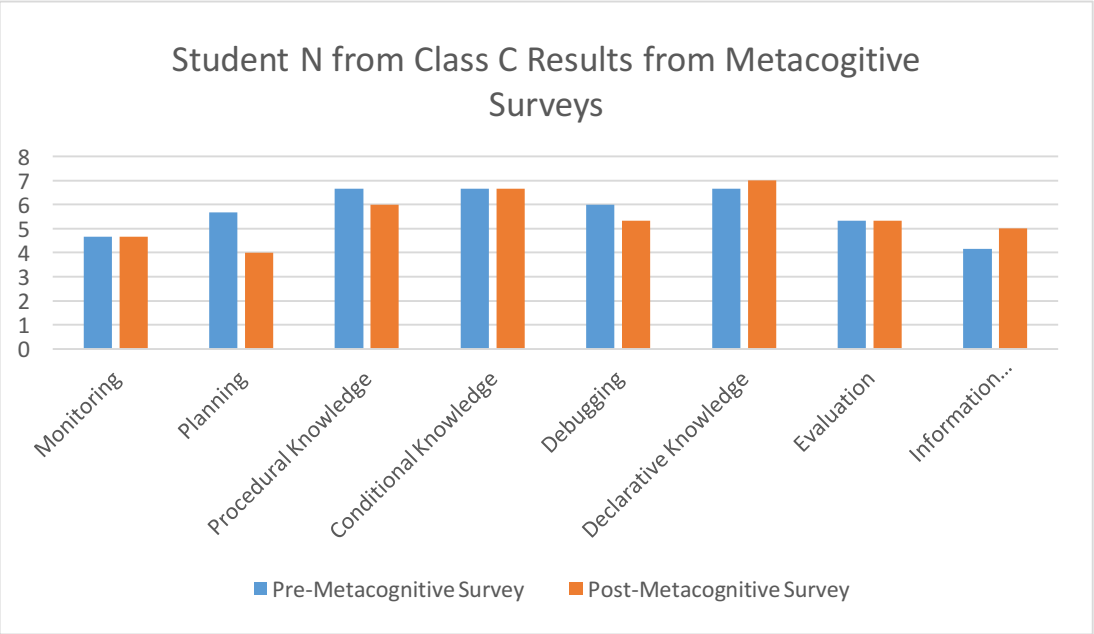


Table 24. Student N from Class C: Results from metacognitive surveys

The table shows a change in scores from the pre-metacognitive survey to the post-metacognitive survey.

When averaged together it was discovered that over all Student N's scores decreased in metacognition by an average of 6%. This data did not align with other data collected from teacher observations, student written responses, and student comments. Table 25 displays the frequency Student N used Studio Habits of Mind during conversations and artmaking. After I analyze the chart, I will connect data from previously introduced sources, collected during the study.

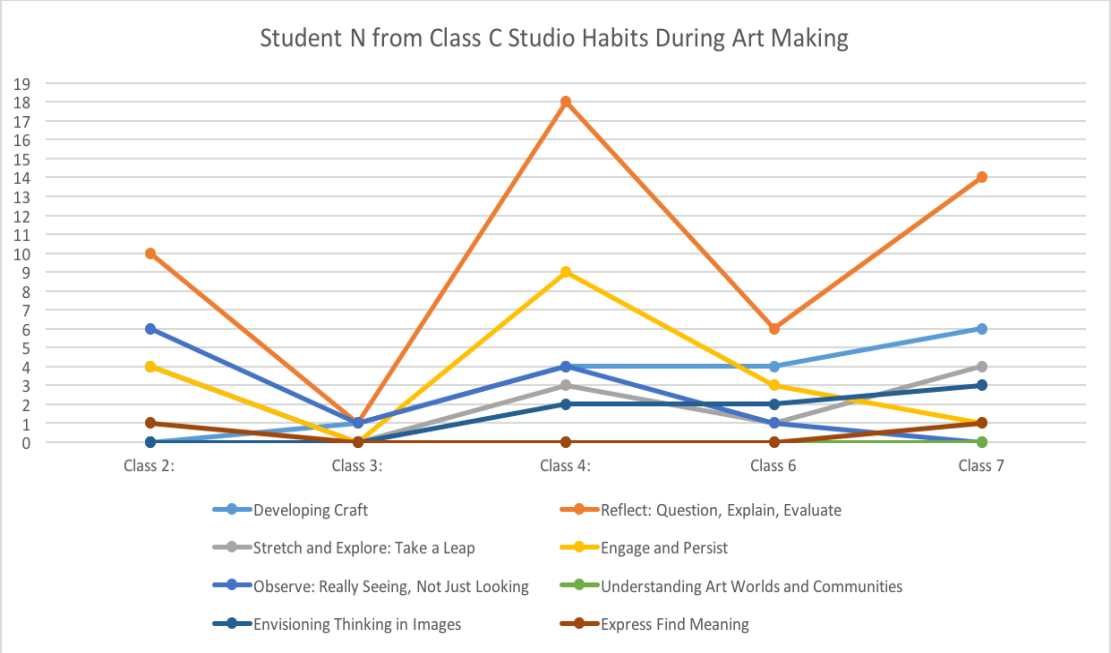


Table 25. Student N from Class C: Evidence of Studio Habits (Hetland et al., 2013) during art making.
Data was not collected during Class 5 due to recording error.

In Table 25, the student used mostly reflect practices during her art-making. Little to no evidence was found in Understanding Art World's and Communities along with Expressing and Finding Meaning. The trend line of Reflect: Question, Explain, and Evaluate follows a similar trajectory to that of the Engage and Persist trend line. The lines only diverge at the end of the study. The reflection continued to increase while the Engage and Persist line decreased. Both the trend line of Engage and Persist as well as Observer: Really Seeing, Not Just Looking followed a similar trend pattern.

Class four seems to be where the most cognitive practices were utilized. The art-making activities of Class four where the students began to use compasses to create their final drafts. As stated previously, the students were faced with the challenge of using a compass. They were given the opportunity to experiment with the tool before the teacher offered some instruction on how to utilize the tool. Based on her comments, this student

had experience in the past using a compass, so creating circles came easily for her compared to her peers. She offered to assist them, but made it clear that she would not complete the assignment for them. These comments can be seen below in Table 26.

Date	Observation from Student Conversation
Class 2	Many sarcastic comments to peers.
Class 2	Not only did she assess her work but she made a plan for improvement.
Class 2	Student titles her experimentation process.
Class 4	Three times she encourages her peers to recognize that art is a process and not about obtaining perfection.
Class 4	Student expresses experience and prior knowledge of using a compass.
Class 4	Student makes three statements declaring ability: I'm really good at it.
Class 4	Student offers to help others make circles.
Class 4	Student encourages tablemates to leave her alone so she can focus on her artmaking.
Class 4	No sarcastic comments made.
Class 6	"No I have a plan. It's going to help me transition there."
Class 7	Student gave up on drawing a human because she thought it was too difficult.
Class 8	Student looks for the easy thing to draw. She choose to draw a seas sponge because it's easy.

Table 26. Table of teacher reflections after listening to transcription and coding for evidence of Studio Habits of Mind (Hetland, et al., 2013)

Class three is a point where there is also notable data. I noted from the transcription that this was a shortened class due to an interruption and very little art making occurred during this day. The student made very few comments indicating cognitive processing. During the coding process I recorded observations that could indicate self-efficacy. These comments can be seen in the chart below.

Something notable in the observations is the students' cooperation with her peers. At the beginning of the project it is recognized that the student makes sarcastic comments to the boys at her table when asked for feedback. During Class four, after she seems to have learned to use the compass, she kindly offers her help to struggling peers. There are much fewer critical comments, after Class four. Another notable observation is that the student seems to avoid drawing some objects in her pictures because they are challenging. She reaches out to the teacher to assist her in drawing a person swimming, but when she does not get the specific advice she is looking for, she chooses not to add a person to her seascape.

During the planning stage, this student made some specific comments concerning the handling of time, and how her experience with paint could help her work be successful. At the end of the planning stage she expressed that, "I think that experimenting helped me the most because I could find the perfect tool to use and blend with." In this quote, the tool that she is referring to is the oil pastel. She was one of the students who chose to use oil pastels at the end of the planning stage. She did not change this choice from the beginning to the end. It is important to note that three of the four students at her table chose to use the same material, as the peer influence may have influenced her choices. Her answer during the reflection indicates that she chose to use oil pastel because of the blending qualities, and not because of the popularity of the material. It should be noted that the results from her metacognitive surveys indicated cognition during planning did not increase.

The first goal this student posted at the beginning of the monitoring stage are displayed below:

	Student Goal	Teacher Feedback
Class 4:	Get Almost done.	What will it look like when it's done?
Class 5:	Definitely Finish.	Are you planning to finish even the animals? Make sure your goal is actually something you can achieve!
Class 6:	I want to start my animals and maybe finish my animals.	What strategy or techniques will you use to meet this goal?

Table 27. Student N's goals and teacher feedback offered.
The chart above outlines the progression of goal writing that Student N demonstrates during the monitoring phase.

Table 27 demonstrates the student's growth in goal-setting. During the last class, the student chose to name one specific part that she wanted to finish. This improved her specificity from the first goal which was to simply complete the project. The student seemed to respond positively to the direct instruction introducing goal setting. By being more specific on wanting to finish her animals instead of just wanting to finish, Student N shows a change in her approach to goal setting. It should be noted that according to the results from the metacognitive survey Student N's level of monitoring cognition went down by approximately 1.5 points. This quantitative data is inconsistent with the qualitative data collected during goal-setting. During the evaluating stage the Student N shared that:

> I got really frustrated with my colors but I asked for help from the teacher. Using the knife helped me scrape the unwanted color from my project. Doing my project in layers helped to make it neat.

This quote demonstrates Student N's problem-solving process. This was the first time from the audio recordings, she mentioned her frustrated with her colors. This data may have been lost from Class 5, but nonetheless shows more than one challenge the student

overcame during the project. Student N also noted that she reached out to the teacher for help. At that point I provided her with a knife to scrape inaccurate colors off the project and so she able to make the value change more gradually. This may demonstrate that by allowing students to experience frustration and then providing them the tools they need; I am helping them problem-solve which also building trust.

After the study Student N was interviewed about the process of creating her artwork. The student again mentioned the frustration of layering too much black and not being sure of how to fix it. The student noted that with my suggestion to utilize a knife, I gave her the tools to problem solve. In her words, "I probably wouldn't have finished this last part because I wanted to keep layering and layering and layering and probably would have given up doing that one so…" This quote implies that the student is uncertain if she would have completed her work without the teacher indicating a lack of self-efficacy. The student recognizes that that she would have continued repeating an ineffective action instead of problem-solving. When I stepped in to help I provided her the tool that allowed her to continue to try. This may indicate the importance for the teacher to provide students with the tools for problem solving at the fore-front of the project instead of in the middle. So students can be made aware of all the available materials.

Findings

When considering the growth of self-efficacy, the data collection methods showed varied levels of evidence. The metacognitive surveys showed a growth in self-efficacy in some classes, but also a decline in self-efficacy in others. There was not a dramatic difference between data collected from RTES and MES. Because of factors outlined

before such as student fatigue, and external influences this data should not be viewed as the only true measure.

Other data collection methods such as student verbal and written responses, interviews, and artworks show a consistent growth of self-efficacy. By charting the Studio Habits of Mind (Hetland et. al, 2013) using the researchers' checklist, trends appeared through all of the case studies. These case studies along with student verbal and written responses point to specific instructional and assessment strategies that teachers can introduce into their classes, which may improve student self-efficacy. The following section will outline instructional and assessment considerations.

Allow for Creative Choice

One trend that was evident was the importance of giving creative expression during the project. This is especially important while working within a discipline based art education structure. During this study, I emphasized the objective of the project, which was to create a value scale showing an ocean scene. Within that I allowed students to make creative choices such as composition, perspective, and material. Some students expressed apprehension as they took risks. There was an expressed fear of "doing something wrong," or "getting in trouble." This may point to the fact that creative choice has not always been a standard practice. This open ended approach allowed students to problem solve through individual challenges. Evidence of this can be seen in Figures 8-10. These images show the percentage of students who chose to take risks. This risk taking provided them opportunities to face challenges. Evidence of facing challenges can be found within the Tables 4, 18, 22, and 26.

I would argue that allowing for creative choice should be an important consideration when designing authentic assessments for discipline based art education programs. This study may prove that a discipline based model can be maintained while build self-efficacy, by designing objectives that give room for creative voice.

Formatively Assess through Reflections

Throughout this study I found the importance of posing broad open ended questions to students. At first the students seemed confused by these questions. This can be seen in the responses to the pre-planning questions. Their vague or obscure answers gave me a picture of what my students truly knew. This was a formative assessment that helped me assess their knowledge and created a base line for cognition. Throughout the study I then posed other questions which asked them to reflect on their technical and cognitive process. This act of reflection helped students set goals during their work. Sometimes these goals were expectations, so that I could provide feedback, but other times they happened organically. For instance, Student W and Student M set their own goals when they noticed edges could be neater. This organically set goal helped me to assess engagement and personal commitment to their work. It also allowed me to assess the accuracy of technique, so that I could offer meaningful spoken feedback. This feedback allowed him to reflect on his process and be reassured. According to past research, that reassurance then can lead to a growth of self-efficacy.

Create Opportunities for Positive Student Interactions

One surprising finding of my study was the impact of student interactions on the growth of self-efficacy. At the beginning of the study I assigned new seats, but I allowed students to choose one friend to sit with them. I did this intentionally to create relational

safety as students took artistic risk. This choice created dynamic interactions from my students. As seen from Table 4 most students sought the feedback of their peers when they faced challenges. Every audio recording captured each student asking questions like, "How does this look?" "How did you do that?" and "What should I do next?" At least three times five times students directly offered to help another student that was struggling, by modeling the steps.

At the beginning of the study I noticed a few students responded sarcastically when asked a question. This was captured in the observation notes included in Table 26. Here it is noted that the student responds sarcastically when asked for help. Then when the table is faced with a challenge, the sarcastic comments give way to encouraging, and helpful comments. The challenge presented gave students a commonality that led to a sense of community.

Make it challenging

This leads to an another important instructional piece. One of the best ways I found for students to build confidence was by facing a challenge. Throughout this project there were a number of challenges that caused frustration. This frustration was expressed through body language, strained expressions and even tears. But the frustrations forced the students to problem solve. The challenges caused the students to reflect on their processes, and resources to discover a solution. Many times they found that the answer lay in their tool or advice from a peer.

When students solved their own problems, without teacher intervention the most confidence was boosted. This can be seen in Table 4. Class B displayed the lowest levels of reaching out for feedback. The students in this class seemed to not ask each other for

help, but instead relied on the teacher and their own problem solving. This data may be congruent to the results of the metacognitive surveys. Class B showed a decline in self-efficacy, while the other classes who rarely reached out to the teacher, had an increased growth in self-efficacy.

The need for challenge can also be seen within the case studies. The class periods that the students responded the most with Studio Habits of Mind (Hetland, et al., 2013) were those when they were presented with a challenge. Both Student N and M in their post-interviews pointed to these classes as places where they faced a challenge and then they felt confident to face the next step.

Encourage positive thinking

Throughout this study I found myself encouraging positive thinking. When a student would make a comment about their abilities or put forth little effort I would challenge their negative outlook. I encouraged students to look for growth. I pointed out times both publically and privately where the students solved their own problems and persevered through challenges. Students began praising each other for these qualities during the evaluation activity. I believe this may be due to my demeanor and approach. By encouraging positive thinking students are challenged to view art as a process and not a product. The students are challenged to view their artwork as a growth point not an end goal. In the future I want to craft lessons that will build off of the growth points. This will be discussed more in Chapter 5.

Give it time

The last important assessment and instructional finding is the importance of time. During this study I found that students needed time to plan, time to reflect, time to

produce, time to reflect, and then time to revise. The unit of study took much longer than I expected it to, but I am glad that I allowed the study to organically develop. Though it is important for teachers to help students regulate their time, it is also important for teachers to allow for students to go through the cognitive processes.

In the case studies charted in Tables 17, 21, and 25 it can be seen the days with the least amount of cognitive functioning occurred in the first three classes. These class were very short and because of this very little thinking occurred. Because the classes were short there was no time for students to face challenges and arrive at answers. There was no time to assess resources and seek feedback. These days did not improve the self-efficacy of students because very little time for creative time was allotted.

In contrast, students were given three to four class periods to work on painting the value scales. Many students layered their materials to achieve the correct value color. (Table 22) Without the time to create, monitor and revise the students would not have had time to ask the vital questions needed. Teachers may feel the strain of producing a quantity of work to show, but the priority of cognitive growth must be valued alongside of the created artwork.

CHAPTER IV
DISCUSSION AND CONCLUSION

Conclusion

This action research study emphasizes the importance of introducing instructional and assessment strategies to a fifth grade art class's routines to build self-efficacy. This study confirms that by infusing an art classroom with activities focused on metacognitive processes, a student self-efficacy can be affected. When students have a strong self-efficacy they are then able to make independent decisions and take artistic risks. The participants of this study experienced learning which was student driven rather than teacher driven.

To begin this research, I laid out the purpose for the study along with the limitations and assumptions to be debated. I then outlined important theorists who explored self-efficacy through other research. I laid out their major findings of how teachers play a role in building self-efficacy within their students through feedback and reflective practices. (Bandura, 1986, Zimmerman 2003) Art researchers like Lisa Bland (2005) and Ron Hargrove (2011) explored how instructing college students on self-regulatory and reflective practices influenced art making. Direct connections between the Studio Habits of Mind (Hetland, et al., 2013) framework and metacognitive understandings of self were described. This research created the basis for my methodology of study.

In chapter 3, I explained the methodology of my study. The study took place at Rose Tree Media School District within two elementary schools. Approximately seventy-five students participated in this study. Students took a pre- and post-

metacognitive surveys to assess the levels of metacognition which occurred during art making. After the results of the pre- surveys were tabulated, I created classroom activities to explore three metacognitive areas: planning, monitoring, and evaluating. In one of the elementary schools, instructional activities were designed alongside of curriculum to to build these metacognitive areas. At the conclusion of the study the post-metacognitive surveys were used as a measure to assess growth in self-efficacy. I also collected data through student written statements, reflections, and conversations. Post-interviews were collected from nine randomly selected participants to assess the growth over time. The Studio Habits of Mind (Hetland et al., 2013) were also used to code the data and look for evidence of metacognitive reflective practices.

The data showed that after nine art classes there could be some evidence of growth in self-efficacy. There was very little change in the data after the pre- and post-surveys from both sites. Some students showed a change in specific metacognitive categories while others showed no change or a decrease in scores. The other forms of data collected showed much more growth. The end of the fourth chapter describes three case studies of students from different classes, who participated in the study. After transcribing the student's interactions with teachers and other students, and coding the data using the Studio Habits of Mind (Hetland, et al., 2013) checklists, specific trends and findings arose. The trends seem to show that when teachers provide students with opportunities for challenges, with the correct tools, after fostering a positive environment, a fifth grade student's self-efficacy will be improved.

Further Research

Since the conclusion of the study I have continued to implement activities that encourage students to engage metacognitively in the art process. I plan to create anchor charts that name a variety of different planning, monitoring, and evaluating strategies that can be used during art making. I want to better embed metacognitive strategies into all of my classes, so that it becomes a routine to plan, monitor and evaluate artwork. After the students are familiar with the activities the fifth graders will be given an opportunity to choose their own means to plan, monitor, and evaluate their project. In this way the students begin to make more personal choices, and control the outcome of their projects. I also want to consider how to introduce other metacognitive strategies to my students, through a range of other diverse activities.

Going forward, I plan to encourage my department to design new units to build upon the skills developed during this unit. During the study, the fifth graders explored materials to create value. I hope to build upon the self-confidence students expressed (Figure) after learning a new skill and encourage further exploration. By scaffolding the learning, teachers give students an opportunity to reflect on the learned process (Source) which may lead to self-efficacy to face new learning challenges.

This research will be submitted to future conferences like PAEA 2017 and other conferences. I hope to publish this research in other educational publications so these ideas are accessible to other art educators.

Implications for the field

This research introduces new ideas and questions that could be further explored by new research. After looking at the amount of time this project took, due to the added emphasis of metacognitive processes, as well as the school districts' curricular pressures, I ask how can teachers advocate and celebrate the process of creating art as well as the product? Due to the amount of added time teaching metacognitive processes add to a unit, some teachers may be concerned about the limited portfolio that is created. Some may argue that too much time is being taken away from the creation to plan or reflect. It is important to remember that this study found, when the students were engaged in the entire process their self-efficacy grew. If the teacher shortens the process to accommodate for more time to create, students are missing out on opportunities to grow. Teachers must continue to research how to promote the process in their school communities so that a limited portfolio is accepted with understanding due to the process that is going on behind the scenes.

As teachers explore specific artistic cognitive strategies, the question arises if there are any similarities between strategies taught in other fields. Are there reading or math strategies that are similar to cognitive art strategies? The discovery of these strategies could help art teachers frame artistic cognitive strategies based upon previous knowledge instructed in other classes. When school districts recognize the importance of teaching reading and math strategies, art teachers can then advocate for the inclusion of art strategies. This could also be an important way to advocate for the integration of Studio Habits of Mind (Hetland, et al., 2013) within the art class.

Another topic of research that arose from the findings is the relationship between social and academic self-efficacy. Paris & Newman (1990) argues that after a certain age students begin to separate the two. During this study there is a clear link between the types of communications students were having and their levels of self-confidence. As seen in Table 4 the classes that showed the highest levels of self-efficacy were also the groups of students who relied on feedback from their peers to problem solve and proceed with their projects. Teachers must consider whether the influence from peers is a positive for negative factor. Is there a better way to control the amount of influences students to have on each other's work? Would a change in seating arrangement affect the results of the study? The relationship between student self-efficacy and relations with their peers during art making needs to be examined further.

More work needs to be done exploring the criteria for evaluating artwork. Throughout the study, I noted that students referred to their artwork as successful because it was "neat." This is criteria is also used within their other classes. I question whether that criteria means the same in art for other topics. If per say, the conclusion is the word can mean something different for art versus handwriting, how can an art teacher help students to recognize he difference? How can an art teacher help students to redefine criteria that is formulated outside of the art room?

The last question I pose for more research is, how can a Studio Habits of Mind (Hetland et al., 2013) checklist be framed in an age appropriate way? During this study the Studio Habits of Mind (Hetland et al., 2013) was intended to be a reflection tool to be utilized by fifth graders. Due to the unintentional developmental disparities I created, I was unable to use it in the study. Instead the Studio Habits of Mind (Hetland, et al., 2013)

checklist became a coding tool for analyzing data. More research needs to be done to explore how this important research can be reframed and utilized for students developing an understanding of artistic craft.

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APPENDIX A

Student Metacognitive Awareness Inventory

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The following questions ask about the way you study and learn. Please take a moment to respond to these questions. Remember there are no right or wrong answers; just answer as accurately as possible. Use the scale below to answer the questions. If you think the statement is very true of you, circle 7; if it is not at all true of you, circle 1. If the statement is more or less true of you, find and circle the number between 1 and 7 that best describes you.

1. I consider several ways to complete the task before I begin the project. (M)	1	2	3	4	5	6
2. I set specific personal goals before I begin creating the project. (P)	1	2	3	4	5	6
3. I have a specific purpose for each strategy I use. (PK)	1	2	3	4	5	6
4. I can motivate myself to learn when I need to. (CK)	1	2	3	4	5	6
5. I ask others for help when I don't understand something. (DS)	1	2	3	4	5	6
6. I think of several ways to solve a problem and choose the best one. (P)	1	2	3	4	5	6
7. I find myself pausing regularly to check my understanding. (M)	1	2	3	4	5	6
8. I am aware of what strategies I use when I create art. (PK)	1	2	3	4	5	6
9. I understand my artistic strengths and weaknesses. (DK)	1	2	3	4	5	6
10. I ask myself how well I accomplished my goals once I'm finished. (E)	1	2	3	4	5	6

11. I stop and think when I get confused. (DS)	1	2	3	4	5	6
12. I ask myself questions about how well I am doing while I am learning something new. (M)	1	2	3	4	5	6
13. I learn more when I am interested in the topic. (DK)	1	2	3	4	5	6
14. I re-evaluate my assumptions when I get confused. (DS)	1	2	3	4	5	6
15. I ask myself if what I'm learning is related to what I already know. (IMS)	1	2	3	4	5	6
16. I create my own examples to make information more meaningful. (IMS)	1	2	3	4	5	6
17. I use different strategies depending on the project. (CK)	1	2	3	4	5	6
18. I ask myself if there was an easier way to do things after I finish the task. (E)	1	2	3	4	5	6
19. I'm good at organizing and remembering information. (DK)	1	2	3	4	5	6
20. I learn best when I know something about the topic. (CK)	1	2	3	4	5	6
21. I know how well I did once I finish the artwork. (E)	1	2	3	4	5	6
22. I pace myself while learning in order to have enough time. (P)	1	2	3	4	5	6
23. I slow down when I encounter important information. (IMS)	1	2	3	4	5	6
24. I try to use learning strategies that have worked in the past. (PK)	1	2	3	4	5	6

OPERATIONAL DEFINITIONS OF COMPONENT CATEGORIES

Knowledge of cognition

1. (dk)-declarative knowledge: knowledge about one's skills, intellectual resources, and abilities as a learner.

2. (pk)-procedural knowledge: knowledge about how to implement learning strategies.

3. (ck)-conditional knowledge: knowledge about when and why to use learning procedures.

Regulation of cognition

1. (p)-planning: planning, goalsetting, and allocating resources prior to learning

2. (ims)-information management: skills and strategy sequences used to process information more efficiently

3. (m)-monitoring; assessment of one's learning or strategy use

4. (ds)-debugging: strategies used to correct comprehension and performance errors.

5. (E)-evaluation: analysis of performance and strategy effectiveness after a learning episode.

APPENDIX B

Protocol for Distributing the Metacognitive Survey

Before distributing the metacognitive surveys, the teachers from both schools discussed the best way to introduce the surveys so that every student could provide the most accurate answers. These accommodations were made for all of the classes which participated in this study.

Verbal Directions:

Write the word "YES!!" above the 7 column.
Write the word "NO!!" above the 1 column.

Write the following words and definitions on the board:

Motivate: Cheer yourself on; encourage
Assumptions: beliefs
Reevaluate: look over; look at again
Encounter: come to
Strategies: a plan to get it right.

APPENDIX C

Teacher Observations of Student Metacognitive Awareness Inventory

Gregory Schraw and Rayne Sperling Dennison University of Nebraska

The following questions ask about the way your students study and learn. Please consider your current students and reflect upon your observations of the strategies they use to approach learning. Remember there are no right or wrong answers; just answer as accurately as possible. Use the scale below to answer the questions. If you think the statement is very true of you, circle 7; if it is not at all true of you, circle 1. If the statement is more or less true of you, find and circle the number between 1 and 7 that best describes you. At the bottom of the survey please write in a few specific observations or examples you've seen within your classroom.

1. My students consider several ways to complete the task before they begin the project. (M)	1	2	3	4	5	6
2. My students set specific personal goals before they begin creating the project. (P)	1	2	3	4	5	6
3. My student have a specific purpose for each strategy they use. (PK)	1	2	3	4	5	6
4. My students can motivate themselves to learn when they need to. (CK)	1	2	3	4	5	6
5. My students ask others for help when they don't understand something. (DS)	1	2	3	4	5	6
6. My students think of several ways to solve a problem and choose the best one. (P)	1	2	3	4	5	6
7. My students pause regularly to check for understanding. (M)	1	2	3	4	5	6
8. My students are aware of what strategies they use during lessons. (PK)	1	2	3	4	5	6
9. My students understand their strengths and weaknesses. (DK)	1	2	3	4	5	6

10. My students reflect on how well they've accomplished lesson goals once they're finished. (E)	1	2	3	4	5	6
11. My students stop and think when they get confused. (DS)	1	2	3	4	5	6
12. My students ask questions about how well they are doing while they are learning something new. (M)	1	2	3	4	5	6
13. My students learn more when they interested in the topic. (DK)	1	2	3	4	5	6
14. My students re-evaluate their assumptions when they get confused. (DS)	1	2	3	4	5	6
15. My students draw connections from new concepts to already learned concepts. (IMS)	1	2	3	4	5	6
16. My students create their own examples to make information more meaningful. (IMS)	1	2	3	4	5	6
17. My students use different learning strategies depending on the project. (CK)	1	2	3	4	5	6
18. My students ask themselves if there was an easier way to do things after a task is finished. (E)	1	2	3	4	5	6
19. My students are good at organizing and remembering information. (DK)	1	2	3	4	5	6
20. My students learn best when they know something about the topic. (CK)	1	2	3	4	5	6
21. My students know how well they've done once I finish the artwork. (E)	1	2	3	4	5	6
22. My students pace themselves while learning in order to have enough time. (P)	1	2	3	4	5	6
23. My students slow down when they encounter important information. (IMS)	1	2	3	4	5	6
24. My students try to use learning strategies that have worked in the past. (PK)	1	2	3	4	5	6

Observations and Reflections:

OPERATIONAL DEFINITIONS OF COMPONENT CATEGORIES

Knowledge of cognition

4. (dk)-declarative knowledge: knowledge about one's skills, intellectual resources, and abilities as a learner.

5. (pk)-procedural knowledge: knowledge about how to implement learning strategies.

6. (ck)-conditional knowledge: knowledge about when and why to use learning procedures.

Regulation of cognition

6. (p)-planning: planning, goalsetting, and allocating resources prior to learning

7. (ims)-information management: skills and strategy sequences used to process information more efficiently

8. (m)-monitoring; assessment of one's learning or strategy use

9. (ds)-debugging: strategies used to correct comprehension and performance errors.

10. (E)-evaluation: analysis of performance and strategy effectiveness after a learning episode.

APPENDIX D

Studio Habits of Mind Checklist
(Hetland, et al., 2013)

What goal did I set for myself last art class? _____
_____

Today I used these Studio Habits of Mind:

Develop Craft: Technique & Studio Practice ☐ Develops a skill that can be used with multiple materials. ☐ Chooses the appropriate tool for the desired artistic outcome. ☐ Takes care of tools and materials.	**Engage and Persist: Committing to Follow Through** ☐ Self-motivates when bored or frustrated. ☐ *Includes personal interest. ☐ *Refines a method or technique when faced with a challenge.
Envision: Thinking in Images ☐ Imagines different ways the lines, colors, shapes, or compositions can vary. ☐ Works from mental images to develop an artwork. ☐ Explores what a work of art would look like with specific revisions.	**Express: Finding Meaning** ☐ Communicates meaning through symbols. ☐ Considers how visual choices will change the mood of the artwork. ☐ Creates artwork that sends a personal message.
Observe: Really Seeing, Not Just Looking ☐ *Practices recording information through sketches or notes. ☐ Notice small details in the teacher example or classmate's projects. ☐ Recognizes how to build a drawing using elements and principles of art.	**Reflect: Question and Explain, Evaluate** ☐ *Seeks feedback from others. ☐ *Refines processes to achieve an outcome. ☐ Interprets and judges the success of their artwork.
Stretch and Explore: Taking a Leap ☐ *Tries new approaches and ideas. ☐ *Pushes limits, imagines more possibilities. ☐ *Views the problem from a different perspective.	**Understand Art Worlds: Domain, Communities** ☐ *Reinterprets other artist's work. ☐ Makes visual connections between artists from different time periods. ☐ Uses ideas explored by current artists.

*Meier, M. (2016, October, 8). Assess what matters most: Design performance tasks to promote habits of mind. Lecture given at Pennsylvania Art Educators Conference, Philadelphia, PA.

Please answer the reflection questions on the back.

What self-regulating strategy did I use during this art class?

_____

Did I meet my goal from last art class? If so, how? If not, why?

_____
_____
_____
_____.

What is my goal for next art class?

_____
_____
_____
_____.

APPENDIX E

Interview Protocol Form

Nine students will be selected from the task group to participate in interviews. The purpose of these interviews is for a clear student voice and perspective to be introduced into the study. These interviews will occur within the art room in a time other than art class. The students who have returned permissions will be selected randomly to participate. The students will be asked three main questions, but may be probed further based upon the detail of their answers.

The steps for administering the interviews will be as follows:

1) Each student will meet with the teacher-researcher in a one-on-one ratio;
2) Sessions will be the same approximate time. Time may vary depending on the student's level of detail and responses;
3) The setting will be an empty art classroom;
4) The student will sit opposite of the teacher-researcher at an art table;
5) No other staff will be present in the room.
6) Experimental control will be demonstrate through the use of a digital voice recorder using a fixed length event recording system to capture each participant's full response to each question presented;
7) Transcripts of each session will be created in a word processing program;
8) Each transcript will be identified with the student pseudonym, date, and print set

Project: Using Authentic Assessments and Self-Regulation Strategies to Improve Student Self-Efficacy.

Date _____

Time _____

Location _____

Interviewer _____

Interviewee _____

Release form signed? ____

Notes to interviewee:

Thank you for your participation. I believe your input will be valuable to this research and in helping grow all of our professional practice.

Confidentiality of responses is guaranteed

Approximate length of interview: 15 minutes, four major questions.

Purpose of research: Given that students with a strong self-efficacy are more engaged in the process of learning (Bandura 1993) and are more likely to demonstrate self-regulation strategies, (Zimmerman, 1990) in what ways might instructional and assessment strategies impact the self-efficacy of students as they create and analyze personal artworks?

i. *What makes you a successful artist?*
ii. *What are your strengths and weaknesses as an artist?*
iii. *In what ways do you hope to continue improving as an artist?*

Methods of disseminating results:

1. ***What is one challenge you faced during this project?*** This is a reflective question that will cause the student to consider an obstacle the faced during the project. I will be looking for the detail of their response and whether they are able to name how they overcame the challenge without direct prompting.
   [PROBES: How did you overcome that challenge?

2. ***What activities that we've done during our project have helped you be successful?*** This is a question that will ask the student to consider the process they went through to achieve the finished artwork.
   [PROBES: Activities include: Experimenting, practicing, mind mapping, watching blue earth and goal setting.)

3. ***What have I done or said that has helped you be successful with the project?:*** This question will help to illuminate the student perspective of the teacher's part in their success.
   [PROBE: Something I said to you one or one? Something I've said to the entire class?

4. ***At what point did you feel the most confident in this project?:*** The student's answer will be compared to other data points to determine what was happening in the class at the same time the student was feeling confident

Scripted Closure: Thank you very much for participating with me today, and I appreciate your help. Do you have any last questions before we finish? Thank you again, and have a wonderful rest of your day.

Appendix F

PARENTAL CONSENT FORM FOR PARTICIPATION IN RESEARCH
Media Elementary School

I give consent for my child _____ to participate in the research study entitled, "Improving Self-Efficacy through Self-regulatory Strategies and Authentic Assessments," that is being conducted by Hannah Richardson, a Graduate Student in Art Education at Moore College of Art & Design. I understand that this participation is entirely voluntary; I or my child can withdraw consent at any time without penalty, and have the results of the participation, to the extent that it can be identified as my child's, returned to me, removed from the records, or destroyed.

1. The reason for the research is to examine how teachers can impact a student's self-confidence in art making.
2. The procedures are as follows: The child will complete a cognitive survey which will measure the child's artistic self-efficacy. Media Elementary school will serve as a control for the study. Nothing will be changed in classroom routines or procedures. At the end of April, the students will take another metacognitive survey to evaluate if changes have occurred over the length of the study.
3. The timeline for the research is as follows: The data collection for this study will begin at the beginning February. At this time, students will complete a metacognitive survey which will outline the level of self-efficacy. The students will then participate in art class directed by Mrs. Karen Belamy. At beginning of March the students will take the same metacognitive changes to record changes in cognition.
4. No risks are foreseen. My child's participation is voluntary. Non-participating students will not be penalized in any way. Grades will not be affected if a student elects to not participate.
5. Participant's identities are strictly confidential. Results will not be personally identifiable. Data collected from the research will be kept secure, locked in a file cabinet off site. Pseudonyms will be used when quotes from individual children are transcribed into data.
6. If there are further questions now or during the research, I can be reached at Phone: [redacted] Email: [redacted]
7. If you have any further questions, you may also reach out to my professor, Amanda Newman-Godfrey at anewmangodfrey@moore.edu or my MA Program Director, Lauren Stichter at lstichter@moore.edu

Please sign both copies of this form. A duplicate will be provided for you.

Signature of Researcher: _____

Please read the following and consent to each form of data collection.

- Written, artwork, and audio taped materials,
  - ( ) may be viewed in an educational setting outside the research.
  - ( ) may NOT be viewed in an educational setting outside the research.
  - ( ) may NOT be viewed in an educational setting outside the research.

My signature means that I consent for my child to participate in this study.

Signature of Parent/Guardian: _____

My signature means that I agree to participate in this study.

Participant's signature: _____ Date:____/____/____

Name: _____

Research at Moore College of Art & Design, that involves human participants, is overseen by the Institutional Review Board. Questions regarding your rights as a participant should be addressed to:

Lauren Stichter
Moore College of Art & Design
20th and the Parkway, Phila., PA 19103
215 – 965 – 6811
lstichter@moore.edu

Appendix G

MA THESIS CONSENT FORM

RESEARCH SITE SUPPORT FORM

Dr. Paula Voshell
Media Elementary School
Front & Monroe St.
Media, Pa 19063
November 16, 2016

To Whom It May Concern:

I, Paula Voshell give permission to Hannah Richardson to conduct an action research study Media Elementary during the spring 2017 semester in order to fulfill the requirements of her Master's thesis at Moore College of Art and Design. I understand that this project is intended to research how assessments and integration of self-regulating strategy can increase a student's self-efficacy.

I understand that Hannah will be a teacher-researcher (who will be teaching art while gathering data during the school day. I understand she/he will be collecting data using various methods including surveys, observations, interviews and artifacts with selected teachers and students.

Sincerely,
Paula Voshell

Appendix H

PARENTAL CONSENT FORM FOR PARTICIPATION IN RESEARCH
Rose Tree Elementary School

I give consent for my child _____ to participate in the research study entitled, "Improving Self-Efficacy through Self-regulatory Strategies and Authentic Assessments," that is being conducted by Hannah Richardson, a Graduate Student in Art Education at Moore College of Art & Design. I understand that this participation is entirely voluntary; I or my child can withdraw consent at any time without penalty, and have the results of the participation, to the extent that it can be identified as my child's, returned to me, removed from the records, or destroyed.

8. The reason for the research is to examine how teachers can impact a student's self-confidence in art making.
9. The procedures are as follows: The child will complete a cognitive survey which will measure the child's artistic self-efficacy. Then the child will participate in art class in which self-regulatory strategies and reflective checklists will be integrated. At the conclusion of the study the child will complete the same metacognitive study. They're artwork will be analyzed for evidence of growth. Finally, some students will be selected for post study interviews.
10. The timeline for the research is as follows: The data collection for this study will begin at the beginning February. After the surveys are completed, self-regulatory strategies and checklists will begin being integrated into classroom procedures. The data will from the checklists and assessments will be gathered until the beginning of April. At that time, the students will again take the metacognitive survey.
11. No risks are foreseen. My child's participation is voluntary. Non-participating students will not be penalized in any way. Grades will not be affected if a student elects to not participate.
12. Participant's identities are strictly confidential. Results will not be personally identifiable. Data collected from the research will be kept secure, locked in a file cabinet off site. Pseudonyms will be used when quotes from individual children are transcribed into data.
13. If there are further questions now or during the research, I can be reached at Phone: [redacted] Email: [redacted]
14. If you have any further questions, you may also reach out to my professor, Amanda Newman-Godfrey at anewmangodfrey@moore.edu or my MA Program Director, Lauren Stichter at lstichter@moore.edu

Please sign both copies of this form. A duplicate will be provided for you.

Signature of Researcher: _____

Please read the following and consent to each form of data collection.

- I ( ) consent for my child to being audio recorded.
- I ( ) do NOT consent for my child to being audio recorded.

- Written, artwork, and audio taped materials,
  - ( ) may be viewed in an educational setting outside the research.
  - ( ) may NOT be viewed in an educational setting outside the research.
  - ( ) may NOT be viewed in an educational setting outside the research.

My signature means that I consent for my child to participate in this study.

Signature of Parent/Guardian: _____

My signature means that I agree to participate in this study.

Participant's signature: _____ Date:____/____/____

Name: _____

Research at Moore College of Art & Design, that involves human participants, is overseen by the Institutional Review Board. Questions regarding your rights as a participant should be addressed to:

Lauren Stichter
Moore College of Art & Design
20th and the Parkway, Phila., PA 19103
215 – 965 – 6811
lstichter@moore.edu

Appendix I

MA THESIS CONSENT FORM

RESEARCH SITE SUPPORT FORM

Dr. Jenny Robinson
Rose Tree Elementary School
1101 First Ave., Media, Pa, 190
Date

To Whom It May Concern:

I, Jenny Robinson give permission to Hannah Richardson to conduct an action research study Rose Tree Elementary during the spring 2017 semester in order to fulfill the requirements of her Master's thesis at Moore College of Art and Design. I understand that this project is intended to research how assessments and integration of self-regulating strategy can increase a student's self-efficacy.

I understand that Hannah will be a teacher-researcher (who will be teaching art while gathering data during the school day. I understand she/he will be collecting data using various methods including surveys, observations, interviews and artifacts with selected teachers and students.

Sincerely,
Jenny Robinson

Appendix J

MA THESIS CONSENT FORM

TEACHER CONSENT

Mr. Mathew Moore
5th Grade Teacher
Rose Tree Elementary School
1101 First Ave. Media, PA 19063

November 16, 2016

Dear Participant:

I am a Graduate Student in Art Education at Moore College of Art & Design. I will be conducting research for my MA thesis from February, 2017 through April, 2017.

The purpose of this study is to explore how art assessments can be used to build a fifth grader's artistic self-efficacy.

Participating in this study is voluntary, and you can refuse to participate. If you agree to participate, participation will occur at the beginning of February. You will be asked to complete a survey about the general and specific level of self-efficacy you see in your students academically and socially. You will not receive payment for participating in this study.

This study poses very little risk to you. Though I will disguise your identity in the final thesis, there is a possibility that details of your story will make you identifiable. This possibility could result in the public disclosure of various aspects of your life. In order to minimize this risk, I will change your name and any other obvious identifying information in the final thesis. Throughout the study, I will also discuss with you what details you feel comfortable having included in any final products. Additionally, you are permitted to withdraw from the study at any time. If you withdraw, all existing interview recordings and transcripts will be destroyed immediately.

If you have any questions or concerns about the study, or if you are dissatisfied at any time, you can contact me at [redacted] or [redacted] or the Graduate Program Director in Art Education Lauren Stichter, at (215) 667-6811 or lstichter@moore.edu. You are encouraged to ask questions at any time about the study and its procedures, or your rights as a participant.

Sincerely,

Hannah Richardson

****

Statement of Consent: I have read the above information and have received answers to my questions. I give my consent to participate in this study.

Printed name of Participant_____

Signature of Participant _____

Date_____

APPENDIX K

Lesson Title: **Underwater Value Scales**

Grade Level: 5th

BIG IDEA: Students will continue exploring different materials that can be used to create value. Students will then create a project that incorporates a value scale.

ESSENTIAL QUESTION: How do artists treat materials differently to create a range of values?

OBJECTIVE:

Knowledge: Students will know that different materials need to be approached in different ways to create value.

Skill: Students will create a range of values using a range of different materials

MOTIVATION: (Before)

Introduction: Include sample questions you will use to motivate and engage students

-How did we show value with our cake project last year?
-How can you show a light value using (pen, pencil, paint, watercolor, etc.)?
-How can you show a dark value using (pen, pencil, paint, watercolor, etc.)?
-How does value change the mood of an artwork?
-How does value change the perspective of this artwork? (Show the finished example)

ADAPTIVE STRATEGIES- List several engagement strategies you will use.

-Students will reflect on a prior project on what was used to create value.
-Students will participate in a mind mapping activity in which they will brainstorm with their tables the definition and uses of value.
-Students will be given an opportunity to experiment with materials first to determine which one they would prefer to use for their ocean value scale.
-Students will be permitted to watch "Blue Planet" will they are creating their project for inspiration.

Adaptive Aids:

-Students will experiment with value scales on a worksheet before they select the material they want to use for their project.
-Advanced students will be asked to apply the value scale to a circle to make a sphere.

Exemplar:

-Students will see examples of the projects created with different materials.
-Students will see sample value scales created using different materials.
-Students will see artworks created using a monochromatic color scheme.

Making Art: (During) How will you demo and release students to work?

Week 1:

-I will provide the students with a few visuals on the board of projects that have value, along with a poster produced by Sargent that outlines value with images.
-I will then ask my students to create a mind map of the concept value. If they are stuck they can go to the front board and examine the images.
-While they are working on their mind maps I will walk around and prompt conversation by drawing value scales, and posing questions.
-Students will look at other tables mind maps looking for similar ideas or new ideas.

Supplies: Large paper, an assortment of art materials (student choice)

Vocabulary: Students will create vocabulary for the discussion based on prior knowledge

Week 2:

-Teacher will recap with the students, different materials that can be used to create value. These ideas will be written on the board.
-The teacher will pick five different ideas and ask the students to get those materials.
-Students will be asked to experiment with those materials and see if they can create a range of lights to darks. The teacher will give the students a hint that materials might need different techniques.
-Students will share successes and teacher will record conversation on the board.
-Students will receive a worksheet that has a number of different value scales created on the paper. Students will be asked to use three different value scales using three different materials. Students will be told that one of these three materials they will use for their project.
-The teacher will monitor student progress and offer suggestions as needed.

Supplies: A range of art materials; value scales created with different materials

Vocabulary: Value scales; contrast; monochromatic

Week 3:

-Students will begin class by reflecting on their successes of value scales from the previous class. They will also reflect on which material they think would fit best for an underwater painting.
-Teacher will lead a discussion on mood. Teacher will put a drawing by Kathe Kollwitz and Andrew Wyeth on the board. The teacher will first ask the students to notice the colors, specifically that it is monochromatic. The teacher will ask the students how the materials aided in the creation of mood. The teacher will ask the students to consider mood when they are choosing the material for their project.
-The students will be shown different tools they can use to draw circles for their project: compass, lids tracers, or their own circle drawings.
-Once they are finished students will be directed to begin the value scales inside of the circles.

Supplies: A range of art materials; value scales created with different materials

Vocabulary: Value scales; contrast; monochromatic

Week 4:

-Students will answer a quick reflection question asking them to reflect on the material and why they believe it best fits the assignment.
-Students will have the art class to work on their value scales.
-The teacher will monitor, and adapt the assignment as needed for students who are struggling.

Supplies: A range of art materials; value scales created with different materials

Vocabulary: Value scales; contrast; monochromatic

Week 5:
-Students will watch Blue planet and have a range of aquatic animal images to reference.
-Students will be asked to practice drawing silhouettes of animals in their sketchbook.
-They should also consider planning a composition in their sketchbooks of where their aquatic animals may be placed.
-The teacher will have "What if" prompts on the board asking them to think about how an animals size, and placement affect the overall image.
- Once students are confident with their placement they can add their animal to their drawing.

Supplies: Blue Planet, images of ocean animals

Vocabulary: Value scales; contrast; monochromatic

Week 6:
-Students will enter by writing a plan of how they plan to create a sillouette of their animal on the dark values, while maintaining a monochromatic color scheme. (This is a visual limitation will ask them to problem solve)
-Students will again work on their projects

Supplies: Blue Planet, images of ocean animals

Vocabulary: Value scales; contrast; monochromatic

Week 7:
-Students will complete a summative reflection in which they will describe their thoughts and choices in their art. They will explain how they created a monochromatic project showed value. They will share why they made composition choices. Finally, they will reflect on the success of the project and offer some ideas if they were to do the project again.

-Students will finish their projects.

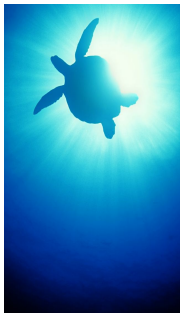
Supplies: Blue Planet, images of ocean animals

Vocabulary: Value scales; contrast; monochromatic

Assessment/Evaluation:
-Students will complete a summative reflection in which they will describe their thoughts and choices in their art. They will explain how they created a monochromatic project that showed value. They will share why they made composition choices. Finally, they will reflect on the success of the project and offer some ideas if they were to do the project again.

APPENDIX L

Pre-Planning Reflection Questions



What are some of your skills that will help you be successful with this project?

What might you have to remember or think about to be successful with this project?

What steps do you think you need to take to complete this project?

This is one way you might complete this project! You'll get to decide the materials, but everyone will be creating an underwater scene using value!

APPENDIX M

Reflective Worksheet

Creating Value Scales

Name:

What new things did you discover through experimenting?:

What materials do you want to use: Why?

-_____:

-_____:

-_____:

Use the knowledge you gained through experimenting and the examples of the Value Seascapes to practice creating a Vale Scale for each material you've chose above.

Notes: (What went well? What would you change? What do you need to remember?)

Notes: (What went well? What would you change? What do you need to remember?)