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Exploring How Peer Feedback Affects Achievement and Mindset in the Middle School Art Room

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EXPLORING HOW PEER FEEDBACK AFFECTS ACHIEVEMENT

AND MINDSET IN THE MIDDLE SCHOOL ART ROOM

by

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CHAPTER ONE

Introduction

"I'm just not good at art."

As an art teacher, I cringe when I hear my students utter this phrase, often when they have not even made a mark on the paper. If you were to ask a class of kindergarteners how many of them are good at drawing, nearly every hand would shoot in the air, waving frantically. However, something changes as students become older. If you were to ask my middle school students the same question, only a few brave souls would tentatively raise their hands. What happens to our confidence and joy in creating a work of art? When we create something visual, it is easy for others to judge it instantly, for better or worse. Does the way others react influence our sureness in our abilities and ideas? This led me to wonder how the feedback we receive, specifically from peers, affects our mindset and level of achievement in the art room. I will investigate the following research question: How does peer feedback affect mindset and achievement in the middle school art room?

My Story

I began my teaching career as a middle school art teacher in the fall of 2010. During that first year, my main goal was survival. I was going to survive. My students were going to survive. Hopefully we would all learn something in the process. Between the countless extra hours of planning lessons, practicing techniques, and figuring out who I was as a teacher, my students and I all emerged that spring knowing more than we did before. As the years progressed, I continued

to alter and tweak my practice. At this point, I have been extremely pleased with the direction the art program has been going at our middle school. Obviously, there are still areas for improvement. I expect to always to be learning and growing as a teacher up until I retire. However, there is one particular area in my practice right now that is not only lacking, but could potentially be doing harm: peer feedback.

Learning from Last Year

For the last year I have been considering the role of student-to-student feedback in my classroom. Prior to this, it did not actually exist. There was plenty of praise among peers. "I like your painting!" "Oh, that's so good!" There was some advice. "I think you should add some shading here." "You should draw more details." There was some criticism, often in the form of laughter, smirks or unkind comments. Students were only really receiving true feedback on their progress from me. While students obviously need feedback from the teacher, I was concerned about the lack of quality feedback from peers, and the types of comments students were receiving from each other instead. Our Professional Learning Community (PLC) decided that this was going to be a focus for us in the 2014-2015 school year.

We started off by introducing students to the idea of feedback and clearing up some misconceptions. Many students still believed praise, criticism, advice, and feedback were all the same thing, and this is something we wanted to set straight. We guided their understanding of feedback to include neutral information that is specific to the learning goals. We gave them the opportunity to practice providing feedback on an anonymous artwork from years past and then instructed them to give verbal feedback to each other. We had students start their own digital portfolios to add pictures of their work and keep track of their progress, final artwork, and

feedback received from peers. This allowed them to document their work over the semester and have pictures and comments to reflect on their progress.

Room for Improvement

Overall, we were successful. We met our PLC goal and felt good about our progress. While there were many elements of our work that I was very happy with, I am convinced I could have done better. Reflecting on the way I worked towards this goal last year, there are four areas that need improvement.

First, peer feedback was not an intentional, consistent part of my classroom. Rather than incorporate times and direction for students to provide each other with feedback consistently for each project and goal, it felt a bit erratic to me and I would imagine unpredictable to students. I wanted this to become habit and routine, but the reality was not quite there yet.

Second, I was not sure what effect my first attempts at incorporating peer feedback was having on students. How did they feel about it? Did they feel more empowered in their learning? Did it change their mindset for better or worse? Did it help them self-assess along the way? Did it have any effect on their learning and achievement in art? Our PLC data showed that 97% of students understood how to give feedback by the end of the semester, which we felt very proud of. However, my biggest question remains unanswered: what effect did that peer feedback actually have on students?

Third, the opportunities for students to reflect on another's work were not varied. Typically, I just had students verbally comment on a peer's work, and that peer would record the feedback in the digital portfolio. While this is not necessarily a bad approach, I want to explore additional ways of incorporating peer feedback in the classroom. Students may benefit from

verbal and written communication of feedback, with or without technology involved. I am interested to find other paths and strategies for students to help each other achieve their goals.

Finally, I was not sure what students were doing with the feedback they received. Did this process seem like one more hoop to jump through, or did they actually take their peers' feedback into consideration? Did they know what to do with the feedback they received? While there were many successes with our first year of incorporating peer feedback in our classroom, I have many areas of my practice I would like to improve. Through this investigation, I hope to find answers to these questions, and find the most effective and helpful ways of incorporating peer feedback that will help students succeed.

Mindset was not something I had considered during the previous year. Although our school had discussed Dweck's (2006) work and the importance of a growth mindset, I had not thought about the connection between what students heard from peers and how that may or may not have affected their mindset. As a teacher, my words can affect my students' mindsets. What about what peers have to say?

While this research will be conducted in a middle school art classroom, I am confident the findings will not be specific to art teachers and students alone. Instead, teachers and students of all subject areas could potentially benefit from the conclusions. Peer feedback can be a powerful tool that is appropriate for any content area and grade level. This research will focus on the best way to utilize this approach specifically with students in grades six through eight; I believe high school teachers would be able to gain significant insight from the conclusions as well. Students are also stakeholders in this investigation. They will receive information and instruction that may benefit them in any subject area as well. By fulling understanding feedback, what is required to provide someone with feedback, and how to process and respond to feedback,

I am hopeful that students will be better equipped to help themselves and others achieve learning goals in any setting. In addition, understanding what an individual's own mindset is currently and how that relates to their success is information that students should fully understand.

Conclusion

Why do so many students lose their confidence in their art abilities? Is it related to comments received from peers? Is it possible to reverse or change? After experimenting with the use of student-to-student feedback for one school year, I discovered areas of this practice that remain inadequate and questions that remained unanswered. The peer feedback was not a habit or routine for students or myself. There were not a variety of ways for students to provide feedback to each other. I do not know what effect the way I incorporated peer feedback had on student mindset or achievement. I do not know what my students thought about the feedback they received and what they did with that information. The vast majority of students were able to provide appropriate feedback by the end of the course, which I was very happy with, but I still have so many questions and adjustments to make. By the end of this investigation, I hope to have thorough insight into the following question: How does peer feedback affect mindset and achievement in the middle school art room?

In chapter two, I will discuss the research and literature related to my topic. Although I will be looking specifically at peer feedback for my question, a thorough understanding feedback as a whole will still be necessary. Mindset is another major theme in my topic. Dweck's work on mindset will make up a bulk of this section. Since this research will be conducted in a middle school, current literature on adolescent development will also be relevant. This will include their developmental needs related to academics and social skills. The following chapter will also

contain information on the art curriculum and standards, as well as project-based learning in the

art room.

CHAPTER TWO

Literature Review

Introduction

My students are active, social, and curious. It is not uncommon for students to comment on each other's work or ask opinions. Those comments might range from "Wow, that's really good!" to "What is that supposed to be?" While these comments may initially seem positive, helpful, or even harmful, they are not actual feedback that will help each other learn and succeed. Additionally, the effect of peer comments on student mindset is unknown. To improve my practice, this work will focus on how I can help guide those comments to be true, helpful feedback and discover what effect that has on student learning. The research question I will investigate is: How does peer feedback affect mindset and achievement in the middle school art room? This literature review will focus on a general understanding of feedback, peer feedback, student mindset, adolescent development and behavior, and visual art education.

Feedback

Feedback appears to be widely regarded as a crucial aspect of the learning process (Hattie & Timperley, 2007; Shute, 2007; Wiggins, 2012). This section will focus on an analysis of the meaning of feedback, how feedback can improve student achievement, the role of peer feedback in student learning, and what the literature suggests as the most effective ways of using feedback in the classroom.

Feedback Defined

At its most basic definition, feedback is considered information in response to one's performance or understanding. This information is used to reduce the gap between what the learner currently understands and the desired level of achievement (Hattie & Timperley, 2007). The intention behind feedback is to modify the learner's behavior or thinking in order to improve their learning and comprehension (Shute, 2008). It is important to understand that feedback is not something that can occur without the larger instructional context; teaching comes first and feedback comes second. In addition, feedback must address some aspect of the learner's task or performance that directly relates to the objective or goal in order to be most powerful (Hattie & Timperley, 2007).

While feedback, evaluation and advice might be confused for one another, they are actually quite distinct. Evaluation is a value judgement on what has been done, such as praise, criticism, grades and ratings. Advice involves giving someone a recommendation or suggestion on what they should do. Feedback differs in that it provides actionable information on what occurred that is goal-referenced. For our discussion, feedback is defined as "information about how we are doing in our efforts to reach a goal" (Wiggins, 2012, p. 10). For example, "I notice that your drawing does not have many dark values. When you look at your reference picture, do you see any areas that are darker? How can you match your drawing to the picture?" or "When I look at your landscape painting, I don't see a strong illusion of depth or space. What were some of the techniques we can use to make it look like it's going further back in space?" Feedback needs to inform the student on what effects their actions have on reaching their goal.

Evaluative phrases such as "Good job" or "92%" are not feedback because they are not descriptive enough to provide the students with specific, useful information on their efforts to

reach their goal. These vague comments and evaluations simply make a value judgment on the student's work without any information that will help them with their learning (Wiggins, 2012). Advice, such as "You should add more shading" or "Add more texture," can actually be detrimental, especially when not accompanied by feedback. "Students become increasingly insecure about their own judgment and dependent on the advice of experts—and therefore in a panic about what to do when varied advice comes from different people or no advice is available at all" (Wiggins, 2012, p. 14). With a goal of students being in charge of their own learning, constantly providing students with advice instead of feedback can hinder their ability to problem solve, understand the objectives, and develop their own solutions.

Types of Feedback

There are a number of types of feedback, some of which are more effective than others. Hattie and Timperley (2007) provided a summary of the effect sizes on the various forms feedback can take. At the top of the list are task feedback about changes from previous trials and less complex tasks, while praise and tasks with high complexity demonstrated a lesser effect size. Not surprisingly, feedback that threatens a learner's self-esteem or discourages a learner has a very low or negative effect size. Unexpectedly, the difference in effect size between the number of times feedback is given is relatively small.

Shute (2008) discussed other types of feedback that may enhance or detract from meeting the learning objectives, such as how specific the feedback is, how complex it is, and the timing in which feedback occurs. Feedback that is more specific on how to improve is more effective than limiting the response to confirming whether the learner's work is correct or not. This can be less frustrating for students and reduces uncertainty on how the learner might respond to the feedback. Additionally, feedback complexity can negatively impact the benefits of feedback. "If

feedback is too long or too complicated, many learners will simply not pay attention to it, rendering it useless" (Shute, 2008, p. 159). When the feedback occurs, not just how often, can also affect the efficiency and learning outcome, although there are conflicting viewpoints on what is best. Looking at immediate versus delayed feedback, Hattie and Timperley (2007) reported a higher effect size when the feedback is delayed (0.34) over immediate (0.24). Shute (2008) summarized the outcome of various research, concluding that some view immediate feedback as a way to prevent mistakes from being encoded into memory, while others argued that delaying feedback slowed initial learning, but better allowed learners to preserve and transfer knowledge after the lag in learning.

Peer Feedback

While feedback from an instructor is obvious and expected, there is another powerful source for feedback: peers. By allowing students to provide feedback to each other, students are able to take an active role in their learning and the learning of others (Lui & Carless, 2006). Providing students with an opportunity to receive feedback from peers, rather than the instructor alone, allows for more opportunity for constructive comments and multiple perspectives on their work. In terms of practicality, students are able to receive a greater quantity of feedback more quickly by including peers in the review process. By focusing the peer feedback on specific learning goals, students will receive additional information and insight on their progress towards those objectives (Carr, 2008). Additionally, Wiliam (2007) listed utilizing peers as instructional resources for each other as one of the five key strategies to high student achievement. Peer assessment is a fundamental approach to this strategy, which facilitates collaboration among students while they are learning.

While the student receiving the feedback benefits, the student providing the feedback may benefit as well. By comparing another student's work with the lesson criteria, students are gaining deeper understanding of the content and learning objectives. "Examining the work of peers offers meaningful opportunities for articulating discipline-specific knowledge, as well as criteria and standards" (Lui & Carless, 2006, p. 282). When students are fully aware of these standards, there is potential for students to transfer or internalize this understanding to their own work as well. This process enables students to be more proficient in self-assessment by making judgements on their own work in regards to the set criteria. In addition, providing peers with meaningful feedback allows students to develop skills such as communication, critical thinking, problem solving, and teamwork (Rodgers, Horvath, Jung, Fry, Diefes-Dux, & Cardella, 2015).

Although there appears to be significant benefits to utilizing peer feedback, it can have its limitations as well. First, some performance tasks are more suitable to peer feedback than others. Another limitation is the restricted amount of monitoring the teacher can do on what students say to each other. While a benefit of peer feedback is that it can open up the opportunity for more individual feedback, it can be difficult for the teacher to monitor all feedback to make sure it is of the quality expected. Another potential limitation is the personalities of the students. Teachers are comfortable with, and expected to, provide feedback to students. Students, on the other hand, are not always comfortable talking to another student about their artwork. Interpersonal and social issues could arise, causing peer feedback to be less effective. Finally, time can be a limitation of peer feedback. Teachers have a large amount of curriculum to teach in a certain amount of time. Peer feedback may use valuable time the teacher may not feel comfortable giving up. Despite the limitations, peer feedback still appears to potentially provide significant benefits to students.

Peer Feedback in the Classroom

Many educators are already aware of what effective feedback consists of, however, most students are not. Teachers need to encourage and support students while they learn how to provide feedback and help each other improve (Wiggins, 2012). Although it can be seemingly useful and kind, students need to avoid praising work in order to help their peers. "[Praise] usually contains little task-related information and is rarely converted into more engagement, commitment to the learning goals, enhanced self-efficacy, or understanding about the task" (Hattie & Timperley, 2007, p. 96). The student providing praise would not receive the significant benefits that come from contributing true feedback and the peer would not receive information to help them achieve the learning goals. Therefore, students must be explicitly taught how to provide feedback that is meaningful and constructive. In addition, ensuring students understand that feedback needs to be specific, clear, and provides information on strengths and weaknesses related to specific learning targets will help promote successful decision making (Low, 2015).

There are many suggested methods to facilitate peer feedback in the classroom. Moore and Teather (2013) discussed the use of student-generated criteria for evaluating work. For example, students can review sample assignments and consider what constitutes quality in the assignment. This gives them a collaborative view of the criteria and goals, which can deepen their understanding of the goals. Carr (2008) suggested the use of questions, statements, and prompts to encourage useful feedback. For example, in a math word problem checklist, the peer reviewer could ask, "Did my peer underline the clue words?" or "Did my peer throw out the information that was not needed?" (Carr, 2008, p. 28). Wiggins (2012) provided a technique called "two stars and a wish" in which students identify two areas that the peer met the goal (the "stars") and one area where the peer needs further attention (the "wish"). A similar thread

through all these techniques is that the students are fully aware of the success criteria and the teacher supports their skills in helping each other succeed.

Conclusion

For this study, we understand feedback to be information on our progress towards reaching a goal. This does not include evaluative statements, such as praise or grades. It also do not include suggestions or advice. True feedback is clearly an important part of the learning processes. It helps students develop their own solutions, understand their mistakes, and achieve their learning goals. While the teacher is an obvious source of feedback, peers are capable of helping each other succeed as well. In this research study, students will be providing feedback to each other on their artwork in the hopes of a greater number of student becoming proficient in each of the learning targets. In the next section, I will discuss mindset. This includes what the two types of mindset are, how to develop a growth mindset, and how mindset can be measured.

<div align="center">**Mindset**</div>

It is obvious that educators need to believe their students can succeed, but another important factor is making sure the students believe they can learn as well. Stanford University psychologist Dweck (2006) is a lead researcher on motivation and the way students perceive intelligence. Dweck identified two distinct mindsets students possess. A fixed mindset refers to the belief that the intelligence and skills are traits you are born with that do not vary in amount. A growth mindset refers to the belief that intelligence can be developed and improved over time (Dweck, 2006). These two mindsets can lead to vast differences in the way students react to challenges, effort, and mistakes, which can significantly affect student learning and achievement (Dweck, 2007).

Fixed Mindset

For individuals that view intelligence as an unchanging character trait, academic challenges, effort, and setbacks can lead students to believe they are lacking in intelligence (Yeager & Dweck, 2012). At the risk of appearing unintelligent, students may avoid challenging goals and give up easily. Some of these behaviors may include cheating, becoming defensive, and ignoring learning strategies. Individuals with a fixed mindset view mistakes and the need for effort as proof that they are lacking in talent (Dweck, 2006). Even when taught the academic skills and strategies needed to be successful, if students do not believe they have the potential to improve, students may not apply them sufficiently. Therefore, a fixed mindset has the power to significantly limit student learning (Yeager & Dweck, 2012). Eliminating or reducing the number of students with a fixed mindset in the art room could be a vital part of increasing their achievement.

Growth Mindset

Students that believe their intelligence and abilities can be developed are considered to have a growth mindset. For these students, the ultimate goal is not to look smart, but to actually learn. These students tend to take on greater challenges since they know that difficult tasks will help them grow their abilities and teach them new things. In addition, working hard is seen as necessary for success. Without effort, these individuals know they will not improve (Dweck, 2007). Along those lines, mistakes and setbacks are viewed as a signal for more effort or attempting a different strategy. It does not matter if the student is already higher or lower achieving. As difficulty rises, a growth mindset will help students respond with resilience (Yeager & Dweck, 2012). An art student with a growth mindset walks into class with the belief that they will be able to develop their skills and creativity to a higher level.

Fostering a Growth Mindset

Since challenging and meaningful learning tasks may cause students with a fixed mindset to respond defensively or feel threatened, it is important to develop a classroom culture that supports a growth mindset (Dweck, 2010). There are many ways teachers can send a message to students that intelligence is something they can develop.

First, the use of praise can either help or harm, depending on what is being praised. For example, praising an individual's process, such as strategies used, effort, choices, and persistence, leads to much higher success than praising a student's intelligence (Dweck, 2010). In fact, telling a student how smart they are can actually cause students to develop a fixed mindset. Praising intelligence for a job well done seems like it would boost confidence, however, the inverse of this message can be very detrimental. If succeeding at an academic challenge makes someone smart, then failing to succeed would lead one to believe they are unintelligent. This may actually confirm a fixed mindset for those students. Instead, keeping the praise process-oriented will promote the idea that intelligence and skills are something we can control and develop (Dweck, 2008). Wiggins (2012), however, cautioned against praise of any kind because it is not concrete, specific, and useful. Hattie and Timperley (2009) discussed the potential for praise to be helpful when it is related to effort, process skills, or self-regulation. However, true feedback that is specific to how well a task is being performed, the processes being used, and how a student regulates their actions towards a goal is more reliable and effective.

Another way to develop a growth mindset in students is to distinguish between learning quickly and comprehending a concept at a deeper level. Students need to understand that spending adequate time learning something can result in greater comprehension and success. In

addition, learning something quickly does not equal greater intelligence. It might simply be an efficient strategy was used, a great deal of effort was put in, or the learning task was not at a level to produce significant growth (Dweck, 2010). Whatever the cause, less time does not mean greater understanding or greater intelligence.

Another option is to teach students about mindset, including the characteristics of each mindset and the associated benefits and disadvantages. This could also involve information on brain malleability and the new connections between neurons created during learning. To solidify this message, students can imagine these changes happening in their brains as they are working on a challenging task. Additionally, students could write to another student, such as a pen pal, explaining this message (Yeager & Dweck, 2012). In the art room, students could create a visual representation of neurons and brain malleability.

Teachers can also create a classroom culture that embraces challenges over success. Students needed to be challenged if they are to experience meaningful learning (Dweck, 2012). By portraying easy tasks as boring and less useful, and difficult tasks as exiting, students can start to desire challenges that will help them learn and grow.

Finally, creating learning tasks that give students the opportunity to display their progress towards a goal can also provide an environment conducive to a growth mindset. "Work that gives students a sense of improvement as a result of effort gives teachers an opportunity to praise students for their process" (Dweck, 2012, p. 19). This allows teachers to emphasize the effort and strategy that led to improvement, not an inborn characteristic. Pre- and post-tests can also accomplish this by showing students how far they have come.

Measuring Mindset

Dweck (2006, p. 12) offered statements to consider in order to determine one's mindset:

1. Your intelligence is something very basic about you that you can't change very much.

2. You can learn new things, but you can't really change how intelligent you are.

3. No matter how much intelligence you have, you can always change it quite a bit.

4. You can always substantially change how intelligent you are.

The first two statements align with a fixed mindset, while the second two are growth mindset statements. It is important to note that individuals may have a fixed mindset in one area and a growth mindset in another. Dweck (2006) noted that other abilities could easily be substituted for intelligence, such as artistic or athletic talent.

The benefits of having a growth mindset are clear. Teachers can provide clear, processes-oriented feedback and a culture that embraces challenges to help foster this in students. Considering the array of comments peers provide each other in the art room, it is important for students to understand how to provide feedback that aligns with a growth mindset mentality as well. To fully understand how this process works with middle school students, it is necessary to understand where students are in their development at this time in their lives.

Adolescent Development

Middle school can be a difficult transitional time for many students. Many changes are happening in students' brains and bodies that can make behavior unpredictable and volatile. While hormones are often to blame, Feinstein (2009) offered a different explanation: the brain. "Instead of battening down the hatches to wait out some hormonal storm, teens are navigating a cerebral hurricane without a compass (Feinstein, 2009, p. 5)." In order to help adolescents reach their full potential, teachers need to be aware of the changes happening within the teenage brain as well as the research based strategies to reach them.

Brain Development

The human brain has reached its adult size by age ten, but it is far from fully developed (Steinberg, 2011.) As we learn, new connections known as synapses form between neurons in our brains. Many more synapses are created than necessary, so a process known as synaptic pruning takes place to help make the brain more efficient. As Steinberg (2009) stated, "Just as pruning a rose bush - cutting off weak and misshapen branches - produces a healthier plan with large flowers, so synaptic pruning enhances the brain's function" (p. 44). In addition, a process called myelination occurs to further improve function. This fatty substance forms over neurons allowing information to travel more quickly and efficiently (Feinstein, 2009). Synaptic pruning and myelination take place during all phases of childhood, but one of the keys to adolescent behavior occurs as a result of these changes happening in the prefrontal cortex. Located directly behind the forehead, this area of the brain is responsible for more complex thinking abilities, controlling impulses, and regulating emotions (Porter, 2009). The changes happening in the brain have a direct connection to the changes happening in thought process and behavior.

Adolescent Learning

With all the changes happening in the adolescent brain, a fair amount of changes in cognition is to be expected. While student attention spans tend to increase with age, the adolescent brain still craves novelty and emotion (Feinstein, 2009). In order to hold our students' attention, we must capture it first. An activity to grab the attention of teens can range from varying pace or tone of speech, telling a joke, playing a song, moving seats, providing hands-on objects and activities, or sharing a personal story. Adding something different and new or drawing emotion into the classroom can help engage students in the learning taking place.

The development of the frontal lobes can also cause changes in the ways teens look at the world. They can start considering answers to hypothetical questions, analyze and reflect on decisions, and take on higher level thinking. In addition, students can envision making the world a better place (Feinstein, 2009). In middle school, this thinking typically involves discussing problems without any follow-up action. For example, students may passionately discuss the importance of cleaning up the environment, yet leave a candy wrapper on the ground or fail to put a glass bottle in the recycling.

For more basic abilities, such as memory, logical reasoning, making connections among topics, and recognizing and using patterns, the average middle schooler is similar to adults. However, more sophisticated cognitive abilities involving thinking ahead and controlling impulses are still developing (Steinberg, 2011). Even though students may seem to have adult-like cognitive abilities, we should not always expect them to behave like adults.

Adolescent Behavior

Teenagers often seem to switch back and forth between mature and immature behavior (Steinberg, 2011). This behavior can feel bewildering, but changes in the brain make it more understandable. Unlike adults, who rely more on their frontal lobes for logical, reasonable behavior, adolescents rely on the amygdala, the center of emotions (Feinstein, 2009). This reliance explains some of the impulsive, emotional behaviors we see in teens. Additionally, a reliance on the amygdala factors into reading facial expressions and body language. For example, an adolescent might see a look of surprise as an angry glare, or confuse fear with shock or anger (Feinstein, 2009). With still-developing frontal lobes and an often emotional state, teens can be overly self-conscious and egocentric. "Teens are so busy thinking about themselves that they are sure everyone else is also concentrating on them full-time" (Feinstein, 2009, p. 83).

Therefore, instructional strategies that reinforce correct learning and behavior are so important. "Repeated activation of a specific collection of neurons as a result of engaging in a particular behavior will actually strengthen the connections among those neurons, which, in turn, will make them function more efficiently" (Steinberg, 2011, p. 46). These strategies can include demonstrations, conflict resolution, modeling, and role playing (Feinstein, 2009). Teens may struggle with appropriate behavior and responses, so being proactive and finding ways to reinforce correct actions can help them through this emotional time.

Another key feature of adolescent behavior is the tendency for risk-taking. With a pre-frontal cortex that is not full developed, teens can struggle with impulse control, moral reasoning, understanding consequences, and other executive functions (Wormeli, 2011). At the same time, there is more activity of a chemical substance called dopamine in the brain during adolescence than any other time (Steinberg, 2011). Dopamine is released when something enjoyable happens and leads to feelings of pleasure. This causes younger teens to seek out pleasurable or rewarding experiences more than other age groups. While this is something that can make being a teenager fun, it can also lead to some questionable decision making, such as driving too fast, drinking alcohol, or having unprotected sex even though the consequences can be severe (Steinberg, 2011). Just like novelty is helpful in catching teen's attention for a lesson or learning activity, it also is attractive outside of the classroom because it releases dopamine. Combined with a poor emotional regulation in the frontal cortex, it is no wonder students can behave in ways that seem reckless, volatile, or even dangerous (Feinstein, 2009). Risk-taking is not a surprising behavior in teenagers.

While it may seem that teens act in ways that are unpredictable, risky, or emotional, understanding the brain's stage of development in adolescence helps to make their behavior

more clear. These changes in the brain also give way to logical thinking, making connections, and abstract thought. Since teens can be overly self-conscious and may misread facial expressions, helping them understand exactly how to give feedback will be important to continue to encourage a growth mindset. For example, if the peer reviewer is not clear and specific with their feedback, the student may interpret it at criticism, resulting in the student concluding that they are not good at art or will not get better. Since emotions can be heightened during this time, giving the students the proper vocabulary and procedure for providing feedback will be crucial for keeping the process running smoothly.

This action research focuses on middle school students providing feedback to each other. Understanding this stage of adolescent development is important in determining the best course of action to help them develop and succeed both academically and socially.

<div align="center">**Visual Art Education**</div>

While peer feedback and mindset can be utilized in any setting, the context of this research will focus around visual art education. This includes goals and standards in the visual arts, project-based curriculum, evaluation, and motivation in the art room.

National and State Standards

Art teachers in Minnesota are required to meet the Minnesota academic standards for the arts in kindergarten through high school art classes. In addition, national visual arts standards exist to help guide curriculum and instruction for teachers choosing to implement them. Both sets of standards revolve around four major areas: creating, presenting, responding and connecting (Minnesota Department of Education, 2008; Steward, 2014). These four areas help ensure a well-rounded visual arts curriculum.

Creating is central to every art room. Students need to develop skills in a variety of media, including two and three-dimensional work. State and national standards to not specify media; this opens up possibilities and options for teachers and students to make the best choices based on the lesson objectives. Additionally, students need to explore a variety of methods and approaches to creating their work. This includes a willingness to take risks, develop new ideas, and experiment to find the best solution. Self-reflection and feedback play a crucial role in this area (Steward, 2014). Students are expected to reflect and revise work based on the feedback received from others to improve their work (Minnesota Department of Education, 2008). Overall, the goal of this strand is to develop innovative thinking and creativity to gain insight about the world, themselves, and others.

Presenting is a key component of art education as well. In the national standards, students are expected to be part of the process of deciding what, how, and where to present art objects, since all of those decisions affect the meaning of the artwork. Eventually, students should shift from focusing solely on displaying one's own work to the presentation and preservation of art made by others (Stewart, 2014). The ultimate goal in this strand is for students to understand how audience and occasion affect a presentation (Minnesota Department of Education, 2008). This is not an obvious goal for students, and the standards help make sure students have the opportunity to explore it.

Another strand in the artmaking process is to respond or critique. Essentially, this involves "reading" what we see to construct meaning. By analyzing the expressive properties of images, taking into consideration the context and cultural considerations, students can construct sophisticated meaning of a work of art. Additionally, reflecting on the meaning, particularly with a variety of contexts, provides students with the opportunity to view the work or artist from

multiple perspectives and expand their own views and interpretations (Stewart, 2014).

Responding also involves evaluating an artwork. Similar to feedback, students analyze and

interpret an artwork based on a set of criteria (Minnesota Department of Education, 2008). This

moves students beyond simply liking or disliking an artwork. Instead, students are able to use a

set of criteria to base their judgement of merit or quality in the work (Stewart, 2014). While

students may still have personal preference, they will come to see past that to evaluate an

artwork.

The national and state standards also list the artistic foundations or connections as an

important strand in developing students' artistic literacy. This includes connections among

artworks, the purpose behind the artwork, and the various contexts surrounding it (personal,

social, cultural, and historical) (Minnesota Department of Education, 2008). Art making is an

investigative process. The purpose of an artwork changes depending on the place and time. It

changes in response to values and traditions. Artwork reflects our identity and culture. By

observing, researching, and experimenting, students can explore their own interests and develop

new ideas and insights. The standards provides students with the opportunity to consider how art

is connected to their world (Stewart, 2014). They also provide guidance for the teacher to make

sure students are receiving the most from their art education experience.

Project-Based Curriculum

Middle school art classrooms are typically project-based and exploratory in nature. These

projects provide the foundation for the visual art curriculum. In order for the projects to lead to

meaningful production of art, they need to give students the tools to investigate, use aesthetic

strategies, and make meaning (Gude, 2013). Vieth (1999) described projects as a way to develop

visual problem solving, creative thinking, provide a means for students to express themselves

and their relationship to others. However, not all projects are created equal. In determining projects, Gude (2013) suggested educators ask themselves "Are there more ways of teaching this content that provide more compelling learning experiences…" (p. 13). Many of the conventional, familiar projects are not effective at teaching students about ways of making art outside of a school context, do not encourage creative thought, and are simply "recipes for creating a good-looking project" (Gude, 2013, p. 6). Instead, teachers need to make room for other kinds of art experiences and projects that provide students the tools and aesthetic strategies to explore and make meaning of their own.

Some argue that art classrooms should not use projects at all. Instead, students should be free to decide what and how to make their art and not have their creativity stifled (Douglas & Jaquith, 2009). While this may seem worthwhile, it is not practical in typical art rooms because of logistical concerns: space, materials, class size to name a few (Gude, 2013). Additionally, without the foundation of a well-designed project, support from a teacher, and practice with a wide range of strategies, students often rely on "hackneyed, kitsch image-making techniques" (Gude, 2013, p. 6). Vieth (1999) suggested increasing student skill level before introducing challenges that encourage expression and creativity. For example, a project may begin with observational drawing and instruction on technique, followed by original, unique interpretations. This allows students to grow and develop on the technical side, allowing them to have a wider range of tools and strategies and confidence to create something that is more expressive and unique.

Evaluation

Both Vieth (1999) and Gude (2011) suggested using questions to evaluate students. When students utilize their art vocabulary to explain the choices they made in artmaking,

teachers can determine level of proficiency without stifling creativity. A rubric that specifies

required formal characteristics is not good assessment (Gude, 2011). While students might need

to understand such concepts as contrast, color schemes, or value, students need to decide whether

or not to utilize particular techniques. This is a key component of artistic expression. Vieth

(1999) suggested questions such as "Do your individual designs make the viewer want to pick up

your sculpture and turn it over to see more?" (p. 104) and "Where you satisfied with your visual

solution to the problem?" (p. 67). While Gude (2011) seemed to discourage the use of a formal

rubric, Vieth (1999) offered an open-ended rubric that evaluates students' general proficiency of

craftsmanship, creativity, and effort.

Motivation

Some students are allowed to choose their arts classes (visual, performing, musical, etc.)

and some do not. It is safe to say that there will always be students that do not want to be in the

visual art class. Even students that do want to be in visual art are not going to like every project.

What can teachers do to increase motivation for their curriculum? One suggestion is allow

students to connect and cooperate with each other. "Students motivation and thinking skills are

considerably enhanced when students work collaboratively to produce a visually unified result"

(Vieth, 1999). Another benefit to students working together is the increased self-efficacy. Peers

can be powerful models for motivation and achievement. A student who witnesses a peer

struggle and then succeed with the learning task can enhance that student's own beliefs and

confidence in completing the task. (Ryan, 2000). Additionally, having students work together

towards a common goal can encourage a community environment that values citizenship,

responsibility, and a commitment to each other (Vieth, 1999). Cooperation and collaboration can

be a great motivator in the art room.

Another technique is to allow students to make choices and decisions on their art, designs, images, materials, and process. Giving students the freedom to experiment and create new perspectives and solutions increases intrinsic motivation for the task (Bowman, 2011). "Projects must be designed to open out into unexpected possibilities, not narrowed into predetermined channels" (Gude, 2011, p. 10). Allowing students to make their own decisions can help them become more invested and motivated in the task.

Finally, the work needs to adequately challenge students in order to sustain interest (Bowman, 2011). As students learn new skills, they need the opportunity to challenge themselves to put those skills to use in new contexts (Hetland, Winner, Veenema, & Sheridan, 2007). Azzam and Pink (2014) referred to this ideal task level as the Goldilocks task. A task that is too easy results in little learning or engagement and a task that is too difficult results in frustration and disengagement. Students need a learning activity that falls right in the middle: just challenging enough that students are engaged and pushed to learn something new. This sort of customization is a natural part of an effective art project. With guiding questions, feedback, and teacher support, the solution that an individual student decides on for any given project can be specific to their own appropriate level of difficulty. By designing projects well, teachers can help motivate their students to learn, explore, and develop their own ideas and skills (Gude, 2013). It takes time, effort, and creativity, but a well-design project is worth it in the end.

Conclusion

Chapter two provided an overview of the main themes involved in my research question. This includes feedback, mindset, adolescent development, and art education. In order for students to give feedback to each other, they must have a thorough understanding of what feedback is, what it is not, how to provide it, and how it helps in the learning process. In

addition, by providing feedback to a peer on specific goals within the art curriculum, students may start to internalize the learning criteria to a deeper level making self-assessment more attainable. There are multiple ways of facilitating peer feedback in the art classroom, such as guiding questions, statements, and prompts to encourage helpful feedback. To improve my practice, this work will focus on how I can help guide my students to provide true, helpful feedback for each art project and discover what effect that has on student learning.

The second part to this research involves any connections between peer feedback and mindset. Some students come into the art room with a growth mindset, or a belief that they are able to improve and develop their artistic skill. Others have a fixed mindset, in which people are born with certain traits, such as artistic ability, and cannot significantly change them. Praising student intelligence can lead to a fixed mindset, while praising effort can encourage more of a growth mindset in students. This research will look at how the guiding students to provide useful feedback, rather than praise on ability, affects student mindset.

Since students are interacting with each other, understanding adolescent development is important for creating learning activities that will help them be successful in communicating with peers. Adolescents may have a hard time interpreting facial expressions and emotion, so guiding them with correct terminology and phrasing will be helpful. Additionally, students in this age group may struggle with impulse control, so providing them with time to think about their responses, rather than rely on off the cuff remarks, may be beneficial for providing the best feedback.

In chapter three, I will outline the framework for my research to determine how peer feedback affects achievement and mindset in a middle school art class. I will explain the setting and participants as well as how the research will be embedded within the existing art projects.

Most of the data collection will be based on a qualitative research design, such as questionnaires, student artifacts, and classroom observations. In addition, I will also measuring how students feel using quantitative attitude scales, resulting in a mixed methods approach. Finally, I will outline how the data will be analyzed and discuss the Human Subject Review process.

CHAPTER THREE

Research Methods

The goal of this action research project is to help my seventh grade students develop a growth mindset and a deeper understanding of feedback to help themselves and each other succeed. Chapter three focuses on the methods used to conduct research for the follow question: "How does peer feedback affect mindset and achievement in the middle school art room?" In this chapter, I will discuss the district, school, and classroom where the research takes place as well as a description of the participants involved. Since the research will be embedded within the art curriculum, I will explain a general outline of the sequence of events. I will also explain the research paradigm and methods used to collect data, including the rationale and a detailed description of the data collection tools. Finally, I will include a description of how the data will be analyzed and evaluated and an explanation of the Human Subject Review process.

The Setting and Participants

District and School

This study takes place in a large, suburban district in the upper Midwest. The district has two high schools, an alternative high school, two middle schools, and eight elementary schools. This research will take place in one of the middle schools, which serves over 1,300 students. Of those students, 61% identify as White, 19% identify as Black, 10% as Latino, 6% Asian or Pacific Islander, 4% as two or more races, and 1% identify as American Indian or Alaska Native. Additionally, 35% of students qualify for free or reduced price lunch.

The school day is split into seven class periods, with two of those class periods reserved for "Allied Arts" class. These classes include visual arts, family and consumer science options (sewing and cooking), music (band, choir, and orchestra), AVID, physical education, health, and technology education (woodshop and Gateway to Technology) and meet every other day for one semester. This means that students are placed in four Allied Arts classes each semester. For students not meeting state standards in reading and/or math, an additional math or reading class is required in place of one of the arts classes. While students that are not meeting standards will still be able to take an Allied Arts class, their opportunities are limited. This results in classes with increased levels of higher achieving students.

Similarly, our middle school also offers Pre-Advanced Placement (Pre-AP) options in English, social studies, and science. This has also resulted in segregation of our students. Pre-AP classes tend to be mostly white, higher-achieving students. Our regular classes tend to have greater numbers of students of color, students of lower-income families, English Language Learners (ELLs), special education students, and higher levels of behavior issues. Fortunately, we are phasing out this format next year. While the rigor and expectations of Pre-AP coursework will remain, students will no longer be separated into different classes. However, remediation courses in place of Allied Arts classes will still continue.

The Art Room

The rooms where students meet for art is a large space with eight tables arranged in two long rows. There is also a small table between the rows that can seat two additional students. At the front of the room is a long counter with the teacher's desk and computer, as well as a document camera. The projector screen is along this wall. Near the front of the room is an easel that holds a dry erase board. At the back of the room is medium-sized white board and the door

to a large storage closet. On one side of the room is a long sink with four faucets. On the other side is a counter with plenty of storage space, and cabinets attached to the wall above. Finally, there are three corkboards for displaying visual material, as well as cork strips along the cabinet doors for additional display areas. The art room is where all the action research will be taking place.

The Participants

This research will focus on utilizing peer feedback with two classes of seventh grade students. Between the two classes, there are 61 students participating in the study. Of those students, 27 are female and 34 are male. There are three students on an Individualized Education Program (IEP) and one on a Personal Learning Plan (PLP). Two students are ELL. The majority of students identify as white, 45 of 61 students. In addition, eight students identify as black, five as Asian or Pacific Islander, and three as Hispanic or Latino.

This research began at the start of a new quarter. As current seventh graders, most of the students have been in the school for a year and a half and know many of their classmates. However, this is the first time this particular group of students were all be in a class together. Of those 61 students, 26 have had art with me as sixth graders, however, the slight majority of students did not previously know me.

<div align="center">Art Curriculum</div>

Students completed two main projects in art during the quarter. The first project involved students using the additive and subtractive methods of sculpture to create a clay tile. Additionally, students incorporated at least three different types of texture within their tile to compliment the design and boost creativity. For the second project, students created a mixed-

media artwork using the stippling shading technique on tracing paper, along with a variety of other materials of the student's' choosing to create a balanced design.

For each project, students were introduced to the overall goals and steps, including examples of the end product. They explore the main artists and/or styles that serve as inspiration for the project. Students practiced the techniques and strategies necessary to be successful and plan out their individual solution to the project. The class typically had three to four work days where they could apply the techniques and strategies to create their final artwork. To wrap up each unit, students took a photograph of their work and added it to their digital portfolio, which is simply a Google Slides presentation. Finally, students wrote a paragraph next to the photograph to reflect on their idea, process, and final product. By the end of the course, they had a visual and written record of each project and their thoughts to share with family.

Research Paradigm

This research employed mixed-methods data collection techniques. Mills (2011) stated that the way data is collected is predominantly dependent on the nature of the problem. Since I will be discovering the effect of peer feedback on my students' achievement and mindset, their experiences and stories will provide the base of my data. To gather this data, I utilized a qualitative approach, including observations, surveys, student work, and photographs. Since I also wanted to measure student attitudes towards peer feedback using numerical data, this research also involved a small amount of quantitative data to help support the qualitative research design.

Classroom Observations

As part of my research, I continued as an active participant observer in the classroom. As Mills (2014) stated, this type of data collection is very familiar for teachers because it is a normal

part of our practice. Teachers are constantly observing the environment and using those

observations to guide instruction. For this research, I kept a written record of student

conversations that related to comments students are making to each other. More specifically, I

listened for student use of feedback, praise, criticism, and advice and how peers respond to

comments. I also observed overall student engagement and the comments students made about

their own work, especially as they relate to a fixed or growth mindset. In order to recall

information correctly, I utilized field notes during each class as well as recorded my thoughts in

a journal after the class period was over.

Surveys

Before any instruction on feedback or mindset began, students completed a survey on

their prior experience, knowledge and feelings towards peer feedback as well as answer

questions that help determine their mindset towards visual art (see Appendix A). I used attitude

scales within this survey along with the option to comment, as well as some short answer

questions. At the end of the semester, students took another survey that was very similar to the

first in order to determine any trends or patterns in student attitudes and feelings towards

feedback (see Appendix B). This also provided data to determine any changes in mindset that

occurred over the course.

Artifacts

There will be three main types of artifacts collected for data analysis. First, I need to

document changes students make to their work as a result of the feedback they received from

their peers. Using a random sample of students, I photographed student work before and after

each peer review process. I also collected student's written feedback for their peer, and their

written explanation of how they plan to use the feedback they received (see Appendix C).

Finally, I have access to all students' digital portfolios (as a Google slideshow) in which students record a picture of their final work for each project as well as a reflective paragraph describing their struggles and triumphs in their process and artwork. This provided data on student mindset as they progressed through the course.

Methods and Data Collection Tools

In order to make peer feedback a regular part of classroom environment, a cycle of feedback occurred for each of the two projects done throughout the quarter. This process required direct instruction, learning activities, and assessment on feedback and mindset, which will be outlined in this section.

Cycle of Feedback

Based on Wiggins' (2012) systems of feedback, the students participated in a cycle of feedback for each unit of instruction. This cycle first involved making the goal explicit and concrete through models and criteria, then the learner attempted and self-assessed; feedback is given, then advice if needed; the learner attempted again and repeated the steps in the cycle as needed. Instead of the teacher being the only source of feedback, students provided feedback to each other as well for this research study.

Getting Started

At the beginning of the quarter, students completed a survey on their prior experience, feelings, and competency with peer feedback (see Appendix A). This also included their attitudes and mindset toward their art ability. Based on Mills's (2011) suggestions for questionnaires, the survey used structured items with a variety of possible responses, including multiple choice, attitude scales, short answer, and the opportunity to comment after each question if desired. This

survey helped guide my instruction regarding feedback, as well as provided baseline data of their position towards giving and receiving feedback to and from peers.

Feedback Instruction

In order for students to provide each other with feedback, they need to understand what feedback is and is not. To start, the class engaged in a discussion on what they believe feedback to be. The discussion included misconceptions such as giving someone advice on what to do to make it better or telling someone what they like or dislike about their work (Wiggins, 2012). Through examples, stories, and modeling, and I explained how advice and praise are commonly mistaken for feedback, and what true feedback actually is. Since praise is often seen as a positive, helpful encouragement, I showed students a video entitled "Carol Dweck - A Study on Praise and Mindset" (Ragan, 2014) on why we are going to avoid praising each other's work and then provided students with an opportunity to discuss their reactions. Students then provided feedback to an example artwork as a group first, then attempted it individually. I reviewed their responses and provide re-teaching as necessary.

Mindset Instruction

Students also received direct instruction on mindset. This began with students participating in four rounds of Philosophical Chairs to debate statements dealing with mindset that involve the idea of natural born traits, making mistakes, how quickly we can complete tasks, and the value of challenging work. After, students created a visual map to define success and identify who or what influenced their definition. Next, students viewed a video called "Learning - How It Works & How To Do It Better" (Ragan, 2014) on how learning happens from a neurological perspective, discussed their thoughts and reaction to the video, and adjusted their

success map as needed. Finally, students had the opportunity to describe anything they were still thinking about and any questions they still had.

Methods for Each Unit

The cycle of feedback involving peers occurred for each art project. Since this took place over a quarter, I reviewed and modeled the correct way to provide feedback each time prior to students providing feedback to each other. Additionally, the learning targets were reviewed, modeled, and practiced before any student gave feedback to a peer to ensure sufficient understanding.

After the class began working on their final project, students took a small break to give and receive feedback on their work thus far. The learning targets were modeled and reviewed throughout the unit and again before the students engaged in peer review. Students completed a peer review sheet by providing their partner with feedback from two of the learning objectives that they had not fully met yet (see Appendix C). The partner wrote down their feedback as well as verbally explained their comments to the student artist. Then students had time to reflect on the feedback they received from their partner and write down what their next steps are based on their peer's comments (see Appendix C).

Upon conclusion of the two units, students participated in a follow up survey to measure their experience and feelings of peer feedback in the art room and their own mindset towards artistic ability (see appendix B). These questions were nearly identical to the ones students answered at the start of the quarter. In addition, students reflected on whether or not their art ability has grown or not over the semester, if their mindset has changed, and if they felt the peer review process made it easier for them to self-assess their own work.

Data Analysis

According to Mills (2006), teacher researchers must fully know the data. This involves organizing the data, doing multiple readings, and internalizing the information. My first step was to label, sequence, and read through all field notes, journals, and student artifacts. Next, I organized quantitative data obtained through attitude scales done at the beginning and end of the research. This numerical data was coded into into different categories and added to a spreadsheet, along with graphs and charts to visually represent it. Finally, I looked for patterns and themes from the various data sources and describe the findings.

Human Subject Review Process

Since I conducted research with students, I needed to receive approval from the Human Subjects Committee before I could collect any data for my research. This is to protect everyone involved in the research (myself, the school, my students, and Hamline University). I submitted a request for review and waited to begin research until it has been approved. I also sent an informed consent letter to gain approval for my students to participate in the study. Research approval also needed to be granted from the district in which the study took place. This involved answering detailed questions about the study and submitting the request for a small review committee to review and approve. After approval was received from all necessary parties, I began my research.

Conclusion

In this chapter, I outlined the framework for my research to determine how peer feedback affects achievement and mindset in a seventh grade art class. I explain the setting and participants in detail, and also describe how the research is embedded within the existing curriculum. Most of the data collection tools fit within a qualitative research design, such as

questionnaires, student artifacts, and classroom observations. However, I am also measuring how students feel using quantitative attitude scales, resulting in a mixed methods approach. I also discuss the use of Wiggins (2011) system of feedback and how this model is incorporated into the research design. Finally, I outline how the data will be analyzed and discuss the Human Subject Review process.

In chapter four, I will share the results and findings of the action research. This will include how the data was collected along with charts, graphs, and examples of student artifacts. I will discuss an interpretation of the data and any patterns or themes that emerge, as well as any questions or further inquiries that surface as a result.

CHAPTER FOUR

Results

Introduction

The purpose of this chapter is to share the results and findings from my action research study that explored the following question: How does peer feedback affect mindset and achievement in the middle school art room? I will review the action research methods and discuss the results obtained from each data collection tool. I will display the results using charts, tables, and descriptions and provide interpretations of the data. Finally, I will discuss patterns and themes that emerge from the data.

Action Research Methodology

This study focused on utilizing peer feedback with two classes of seventh grade students. Between the two groups, there were 61 students participating in the study. These students were with me every other day for 47 minutes during their third class period of the day.

This research was conducted over a quarter, in which students completed two units of study. The first unit involved creating a clay tile that utilized varying heights to display the design as well as textures to add interest and meaning. In the second unit, students were to produce an image using the shading technique known as stippling. This technique only uses dots to create the light and dark values to make the image visible. Students also had to design a background that would relate to the subject and add meaning to the overall design.

As part of my study, students had to provide each other with feedback on two different learning targets during each unit. Since many students did not know what true feedback was

prior to this, it was critical to provide direct instruction, modeling, and practice before students could begin giving each other feedback. We began by discussing their misconceptions, such as feedback being the same as praise, advice, and criticism. Next, we looked at how feedback is different, and discussed why this matters. Students started to see how neutral information that is related to the learning targets helps the artist make their own decisions on how to improve their work. Finally, we practiced giving feedback on a student's work who volunteered to have his work discussed. Once students felt comfortable providing feedback, they were able to comment on a peer's work to help them improve their work.

Data Collections Tools

In order to collect data that would provide a holistic look at the way feedback affects students, I used both a qualitative and quantitative approach to data collection. At the start of the quarter, students completed a survey on their prior experience, feelings, and confidence with peer feedback. This survey also included questions designed to measure their mindset toward their art ability. I also relied on classroom observations of student conversations, engagement, and behaviors related to feedback and mindset, which I recorded on the classroom observation form during and following the class period. I collected two different types of student artifacts: photographs of student work and student peer review sheets. Finally, I used the post-assessment survey to record changes in attitudes and feelings toward feedback as well as any changes in their mindset that occurred over the quarter.

<div align="center">

Survey Results

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At the start of the quarter, I administered a computerized questionnaire using Google Forms to determine how students felt about peer feedback and to measure their mindset on their artistic ability. I gave a very similar questionnaire at the end of the quarter, plus a few additional

questions, to see how their thoughts and feelings on feedback and mindset had changed at all from just six weeks prior.

One important piece of information to note is that at the time this first survey was given, students had not received any instruction on what feedback was. During our first discussion after students had taken the survey, the top two ways students initially defined feedback was to praise ("Tell them what you like about their project") and to give advice ("Feedback is telling somehow how they can make their work better"). Therefore, when looking at the pre-assessment survey, this student understanding of feedback should be kept into consideration. However, by the time they did the post survey, students had a working definition of feedback as being neutral comments that are related to the learning targets to help someone make their own decisions on how to improve their work.

Feedback

Based on the first survey question, most students already viewed feedback in a positive way. At the start, approximately 68% of students felt that feedback from peers was either fairly helpful or very helpful. By the end of the quarter, five more students felt that peer feedback was very helpful and the number of students who felt that peer feedback was not helpful at all dropped by four. One of my concerns going into this study was that students would view this processes of providing and receiving feedback from a peer as an additional hoop to jump through, and not necessarily valuable. Although the vast majority already seemed to view it as at least a little helpful, the decrease in students who did not feel it was helpful at all combined with the increase in students who found it very helpful, was a strong indicator that students were not viewing it as a meaningless activity. Instead, this shows that they took it seriously and found it to be a valuable process.
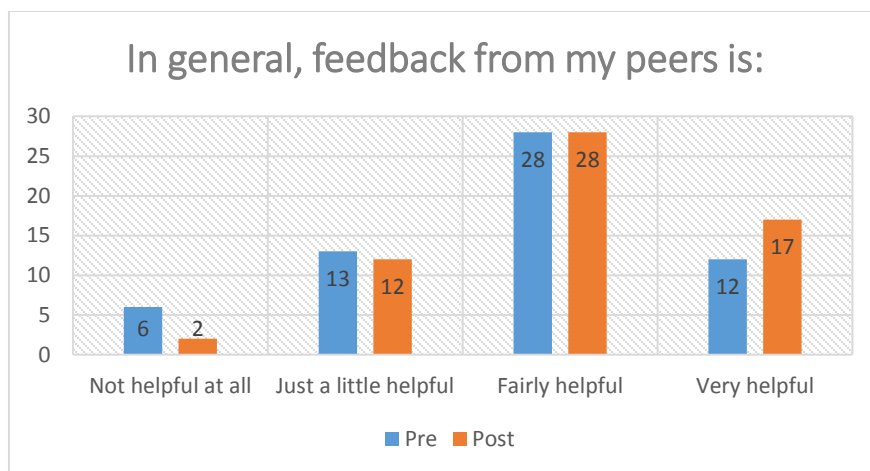
Figure 1. Question one.

Despite seeing peer feedback in a mostly helpful light, many students stated at the start of the study that possibly offending their partner was the biggest challenge in providing a peer with feedback. By the end of the six weeks, this number was cut in half. Part of the cause for this change could be students' increased understanding of what feedback is. Knowing that feedback should be neutral, rather than positive or negative, could take away some of that worry of possibly offending their partner. Students were also speaking directly to their partner using the language in the rubric to help guide their feedback. These two adjustments to their idea of what feedback is and how it is given could be the reason that students were less worried about offending their partner by the end of the study.

Students' biggest concern shifted to identifying areas for improvement after the six weeks had ended. This initially was a bit of a surprise since we had done so much practice with using the rubric to help find the objectives that were not fully met yet. On the other hand, because we focused so much on the objectives, it appeared that students were able to do a lot more self-assessment along the way, leading to less obvious areas for improvement for their peers to find. There were multiple occasions when students approached me for my thoughts on their work, and many times there were only minor, subtle areas for improvement. I could imagine an overall

increase in students meeting the objectives would cause some students to struggle to find any areas in need of improvement.

Additionally, because students viewed praising student work as being the same as providing feedback, their idea of identifying areas for improvement may have seemed less important or less difficult before our work began. For example, saying something along the lines of "I like your shading" (praise) is easier and simpler than a phrase that would provide feedback, such as "I notice you have very light and medium values in your work, but I do not see any dark or very dark values." Because of the increased expectations of the type of feedback they give, students could view identifying the areas for improvement as a greater challenge than before.
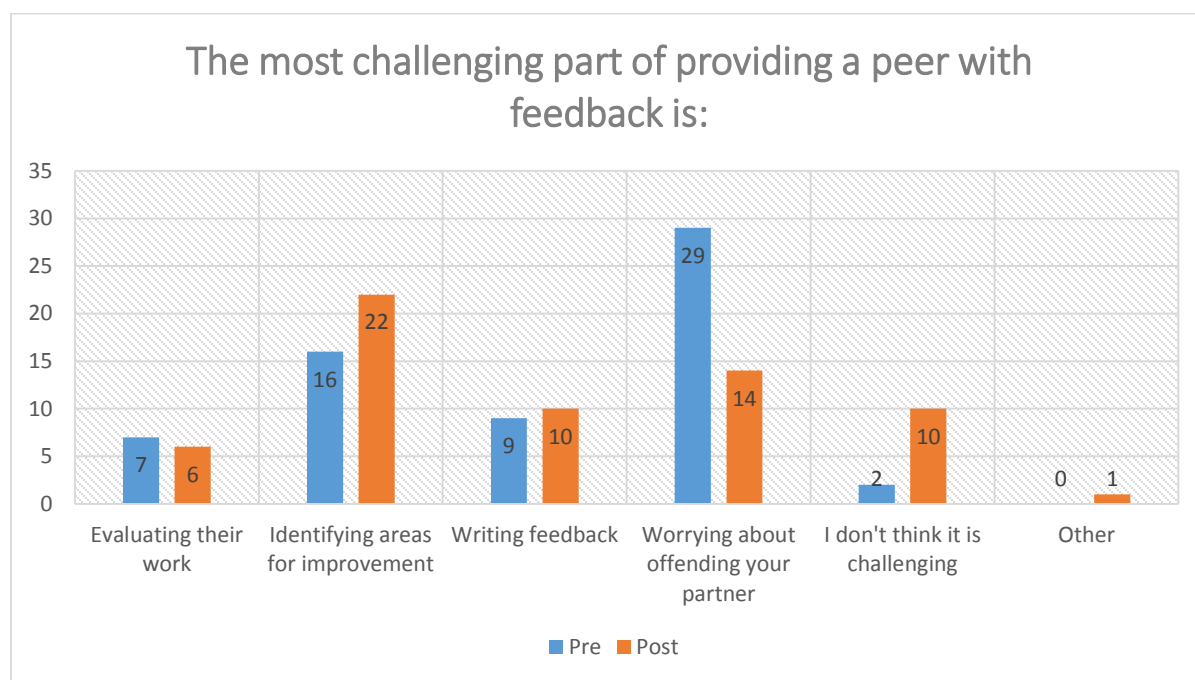

Figure 2. Question two.

Fortunately, I was not the only one that felt providing feedback helped students self-evaluate along the way. The students also seemed to feel that engaging in peer review helped them assess their own work. Over 75% of students said it made it at least a little easier, if not definitely easier, to evaluate their own work because of their experience of assessing a peer's project.

When asked why, students responded with comments that mostly discussed how comparing their artwork to theirs helped, that they had more practice with evaluating, or that they were able to see the project in a different way. Examples of these comments included:

- "I got more of an idea of what to look for"

- "I had time to practice by reviewing other's work"

- "Because I was able to compare my work to others."

- "Because I felt like I knew what I was doing"

- "Looking at their work if they have something wrong I can check if I have the same problem."

- "Because I need to see what I'm looking for, or grading."

However, 19% of students still felt like it did not make is easier or harder, and one person even said it made it harder to evaluate their own work. It is unclear if the process truly did not impact their own self-assessment, or if it was just their perception that assessing a peer's work did not help them evaluate their own work. Based on how much we focused on what the objectives were and how to identify areas for improvement in another's work, it is difficult to imagine this did not impact their ease in finding areas for improvement in their own work as well.
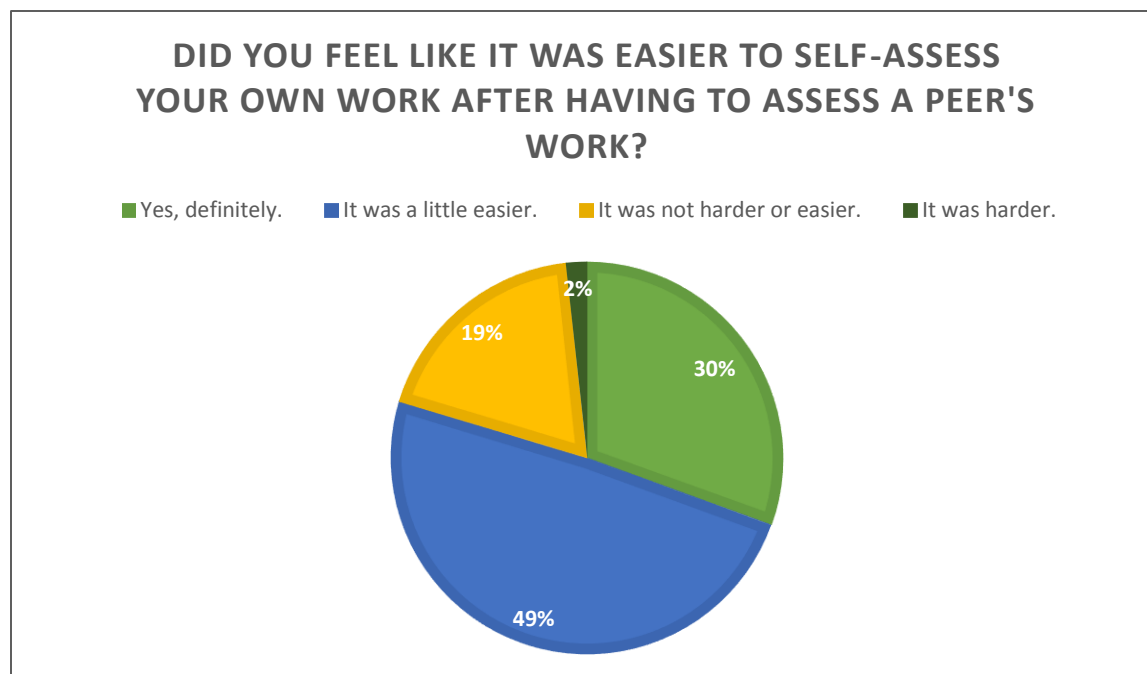
Figure 3. Question three.

One of my goals for this study was for students to start thinking about how they discussed each other's artwork even when they were not directed to give feedback specifically. At the start of the quarter, the most common way students said they discussed other's work was with praise (71%) and advice (69%). Keeping comments neutral or to themselves was not as common of a response (approximately 35%). This significantly changed at the end of the quarter. Sixteen fewer students said they praise their classmates' work, and fifteen more students said they keep their comments neutral. The number of students that said they gave advice remained similar. I also found the number of students who kept their comments to themselves before and after to be interesting. At the start of the study, 19 students said they keep their comments to themselves. That number dropped to 13 at the end of the study. This shows that more students felt comfortable sharing their ideas with classmates.
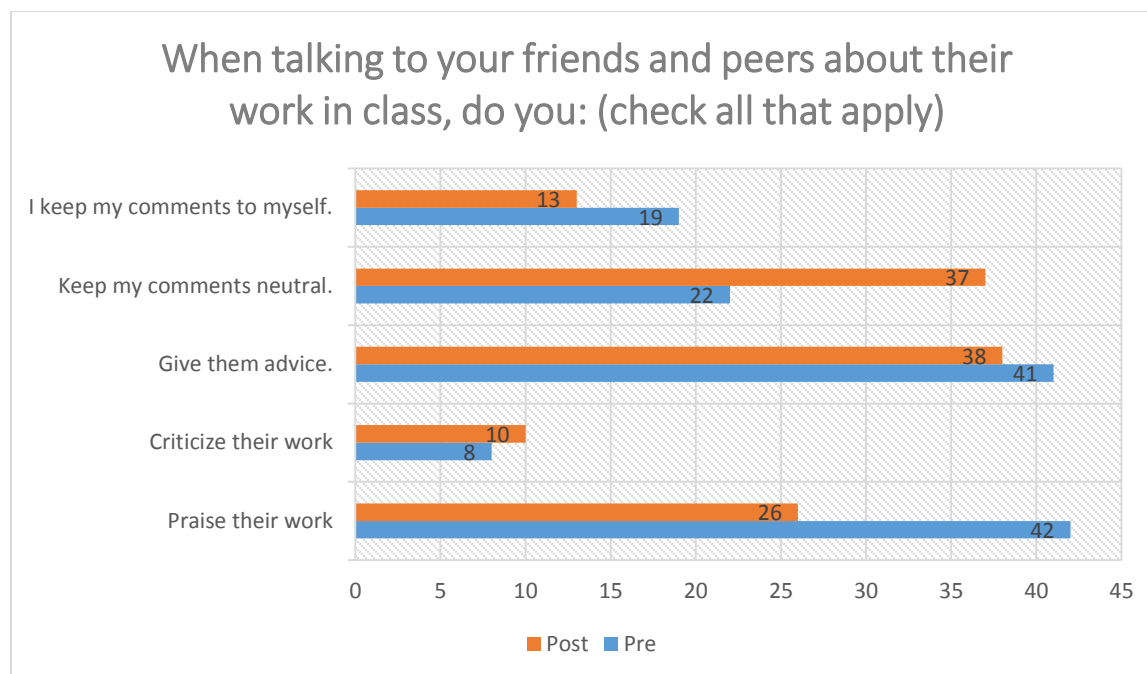
Figure 4. Question four.

When I initially guided students in a discussion on how and why to keep feedback neutral, instead of positive, students seemed a bit skeptical. Many of them explained how teachers always told them to keep their feedback positive, so they equated praise with feedback. They also did not see any harm in praising their each other's work. By the end of the discussion, students seemed very responsive to the idea of keeping their comments neutral as a way to help each other improve. Simply praising does not identify the areas that need improvement. However, specific, neutral comments help students make decisions on how to change their work for the better.

Avoiding advice, and instead focusing on feedback at the start, proved more challenging as shown by the data. Students really like to give ideas for how to improve, not just what needs improvement. Although students seemed to understand why we should initially stay away from advice when providing feedback, it was not an easy habit to break. For example, a student approached me looking for help on his project. I opened up the discussion to the people at his

table on what feedback they have for him. One girl started to tell him to add trees to the background and color the sky blue. When she finished, I rephrased her thoughts and said, "To make sure I understand what you are thinking, are you saying that there is not much detail in the background?" Then to the artist, "What would you like to do with that information?" In this way the student is not blindly following the suggestion (even if it is a good one), and can make his own creative decision on what to do with the background. Students knew that advice was not necessarily bad, but it needed to come after neutral feedback in order to keep the artist using his or her creative problem solving skills first. Rephrasing preliminary advice in to feedback was something I had to model quite a few times with students. This reinforces the importance of teaching the process of feedback at the start, and revisiting it throughout the quarter.

Despite the temptation to automatically give advice instead of feedback, the majority of students still felt more confident in providing a peer with feedback. When asked to rate how they felt about reviewing another student's work on a scale of one (very unsure) to five (very confident), most students reported an increase in confidence by the end of the quarter. This seems to be due to the amount of time students spent learning about feedback, seeing it modeled, and practicing providing another with feedback.
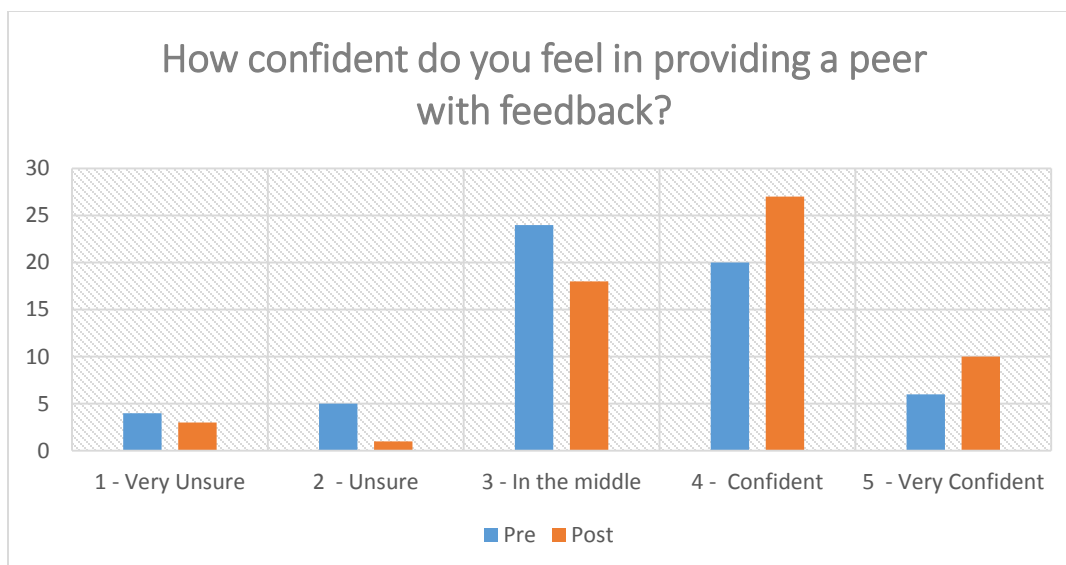
Figure 5. Question five.

Students also reported an increase in their understanding of the objectives, which is a crucial key to providing good feedback. At the start of the quarter, 30% of students said they had a limited understanding of the objectives, and 62% said they mostly or totally understood the objectives. At the end of the quarter, the number of students who reported completely understanding the objectives doubled. Since student had to use the objectives to provide feedback, it seems very reasonable that students would report an increase in their understanding.

Figure 6. Question six.

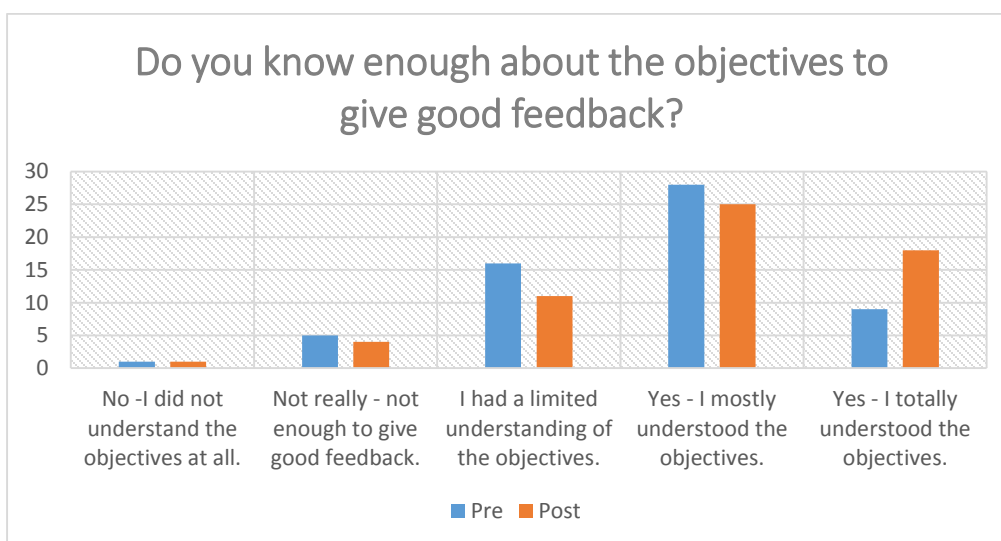Not only did students feel that they knew enough, they also reported that their partners knew enough as well. At the start of the quarter, only 8% of students stated that their peers totally understood the objectives. By the end of the quarter, that number jumped to 31%, showing greater assurance in their peer's comprehension of the objectives. Overall, there was a shift to more students being more confident in the feedback they were giving and receiving from peers. Again, because of the heavy focus on objectives in providing feedback, the increased confidence and understanding of those objectives seems reasonable and expected.

Do your peers know enough about the objectives to give good feedback?
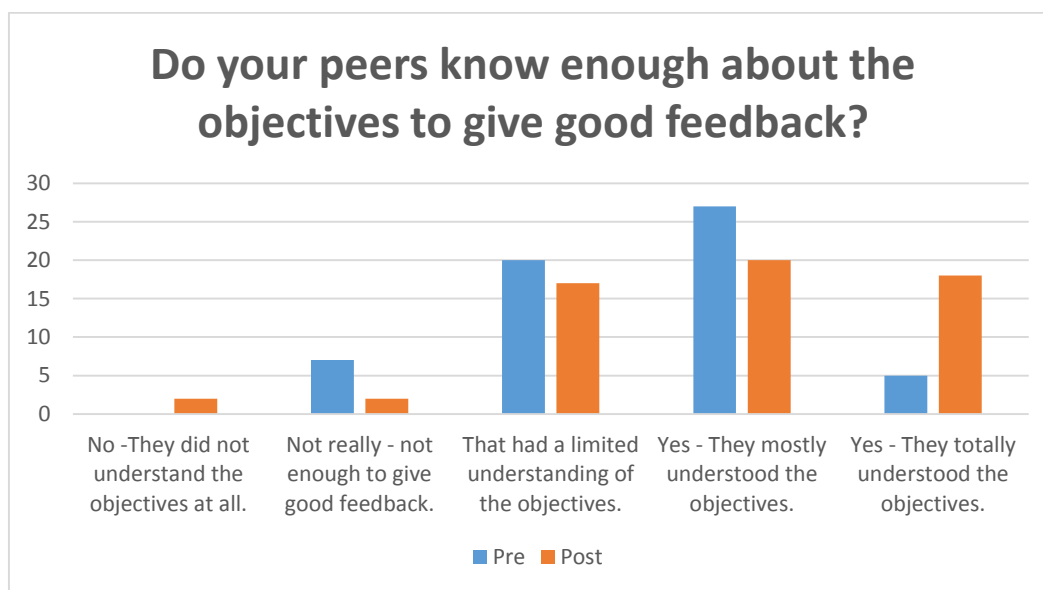
Figure 7. Question seven.

This shows a tremendous increase how comfortable, familiar, and knowledgeable students felt about what they were supposed to be learning. These responses support the idea that students were able to provide each other with better feedback.

If students do not carefully listen to the feedback they receive, then that feedback may become pointless. When asked at the beginning of the quarter what students typically do with feedback they are given, 70% stated that they thoughtfully considered it, but only 44% felt that

the comments were useful. At the end of the quarter, the percentage of students that said they thoughtfully considered the feedback jumped to 85%, and the percent that felt peer feedback was useful increased to 64%. Not only were students taking the comments peers made more seriously, they felt the helpfulness of the comments increased as well. This is a result of students trusting the comments they are receiving more than before.
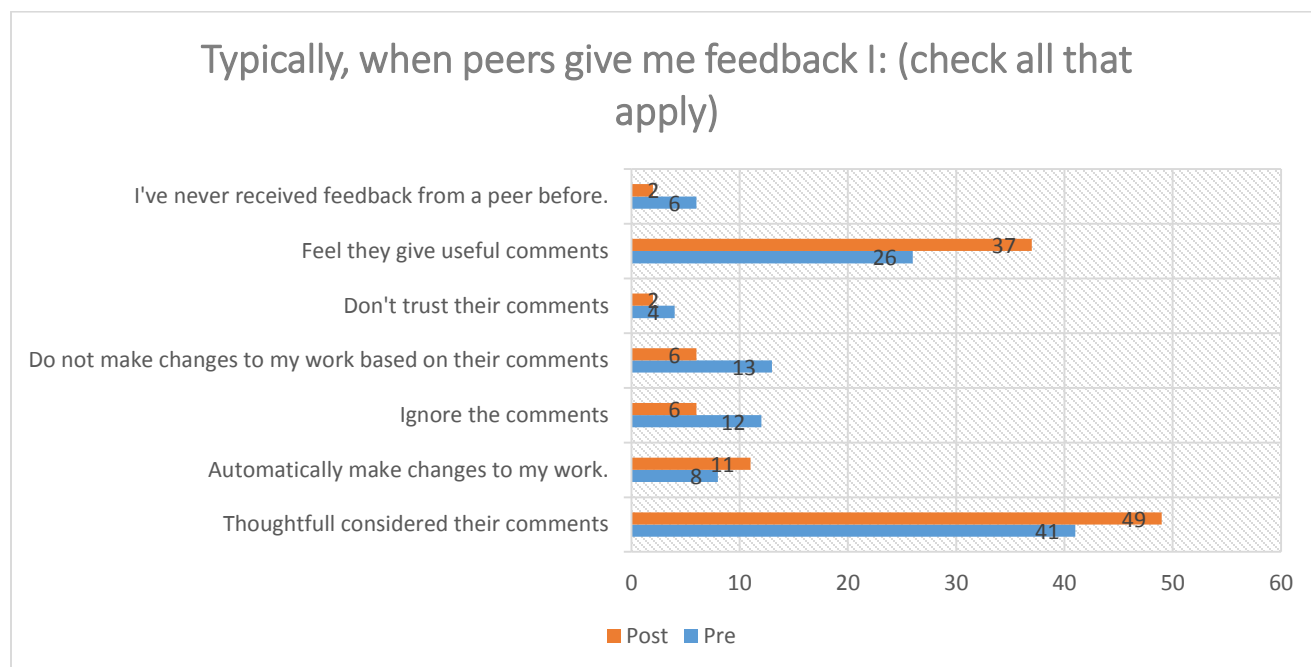
Figure 8. Question eight.

Overall, the survey questions regarding feedback demonstrated positive growth in their understanding of feedback, their perceptions of how useful it is, how to provide it, and how to respond when receiving feedback. This leads me to believe that the time spent preparing and implementing peer feedback was successful and that it helped students achieve the learning goals to a higher degree. In order for students to actually use that feedback, they needed to believe that they could really improve. This leads us into the importance of mindset, and measuring how students feel about their ability to do well with art concepts.

Mindset

The survey also posed questions to determine students' mindset on their art ability. The first one simply asked how students felt about their art ability. In the pre-assessment survey, the vast majority of the responses did not give a clear view of a fixed or growth mindset. Many simply stated they feel okay, good, or very good about their art ability, but did not elaborate. Therefore, their responses did not provide enough information to assess their mindset. Seven written responses very clearly showed a fixed mindset:

- "I'm really bad at it and I admit that I suck."

- "I feel like I'm not creative enough and that I can't do designs with a lot of detail."

- "I'm not too good at art. My art ability is really bad."

- "I suck. My brother is infinity times better."

- "I'm really bad at art."

- "I'm not very good at art, but I try my best."

- "I am naturally decent at art because my grandpa and dad are artists."

While the last statement is still a positive view of the student's ability, it is still considered a fixed mindset because the student believes the ability is tied to genetics and not effort or learned skills.

Two of the responses demonstrated a growth mindset:

- "I feel that I am able to draw good enough if I put effort on it and learn."

- "Once I see how to do things I start to get the hang of it. It may take me awhile though."

These two students did not proclaim to be wonderful artists, but they did express a belief that effort and technique causes them to learn and grow.

In the same question on the post-assessment survey, my results flipped. I had four responses that were clearly fixed-mindset and seven that showed a growth mindset. The majority of total responses still stated they felt their art ability was good, very good, or okay without much elaboration. The growth mindset responses were:

- "I feel that when I put some effort on my project it comes out pretty good."

- I feel very good about it now because I used to be not so good at art because I never put that much effort into it."

- "I don't think I am a very good artist but if I put in enough effort I am okay."

- "I feel like I have gotten better in some certain areas."

- "I think that my art ability is ok and that it can get better."

- "I can be good if I try hard enough."

- "It has gotten a lot better than it was last year."

While these comments do not indicate a belief in significant improvement or grand abilities, it still gives a clear direction of the impact that our discussion on feedback and mindset had on students: We are able to improve if we try hard and practice the strategies and techniques.

Two more survey questions also aimed to determine mindset. Students were asked if their art ability will change based on how much effort they put into it and if it will change based on the strategies and techniques they learn. This showed positive change, with an increase in the number of students believing they can get better based on effort and strategies learned.
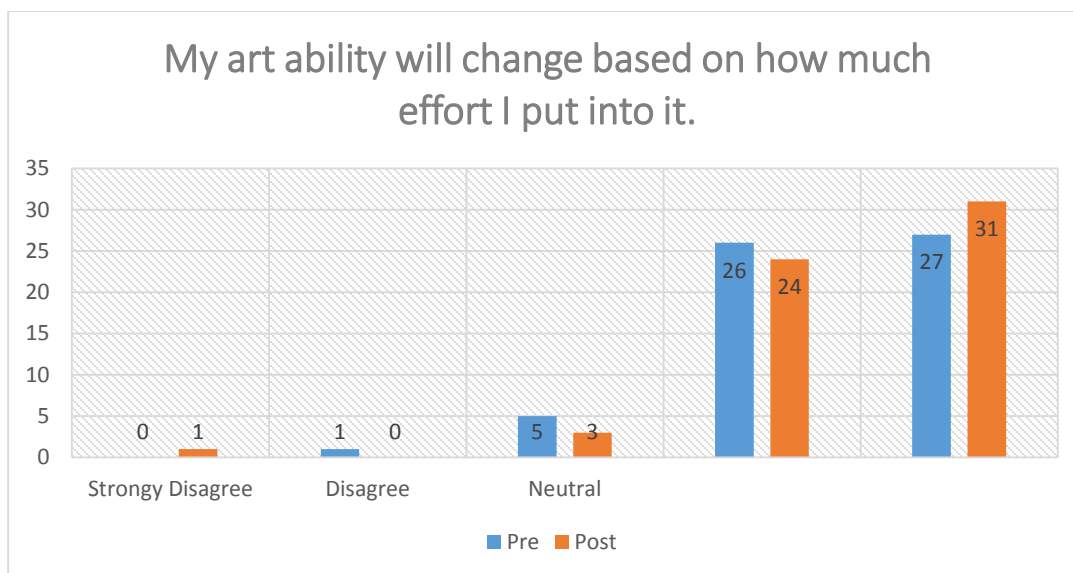
Figure 9. Question nine.

In the pre-assessment survey, fourteen students felt like strategies would not help them grow,
compared to eight in the pre-assessment survey. As for effort, six students did not believe effort
would make a difference, compared to four in the post-assessment survey. This change in
attitude towards effort and strategies demonstrates a shift towards a growth mindset for the class
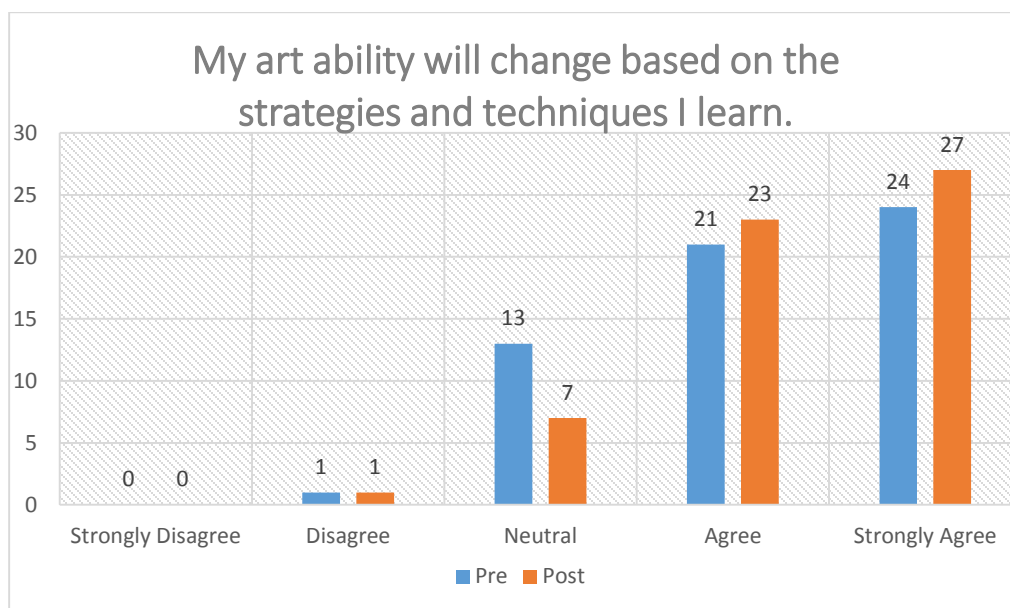as a whole.

Figure 10. Question ten.

Finally, students were asked if they thought their art ability changed at all since the beginning of the school year. I wanted to see if student actually felt like they were improving, therefore demonstrating more of a growth mindset, or if they felt nothing had changed. Fortunately, the vast majority of students felt like they had at least some improvement, with 37% claiming significant improvement. Only five students felt they did not show any improvement in art at all over the school year. It is possible that these students never bought in to the idea that feedback can help them improve, or that they continued to have a fixed mindset. This could also be attributed to factors beyond the control of this research, such as unrealistic expectations, being overly self-critical, or larger issues outside of the classroom. For the most part, this is the type of response I was hoping for. While I wish those five students felt like they had improved, I am very pleased that 92% of students reported improvement in the visual arts.
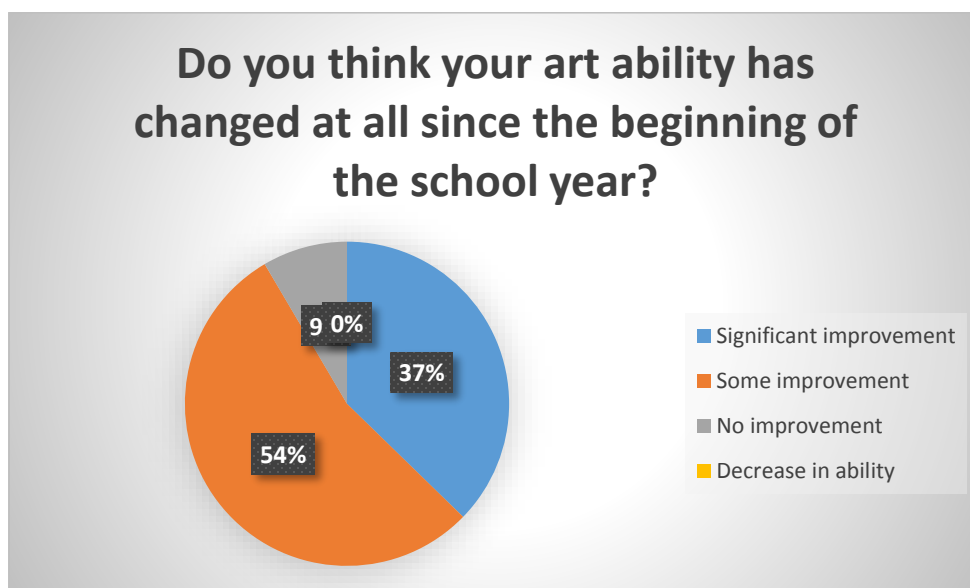

Figure 11. Question eleven.

When prompted to give an example of how their art ability changed, I received a wide range of responses. Two students said they could not give an example. The vast majority of students

listed a technique or a medium that they felt more confident using or a strategy that led to growth. For example:

- "I used to draw outlines the way I wanted them but now I look deeper in the picture."

- "I have learned to identify shade difference more."

- "The grid technique for drawing has significantly improved my drawing ability."

- "Stippling has opened up a new way to shade."

Other students made comments that related to the way they approach art making:

- "I became a little more patient."

- "I pay more attention to detail."

- "It changed so much because I never knew how much fun art was until I actually started trying."

- "In other classes I use the strategies we learned."

- "I feel more confident taking risks in projects."

For most students, the examples they gave were a positive sign that the majority of students were experiencing growth in their ability, and therefore more of a growth mindset in the visual arts.

This survey was designed to measure students' perceptions on how useful peer feedback is, how it impacts their work, and how comfortable they are with using it. It was also designed to determine what level their mindset was at before the study began, and how it changed by the end of the quarter. Overall, the results were positive. More students found feedback to be helpful and responded to feedback in appropriate ways. A higher number students were keeping their comments neutral in class, versus praising each other's work. More students felt confident in their ability to assess others and themselves. The questions on mindset showed similar results. More students believed that effort and strategies would impact their artistic ability, and the vast

majority of students reported an overall increase in their art ability over the school year. This demonstrates that students believe they can get better if they try, suggesting an increase in students with a growth mindset when it comes to art. Overall, the survey results support this method of peer feedback and mindset instruction as a way to increase achievement and encourage a growth mindset.

Classroom Observations

In order to understand how feedback and mindset impact students in their day-to-day interactions in the art room, I observed student behavior and conversations during our work time. I specifically listened for use of praise, feedback, criticism, and advice, and how peers responded to comments. I also looked for overall student engagement and the comments students made about their own work as they related to fixed or growth mindset. I was able to recall this information through the use of field notes.

As mentioned in the previous section, students seem to love to give advice and praise. They were comfortable telling students how to change their art or what they liked about it, rather than keep the comments neutral, specific, and related to the objectives. For example, in the clay unit, I overheard many comments that provided empty praise or self-criticism:

- "Yours looks so cool."

- "That donut is awesome!"

- "You are so good at clay! I suck at this."

- "Mine looks horrible. How come you're so good?"

- "You should add a sun in the sky!"

While students may have temporarily felt good about the comments they received, or bad about their own negative self-talk, it was not nearly as meaningful as neutral comments directed at the

learning targets. As we progressed through the quarter and continued to focus on feedback, I started to hear different types of comments that I was not used to hearing, such as:

- "The texture of the bridge seems so realistic."

- "Wow, the Wild symbol looks just like the real one. But you don't have any textures on yours at all. What are you going to add?"

- "Are you going to carve in to yours? I think we have to have different height levels."

While empty praise and criticism did not stop completely, I noticed that student comments were starting to relate more to the learning targets and become more meaningful.

This continued as we entered the stippling project and focused on the learning objectives. The primary target we focused on first was creating value using the stippling technique in order to make an image visible. This technique involves using dots to create a wide range of values: the more dots you make, the darker the value; the fewer dots you make, the lighter the value. Students were to draw an image by trying to match the values of their reference photo only using dots.

While I still heard praise and self-criticism, many of the comments were neutral and related to the learning target right away:

- "Do you think this is enough dots?" "I don't know. It's mostly light in the picture. The eyes are really dark though, and they look kinda light in your drawing."

- "I don't see the light values on the face and eyes. It all just looks really dark, which makes it hard to tell what it's supposed to be."

- "How did you make that look like hair just with dots?!" "I just made some areas really light and some really dark, but, like, long strips of it so it looks like hair."

This continued as students worked on the backgrounds for their projects as well. Many of the comments referenced how the background related to the subject, what materials they used, and how to do it neatly.

While I intended to document how many students were engaged and on task during work time and during class discussions on feedback and mindset, keeping track of the hard numbers as well as conversations proved challenging. Work time in art class is busy and full of movement and discussion. My priority was to listen to conversations and observe how students interacted with each other. Although I do not have hard numbers on engagement, my overall perception is that the majority of students were engaged and on task, with a few students needing redirection and reminders to stay focused on the assignment during the class period. As I circulated the classroom, I mostly saw students engaged in their work, and often heard conversation that related directly to the project and the objectives.

The observations I made during class appear to support the results from the surveys. Although praise, advice, and criticism did not stop completely, I did see a change. I noticed more neutral, objective-specific comments during work time. I saw students using the techniques to improve their work. I also observed students putting effort in their projects to improve their work, rather than settle for something mediocre. The classroom observations provided a broad view of students' behaviors that added to the overall picture of how students used feedback as well as their mindset on art.

Student Artifacts

In order to see how students responded to the feedback they received, I took photographs of student work and collected their peer review sheets. This allowed me to see what changes students made to their work because of the feedback they received from peers. First, I looked at

whether or not the feedback students were giving each other was actual feedback or not. Second, I looked through my photographs to see what changes students made, and what type of impact it had on their work.

Clay Tiles

In the clay unit, students were to make a tile that had:

- Different height levels (carved in to the clay and additional clay added on).

- A variety of textures that added to the overall meaning or design.

- Solid construction: everything is attached securely, no cracks, and no "clay boogers."

Every student provided two comments that related to the objectives, although many were vague. For example, some students simply wrote "I see clay boogers" or "I notice you have textures." Although this may be true, it is not necessarily specific enough to be useful on its own without a verbal explanation as well. Fortunately, approximately two-thirds of the students gave feedback that was specific, such as:

- "I noticed in the background there aren't many boogers but where you carved out has some."

- "I notice around the edges there are a lot of bumps. I also notice you cannot see the head and limbs very well."

- "I see there isn't much texture yet. It is all smooth."

- "The construction of it is very nice but I notice that you haven't really dug into it to make the layers yet."

Based on the feedback students wrote, they all seemed to understand that feedback needed to be neutral and related to the learning targets. However, about a third of the students did not provide feedback that was very specific.

Next, I compared the feedback with final pictures of the artwork. One student received the following comment on her tile: "I noticed the background has a different texture but the soccer ball does not." In the photo, you can see that the student added an additional star texture directly around the outside of the soccer ball and carved out the lines of the soccer ball. This helped her fulfill the objectives of the assignment as well as add a level of interest and uniqueness to her artwork.

Figure 12. Photograph one. Soccer ball tile.

Another student received the following feedback on his tile: "I notice there aren't any different textures." Looking at his tile, the peer reviewer was correct. While the image was carved out very accurately, there were no textures, and it did not draw attention. The student took that feedback and made his own decisions on how to add different textures. The lines in the background help the logo stand out and the thick, curved spaces carved out inside the logo made it more unique and interesting. These changes increased the quality of the overall artwork.

Figure 13. Photograph two. Wild symbol tile.

Finally, another student received the following feedback on her tile: "I notice the textures are really subtle." Since the textures she had created were not very noticeable, the student decided to make the different textures more prominent by carving them out more. This again had a significant impact on the overall design and quality of the work.

Figure 14. Photograph three. Sailboat tile.

The clay tile unit was the first unit students used peer feedback to improve their work. The examples show how perceptive the students were, and the creative solutions they were able to find based off their peer's comments. Students appeared confident and proud of the artwork they created.

Stippling Object

After cycling through the feedback process with one project already, students seemed confident with the process for the next unit. This time, students were expected to create an image only using dots. They had to match the values they saw in a black and white picture to create the image. The two main goals were to create an image using a full range of values that match the picture and to create a background that adds meaning or matches the subject.

Once again, all students were able to provide feedback on the peer review sheet that was related to the objectives. However, this time there were more comments that were vague, and fewer comments that were helpful and specific, and, unlike before, some comments that were useless. For example, a few comments pointed out an obvious characteristic of the artwork that did not help the artist, such as "I noticed you used tissue paper in the background" or "I see pink pastel on your paper." While these comments were neutral and specific, they were simply pointing out something the artist obviously was aware of already. These types of comments were not helpful to the student.

Even still, the process seemed to help students improve. One example is a student who received the following feedback: "I notice there is not much shading in the dark areas, and the outline is not very defined." The student took the feedback and responded appropriately. He darkened some of the values on the underside of the dinosaur, which made the image stand out.

Figure 15. Photograph four. Stippling dinosaur artwork.

Another student's peer reviewer noted that the student's artwork was pretty dark all over. This was a hard problem to correct, since you cannot take away dots. However, you can add more dots to the super dark areas to make those areas stand out from the rest and create more contrast. This worked for the student. Even though the overall image is still dark, it is very easy to tell what the subject is supposed to be.

Figure 16. Photograph five. Stippling flower artwork.

Another student's peer reviewer noticed that there were not very many dark values in the student's artwork. The student thought about the feedback she received and proceeded to make some of her values darker to match her reference photo. In the end, the darker values made her image stand out more from the background, and helped make her image more visible.

Figure 17. Photograph six. Stippling fish artwork.

A final example is a student that had a relatively plain background with just a simple line drawing. His peer reviewer stated that the "background is largely unfilled." The student added more to the background and colored it in, leading to a background that adds meaning to the subject and draws in the viewer's attention.

Figure 18. Photograph seven. Stippling basketball player artwork.

Even though the feedback recorded on the peer review sheets was not as specific or as helpful as the previous project for the class as a whole, the vast majority of students were still creating high quality artwork that largely met the objectives. One possible cause for this is that students were doing more specific, neutral comments during work time. I observed many conversations and questions that were related to the goals of the project. I also observed students asking each other's opinions more often as well. This informal conversation before recording feedback could have helped more students achieve the goals and cause more students to write shorter, quicker feedback since many of the objectives had already been discussed. Another possible explanation is that students were already very aware of the learning goals and had an easier time self-assessing their work along the way, leading to higher quality work.

Student artifacts helped me see the bigger picture of what level students were achieving the objectives as a whole, and how feedback helped students get there. The feedback cycle in the first unit demonstrated a solid understanding of feedback and how to identify a learning objective a student has not fully met yet. It also showed an increase in the achievement of students, since

they were encourage to make changes to their artwork. Surprisingly, the quality of recorded feedback decreased for the second project, yet the level of achievement presented in the artwork remained high. This could be due to the increase quality of the conversations students had during worktime, and an increase comfort in discussing the objectives. It could also be caused by an increase in self-assessment. Overall, the student artifacts added to the evidence that peer feedback helps students achieve their learning goals, and may help to shift students to more of a growth mindset regarding art.

<div align="center">**Patterns and Themes**</div>

As I looked over the data and reflected on my experience, certain patterns and themes started to emerge. Numerous students expressed how providing a peer was helpful to not only to the student, but also themselves. The data showed that students trusted the feedback they received from peers more than before, and that more students thoughtfully considered what their peer review partner had to say. Students also reported feeling more confident in their ability to give quality feedback. Additionally, more students were reporting growth in their art skills and a greater belief in the power of effort and strategy to improve their art ability. Overall, students seemed to believe that feedback was beneficial to them and their peers.

Based on the data and observations, I came to three main conclusions. The first conclusion is that participating in the feedback cycle resulted in a greater trust in each other's ability to help their peer's succeed. The second conclusion is that providing peers with feedback led to higher achievement in the art room. Finally, I concluded that participating in the feedback cycle combined with learning about mindset helped students realize their own potential for growth. These findings will be discussed in greater detail in chapter five.

Conclusions

Chapter four reviewed the design of my research study. It demonstrated how the surveys, observations, and student artifacts were administered and collected. The results of the data collection tools were presented with charts, direct quotations, and descriptions of my observations. While presenting the results, I shared my interpretations. Finally, I discussed the themes and patterns that emerged from the various sources of data collected. The conclusions from the research study described how participating in the feedback cycle helped my 7th grade art students increase their achievement and mindset in the art room.

In chapter five I will describe how the findings relate to the literary research that was presented in chapter two. It will also go into detail on what the implications and limitations of the results of the study are. I will include how the findings can impact not only a middle school art room, but other grade levels and content areas as well. Finally, I will present ideas for future research related to peer feedback and mindset and my final reflections.

CHAPTER FIVE

Conclusion

Introduction

My students are curious, energetic, and intelligent. Which makes me question why I hear students say, "I'm just not good at art" and settle for something that is less than their best. How do I get my students to push past the idea of being "good" or "not good" at art and understand they can grow and learn? How do I get them to continue to further develop their skills and revise their work? My research study aims to answer the following question: How does peer feedback affect mindset and achievement in the middle school art room?

In this chapter I will discuss my main conclusions and explain how my findings relate to the literary research outlined in chapter two. I will also discuss the implications and limitations of this study. Finally, I will present ideas for future research on peer feedback and mindset as well as explain my final reflections.

Findings

Based on the data and observations, I came to three main conclusions. The first conclusion is that participating in the feedback cycle resulted in a greater trust in the students' ability to help each other succeed. The second conclusion is that providing peers with feedback led to higher achievement in the art room. Finally, I concluded that participating in the feedback cycle combined with learning about mindset helped students realize their own potential for growth.

Trust in Each Other

If students are going to listen to their peers' feedback, they need to trust that their classmates are knowledgeable and genuine. Since the teenage years can be a difficult time with handling emotions and feeling comfortable with peers, going forward with the peer feedback process had the potential to become uncomfortable or create doubt. Based on the survey results, a significant number of students considered and trusted the feedback they received.

The teenage brain can cause students in this age range to easily become self-conscious and egocentric (Feinstein, 2009). Since reviewing each other's work can potentially leave students feeling vulnerable, giving them the tools and vocabulary to provide neutral, specific, and clear feedback was important to prevent students from feeling bad or insecure about their work. Based on the survey results, we successfully created a trusting environment for students to provide and receive feedback.

By the end of the quarter, more students felt their peers knew enough about the objectives to give quality feedback, and only two students felt their peers did not know enough about the lesson criteria. Significantly more students felt their peer's comments were useful, and more students reported that they thoughtfully considered what their peers said. The number of students who said they ignore their peers' comments and/or do not make changes to their work was cut in half. This indicates that students had greater confidence in the feedback their peers provided them. Additionally, the number of students who reported worrying about offending their partner as the biggest challenge in giving feedback was cut in half by the end of the quarter. The data from the survey demonstrated that the classes as a whole trusted each other more to provide quality feedback, and they were more open and willing to listen to what their peers had to say.

Greater Achievement

The second conclusion I came to is that participating in the feedback cycle led to higher student achievement of the lesson objectives. More students seemed to understand the learning goals, how to identify areas of improvement, take an active role in their learning, and develop more confidence in assessing their own work. All of these factors combine to create an environment that seemed to encourage greater motivation and support to help students succeed. This was evident through student perceptions of feedback, their use of feedback, and the artwork they created in class.

The idea that feedback must occur within a larger instructional context was critical to helping the students successfully provide each other with feedback (Hattie & Timperley, 2007). Without teaching the students first, they would have struggled to understand the learning objectives, and therefore struggled to identify areas of improvement to help each other succeed. Students needed time to observe and practice the skills and techniques in order to fully understand the required performance task. Without this understanding, they would not have been prepared to offer quality feedback, and would not have had the opportunity to receive additional comments on their work. The data showed that not only were more students confident in their own understanding of the objectives, they were more confident in their peer's understanding as well.

Additionally, peer feedback helps students take an active role in their learning and the learning of others (Lui & Carless, 2006). I do not want my students to feel as though I am the only resource available to them. The individual students and their peers can be perceptive, intelligent, and meaningful with their feedback. Through this process, I hope students realize that they have power and are in control of their learning.

Finally, the potential for students to become better at self-assessing their work is increased because of the peer feedback cycle. By comparing another student's work with the lesson criteria, students are gaining a deeper understanding of the content and learning objectives. This leads to the potential for students to transfer this understanding to their own work and become more proficient in self-assessment (Lui & Carless, 2006). Based on the student survey, 79% of students reported that it was at least a little, if not significantly, easier to self-assess their own work because they had to provide feedback to a peer.

The survey results and classroom observations have led me to believe that the feedback process helped my students achieve more. A large number of students were confident in how well they understood the objectives, actively participated and advocated for their learning, and reported an easier time self-assessing their own work. I was able to see the direct results of what students did in response to the feedback they received from the peers. While a few students seemed reluctant to apply more time and effort into their artwork, most students took the feedback and responded appropriately. Therefore, the peer feedback process seemed to result in greater achievement for my students.

Growth Mindset

A classroom culture that supports actual feedback (not praise or evaluation) appears to help develop a growth mindset in students. Dweck (2006) warns against praising intelligence or talent since it can confirm a fixed mindset. Instead, students were able to see themselves and each other produce higher quality artwork and develop their skills because of the feedback they received. Since they were instructed to provide feedback (specific, neutral, and process-oriented), this may have directly supported the development of a growth mindset in my students. At the start of the quarter, 42 students reported regularly praising classmate's work and 22

reported keeping their comments neutral. By the end of the quarter, 26 students reported

praising other's work and 37 stated they keep their comments neutral. This is a large shift in the

way students were talking to each other during regular class time. This type of shift can lead to a

greater number of students with a growth mindset toward art.

The understanding that learning something quickly does not mean learning something to

a higher degree also needed to be understood by all (Dweck, 2010). Often times, the students

that seemed to fully grasp the lesson objectives and take them to a higher level were the students

working up until the very end or needing additional time. It was important for my students to

understand that in order to improve and develop their skills, they needed to spend quality time

working on the techniques and revising their work based on teacher and peer feedback as well as

self-assessment. In this case, completing the project quickly had no correlation to quality. In my

classroom observations, I noticed students continuing to work on their projects after receiving

feedback rather than trying to finish quickly.

One of the ideas I pushed with my students is that they are the ones making the final

decisions on their artwork. Their peers give them feedback, they may even give a suggestions,

but ultimately, the student makes up his or her own mind about what do with the information.

As Gude (2011) stated, allowing students to make their own choices can help them become more

invested and motivated in their work. I noticed that when students felt like they were still in

control, they remained open-minded, however, when a student told them what they should do,

they seemed hesitant or unmotivated. Going forward, I want my students to understand that they

have the knowledge and power to make their own choices and control their learning.

Implications

I utilized peer feedback with my two seventh grade classes. I also teach sixth and eighth grade as well. This method of direct teaching, practice, feedback, and then practice again can be used with any grade level and subject. My sixth and eighth grade curriculum is different than the curriculum used in this study, but this process could be just as valuable. Therefore, I would like to begin incorporating the use of peer feedback with each grade level I teach.

I also plan on sharing my findings with the other teachers in my professional learning committee (PLC) at both the building and district level. I regularly meet with the other members of my PLC at my building, who teach the same grade levels as I do. We semi-regularly meet with the secondary level PLC, which includes all the middle and high schools in the district. As stated above, this process would be useful no matter the curriculum or grade level, and I believe these teachers would find the information very valuable. In addition, I would like to present my findings at a building staff development session. This would allow other content area teachers to see how students are using peer feedback to help each other succeed and may interest them in trying it in their classrooms as well.

Limitations

This research study also had limitations. This includes the length of the study, the way the data was collected, and the type of criteria students gave feedback on.

This study was conducted over the last quarter of the school year, which was six weeks long. I imagine that a more complete picture of the results of peer feedback would be apparent with a longer time frame. For example, some of the students who still did not view peer feedback as helpful or valuable may have had a different view if they would have had more time to experience the benefits. Since this was only done during two units, with two formal rounds of

the feedback cycle, it seems reasonable that increasing that to four units would have more students committed to the idea.

Additionally, the way the data was collected did not allow me to track individual student progress. Since the student survey was anonymous, I do not know if students with a negative view of peer feedback felt differently by the end of the quarter. For example, at the beginning of the quarter, 44% of students felt confident when giving peer feedback, versus 73% by the end of the study. My study does not show if the same 44% still felt confident, or if there was movement in the group. Instead, it gives me a larger picture of the class as a whole.

Finally, certain areas of assessment seemed more difficult for my students. When students were providing feedback on a technical skill, they seemed much more confident and their feedback was more precise. For example, most students could easily identify light, medium, and dark values in their peer's artwork and give appropriate feedback. However, when the feedback was centered on their peer's risk taking or how much the student challenged themselves, the comments seemed vague and unhelpful. This has led me to believe that students would need additional instruction on how to assess another student's ideas, creativity, and interpretations. Identifying areas for improvement with technical skills are easier to see and discuss, while comments on a student's individual expression may be an area that requires greater care and guidance on how to provide feedback.

Future Research

There were several ideas for future research that became apparent during this research. First, I would like to understand how choosing a peer review partner, versus having one assigned, would impact the quality and seriousness of the feedback. In my study, the students were assigned a peer review partner for the first unit and were able to choose a peer review

partner for the second unit. I noticed that the quality of the feedback written on the review sheets was not as strong as the first, but I do not know if the partner was a result of this or not. Another option would be to see how the number of times students give each other feedback in a unit would affect the overall quality and achievement of the students. My students were only required to provide feedback one time during the project. Would more than one time create greater results, or would students feel burnt out? A final area to consider would be to study how this process in one class affects students in other subject areas. For example, because a student may feel confident providing feedback in the art room, does that mean they feel confident providing feedback in science or math? I am interested to know what effect this process has on students outside of my classroom. There are many possibilities to extend the ideas presented in this research for future studies.

Final Reflection

This action research study has led me to thoughtfully consider how I approach feedback and assessment in the art room. Obviously, I am and will be a major source of feedback for my students, but I am hopeful that they will start to see what powerful resources they are for each other as well. It has also made me realize how critical it is for students to thoroughly understand what is expected of them. If students did not understand the lesson objectives, they could not provide feedback to a peer. Even more concerning, they would not understand their own learning and how to meet the lesson criteria. It is crucial that the students know what is expected of them, or they are sure to fall short.

As I look through the research, I am reminded of the active role I want students to have in their learning. I want my students to feel empowered to take charge, self-advocate, and seek

help. When students realize how much control they have over what they learn, I am hopeful that they will push themselves to become their best at anything they try.

It has been incredibly rewarding seeing students help each other, see their confidence and skill increase, and see the pride on their faces when they accomplish something new. I feel hopeful toward this process and plan to expand its use in the coming years.

Conclusion

In this chapter I shared the major findings of my research, including three main conclusions, the implications, and limitations of the study. I discussed possible ideas for future research as well as my final reflections. Peer feedback has been a powerful tool to use in my classroom. I look forward to sharing my findings with colleagues and reinforcing its place in student learning. I feel hopeful for the continued use of peer feedback in my classroom and the benefits this process can bring to future students.

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APPENDIX A

Pre-Assessment Survey

Pre-Assessment Survey: (completed using Google Forms)

1. In general, feedback from my peers is:
   - Very helpful.
   - Fairly helpful.
   - Just a little helpful.
   - Not helpful at all.

2. Most challenging part of providing a peer with feedback is:
   - Evaluating work
   - Identifying areas for improvement
   - Writing feedback
   - Worried about offending your partner
   - Other

3. How do you feel about reviewing another student's work?
   - Confident about giving good feedback (5) - Unsure about giving good feedback (1)
   - I usually know enough about the project and learning goals (5) - I usually do not know enough about the project and learning goals (1)

4. How do you feel about having a peer review your work?
   - I feel my peers usually know enough to provide feedback (5) - I feel my peers don't usually know enough to provide feedback (1)

5. When talking to your friends and classmates about their work, do you:(check all that apply)
   - ☐ Praise their work (I like how you_____.)
   - ☐ Criticize their work (I don't like_____.)
   - ☐ Give them advice (You should _____. Why don't you _____.)
   - ☐ Keep comments neutral.
   - ☐ I keep my comments to myself.
        - i. Comment optional

6. Typically, when peers give me feedback I: (check all that apply)
   - ☐ Thoughtfully considered their comments.
   - ☐ Make changes to my work based on their comments.
   - ☐ Ignore their comments.
   - ☐ Do not make changes to my work based on their comments.
   - ☐ Don't trust their comments.
   - ☐ Feel they give useful comments.
   - ☐ I've never received feedback from peers.

7. My art ability will change based on how much effort I put into it:
   - Strongly Agree
   - Agree
   - Neutral

- Disagree
- Strongly Disagree

8. My art ability will change based on the strategies I learn and use.
   - Strongly Agree
   - Agree
   - Neutral
   - Disagree
   - Strongly Disagree

9. How do you feel about your art ability? (short answer)

10. Other comments? (Short answer)

APPENDIX B

Post-Assessment Survey

Post-Assessment Instruction Survey: (Completed using Google Form)

1. Overall, the feedback my peer gave me was:
    *   Very helpful.
    *   Fairly helpful.
    *   Just a little helpful.
    *   Not helpful at all.

2. Providing feedback on samples helped me provide feedback for my peer
    *   Strongly Agree
    *   Agree
    *   Neutral
    *   Disagree
    *   Strongly Disagree

3. Most challenging part of completing peer review sheets was:
    *   Evaluating work
    *   Identifying areas for improvement
    *   Writing feedback
    *   Worried about offending your partner
    *   Providing feedback was not challenging.
    *   Other

4. How do you feel about reviewing another student's work?
    *   Confident about giving good feedback (5) - Unsure about giving good feedback (1)
    *   I knew enough about the project and learning goals (5) - I did not know enough about the project and learning goals (1)

5. How do you feel about having a peer review your work?
    *   I felt the reviewer knew enough to provide feedback (5) - I felt the reviewer did not know enough to provide feedback (1)

6. When you are talking to your friends and classmates about their artwork (Not when completing the peer review sheet), did you:(check all that apply)
    *   I tried to avoid praising their work (I like…)
    *   I tried to avoid criticizing their work (I don't like…)
    *   I tried to avoid giving them advice (You should…)
    *   I tried to keep my comments neutral.
    *   I keep my comments to myself.

7. Because you gave feedback to a peer on the learning goals, do you think it was easier to self-assess your own work?
    *   Yes, it helped me spot areas for improvement in my own work and/or see which learning goals I was meeting
    *   I'm not sure if it was easier for me to self-assess.

- No, I still don't feel confident self-assessing my work.
- No, I don't think it helped me. I would have been able to self-assess just as well without providing feedback to a peer on the learning goals.

8. When my peer gave me feedback on my art project I: (check all that apply)
   - Thoughtfully considered their comments.
   - Made changes to my work based on their comments.
   - Ignored their comments.
   - Did not make changes to my work based on their comments.
   - Didn't trust their comments.
   - Felt they gave useful comments.

9. My art ability will change based on how much effort I put into it:
   - Strongly Agree
   - Agree
   - Neutral
   - Disagree
   - Strongly Disagree

10. My art ability can change based on the strategies and techniques I learn and use.
    - Strongly Agree
    - Agree
    - Neutral
    - Disagree
    - Strongly Disagree

11. How do you feel about your art ability? (Short answer)

12. Do you think your art ability has changed at all since the beginning of the school year?
    - Yes, there was significant improvement.
    - Yes, there was some improvement.
    - No, there was no improvement.
    - No, there was a decrease in ability.

13. Can you provide an example of how your art ability has changed? (Short answer)

14. What did you do with the feedback you received from peers in this class? Did it impact your work at all? (short answer)

15. Other comments? (Short answer)

APPENDIX C

Classroom Observation Form

Educator:	Observation Date:
Learning Target:	
Student Comments relating to feedback: **Positive:** **Negative:** **Non-committal:**	**Student Comments relating to mindset/confidence:** **Positive:** **Negative:** **Non-committal:**
Engagement: Students on task during specified time period: _____	**Engagement: Students not on task during specified time period: _____**
Other:	

APPENDIX D

Peer Review Sheet and Reflection Question

Peer Review

Artist's Name: _____
Art Project:_____

Directions: Provide at least one sentence of SPECIFIC, NEUTRAL feedback for two different objectives.. If you are not sure how to start, begin with "I notice…" or "I see…"

Objective 1: _____
Feedback:_____
_____
_____

Objective 2:_____
Feedback:_____
_____
_____

Now What?

Directions for the artist: Reflect on the feedback you received from your peer review partner. What are you going to do now that you have received these comments on your work?

_____

_____

_____

_____

APPENDIX E

Clay Tile Rubric

ART 7 Clay Tile   Name_____ Class period_____ even/odd

Self-Assessment Directions: How did you do? Decide if your artwork demonstrates an emerging, proficient, or exemplary level of achievement for each learning target. Circle the box that best describes your artwork and add up your score below.

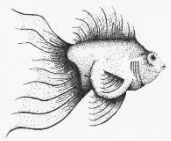| **Clay Tile**	1 Emerging	2 Proficient	3 Exemplary
Additive and Subtractive Techniques. Are there a variety of heights?	Carved areas are very shallow. Very little difference in any height (carving in or adding on)	There are some areas that are carved out slightly deep. There is some difference in height levels, but not much.	There is a variety of height levels (carved out and added on) which shows the highlights & shadows which adds interest in the artwork.
Design: Texture Do you have plenty of textures that add to the design?	The surface texture is very similar/the same throughout the tile.	There a few different textures, but they do not appear to relate to the image/theme.	There are many different textures that add meaning and interest to the overall theme or design.
Construction: Is the design easy to see? Are there clay boogers?	The design is difficult to see. Too many cracks, rough surfaces/edges, and/or clay boogers.	The design is visible, but there are areas that have cracks, are not smooth, or have clay boogers.	The design is easy to see. No cracks, no clay boogers, everything is smooth that is supposed to be.
Painting/Glazing: Is the paint/glaze applied neatly and carefully? Are there any unpainted/ unglazed areas?	The glaze/paint colors are not applied neatly. There is still white, unpainted clay showing.	The glaze/paint colors are applied somewhat neatly, and there a small areas of unpainted clay showing.	The glaze/paint is applied neatly and there is no white, unpainted clay showing.
Risk Taking: How challenging and/or detailed was your design?	The design/concept was not challenging. No risk taking.	The design/concept was somewhat challenging. Moderate risk taking.	The design/concept was challenging. High level of risk taking.
Teacher's score: _____/15			**Self-Assessment:** _____/15

APPENDIX F

Stippling Object Rubric

ART 7 Stippling Object   Name_____ Class period_____ even/odd

Self-Assessment Directions: How did you do? Decide if your artwork demonstrates an emerging, proficient, or exemplary level of achievement for each learning target. Circle the box that best describes your artwork and add up your score below.

Stippling (Dot) Object Learning Targets	1 Emerging	2 Proficient	3 Exemplary
Value: Do you see very light to very dark? 	Short range of values. Very few different values are seen.	Medium range of values. Very light and/or very dark is missing.	Full range of values. Every value is represented.
Background: Does the background "match" or add meaning to the subject? 	The background does not appear related to the subject at all.	The background relates to the subject, but the connection is not strong and/or does not add meaning.	The background adds deeper meaning and interest to the subject and overall artwork.
Design - Space: Does the design catch the viewer's attention? 	Much of the space is not being used. The design does not draw attention.	Some of the page is under-utilized. The design	The whole page is being used. The design is eye-catching.
Craftsmanship: Is everything glued down neatly and flat? 	Materials were applied carelessly, edges are not glued down flat. Work does not appear neat.	Most materials were added carefully, but some edges are not flat. Work is mostly neat.	Everything is glued down flat. All materials are applied carefully and neatly.
Risk Taking: How challenging and/or detailed was your design? 	The design/meaning was not challenging. No risk taking.	The design/meaning was somewhat challenging. Moderate risk taking.	The design/meaning was challenging. High level of risk taking.
Teacher's score: _____/15			**Self-Assessment:** _____/15

APPENDIX G

Informed Consent Letter

March 17th, 2016

Dear Parent/Guardian(s),

I am your child's art teacher for second semester at ███████████████. I am also a graduate student working on an advanced degree in education at Hamline University, St. Paul, Minnesota. As part of my graduate work, I plan to conduct research with seventh grade art students from March-June of 2016. The purpose of this letter is to request permission for your child's participation. This research is public scholarship. The abstract and final product will be cataloged in Hamline's Bush Library Digital Commons, a searchable electronic repository, and may be published or used in other ways.

For my master's capstone (thesis), I plan to study how using peer feedback affects achievement and mindset in my class. The art department has been exploring the use of peer feedback for two years now. I want to further investigate the best ways to utilize this strategy in the art room to help guide our instructional practice and empower our students with a working understanding of feedback and mindset. I plan to provide direct instruction on these topics and use the peer review process three times during the semester, once for each main art project. Using the learning objectives to guide them, each student will provide a partner with feedback on their artwork. Students will reflect on that feedback and decide what, if anything, they will do as a result of their peer's comments. I will use field notes to record information about the behaviors and comments I see in class, and document their peer review sheets for data analysis. Additionally, students will complete a survey at the beginning and end of the semester describing their experience with giving and receiving feedback and questions designed to measure their mindset on art ability. If you would like further information on mindset, please see mindsetonline.com.

There is little to no risk for student participants. All results will be confidential and anonymous. I will not record information about individual students, such as their names, nor report identifying information or characteristics in the capstone. Participation is voluntary and you may decide at any time and without negative consequences that information about your child will not be included in the capstone.

I have received approval for my study from the School of Education at Hamline University and from ███████████████████ Department of Research, Evaluation, and Assessment. The capstone will be cataloged in Hamline's Bush Library Digital Commons, a searchable electronic repository. My results might also be included in an article for publication in a professional journal or in a report at a professional conference. In all cases, your child's identity and participation in this study will be confidential.

If you agree that your child may participate, keep this page. Fill out the agreement to participate on page two and return to me through your child, by mail, or copy the form in an email and send to me by Friday, March 25th, 2016. If you have any questions, please email or call me at school.

Sincerely,
Katie Bacon

Informed Consent to Participate in Qualitative Research
Keep this full page for your records.

I have received your letter about the study you plan to conduct in which you will be observing students' behavior and attitudes toward peer feedback and mindset. I understand there is little to no risk involved for my child, that his/her confidentiality will be protected, and that I may withdraw or my child may withdraw from the project at any time.

_____   _____

Parent/Guardian Signature   Date

Participant copy

Informed Consent to Participate in Qualitative Research
Return this copy to Katie Bacon.

I have received your letter about the study you plan to conduct in which you will be observing students' behavior and attitudes toward peer feedback and mindset. I understand there is little to no risk involved for my child, that his/her confidentiality will be protected, and that I may withdraw or my child may withdraw from the project at any time.

Student's name: _____

_____   _____
Parent/Guardian Signature   Date

Researcher's copy

APPENDIX H

Results of the Pre- and Post-Assessment Survey

In general, feedback from my peers is:

	Pre	Post
Not helpful at all	6	2
Just a little helpful	13	12
Fairly helpful	28	28
Very helpful	12	17

The most challenging part of providing a peer with feedback is:

	Pre	Post
Evaluating their work	7	6
Identifying areas for improvement	16	22
Writing feedback	9	10
Worrying about offending your partner	29	14
I don't think it is challenging	2	10
Other	0	1

How confident do you feel about providing a peer with feedback:

	Pre	Post
1 - Very Unsure	4	3
2 - Unsure	5	1
3 - In the middle	24	18
4 - Confident	20	27
5 - Very Confident	6	10

Do you think you know (knew) enough about the objectives to give good feedback? Rate

yourself on a scale of 1-5.

	Pre	Post
No –I did not understand the objectives at all.	1	1
Not really - not enough to give good feedback.	5	4
I had a limited understanding of the objectives.	16	11

Yes - I mostly understood the objectives.	28	25
Yes - I totally understood the objectives.	9	18

Do (Did) your peers know enough to give good feedback?

	Pre	Post
No -They did not understand the objectives at all.	0	2
Not really - not enough to give good feedback.	7	2
That had a limited understanding of the objectives.	20	17
Yes - They mostly understood the objectives.	27	20
Yes - They totally understood the objectives.	5	18

When talking to your friends and classmates about their work, do you:

	Pre	Post
Praise their work	42	26
Criticize their work	8	10
Give them advice.	41	38
Keep my comments neutral.	22	37
I keep my comments to myself.	19	13

Typically, when peers give me feedback I: (check all that apply)

	Pre	Post
Thoughtfully considered their comments	41	49
Automatically make changes to my work.	8	11
Ignore the comments	12	6
Do not make changes to my work based on their comments	13	6
Don't trust their comments	4	2
Feel they give useful comments	26	37
I've never received feedback from a peer before.	6	2

My art ability will change based on how much effort I put into it.

	Pre	Post
Strongy Disagree	0	1
Disagree	1	0
Neutral	5	3
Agree	26	24
Strongly Agree	27	31

My art ability will change based on the strategies and techniques I use:

	Pre	Post
Strongly Disagree	0	0
Disagree	1	1
Neutral	13	7
Agree	21	23
Strongly Agree	24	27

Do you think your art ability has changed at all since the beginning of the school year? (Post

survey only)

Significant improvement	22
Some improvement	32
No improvement	5
Decrease in ability	0