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Generative Pedagogies: Activating Learners through Student-centered Practices

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Running Head: GENERATIVE PEDAGOGIES

GENERATIVE PEDAGOGIES: ACTIVATING LEARNERS THROUGH
STUDENT-CENTERED PRACTICES

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A Co-Authored Dissertation submitted to
The Graduate School at the University of Missouri-St. Louis
in partial fulfillment of the requirements for the degree
Doctor of Education with an emphasis in Educational Practice

May 2019

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Jane Zappia, 2019

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Collective Abstract

This collective dissertation contains the efforts of a group of curious, committed, and creative educators on the hunt for high-impact instructional approaches that empower and emancipate learners. Although each study within the dissertation is anchored in its own setting--and those settings represent a diverse collection of learning sites--a single thread connects them all: Each study inquires into the impact of a generative pedagogy. By “generative,” we mean to highlight methods that focus on helping learners of all kinds develop creativity and take ownership over their learning, approaches that will help them build agency and grow skills simultaneously. Here, we explore the complex relationships between attitudes and outcomes in several different ways. These studies investigate the efficacy of workshop model instruction, divergent thinking protocols, and explicit growth mindset instruction for students with disabilities in English Language Arts (ELA) classrooms, the impact of choice- and studio-based approaches in Art classrooms, and the overall impact of growth mindset characteristics on teachers’ attitudes and career paths. Generally speaking, these variables were found to have a significant, positive impact on both attitudes and outcomes. Additionally, some of these methods emerged as equity-building practices, working well overall but even better for students in demographic groups that often lag behind. Taken together, these approaches represent a perspective that honors learners as co-constructors of their own knowledge and makes salient a set of skills and habits that can contribute powerfully toward each individual learner’s success.

Collective Introduction

Conversations are increasing in education regarding the benefits of the student-centered classroom, but opinions about how the idea should take shape in actual classrooms abound. What does it mean to have a student-centered classroom or curriculum? How do we know if a teacher has succeeded in creating these conditions? And perhaps most importantly, how can we know if such classrooms are actually improving learning outcomes for students?

In order to effectively address these questions, it is essential to first define what is meant by the term “student-centered.” We submit that the defining characteristic of such a classroom is that students are engaged in “generative” work. Generative learning is a quality wherein students have the ability to connect emotionally with their own styles and proficiency. One of the first researchers to adopt the term was Merlin C. Wittrock, an educational psychologist who developed the Generative Learning Model in 1974. Wittrock’s learning model was comprised of four learning routines. These routine processes include: attention, motivation, knowledge with preconceptions, and generation (Wittrock, 1992). Although only the last of these phases implies a direct connection to generative learning, the generative quality can be observed in each of these stages. Learners can engage with the topic of their own volition, following their own interest and internal motivation. Knowledge can be acquired and integrated with existing schemata according to a learner’s own curiosity and problem-solving agenda. And finally, instead of simply answering prompts and solving teacher-generated problems, learners themselves can generate new products and understandings.

The question guiding our work is as follows: How do educators create conditions wherein students take ownership of the learning apparatus and engage as generative learners? The center of our research focuses creating the generative learning environment through means of engaging students through mindset, student choice, autonomy, creativity, and modeling behaviors which will encourage student efficacy and a nurturing classroom environment.

Collectively, our studies fit into the wider discourse of shifting away from a passive-learner, teacher-centered mode of instruction in favor of a more responsive, student-centered model that acknowledges learner agency and allows for more teacher-learner collaboration and flexibility. Our research seeks to notice and name ways in which learners can be empowered to own their learning in a variety of educational contexts. Accompanying this change is a parallel shift in product-focused models of education in favor of process-oriented pedagogies.

For example, Neil Postman and Charles Weingartner's *Teaching as a Subversive Activity* articulates the need to reject simply "covering" content in favor of methods that focus on inquiry (1969). They argue that, for too long, the American education system has emphasized the learner's ability to memorize facts and recall them on cue. This is neither a higher order thinking skill nor a sign of actual intelligence. Instead, learners should be encouraged to think independently and critically. In order to make the shift from teacher-centered instruction to student-led instruction, a pedagogical shift needs to occur. However, this shift will not be easy because, in respect to pedagogy, teachers tend to look to the past, rather than thinking about how to truly revolutionize education: "We are like drivers whose gaze is fixed not upon where we are going but on where we came

from” (Postman & Weingertner, 1969, p. 26). Education doesn’t need a repackaged version of what already exists; rather, the American education system needs a dramatic paradigm shift that subverts the current--yet outdated---system.

In his 1970 *Pedagogy of the Oppressed*, Paulo Freire names the traditional teacher-centered model the “banking” method of education (1995). In this model, information is “deposited” into the learner as students passively consume facts--without implementation of higher order thinking skills, such as analysis or evaluation--and are later evaluated by their ability to repeat the information on a test. Freire identifies this practice as both dehumanizing and oppressive; it fails to acknowledge the learner as more than a receptacle and it does not promote the capacity for deeper thinking. Freire suggests that the banking method be replaced by a problem-posing approach, in which students are teachers and teachers are also learners, constructing meaning collaboratively as “critical co-investigators” (1995, p. 62).

Sir Ken Robinson, noted creativity researcher and professor Emeritus at University of Warwick, explains how teachers got “stuck” with an ineffective instructional model: our current educational system is based on a model that was driven by the needs of the American population during the Industrial Revolution. Schools were essentially places that prepared children for a life of labor. Today, that system simply does not work; it is not in the best interest of educators or students to continue utilizing a method that was designed to meet the needs of the 1800’s workforce. The rate at which new technologies has developed has grown at such a staggering rate that today’s students are being prepared for jobs that don’t even exist yet, let alone centuries ago (2001). Additionally, teacher-led instruction has been reinforced by political mandates (i.e. No

Child Left Behind) and college entrance requirements, which put considerable weight on a student's scores on standardized tests, which do not effectively assess inquiry, analysis, evaluation, or other higher-order thinking skills. These skills--such as creativity--are not assessed by the currently dominant standardized tests, are often considered "fluff," and are given little attention when designing instructional experiences for learners, even in a time when creativity and problem-solving are considered desirable skills for potential employees. A recent *Forbes* article by award-winning researcher and NYU Professor Anna Powers predicts that, with the increased access to knowledge via various technologies, employers will focus less on hiring employees based on their job-specific proficiency and creativity will become "the skill of the future" (Powers, 2018, para. 5). Each of our action-oriented studies is an attempt to push back against that trend.

As a collective, the range of our learning contexts is varied and embodies the diversity that exists in educational culture. These contexts include urban, rural, and suburban demographics as well as public and private educational institutions that range from Kindergarten to twelfth grade. Although our collective's commonality in research is generative pedagogy, each of our individual contexts takes a different approach to meeting students' needs. Our research collectively explores, growth mindset, divergent thinking, creativity, autonomy, connectedness, competence for a diverse demographic of subjects and students ranging from those identified with special needs to those identified as gifted. This diversity will be a powerful feature of our research in its ability to provide an inclusive body of findings from a variety of samplings that mirror many different learning environments. Together, we will explore new ways to reach and nurture *each* of

our learners. All students deserve the chance to activate and progress through their engagement with generative pedagogies.

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RE-IMAGINING SECONDARY ENGLISH CLASSROOMS THROUGH THE LENS
OF SELF-DETERMINATION THEORY: AN EXPLORATORY MIXED METHODS
STUDY ON THE IMPACT OF WORKSHOP MODEL INSTRUCTION ON
ANALYTICAL READING ABILITY AND ATTITUDES TOWARD READING
by

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Abstract

Repeatedly, studies of American students' reading habits have shown that, as they move on from elementary school toward middle and high school, they generally read less (and less enthusiastically) than they used to when they were younger. These studies have also shown that boys, students of color, and students facing economic hardship will generally not read as well as their female, white, and/or more economically privileged classmates. When it comes to why, and what to do about it, teachers are less certain by far. Studies conducted at the elementary and middle school levels suggest that reader's workshop may have a positive impact on these skills, but this approach has gone relatively unexplored at the secondary level. This study is a search for exploratory answers to the following questions: Does workshop model pedagogy impact the analytical reading levels of high school students in different demographic groups? How does workshop model pedagogy impact students' attitudes toward reading in different demographic groups? How can the tenets of self-determination theory (autonomy, connectedness, and competence) help us understand the efficacy of workshop model pedagogy? Quantitative data on students' analytical reading skill was produced using Hillocks' Reading Level Inventory, and qualitative data on students' attitudes toward reading and their responses to workshop pedagogy during the study were gathered using semi-structured interviews. Quantitative results revealed that, although the implementation of reader's workshop had no significant impact on the gender- or socioeconomic literacy gaps, the race-oriented gap was closed and, in fact, reversed over the course of the semester-long study. As a group, students improved their analytical reading skills to a statistically significant degree. Qualitative results suggested the

implementation of workshop model instruction increased feelings of autonomy, connectedness, and competence in students, and that these increases respectively helped students develop internal motivation, authentic voices, and personal ownership over the literacy work they completed during the study, improving overall attitudes toward reading.

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As our work on this dissertation draws toward a (somewhat frenetic) end, I am increasingly aware that none of this would have been possible were it not for the love, support, and sacrifices made by my wife, Lynn Becker. Without her picking up the slack left behind by my frequent disappearances while working on this research, it would have been, quite literally, impossible. Thank you for accompanying me on this journey and all the others. I would walk them with no one but you.

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Continuing outward, I’d also like to thank the entire Creativity and Generative Design doctoral cohort with whom I’ve learned and grown over the past three years. When this journey began, I had no idea how it would feel to reach this point, but now that I’m here, I can see clearly that the road behind us is paved with our deep-thinking, fearless conversations, and unconditional support. I’m lucky to have landed in such a clever, passionate bunch of teachers and learners. As we all move on from this moment, I am in your debt and at your service.

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curiosity and encouraged me to make unexpected connections and to courageously explore my “adjacent possibles.” Dr. Jennifer Fisher lent her warm support and cross-discipline perspective to this document, and Dr. Shea Kerkhoff helped me ensure that the ideas in this document were accurate, well-informed, and sensitive to the perspectives of others.

Finally, I absolutely must thank my senior students. I know it’s something of an old saw for teachers to speak of having learned from their students, but there it is. Your honesty and effort continue to inspire me to deliver my best to you, every day. Tomorrow is yours, and honestly, I’m looking forward to it.

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Chapter 1: Introduction

In 2004, the National Endowment for the Arts published a study called “Reading at Risk: A Survey of Literary Reading in America.” This research, based on survey data gathered in cooperation with the U.S. Census Bureau, sought to “take the temperature” of America’s reading habits as they applied to literary fiction. This research made clear what most secondary English Language Arts (ELA) teachers already feared: Despite the popular success of titles like *Harry Potter* and *Twilight*, Americans reported reading less fiction than ever, and the “steepest decline in literary reading [was] in the youngest age groups” (p. xi), referring to teenagers. The authors argued that this might have serious implications down the road since the study showed a literary reading habit to be strongly correlated with “other forms of active civic participation” such as voting and volunteerism (p. xii). That same study also showed that this reading deficit was measurably worse for boys, African Americans, and Hispanics than it was for whites and girls (although all groups showed a decline during the teenage years when compared to previous decades).

Later, this research was enriched by McKenna et al. (2012) who researched how young readers were—or were not—reading by including digital and nonfiction reading within their study. Accordingly, they reported on four different domains of how middle school students might be reading: academic digital, academic print, recreational digital, and recreational print. Although the previously observed gap between boys and girls was reversed in the recreational digital domain, the other three domains reflected this previously observed imbalance. Although the reversal in the recreational digital domain provided some hope for teachers attempting to promote a love of reading with their

students by including new literacies, attitudes toward three of the domains (academic digital, recreational print, and recreational digital) continued to show a progressive decline between sixth and eighth grade (the academic print domain remained steady). McKenna et al. (2012) suggest that this decline is then followed by a “plateauing of attitudes as students grow older” (p. 300).

Another factor with the power to impact our students’ reading habits has been the Common Core State Standards, developed and adopted in states across the nation in 2009. In ELA, adopting these standards meant a continuing demand for increased text complexity across all grades (*Key Shifts in English Language Arts*, 2019), and although this move appears designed to further challenge our young readers, the standards themselves do not provide new pedagogies to bring inexperienced and/or struggling readers up to these new expectations. Instead of simply swapping the books we teach for ones with higher Lexile scores, the profession is now in need of new practices that will help scaffold students toward understanding the texts they read and build experience in “just-right” books that will improve attitudes and help them build reading skill and stamina.

There is good reason to believe that the reading habits of our nation’s youngest citizens matter now more than ever. A 2014 joint report by the International Reading Association showed that the problems brought to light in *Reading at Risk* are still lurking, and in it, they summarized the gifts that readers glean from the practice; reading comprehension, language development, increased vocabulary, the ability to empathize with others, and even knowledge of other subjects and domains all correlate with a healthy reading habit. Income levels later in life (Brunello, Weber, & Weiss, 2017) and

even physical health (DeWalt et. al, 2004) have been shown to correlate with time spent reading. While it is true that correlation is not that same as causation, when such an overwhelming constellation of positive associations seem tied to the practice of reading, there is ample reason to invest in developing that practice. Are educators prepared to ignore the well-documented decline in reading habits and attitudes that settles in on students through the middle-school years and thus potentially short-change them in any one of these areas? Our current practices in high school ELA classrooms have not yet been enough to reverse this trend. It is time to try something new.

Research Questions

If we grant, then, that reading does matter, and we can agree that there is a need to explore new approaches that might better engage students and help mitigate the post-elementary reading plateau, then we arrive at the question of what other practices might be of use in this endeavor. What can high school ELA teachers do to help reignite a love of reading in their students?

This research explores one possible answer to these questions: workshop model pedagogy. Defined and discussed below, this collection of instructional methods and practices has been shown to be highly effective at lower grade levels. By adapting and applying this approach to high school learners, this research sought to explore several questions:

1. Does workshop model pedagogy significantly impact the analytical reading levels of high school students in different demographic groups?
2. How does workshop model pedagogy impact students' attitudes toward reading in different demographic groups?

3. How can the basic tenets of self-determination theory (autonomy, connectedness, and competence) help us understand the efficacy of workshop model pedagogy?

By exploring these questions using mixed methods (Creswell, 2014), this research has the potential to provide a model for high school ELA teachers seeking to address the negative trends in our students' skills and attitudes toward reading.

Chapter 2: Review of Literature

This review of the extant literature relevant to this study will begin with an examination of the historical roots and more recent applications of the reader's workshop model. Next, it will address the literacy gap that exists in American schools. Then, it will develop the theoretical framework of self-determination theory. Finally, it will define and clarify one way of determining readers' analytical reading skill—the analytical reading level inventory.

Reader's Workshop

Research on the ability of workshop pedagogy to improve attitudes and self-concepts regarding reading (and its power to increase reading volume) abounds; however, most of the research has been performed at the elementary and middle-school levels, and the vast majority is qualitative in nature. One of the most frequently cited of such studies is Nancie Atwell's (1987), in which she documents a shift in her own teacher practices over time and shows the positive impact of workshop-model methods on her own students through interviews and samples of student work. This seminal work helped develop the core practices of the reader's workshop: cutting teacher-talk by keeping direct instruction short (mini-lessons), progressive transfer of responsibility to students, increased student choice in both what they read and how they respond, ongoing teacher

research through one-on-one conferences, and differentiated instruction through conferring and small-group strategy lessons. This combination of practices helps teachers to deliver point-of-need instruction and meet students where they are.

Paralleling this study is the work of Miller (1992) and Wilhelm, Smith, and Fransen (2014), all of whom also address middle-school students and show how workshop-model can improve attitudes and increase reading volume in the 6th-8th grade population. After it found firm purchase in middle-school classrooms, workshop model has been tentatively explored by some working with secondary students. Gulia (2012) showed results similar to those attained working with middle-school students by introducing workshop-model to high school students participating in a vocational/technical program. Where their English classes incorporated choice-reading and other workshop practices, attitudes and self-concept toward reading improved dramatically. Lasue (2004) and Kittle (2014) both document the impact of workshop-model in their secondary classrooms, once again using qualitative methods to evince an improvement in reading volume, attitudes, and self-concepts. Additionally, Kittle (2014) includes some interviews with alumni who report a persisting positive attitude toward reading and literacy.

Despite the research that duplicates Atwell's results using qualitative methods at various grades, there seems to be a dearth of quantitative research which shows improvement in reading *skill*. Miller and Higgins (2008) did use statistical analysis of their interview data to show an improvement in attitudes and self-concept, but again, no improvement in skill was shown. Oberlin and Shugarman (1998) performed a similar study on learning disabled students and documented a quantitative gain in attitudes, as

well. Questions remain regarding whether or not this change in attitude and volume correlate with an actual improvement in reading comprehension and/or text analysis. Accordingly, Swift and Wolford (1993) were able to show convincing evidence of this correlation in a sixth-grade classroom. Using measurements from the Gates-MacGintie Reading Test (1978), Swift and Wolford measured a workshop group against a control group receiving teacher-selected texts and more traditional instructional methods. The workshop group showed, on average, superior results. Even more intriguing, the researchers found that those struggling most at the start of the workshop unit improved more dramatically than those who scored well on the initial measurement—effectively narrowing the gap between struggling readers and high-performing ones. Still, explorations such as Swift and Wolford’s seem to be quite rare, and possibly missing altogether at the high school level. This is especially problematic, as evidence is mounting that more and more of our students are in need of such equity-building pedagogies.

Literacy Gap

In 2006, the National Council of Teachers of English documented the evolution of what they termed “a growing, under-literate class” of students in American schools (p. 4). In that same publication, they cite studies from the American Institutes for Research, the National Assessment of Educational Progress, the National Assessment of Adult Literacy, the National Center for Educational Statistics, the Alliance for Excellent Education, and the ACT College-Readiness Benchmark for Reading, all of which point to a growing section of our students who are not performing at expected levels (according to the various metrics they used) when it comes to reading. Smith and Wilhelm (2002)

showed how this phenomenon disproportionately affects boys. In 2015, Loveless showed how this gap has persisted, and once again showed how boys are far more likely than girls to underperform. The Stanford Center for Education Policy Analysis continuously monitors achievement gaps nationwide, and although in reading, that gap has narrowed since 1975, there is still a significant difference between the performance of whites and that of Blacks and Hispanics.

How, then, can schools and teachers best address these gaps? This study began with the notion that instructional methodologies like workshop model, which provide frequent opportunities for differentiation and increase learners' feelings of self-determination, may be effective in improving the attitudes and analytical reading skill of these underperforming readers.

Self-determination Theory

Self-determination theory provides a framework that may help to explain the forces at work in workshop pedagogy—a method which emphasizes choice and autonomy in student learning. According to Ryan and Deci (2000), originators of the idea, self-determination theory is concerned primarily with “people's inherent growth tendencies and innate psychological needs that are the basis for their self-motivation and personality integration, as well as [with] the conditions . . . that appear to be essential for facilitating optimal functioning of the natural propensities for growth and integration, as well as for constructive social development and personal well-being” (p. 68). In this overview, they point to many other studies supporting the idea that learners grow and progress in situations that encourage autonomy, a sense of competence, and social connectedness. Workshop model provides a platform meant to create all of these

conditions. Autonomy is boosted through increased student choice in what to read, what to notice, and how to respond. One result of this increased personalization is that students are able to work in their zone of proximal development (Vygotsky, 1978) more often, selecting texts in combination with teacher input which will challenge progressing readers without overwhelming them. This helps students provide an environment where students may feel more competent more often. Finally, workshop connects students systematically by offering frequent chances to discuss their readings and responses. Students share impressions through formal and informal dialogue, and through formally presented book talks in which they recommend titles to their classmates.

DeNaeghel, et al. (2012) specifically linked self-determination theory to an exploration of reader's workshop in the elementary grades, and found a positive correlation between students' perceptions of their own autonomy, competence, and connectedness, as well as their reading self-concept and motivation, which they also showed correlated with improved reading performance and comprehension.

Analytical Reading Levels

Although there are many tools that researchers might use to measure a reader's skill, this study will make use of the Analytical Reading Level Inventory to measure the independent variable of literacy skill growth—specifically the impact of workshop model pedagogy on students' analytical reading level attainment. The proven reliability of this approach makes it a robust and useful tool for measuring the depth and complexity of students' responses to literary texts. These levels were first developed by George Hillocks (1980). Working with his tenth-grade English students, he tested the validity of this approach using Guttman scalogram analysis (Stouffer et al., 1950), finding the levels

to be “truly unidimensional and hierarchical” (p. 58). Fitzpatrick (2012) later used the same hierarchy to differentiate instruction and adapt to all readers’ needs. The assessment requires students to read a short story and write responses to a series of short-answer and short-essay questions which increase in complexity as the student progresses through the test. This assessment produces interval data, a whole-number score from one to seven that represents the highest level of analytical reading skill on which the student has shown mastery. The levels are as follows:

1. Basic Stated Information
2. Key Details
3. Stated Relationships
4. Simple Implied Relationships
5. Complex Implied Relationships
6. Author’s Generalization
7. Structural Generalization

Chapter 3: Methodology

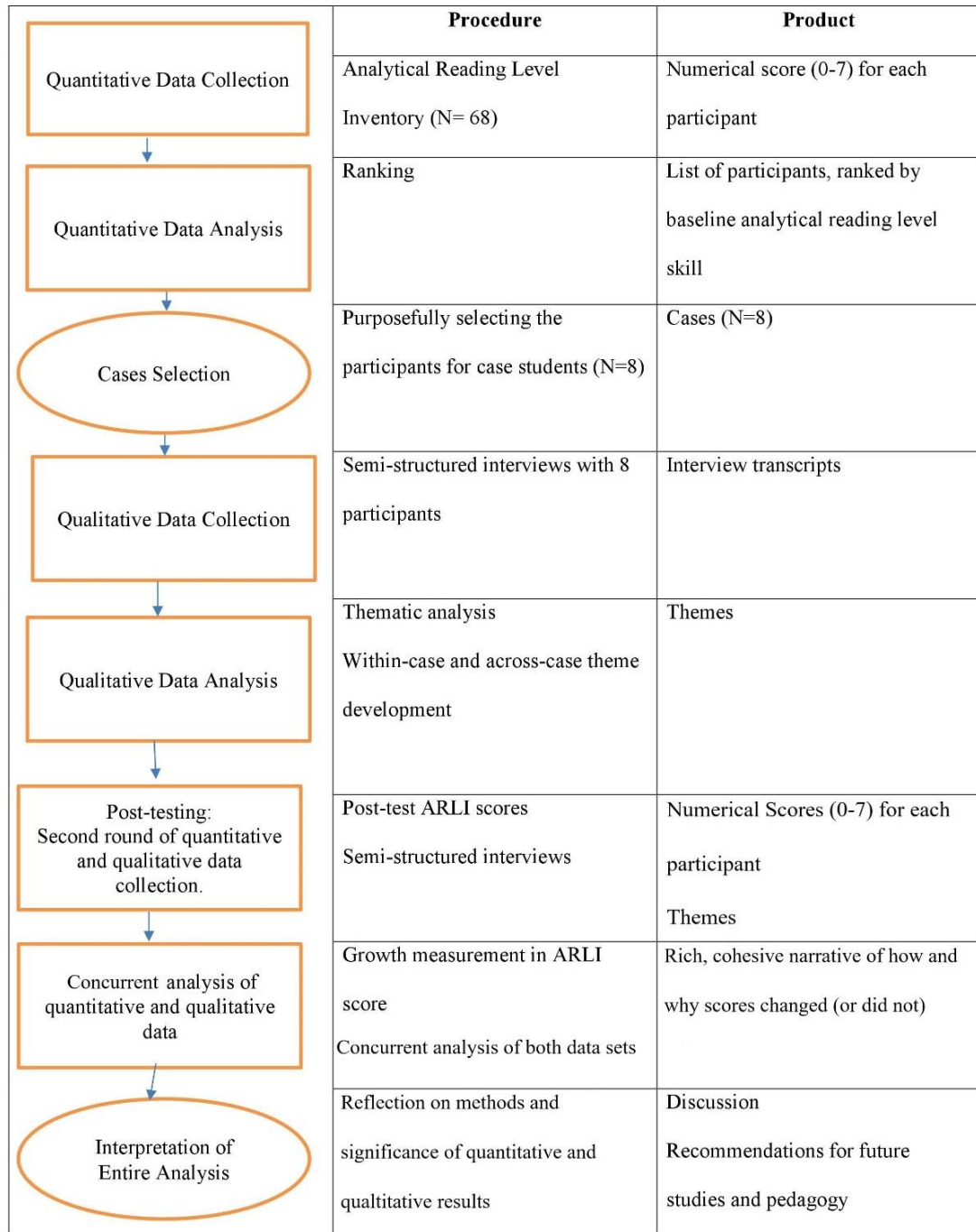


Figure 1. Exploratory, nested, concurrent, mixed-methods research design. Adapted from “Advanced mixed methods research designs.” In A. Tashakkori & c. Teddlie (Eds.) *Handbook of mixed methods in social and behavioral research* (pp. 209–240). by Creswell, J. W., Plano Clark, V. L., Gutmann M.L., & Hanson, W. E. Copyright 2003 by Sage.

This study used a mixed methods research design (see Figure 1). This is an approach that involves collecting and making use of both qualitative and quantitative data to reach deeper levels of understanding of the research problem (Creswell, 2014). A quantitative-only approach to this topic would have yielded information about the efficacy of workshop model, but it would have left unexplored questions of why or how that effect was or was not achieved. A qualitative-only approach would have yielded information about how students and teachers experienced workshop pedagogy—their impressions and understandings—but those perspectives would have left unanswered whether their subjective impressions of the method’s efficacy were supported by their actual performance on analytical reading tasks. Combining the two allowed for a more complete picture of the complex systems at work.

More specifically, this study followed a concurrent nested design. Instead of a sequential design, in which one type of data (qualitative or quantitative) is being used *ex post facto* in order to help understand and explain the other, this design “can be identified by its use of one data collection phase during which quantitative and qualitative data both are collected simultaneously . . . This nesting may mean that the embedded method addresses a question different from that addressed by the dominant method” (Creswell, et al., 2003, p. 184). Such is the case in this study, as the quantitative data helped to provide information about reading skill, while the qualitative data provided a richer narrative that helped to identify and describe changes in attitudes toward reading. Qualitative served as the dominant method of data collection in this study, and the quantitative data will be secondary.

This study had two phases. In phase one, the baseline data collection phase, 66 high school students were given Hillocks' (1980) and Fitzpatrick's (2012) Analytical Reading Level Inventory. This assessment, well-verified as a reliable hierarchy of skills in Hillocks' work and further developed by Fitzpatrick, yielded reliable quantitative data that helped to measure growth or lack thereof over the course of the study. At the same time, demographic data was gathered in order to select a maximum variation subsample of eight students representing a range of genders, ethnicities, and socioeconomic statuses (Table 1). To determine this last factor, I used the families' decisions on whether or not to receive free- or reduced-price lunches at the school. It also bears explaining that, in the context in which this study will take place, the student population is overwhelmingly white/Caucasian; thus, in order to improve representation by students of color, one racial category was created to encompass all non-white students. There simply were not enough students present in this population who self-identified as any one of the non-white racial designations to create a statistically significant grouping.

Table 1
Sub-sample for Semi-Structured Interviews

Student Number	Gender	Race	Free/Reduced-price Lunch Status
1	Male	white/Caucasian	No
2	Male	Black/African American/Asian/Hispanic/Other	No
3	Male	white/Caucasian	Yes
4	Male	Black/African American/Asian/Hispanic/Other	Yes
5	Female	white/Caucasian	No
6	Female	Black/African American/Asian/Hispanic/Other	No
7	Female	white/Caucasian	Yes
8	Female	Black/African American/Asian/Hispanic/Other	Yes

All demographic data was obtained by referencing the school's student information system. Since I was interested in measuring the impact of workshop pedagogy on the literacy gap, and these are the most drastic fault-lines along which research shows that gap, interviewing students with a range of these characteristics was valuable to producing valid insights in this study. In the consent forms they and their parents signed prior to the study, the participants were informed that eight of them would be selected for the voluntary individual interviews.

The students in this subsample participated in semi-structured interviews at the outset of the study meant to explore their histories as ELA learners. All participants then spent one semester in a twelfth-grade ELA classroom participating in reader's workshop. At the end of the study, I implemented a second round of both types of data-collection. For a second time, I used an Analytical Reading Level Inventory to check for growth in analytical reading skill, and I conducted a second round of semi-structured interviews to explore and understand how students experienced reading workshop, how they believed it did or did not help them to grow as readers, and whether or not it had changed their attitudes about reading in general. A final side-by-side comparison of both databases helped to explore these questions and construct a cohesive narrative of what occurred during the study.

The priority in this design was given to the qualitative method, because the qualitative research provided thematic data, which helped to reveal the participants' perceptions of any quantitative growth or lack thereof. Otherwise stated, while it was important that the quantitative data reveal workshop method's efficacy at improving analytical reading skill, it was the qualitative data that helped to reveal why and how that

pedagogy did or did not work, describing potential pathways for further study of this issue, as well as establishing a prototype for future practitioners who may wish to try this approach in their own settings, with their own students.

Population and Setting

The study took place at a suburban, Midwestern high school during the Fall 2018 semester of the English IV elective offered there. The course is one of several from which students can select as their senior-year ELA class, and the extant curriculum was conceived and created for college-bound students who opt not to take AP Language and Literature that year. In the entire school of 1,906 students, 91% were white (non-Hispanic), 5% black (African American), and 4% other ethnicities. Roughly 20% of the students in the school were socioeconomically disadvantaged, as determined by whether or not students' families had opted to receive free- or reduced-price lunches at the school.

Sample and Participation Rate

The sample participating in this study was comprised of 66 twelfth-grade students from this same high school. All of the students elected to take English IV for the fall semester of the 2018-2019 school year. Each participant was either seventeen or eighteen years old, and each agreed to participate in the study by either signing consent forms themselves or submitting signed parental consent forms (according to whether or not they were minors at the time of the study's inception). All participants signed assent forms to be certain they understood the purpose and limitations of the study. As a part of asking students to assent to participating in the study, I placed special focus on explaining that participation in the study would neither impact on their grade in the course, nor the amount or type of work they would be asked to do during the semester. Even so, out of

the 93 total students enrolled in the course, 27 opted out of the study (29%). One limitation of this study may be this relatively low response-rate and the potential introduction of response bias into its methodology and conclusions.

This sample was a convenience sampling determined by which students were assigned to said classes at the start of the year. Sixty-six individuals was sufficient to establish preliminary findings in an issue (the impact of workshop model pedagogy in high school ELA classrooms) which, to date, has been subject to very little quantitative research.

Demographic data. After obtaining permission to perform the study from the school district, the following demographic data describing the sample were gathered from the school district's student information system. All data were reported by students' families prior to the start of the school year.

Gender. For this study, the quality of gender is defined as either male or female. I do recognize that students may not self-identify their own gender according to this limiting, binary construct; however, since that is how the school district gathers information, and more importantly, since existing data regarding literacy achievement gaps is gathered according to this binary construct, I decided to do the same in order to facilitate comparisons to previous studies. In this 66-student sample, 28 (42%) were female, and 38 (58%) were male.

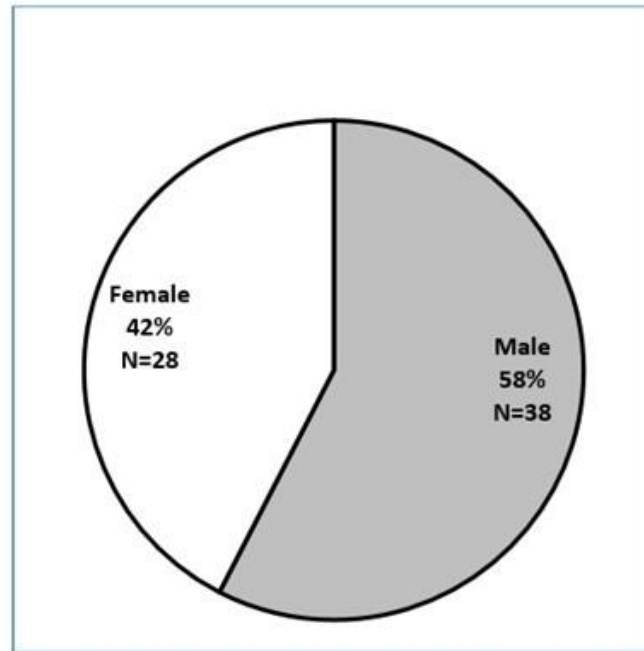


Figure 2. Gender.

Race. For this study, the quality of race was considered in two categories. Though I realize this creates another potential false-binary (white/non-white), there were not enough students who self-identified as African American/Black, Asian, Hispanic, or Other to create a statistically significant grouping in any one of these categories. In order to make the impact of workshop model pedagogy on students of color more visible, students who self-identified in these groups were placed into one, single category. In this 66-student sample, 11 (17%) identified as either African American/Black, Asian, Hispanic, or Other, and 55 (83%) identified as white/Caucasian. Additionally, while it is true that alternative racial designations such as “Asian-American” or “Latinx/Latin@” might be more accurate or preferable to the ones used here, families selected their race from the terms listed here. I have opted to maintain those terms throughout the study to support its internal validity.

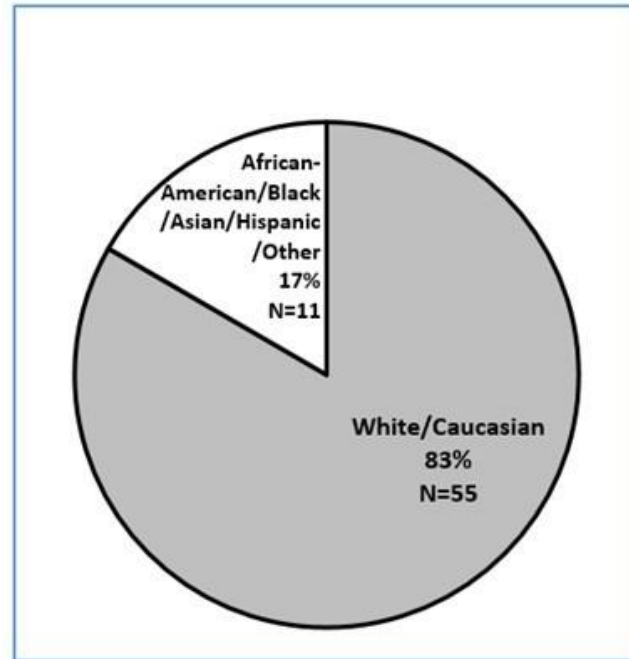


Figure 3. Race.

Lunch Status. For this study, the quality of socioeconomic status (SES) was determined using the status of the price of the school lunch that families have opted to have their students receive. Although Harwell and LeBeau (2010) have helped to expose the potential limitations of using school lunch status as a stand-in for SES, at the time of this study, I did not have access to information regarding my students' families' incomes. In this 66-student sample, 14 (21%) received free- or reduced-price lunch from the school, and 52 (79%) received lunch at the standard price.

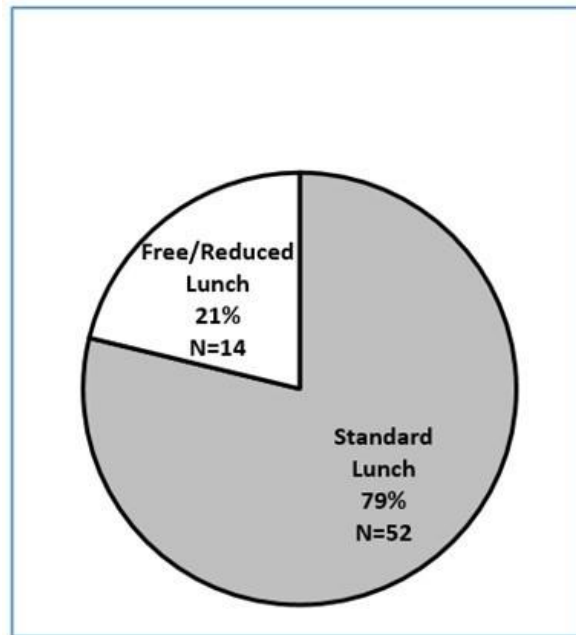


Figure 4. Lunch status.

Variables

The research question in the quantitative phase “Does workshop model pedagogy impact the analytical reading levels of high school students in different demographic groups?” predetermined a set of variables in this study. The implementation of workshop pedagogy by a trained teacher was the independent variable for the quantitative portion of this study, while students’ scores on the Analytical Reading Level Inventory was the dependent variable. Participants’ scores on this assessment will sometimes be referred to as “analytical reading skill.”

In the qualitative portion of the study, the transcripts resulting from the semi-structured interviews were analyzed according to the theoretical framework of self-determination theory. Questions in the interviews, and analysis of the case studies, focused on exploring how students experienced and perceived their own learning while

working within the workshop framework. With students' quantitative data in hand, interviews used self-determination theory to help develop understandings of how and why any change in analytical reading skill did or did not occur; therefore, in the qualitative portion of the study the implementation of workshop model instruction was the independent variable, and attitude toward reading was the dependent variable.

Quantitative Data Collection and Analysis Procedures

The aforementioned demographic data were placed in a Microsoft Excel spreadsheet, alongside Analytical Reading Level Inventory scores from the start (ARLI1) and end (ARLI2) of the semester. Both assessments (see Appendices A and B) were a part of regular classroom instruction, and both were administered by me, the students' regular ELA teacher. These assessments were completed longhand, and students were given 100 minutes to complete the task. The spreadsheet was then imported into SAS University Edition, a free, open-source application for statistical analyses of data. With the exception of the Cohen's D statistic (see below), all statistical tests and analysis were performed through SAS and in consultation with university faculty using the instructions outlined in Ron Cody's *Biostatistics by Example Using SAS Studio* (2016). The Cohen's D statistic to help measure effect size was calculated using the browser-based web application *Effect Size Calculator (Cohen's D) for t-test* (2019), also in consultation with university faculty.

After the ARLI was administered as a post-test, the whole sample's data was analyzed to determine effect size. Due to the non-parametric distribution of the results, a series of Wilcoxon Rank Sum tests (Wilcoxon, 1945) helped to detect whether or not

gender, race, free/reduced-price lunch status had an impact on students' growth in analytical reading skill over time while receiving workshop model instruction.

Qualitative Data Collection and Analysis Procedures

To begin condensing and analyzing the data gathered in the semi-structured interviews with the 8-student sub-sample, interviews were first transcribed and then coded according to the procedures described by Johnny Saldaña (2008). Three a priori codes were established in alignment with this study's theoretical framework—namely, the three central tenets of self-determination theory as defined by Ryan and Deci (2000): autonomy, competence, and connectedness. Soon after beginning the process of coding, however, I realized that these terms were better suited as categories instead of codes, and so several descriptive codes were recognized and developed under each of these a priori categories. Additional descriptive codes were observed while reviewing the data, as well. All codes not associated with the three a priori categories were then organized into their own categories, and then all categories were investigated to produce cross-case themes which might be gleaned from the data in each category. This process of progressively condensing meaning from codes (both theory- and data-driven) to categories to themes is described well by Brinkmann and Kvale (2015).

Validity

Threats to internal validity in the quantitative portion of the study included selection of participants, testing, maturation, and the lack of a control group. Although the selection was a convenience sample, it was drawn from neither honors (academically advanced) nor self-contained (academically challenged) classes. Rather, the study took place in a mixed-ability classroom; thus, selection bias was minimized, as such

classrooms contain a wide variety of levels of skill, engagement, and motivation. Threats to validity due to testing were minimized by designing the second ARLI over a different text. This second assessment contained different questions (although the leveled hierarchy of analytical skills required remained the same). ARLI1 was developed using John Collier's "The Chaser" (930 Lexile) and ARLI2 was developed using Ray Bradbury's "There Will Come Soft Rains" (910 Lexile). These texts were selected due to their similar text complexity and the minimal demands they place on students in terms of background knowledge.

Confining the study to a single semester of workshop model pedagogy minimized threats due to maturation, making the observation of teacher effects easier to observe. The lack of a control group will be also be addressed in the study as a limitation of the study findings.

For the qualitative interviews involved in this study, threats to external validity included the interaction between selection and treatment, as well as the interaction between setting and treatment. External interview design validity threats were minimized by giving a rich, detailed description of the setting and selection involved in the study, restricting claims about the study's results to groups similar to those involved in the study, and recommending further future studies to corroborate the findings of this one.

To validate the soundness and rigor of the findings, three primary forms will be used in the qualitative phases of the study: (1) providing rich, thick description to describe the setting, sample, and findings; (2) using peer debriefing; and (3) clarifying the bias that I bring to the study (Creswell, 2014).

Ethics and Human Relations

I, the researcher, am a white, middle-class, male, tenured teacher in the school where the research took place. I have taught there for fifteen years, working with a variety of students from tenth- through twelfth-grades, in a variety of classes. Over the course of the study, I will be building relationships with students (as is critical to my practice), and this factor introduces the possibility that I may interpret the data collected during the study in subjective ways. It also bears noting that positive results from this study would benefit me directly by casting a positive light on my efficacy as a teacher, making objective interpretation of the data even more challenging. As those relationships build, students may feel more and more pressure to respond positively to my questions about their experiences of workshop pedagogy. In addition to these challenges, it should also be noted that I am only just beginning to research and implement workshop pedagogy in my classroom. A teacher who has had more time to practice and refine these structures and procedures may be better positioned to lead such a study.

These factors do introduce significant challenges for the validity of the research; however, it is worth wondering whether or not a different adult—an outsider—would have been more likely to obtain more direct answers from students. In conversations between adults and students, there is always the threat of a perceived imbalance of power and the possibility that students will say what adults want to hear. Perhaps a trusted, consistent figure in the students' lives may actually more likely to be able to draw out honest responses. To attempt to minimize these issues, I used external audits by university faculty and rich, thick descriptions of the setting and cases involved, as well as a preface to the interview which explicitly asks students to respond candidly.

As this research was performed as a regular implementation of the district’s ELA curriculum in my own classroom, there was no difficulty gaining entry to the setting involved. To protect the rights of all students involved in the study, an informed consent form was developed which allowed students and families to “opt in” to the study. Students who failed to opt in were not included in the quantitative nor the quantitative data pool.

Chapter 4: Results and Discussion

The quantitative data gathered as a part of this concurrent nested study was aimed at providing answers to the first research question: Does workshop model pedagogy impact the analytical reading levels of high school students in different demographic groups? Before looking into how each demographic group performed, however, we can obtain a more general understanding of the efficacy of workshop model instruction by looking at the whole sample’s progress over the course of the study.

Overall Impact

Using the results of ARLI1 and ARLI2, a single “Growth” statistic was created for each student to help measure that student’s skill-growth over the course of the semester. The results of these measurements appear in Table 2.

Table 2
Descriptive Statistics

Measurement	Mean	Median	Standard Deviation
ARLI1	4.18	4	1.41
ARLI2	5.35	6	1.52
Growth	1.17	1	1.44

The mean result for ARLI1 was 4.18 (SD = 1.41). An ARLI score of 4 represents mastery of the ability to make and explain simple inferences (based on one textual detail), and a score of 5 represents mastery of the ability to make and explain complex inferences (based on multiple textual details) (Hillocks, 1980). The mean result for ARLI2 was 5.35 (SD = 1.52). An ARLI score of 6 indicates mastery of the ability to perceive and explain a theme of the story (or, as it is called on the assessment, an “author’s generalization”) (Hillocks, 1980). The mean for growth between ARLI1 and ARLI2 was +1.17 (SD = 1.44) reading levels. The distribution of scores for ARLI1 and ARLI2 are shown in Figure 5.

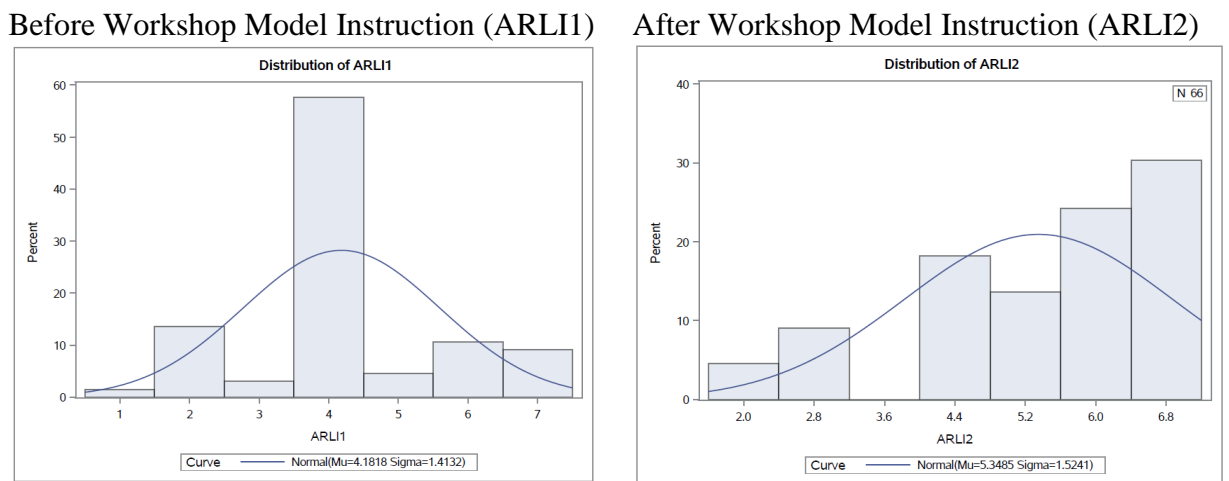


Figure 5. Distributions of ARLI1 & ARLI2. The distributions of scores on both ARLI1 and ARLI2 were found to be non-parametric. ARLI2 was skewed strongly in a positive direction. These non-parametric distributions necessitated a Wilcoxon rank sum to test for a statistically significant difference between the two groups of scores.

The range of this growth stretched from a positive growth of 4 levels to a negative “growth” of 3 levels. Five students (7.6% of the total sample) showed negative “growth” between ARLI1 & ARLI2. Several factors could account for this phenomenon. First, any number of outside factors may have impacted students’ ability to focus and work at their highest capacity on the day that ARLI2 was administered. Outside factors can have

a powerful impact on students' attitudes and skills, both in the short- and long-terms. Second, since teachers must use a new story each time they administer an ARLI, students' background knowledge can play a significant role in their ability to comprehend either story. If ARLI1 presented no major challenges for a student in terms of the background knowledge required to comprehend the text (for example, if the story was about dancing and the student took dance classes when they were younger), but ARLI2 *did* present such a challenge (the story was about Russia and the student has not yet learned much about Russia), they may naturally have more trouble reading and writing about the second story, perhaps leading to a drop in the ARLI score. Every effort was made to choose stories which would require no major hurdles in terms of the background knowledge required to read and comprehend both stories; however, all stories have a particular setting and present events that happen in a particular context. There is no such thing as a story that requires no background knowledge from the reader, and indeed, there is perhaps no such thing as a perfect assessment of students' analytical reading abilities. Every attempt is anchored in time and has a context which may impact their performance on any particular assessment.

In order to understand the significance of this growth, the first step was to test the normality of its distribution using the Shapiro-Wilk test for normality (Shapiro and Wilk, 1965). This test yielded a p-value of 0.0007, indicating a non-parametric distribution (shown in Figure 6). Accordingly, instead of a standard two-sample t-test, the significance of the growth between ARLI1 and ARLI2 was evaluated using the Wilcoxon Rank Sum Test. This test yielded a p-value of $<.0001$, suggesting a *highly significant impact* of workshop model instruction on the sample as a whole.

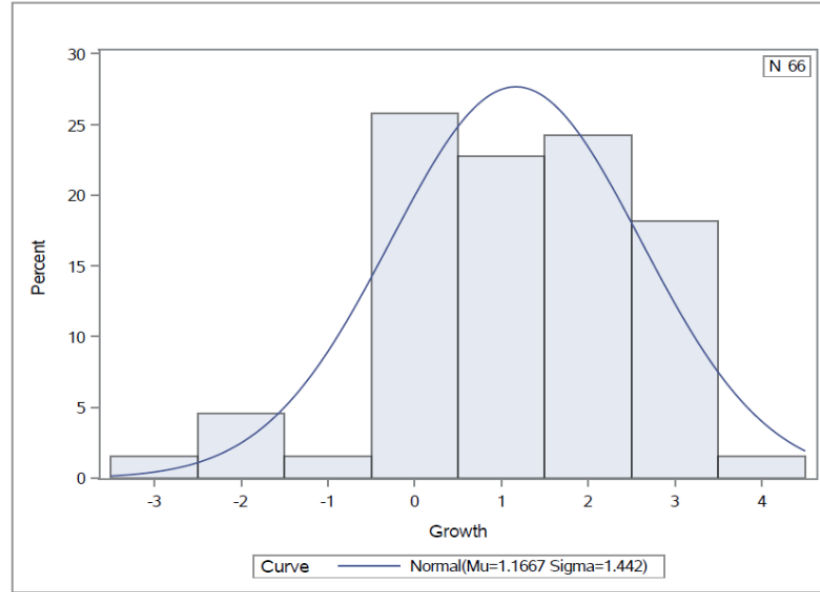


Figure 6. Distribution of growth. The distribution of growth between ARLI1 and ARLI2 was also found to be non-parametric, necessitating another Wilcoxon rank sum test to check for statistically significant differences between demographic groups.

Another way to judge the impact of workshop model instruction on analytical reading skill during this time period is to calculate the Cohen's D statistic, commonly referred to as "effect size." Fisher, Frey, and Hattie (2016), drawing on work by Cohen (1988), have defined a Cohen's D statistic from 0-.15 as simply resulting from developmental effects, or, in other words, the natural maturation that students undergo independent of teachers' interventions in a year. They define .15-.40 as "Typical Teacher Effects." This is the amount of impact expected simply because a child *has* a teacher, regardless of what that teacher is doing in the classroom. Based on their expansive meta-study of many different practices with the potential to impact students' literacy skills, they defined .40 as a "hinge point," suggesting that teachers should seek out and

implement practices that yield an effect size larger than .40 in order to best support learners. The expected impact of these effect sizes is shown in Figure 7.

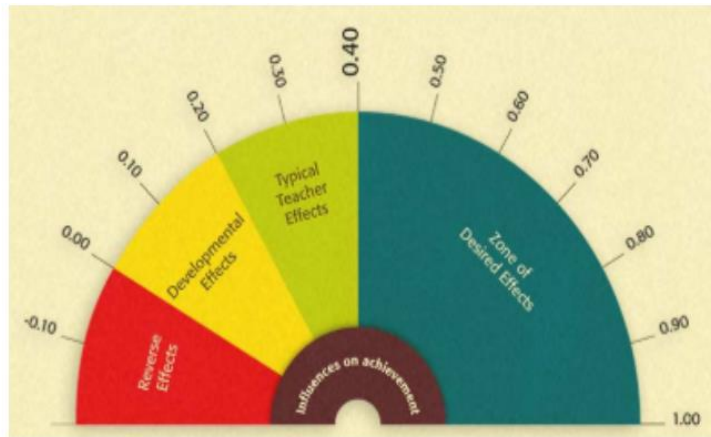


Figure 7. Measuring Effect Size. From Visible Learning visualized in a beautiful infographic (2012).

The Cohen's D statistic yielded by this study's semester-long implementation of workshop model instruction was .793812 (calculation shown in Figure 8), *firmly* placing the effect size of this application of workshop model instruction into Fisher, Frey, and Hattie's *zone of desirable effects*. Perhaps even more notable is that these results were produced in only one semester of study, whereas Fisher, Frey, and Hattie's 4.0 hinge-point is calibrated in relation to a full year of study.

Group 1

Mean (M):

Standard deviation (s):

Sample size (n):

Group 2

Mean (M):

Standard deviation (s):

Sample size (n):

Success!

Cohen's $d = (5.348484 - 4.181818) / 1.469701 = 0.793812$.

Figure 8. Effect Size Calculation. From *Effect size calculator (Cohen's D) for t-test* (2019).

Results Associated with Research Question 1

The distribution of each factor was found to be non-parametric. The p-value of the Shapiro-Wilks test for normality (see Table 3) on the distribution of gender was .0023, of race was .0008, and of lunch status was .0021.

Table 3
Shapiro-Wilks Test for Normality

Demographic factor	Statistic	P
Gender	.8984	$p = .0023$
Race	.9168	$p = .0008$
Lunch Status	.9213	$p = .0021$

Since these distributions were found to be non-parametric, a series of Wilcoxon rank sum tests (see Table 4) were run in order to address the first research question of this study: Does workshop model pedagogy impact the analytical reading levels of high school students in different demographic groups? All groups exhibited skill-growth as analytical readers; however, which groups grew the most?

Table 4
Wilcoxon Rank Sum Tests

Category	Mean of ARLI1	Mean of ARLI2	Mean Growth	<i>z</i>	<i>p</i>
		Gender			
Male	4.32	5.58	1.26	.9841	.9788
Female	4.00	5.04	1.03		
		Race			
white/Caucasian	4.29	5.29	1.00	.0456	.0407
Black/African American/Asian/Hispanic	3.64	5.64	2.00		
		Lunch Status			
Standard	4.21	5.40	1.19	.6029	.5956
Free/Reduced-price	4.07	5.14	1.07		

The Wilcoxon rank sum test indicated that there was *no* significant difference ($z = .9841, p = .9788$) between the growth of males and females during the study. Scores for males were consistently higher than those of females throughout the study, but not by a statistically significant factor. The Wilcoxon rank sum test indicated that there *was* a significant difference between the growth of whites/Caucasians and students of other races ($z = .0456, p = .0407$). Students who identified as Black/African American, Asian, or Hispanic ($M = 1.00$) grew *twice* as much as their white/Caucasian counterparts ($M = 2.00$). The Wilcoxon rank sum test indicated that there was *no* significant difference between the growth of students who receive standard lunch and those who receive free- or reduced-price lunch ($z = .6029, p = .5956$). Scores for those who receive standard lunch were consistently higher than those who receive free-/reduced-price lunch, but not by a statistically significant factor.

Summary Discussion of Research Question 1

Statistical analysis of the data gathered in the course of this study reveals a promising set of answers to this study's first research question: Does workshop model pedagogy impact the analytical reading levels of high school students in different demographic groups? First of all, in an overall sense, it is clear that the implementation of workshop model pedagogy had a significant impact on the participants' analytical reading skills. The mean growth (1.44 levels), the Wilcoxon Rank Sum test ($p = <.0001$), and the effect-size calculation (.79) all suggest significant general progress in this area. This overall growth replicates the aforementioned elementary and middle school studies which show the efficacy of workshop model instruction. Seeing such significant growth in only one semester of study will hopefully open the door for further study of how workshop pedagogy impacts students in other skill-sets and settings. Future study should explore just how replicable these results may be.

A closer look at the demographic categories of interest in this study, however, reveals a more complex picture. The study's implementation of workshop model instruction seemed to impact both gender categories in a comparable way. Interestingly, males outperformed females on the ARLI throughout the study (on the pre- and post-tests); thus, the convenience sample participating in this study did not represent the much more widely observed literacy gap that usually shows females outperforming males. In fact, males actually widened that gap by 0.23 analytical reading levels over the course of the study. Perhaps primarily as a result of the unrepresentative number of higher-performing males involved in this study, no firm conclusions can be drawn about the

impact of workshop model instruction on different genders. There was no significant statistical difference between the growths of the two groups.

A similar story played out between the two socioeconomic categories of interest in this study—students who receive standard lunch and those who receive lunch at free or reduced prices. Unlike the results associated with gender, however, more advantaged students outperformed those receiving district assistance throughout the study. This gap is as predicted by other national studies, and it actually widened over the course of the study by 0.06 reading levels. The results of this study suggest no strong conclusions about the impact of workshop model pedagogy on students of different socioeconomic backgrounds. There was no significant statistical difference between the growths of the two groups.

The analysis of student growth in the two racial categories employed in this study, though, revealed a drastic difference for students who identified as white/Caucasian and those who identified as either African American, Asian, Hispanic, or Other. The growth of the latter group *doubled* that of their white counterparts. In fact, the gap between the performances of these two groups went from white/Caucasian students doing 0.65 levels better than students of color on ARLI1, to African American/Asian/Hispanic/Other students doing 0.35 levels *better than their white counterparts* on ARLI2. Effectively, the performance gap was closed *and then some*. The Wilcoxon Rank Sum test confirmed the significance of the difference in the amount of growth in these two categories ($p = .0407$). What accounted for this difference in growth? The analysis of qualitative results below will yield some intriguing possible answers to that question.

Results Associated with Research Question 2

In order to address the second research question of this study--How does workshop model pedagogy impact students’ attitudes toward reading in different demographic groups?—the number of students whose responses related to codes pertaining to attitudes toward reading (both before and after the study) were analyzed below in Table 5.

Table 5
Number of Students Expressing Ideas Related to Attitudinal Codes

Demographic Factor	Category (4 students in each category)	CODE: Positive Past	CODE: Negative Past	CODE: Improved Attitude	CODE: Worsened Attitude
Gender	Male	2	4	3	0
	Female	2	3	3	1
Race	white/Caucasian	0	4	4	0
	African American/Black/Asian/Other	4	3	2	1
	Standard Lunch	2	4	3	0
Lunch Status	Free/Reduced-price Lunch	2	3	4	1
	Total	4	7	6	1
Students (out of 8) Expressing Ideas Related to This Code					

From this data, several trends emerged. The first is that, in speaking of their past experiences with English classes, negative experiences dominated the conversation more frequently than positive ones.

Positive past. Four students out of the eight student sub-sample mentioned positive past attitudes toward the class during our interviews. Interestingly, in relation to the third research question of this study—How can the basic tenets of self-determination

theory (autonomy, connectedness, and competence) help us understand the efficacy of workshop model pedagogy?—in these students’ positive responses, the importance of self-determination can be observed. *The basic conditions for self-determination contribute to a more positive classroom experience.*

When asked the general question of how he felt about English classes in the past, Student #4 (male, Asian, standard lunch) described his experience in a remedial middle-school reading class—Read 180. More specifically, he touched on both notes of connectedness and competence, saying, “I learned really easily in it. And it was the people in the class that I liked” (personal interview, October 24, 2018). Similarly responding to this same, general question, Student #8 (female, African American, free/reduced-price lunch) expressed her preference for feeling competent when she replied, “It’s usually my favorite class . . . I like writing. So it’s my strongest I would say” (personal interview, October 31, 2018) Student # 4 (male, African American, free/reduced-price lunch) spoke of his connectedness with a previous teacher: “I remember last year I had [a teacher] and she was like--I remember the first day she was like, ‘When you, um, write, or when you tell your story, you gotta make sure you dig deep.’ . . . That really got to me, and I’m like, yeah. That pushed me to make sure I go more in to my writing” (personal interview, October 24, 2018). His relationship with this teacher and the memorable advice she gave made him feel ready and able to challenge himself to grow as a writer. Finally, student #6 (female, African American, standard lunch) spoke of the importance of autonomy: “I’ve had a lot of choice, which is I guess also what made me a better writer” (personal interview, October 25, 2018). Clearly, the

factors that improve a students' feeling of self-determination have played a role in the positive experiences these students have had in the past.

Negative past. It is important to note, though, that these two codes (POSITIVE PAST & NEGATIVE PAST) were by no means mutually exclusive. In fact, just one student had *only* positive comments about her past English classes, three students gave a blend of both positive and negative comments about that past, and four had *only* negative things to say about their histories with the subject. That means that seven out of eight students took the opportunity of this interview to express negative attitudes toward their past experiences reading for English classes. From these responses, a theme emerged: *When the basic conditions of self-determination are missing, students are more likely to have a negative experience in the classroom.*

Students' responses clearly pointed to their lack of satisfaction when the conditions of autonomy, connectedness and competence were absent. Student #4 (male, African American, free/reduced-price lunch) spoke to a perceived lack of autonomy in his past English classes: "Man, it was just like--It was okay, but it's like, without really learning something, it's the way I was feeling, because basically you teach me this, and you want me to do it the way you do it for you can grade it, so . . ." (personal interview, October 24, 2018). In response, I asked him to describe a situation in which he felt like he'd have a better chance of "actually learning something." He replied, "If you let us do it by ourselves." Student #5 (female, white, standard lunch) spoke to this same disappointment in a perceived lack of autonomy:

They've been really, really structured . . . and every year it's, it's all on the same thing, like basic thesis, basic essay, comma rules, like all that just repeated each

year, basically, so it's kind of been the easiest class for me, and it's kind of been just repetitive, same topic, read a book, write an essay about it, all of that pretty much just the same. (personal interview, October 24, 2018)

Here, Student #5 touches on how this lack of autonomy made her feel like the instruction was not challenging her adequately, that the class' activities made her feel overly competent by not helping her work in the Vygotskian (1978) zone of proximal development (ZPD). Student #1 (male, white, standard lunch) expressed a similar dissatisfaction with the level of challenge in his past English classes:

If I have to characterize it in a few words, it would definitely be, I could say I dreaded my regular English classes. . . . I don't know, it just always seems to irritate me, like, not that I don't enjoy English, I love reading, I love writing, I like Speech & Debate, that's also one of my passions, I love doing that. I don't know. (personal interview, October 23, 2018)

Elsewhere, Student #1 stated outright, "I'm not necessarily pushed to my full extent, I think" (personal interview, October 23, 2019). Students #1 and #5 (responsible for the two quotes above) are talented readers and writers looking for a challenge; however, it is clear that their past experiences have let them down in this regard.

In addition to often feeling like they were over-competent, some other students described past experiences when their reading assignments made them feel under-competent. Student #6 (female, African American, standard lunch) described such a situation in her past and then went on to explain how things have improved since she's switched schools:

Okay, at my old school, they kinda just threw work at us and like really didn't explain, like what we needed to do. Um, but then I got here, and like, we kinda did move slower, so like, when I moved here, I was already past what we were, like, what they were going over, but I didn't understand what I was doing at first, so, like going back, and for her, like for my teacher to explain it was like, really helpful, so even though we moved like slower than like my old school, it's like helpful to understand what's going on. (personal interview, October 25, 2018)

Above, Student #6 hits on the third basic element of self-determination theory:

Connectedness. Feeling more connected to her teacher allowed her to feel and be more supported, improving her sense of competence and thus her attitude toward the subject matter. Student #7 (female, white, free-/reduced-price lunch) related an experience that echoes Student #6's: "My teacher had an outline set up on Google Classroom for all the kids to look at, and I asked her a question, she said, 'It's on the outline.' I said, 'Well, you're the teacher, I'm asking the teacher not my computer for help, like I need help.' And that's like another discouraging thing on why I don't go for help anymore, because I've been turned down so many times" (personal interview, October 25, 2018).

Although it may not have a *direct* impact on reading skill, it is plain to see by Student #6's response how a lack of connectedness between teacher and student can lead to a negative attitude toward class activities, and even, if the feelings persist, in a lack of growth. If students are not comfortable asking a teacher for help, the odds that they will get the help they need are drastically reduced.

These types of negative experiences were mentioned far more often during the interviews than positive experiences, and the root of that negativity appears to lie in situations wherein students felt a lack of autonomy, competence, and/or connectedness.

Attitudes During and After the Study. Six out of eight interviewees made comments revealing an improved attitude toward reading, whereas only one student made a comment that suggested the possibility that her attitude had worsened. In describing these improved attitudes by far the most prevalent factor associated with this improvement was autonomy. In describing his improved attitude toward reading during the study, Student # 3 (male, white, free/reduced-price lunch) said, “Well, I was more likely to read on my own during... When I was given reading time, and specifically I could choose what book to read” (personal interview, January 23, 2019). Student #5 (female, white, standard lunch) spoke with candor on how the increased autonomy impacted her attitude: “And yeah, we complain a lot and stuff, but we know it's a lot better than any of the years prior, I feel like. Just because we've gotten a lot more choice and you can complain about anything” (personal interview, January 9, 2019). She went on in the interview to explain how the balance of structure and choice provided by workshop model instruction inspired a rekindling of her love of reading:

Because freshman and eighth grade year, I was reading ridiculously and then I just kinda stopped it. I just kinda went on social media and stuff like that, but then [this semester] I realized that even though reading is not cool anymore, or all the hipsters have taken it, I realize that I can still make it mine. That was a really nice feeling to have. (personal interview, January 9, 2019)

Student #1 (male, white, standard lunch) spoke of this rekindling, as well:

So at the beginning of the year, I still had that very familiar feeling of just a lack of interest in reading. And I would say that through a combination of us sort of being forced outside of our comfort zone, in the sense that we had to write about our ideas and analyze these novels that we were reading, I think that really just helped something, helped spark me something that I found that love for reading again. And it's been very nice, and I feel gracious that I've had that opportunity to do that. (personal interview, January 16, 2019)

Student #4 (male, African American, free/reduced-price lunch) put it most succinctly: “Well, last semester I hated reading. This semester I love reading. I was given the option of choosing my own book, so, again, I enjoy reading now” (personal interview, December 10, 2018).

The sole student who described a worsened attitude toward reading, Student #8 (female, African American, free/reduced-price lunch) was a very interesting case. Her response did recognize the positive influence of her increased autonomy; however, there was another factor influencing her reading attitude and behavior. When asked to describe herself as a reader this semester, she spoke of a lack of motivation to read during the semester. I asked why and she began to clarify that, it wasn't necessarily true that she was reading less; instead, she was feeling conflicted about the number of books she'd abandoned over the course of the year.

Student #8: No, 'cause I did have... I like how we had the option to... If I didn't like the book I could switch books.

Researcher: Okay.

Student #8: Whenever I wanted to switch, which I did. But I don't know, I was getting bored with books so fast.

Researcher: Okay. Huh. Do you think that was because you were grabbing the wrong books, just on accident or...

Student #8: Maybe.

Researcher: Was it because maybe you didn't know what you wanted? Because I do remember you found at least one book that you really plowed through. So do you think that was one of the factors?

Student #8: Yeah, 'cause the first book I had, I did like that book. I read that book. And then I read *The Hate U Give*, and I liked that one.

Researcher: *Hate U Give*. You read through that one.

Student #8: And I was reading another one, but yeah, with that one I couldn't stick to it.

Researcher: And you're saying that normally you read more?

Student #8: Mm-hmm.

Researcher: So was all the independence and choice that you had more of a positive thing as far as your motivation or more of a negative thing?

Student #8: I think it could be both, 'cause I liked the option but like you said, maybe the option was what kept me from being into my book. I knew I could get another book. (personal interview, January 16, 2019)

Here, Student #8 describes her experience searching for titles she enjoys during the semester. As she states, she was an enthusiastic reader of a few titles she discovered over the course of the semester. One of these was the very popular *The Hate U Give*, and a

second book she read fully and enthusiastically (to which she refers above as “the first book I had”) was *New Boy* by Julian Houston, a book set in the late 1950s that tells the story of a young, black, Virginian student who befriends a Jewish classmate at his Connecticut boarding school. It is difficult to regard as coincidence the fact that both of these books deal with themes of race and class—in fact, of racial and class-based discrimination. What is going on here? Why did these books capture and motivate Student #8, while others failed to energize her?

As Rudine Sims Bishop wrote in her oft-quoted 1990 article “Mirrors, Windows, and Sliding Glass Doors,”

Books are sometimes windows, offering views of worlds that may be real or imagined, familiar or strange. These windows are also sliding glass doors, and readers have only to walk through in imagination to become part of whatever world has been created and recreated by the author. When lighting conditions are just right, however, a window can also be a mirror. Literature transforms human experience and reflects it back to us, and in that reflection we can see our own lives and experiences as part of the larger human experience. Reading, then, becomes a means of self-affirmation, and readers often seek their mirrors in books. (1990, p. ix)

It seems probable that Student #8 saw in these two books a reflection of her own experience, a mirror that helped her “see [her] own [life] and experience reflect[ed] back to [her],” as Sims put it.

Although Student #8 states in the above-quoted section that she did not feel very motivated to read, she explained later in the interview that she actually increased her volume during the course of the study:

Researcher: Volume-wise, did you read less this year than previous years?

Student #8: Yes.

Researcher: Because?

Student #8: Well, no...

Researcher: Not volume-wise.

Student #8: No, I'm saying as far as like, did I finish books completely? I've read a lot of books.

Researcher: [chuckle] You read half of a lot of books.

Student #8: Yeah. [chuckle]

Researcher: Okay, alright, I understand what you're saying now, so volume, you read more or the same?

Student #8: More. 'Cause I was able to switch rather than just being on two books the whole semester and writing on those. (personal interview, January 16, 2019)

Here, we can see Student #8 describing the process of her developing taste. Instead of “just being on two books the whole semester and writing on those,” she had the autonomy and agency to make choices and seek out titles that moved her more fully. This “two books the whole semester” approach to reading instruction is a common facet of high school English classes, what Kelly Gallagher calls the “4 x 4 classroom”—four whole-class novels per year along with four big essays (2015). Although this structure

has an attractively balanced pattern to it, it nearly always robs students like Student #8 of the chance to find compelling, engaging reads. What we can see in her responses is evidence that she is developing an authentic reading life. Is that not ultimately one of the most important goals of the English teacher? If our current practices are not serving that goal, should we not be seeking new approaches?

In fact, this trend of developing taste—evidence of students casting about to find titles that compel them, of learning (or, sometimes, re-learning) to love reading through the discovery of stories that energize, entertain, teach, and engage—was found throughout the qualitative data. Student #4 (male, African American, free/reduced-price lunch) spoke powerfully of how his taste evolved over the course of the semester:

Researcher: Okay, great. So you talked a little bit about this, but if you could say a little more about your experience talking with me about books, in our one-on-one conferences over here and just kind of on the side of class, in the doorway. How has that been, just kind of talking books with Mr. Becker?

Student #4: Just amazing. [chuckle] When we talk about books and it just helps me find my next book that I wanna talk about. Knowing that you're an English teacher, I know you read a lot of books, you have bookshelves back here, you can lead me to the next book that I'll like. You led me to that book, so . . . (personal interview, December 10, 2018)

One of the important features of the reader's workshop is teacher- and student-delivered book-talks, short presentations during which new books are introduced to students to preview them and entice students. These book-talks clearly made a difference to students during the study and helped them develop their tastes as they began to craft an authentic

reading life. Also significant here is the list of titles that Student #4 tackled over the course of the semester. He began the year by choosing *The Lines We Cross* by Randa Abdel-Fattah, a book that, just like the selections of Student #8, deals with issues of racial discrimination. Student #4 engaged deeply with this book and worked very hard on his written work that flowed from it, often staying after class to ask for feedback and further discussion of its contents. He was clearly deeply engaged in exploring its characters and themes. The next book he read was the one he refers to in the quote above, *All the Bright Places* by Jennifer Niven, a book he told me during our one-on-one conferences was the best book he'd ever read. It deals with a pair of troubled teens, one who is struggling with the death of her sister, and one who wrestles with bipolar disorder. Although the connection did not revolve around race or class, Student #4 revealed that he connected so strongly to Niven's book because his own sister struggles with an anxiety disorder, and reading the book gave him a window into the experience and emotions surrounding her mental health condition.

Student #6 (female, African American, standard lunch) spoke of how the book-talks helped develop her tastes, as well:

Student #6: I have gotten way better, and I've gotten open to trying different books now. Instead of me sticking to specific genres, I've started to read more out of my range.

Researcher: Okay. Can I ask what caused you to stretch a little bit into other genres?

Student #6: When you read the books at the beginning?

Researcher: Okay, the book talks?

Student #6: Yeah, that was like... 'cause when I see a book, I'm like, "Oh, that doesn't look that interesting." So I'm not gonna read it. But then when you talk about the book and read something from the book, then I'm like, "Oh, that's a nice book." (personal interview, January 9, 2019)

Student #6 was able to more fully develop her tastes and expand her reading palette during the study, trying new genres and finding new types of books to enjoy. Later in the interview, she returned to this theme, saying she read “way more” than in previous years and attributed this to “jumping around now with [her] reading” and reading a few books at once (personal interview, January 9, 2019).

I keep alternating throughout each book 'cause I like... Now, I feel like I've... Every time I pick up a book, I feel like I'm learning something new from each book that I read. So, yeah, I just feel, as a reader, I just became really strong and more open about what I wanted to read.” (personal interview, January 9, 2019)

Student #1 (male, white, standard lunch) spoke of how the increased autonomy helped lead him to engaging titles, too. When asked to describe his experience with having an increased amount of choice and independence in selecting his own readings this past semester, his reply drew a direct contrast between our semester together and previous experiences:

Yeah, I was just really surprised, honestly, because we've never... I can't think of a good example in past English classes in which we've gotten that opportunity. And my experience with it was very positive, I think, because I spent... I chose something that was very interesting to me, and I would explore, whether I was

forced to or not inside of the classroom, so that was very helpful. (personal interview, January 16, 2019).

Student #1 enthusiastically read John Greene's *Turtles All the Way Down*, a murder-mystery starring a protagonist who is also working to learn to cope with an anxiety disorder. In our one-on-one conferences, Student #1 confided that, although he is not diagnosed, he identified with this main character in many ways. Otherwise stated, the book was a sort of mirror for him, and thus the story, characters, and themes continuously motivated him to read and learn more. During our research unit, he chose to interview a friend who had recently immigrated to the United States, and he used this friend's powerful story as the anchor for a research-oriented feature story on our nation's contemporary attitudes toward immigrants. Student #1 was able to engage in this work in an authentic, deeply-felt way, evoking a passionate and creative response. Without the autonomy to choose his reading and research content, would such an awakening have been possible?

Summary Discussion of Research Question 2

I set out to answer the following question in this study: How does workshop model pedagogy impact students' attitudes toward reading in different demographic groups? It seems clear that attitudes and habits improved drastically for most of the participants, but as for how this may have differed across demographic groups, further study will be necessary. Still, at least one carefully hedged inference may help to guide future work in this area.

It seems probable that *the additional autonomy provided by the practice of workshop model instruction especially helped African American students develop their*

reading tastes during the study, and that this helped to activate and motivate them as readers. Table 6 provides information on which students spoke of their developing tastes.

Table 6
Number of Students Expressing Ideas Related to Developing Taste

Category (4 possible students in each category)	CODE: Developing Taste
Gender	
Male	3
Female	2
Race	
white/Caucasian	1
African American/Black/Asian/Other	4
Lunch	
Standard Lunch	3
Free/Reduced-price Lunch	2

All four students of color interviewed for this study spoke of how book-talks and/or side-conversations with their teacher helped lead them to books they found engaging. Additionally, all four spoke of an increase in their reading volume, too. In teaching only canonical literature in a one-size-fits-all manner, it seems likely that these students, especially, find themselves set at a distance from that literature, able to work their way into a position of authenticity and/or highly motivated reading only through sheer force of will, if at all. A pattern began to make itself visible in the interview responses.

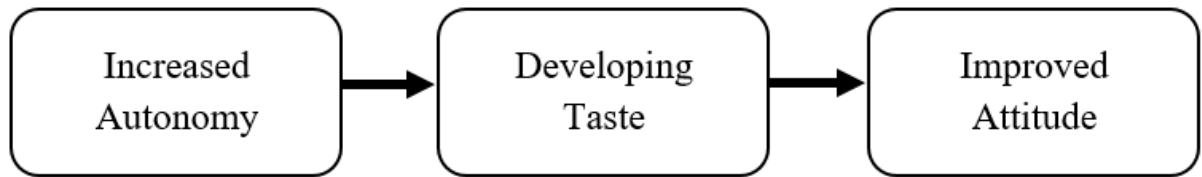


Figure 9. How does autonomy impact attitudes toward reading? The “missing link” that helps to explain how the increased autonomy of workshop model improved attitudes toward reading—especially for my students of color—was in the way it allowed students explore genres and develop their authentic tastes as readers.

Students took advantage of the increased autonomy offered by workshop model instruction to select titles that engaged and energized them as readers. For some, this meant progressively dialing in on those genres they came to find most compelling. For other readers, this meant an expansion of which types of books they were willing to read and engage with. For nearly all students interviewed—but especially for those who self-identified as African American/Black/Asian/Hispanic—whether the semester provided an expansion or a focusing of those tastes, the unconventional freedom to conduct that exploration and develop those tastes lead to improved attitudes.

Was this chain-reaction, set in motion by the structures associated with workshop model, at least partially responsible for the significant increase in the analytical reading skill of African American/Black/Asian/Hispanic students during the course of the study? The limitations of this exploratory study keep me from proclaiming an answer to this question with certitude, but the data gathered and presented here suggest the possibility that increasing the freedom to self-select reading materials, thus helping our students of color develop their reading tastes, may be an especially impactful approach to improving attitudes toward reading and reading skills.

Results Associated with Research Question 3

The qualitative data gathered through this study's semi-structured interviews also offered compelling possible answers to this study's third research question: How can the basic tenets of self-determination theory (autonomy, connectedness, and competence) help us understand the efficacy of workshop model pedagogy? In order to seek insight into this question, the three a priori codes of autonomy, connectedness, and competence were used to identify moments in the interviews during which students addressed these topics. The responses associated with these codes were then read in search of themes which might help elucidate the role that these factors may have played during the study in improving attitudes and analytical reading skill. Three major themes emerged: *Autonomy activates, connectedness promotes comfort, and competence promotes confidence.*

Autonomy activates. Before looking at the responses which suggested this theme directly, it will be instructive to look at a few of the responses which suggested its converse—namely, that a lack of autonomy de-motivates readers. In fact, there was a cluster of responses that spoke on this topic with great candor. Student #4 (male, African American, free/reduced-price lunch) was one such student, and one part of his transcript is worth including here at length, as it so openly and forcefully makes this point:

Researcher: Before this year, what percentage would you say of the assigned reading did you complete?

Student #4: Like when they assign me a book to read?

Researcher: Well yeah, like when I say, "Chapter 3 is due on Tuesday" or whatever, you know, what percentage of that reading did you actually read?

Student #4: Um, that's another thing [thumps table audibly]. If you tell me to read something at home, I'm not. Especially if it's a book that I didn't pick out, that I'm not interested in? You tell me, "Oh yeah, Chapter 3's due"--and this happened last year--"Chapter 3 is due this day." I'm not gonna read it. I'm gonna keep telling myself I need to read it, but I'm not gonna read it. What I'm gonna do is go home, work, do whatever, and go to sleep. Wake up the next morning, and I'll probably get on Sparknotes. If you don't give me time in class to read, I'm probably not gonna read, especially if it's a book you picked. Now if it was *my* book, of course I'll read it. I'll probably read it right out the--I'll read it in *another* class. But it's just--if I don't like it, I'm not gonna read it. And especially when you tell me, like--now if you'd be like, "Oh, it's a quiz." I'm still not gonna read it. Imma take educational best, like Sparknotes really helped. If we don't read it in class, and no--we don't have to read out loud. If you just give us time to read it, I'll be okay.

Researcher: So . . . zero percent of the time?

Student #4: Not zero, I'll say, seventy-five percent of the time.

Researcher: So you read seventy-five? Or you read twenty-five?

Student #4: I read twenty-five. Like sometimes we'd read the books in class, and then they would be like, oh, just read chapter 3, I'm the type to start the book, start the chapter, but if I'm not into it, I'll probably like blow it off.

Researcher: Or, like you said, go use those other resources.

Student #4: Right.

Researcher: So like, what do you get out of going to Sparknotes or Shmoop, or whatever?

Student #4: Well, with Sparknotes it basically, it's a summary of the chapter. You just get the theme of the passage. You just, you get a little knowledge from it, of what it's supposed to be about.

Researcher: And did you find that when you used that as a resource that that allowed you to succeed in class?

Student #4: I feel that it allowed me to, um, you know, to *get over* in class, but personally I felt like, you know, it was wrong and that I wasn't learning anything from it, but just to get me by, I did it. (personal interview, October 24, 2019)

Student #4's table-thumping reply hints at the feeling of powerlessness an instructional approach engenders when it removes a student's agency. The teacher-moves that are often used to encourage compliance—reading-check quizzes and forcing the pace—seem to only increase this oppositional response in him. His solution was to seek out shortcuts and workarounds. One of these shortcuts was Sparknotes, an online resource that provides summaries and analysis of oft-taught literature. Workarounds and shortcuts were actually a common response to this lack of autonomy. Student #2 (male, Asian, standard lunch) actually claimed to have read only 10% of the assigned readings in previous English classes.

Researcher: Okay. Before this year, what percentage of the assigned reading did you complete?

Student #2: Last year we had a book. I didn't read it at all. So, maybe like . . . I'd pull up, I'd listen to audio things and read it, so maybe like 10%.

Researcher: Okay. Can I ask how you got by in English class with only reading 10% of the assigned text?

Student #2: I'd guess. Guess a lot. There would be--there were these articles? So we'd read the articles from that chapter, then answer the questions. So I'd read those articles, and then kind of guess. Like, I'd make something up. I don't know how to descr--like, you use that knowledge and make your own thing.

Researcher: Okay, sounds like that worked a fair amount of the time?

Student #2: It worked. It did work. (personal interview, October 24, 2019)

Student #2 was “getting over” just as Student #4 described above, but he clearly was not engaged in the work. Incidentally, recall that Student #2 spoke of reading “four or five” books during the course of this study and enjoying every single one. The difference in his experiences, and the primary reason for that difference, could not be more clear.

An extremely popular workaround for students who are not sufficiently motivated to read assigned texts is Sparknotes, and while several students spoke of using this resource in the past as a way to “get over” and dodge the work of actually reading the assigned text, *all eight* interviewees said that they never once consulted Sparknotes during the study.

Overall, fully half of the students interviewed spoke of this oppositional response to a perceived lack of autonomy. Student #7 (female, white, free/reduced-price lunch) put it this way:

The years before last, all the options, whatever you wanted to read, but last year we had certain books we had to read--*The Crucible*, *The Great Gatsby*, we had all of those books we had to read. They're less interesting I guess just because they're forced. You have to read them. You have to write about them, and I guess that's what kind of takes out the wanting to read it, cause you're forced to do it, you have to do it. So, I think having to choose a book or having a book chosen for you kind of manipulates how you want to read it or if you enjoy reading it.

(personal interview, January 23, 2019)

The fact that she uses words like “forced” and “manipulates” to describe her experience with these teacher-selected texts speaks volumes about her frame of mind regarding these assignments. I asked Student #2 (male, Asian, standard lunch) about this oppositional response directly. Over the course of the study, he had increased his reading volume drastically, confiding that he “definitely read more last semester than [he had] the entire high school” (personal interview, January 16, 2019). Here is how he described the feeling he gets from reading teacher-selected texts:

Student #2: I feel like if it's picked, just automatically, I like it less if it wasn't my choice, yeah.

Researcher: Just automatically? If I had said, "Everyone must now read *Me, Earl, and the Dying Girl* [a book he read and enjoyed during the study]?"

Student #2: Yeah, it would have been less interesting to me. Psychologically you wanna be in control. Your not getting to pick takes away your freedom, independence, a lot.

Researcher: Okay. And then automatically, you're feeling a little more negative about the experience?

Student #2: Mm-hmm. (personal interview, October 24, 2018)

Student #7 (female, white, free/reduced-price lunch) hit this theme directly, as well:

Pretty much freshman through junior year, I didn't really read that much, because the only books I got were assigned. They weren't something I wanted to read.

Like *The Crucible*, definitely did not wanna read that. *The Great Gatsby*, great movie, great book, didn't wanna read it. It was a good book, but I didn't wanna read it. I liked listening to it in class, when Miss [Teacher] would go over it last year, but it's just like when you're forced to do something, you don't wanna do it.

(personal interview, October 24, 2018)

It seems clear that compelling students to read teacher-selected texts is travelling upstream, and when teachers do so, they are working against the current of a student's natural yearning for independence.

On the other hand, when we encourage students to choose high-quality texts through book-talks and one-on-one conferences, allowing students the final say in which books they select, the increased autonomy motivates and activates readers. This theme was visible in the responses presented above relating to the second research question; thus, a few more short examples should suffice to characterize the responses associated with this theme.

All eight participants in the semi-structured interviews spoke to this theme, often repeatedly. Student #8 (female, African American, free/reduced-price lunch) put it this way:

Student #8: I think this is one of my only classes where we don't have an assigned book that we're all reading together and then all writing a paper on.

Researcher: Okay. So it's been mostly that approach in the past? And so does having those kinds of choices matter to you as a learner about in what you read?

Student #8: I think it's better. I think I'm more interested in the book if it's something I like instead of something that's just the curriculum.

Researcher: And how does that change your approach as a reader, as a learner?

Student #8: It makes you wanna read it. It makes you wanna actually do it.

(personal interview, October 18, 2018)

Student # 5 (female, white, standard lunch) spoke of how the freedom to choose titles and topics can energize learners and even evoke a “passion” for the work:

Yeah because like, English is all about passion, like what you really wanna do, so like some people don't really have a passion for English or writing. If they have a topic that they like, I feel like it's easier for someone to just like move through the dynamics of English through something they like. (personal interview, January 9, 2019)

Tapping into this passion through offering additional autonomy to students can pay big dividends. Doing so activates learners and encourages authentic investment in their explorations of language and theme, motivating them toward new levels of achievement.

Connectedness promotes comfort. During the study, many students forged small communities of learners with their table-groups with whom they were often asked to turn and talk about their reading, share responses, find common ground in their books, and provide and discuss feedback on writing assignments. This sense of connectedness,

growing up in small pockets throughout the class, seemed to be a comfort and help to students. Describing this experience, Student #4 (male, African American, free/reduced-price lunch) explained that “From [his] table, [he has] a lot of help” (personal interview, December 10, 2019). Student #8 (female, African American, free/reduced-price lunch) echoed this sentiment: “In the small group, I think I definitely spoke up a lot, at least at my table. I talked a lot. I didn't feel like I couldn't talk with them” (personal interview, January 16, 2019). Student #7 (female, white, free/reduced-price lunch) also felt comfortable at her table: “If my classmates, the ones at my table, ask me anything, I would give them my honest answer” (personal interview, January 23, 2019).

Student #5 (female, white, standard lunch) went beyond these small-scale communities to speak on her feeling of connectedness to the class at large, though, saying, “Oh, I feel like we had to participate more in class, I guess, instead of the regular toss a ball and see what you think. You let everyone speak out, which is better than the whole raising hands thing and waiting your turn and stuff like that. It's just really formal in my taste” (personal interview, January 9, 2019). This “toss the ball” and talk activity is one used by her former teachers to help motivate and include students in class discussion, but Student #5 seemed to prefer a more organic exchange, saying that “it's easier to talk, I guess” (personal interview, January 16, 2019). She felt comfortable and connected enough to our classroom community to express authentic ideas. It made it “easier” for her to do so—a desirable outcome for all students if we're serious about activating learners.

Another way in which the feeling of connectedness can help make learners more comfortable, and thus better-primed for learning, is through their connection with their

teacher. Student #1 (male, white, standard lunch) spoke of an experience in his past in which he felt connected to his teacher:

Yeah, so I remember I used to talk to my freshman year teacher about just books that I was interested in, and I even seeked out books that she would had recommended to read over the summer 'cause I was just--That's one of the things I enjoy doing over the summer is just finding a few good books to read and just kind of throwing myself into that because I get kind of bored when I'm left to not do anything. But yeah, and I think those conversations are really important beyond just the classroom setting because a lot of people still, I think most of my peers still just look at English like a chore and a test that public schools are forced to teach kids. (personal interview, October 23, 2018)

The informal book-talks his former teacher extended to him impelled his interest in books beyond the mandatory, beyond the framework of compliance and thinking of his English studies “like a chore and a test that public schools are forced to teach kids.” This teacher encouraged his authentic reading life, and he took advantage of the recommendations to continue his reading habit through the summer months. As aforementioned, the book-talks I gave during the course of this study accomplished the same purpose, opening doors of authentic communication between teacher and student, clearing the way for the development of an authentic, self-motivated reading life.

Another key way of connecting with students through the workshop model is through the feedback that teachers offer students, and during this study, there were many opportunities for students to receive feedback from me on written pieces of many

different lengths and levels of formality. Student #5 (female, white, standard lunch) spoke of feeling connected to me through this feedback cycle:

[Grammar is my] main struggle. And I feel like you definitely tried to tackle that in the most individual way possible, with each student. 'Cause I would see mine and I would be like, “Wow you went really in-depth.” And I'd look at other people's, and I was like, “Wow he did the same amount of work.” And I would find that extremely tedious as an English teacher, but also, that's super heartfelt. And it tells that you completely care about people actually trying to use different formatting and actually trying to improve their grammar. (personal interview, January 9, 2019)

Here, we can see that the quality, quantity, and timeliness of this feedback actually carries an emotional message to students, and while large class sizes and the sheer volume of writing that students produce can become a barrier to providing such feedback, when the loop is running well, it can help to build comfort between teacher and student. The research of Fisher, Frey, and Hattie (2016) confirms the efficacy of these student-teacher relationship, reporting an effect size of 0.72 according to their meta-study. It then stands to reason, that when these relationships are strained and communication between students and teachers suffers, learning suffers, as well.

Student # 4 (Male, African American, free/reduced-price lunch) spoke of his previous experiences in English classes in a negative way, describing how his perception of inadequate teacher-feedback on his writing, describing the comments he got as being directed at “surface-level stuff” (personal interview, December 10, 2018).

Even teachers, um, they're grading off grammar and, but, my question is, they never come to us one-on-one and be like, okay [Student #4], you did good at this point, this point, this point, but you lack at this and this and that. I never had a teacher like that. They just graded it. (personal interview, October 24, 2018)

Student #4 longs for “one-on-one” conversations about writing that go deeper than the kind of surface-level corrections that he’s received in the past. In fact, workshop model helps to make room for these kind of in-depth sessions through the use of writing conferences, and indeed, this was a critical element of the implementation of workshop model during the study. In his second interview, Student #4 reflected on the feedback he received during the study:

Well, I'll say out of all my English classes, you're the only teacher that when I write an essay, give that much feedback. Yeah, you do it. I go on the essay and I see, “You made this mistake, you made this mistake. You need to look back at this.” And I like that. It helps me become a better writer. (personal interview, December 10, 2018)

Through the feedback he received and the follow-up conferences with me, Student #4 grew to feel more comfortable, coming to engage wholeheartedly in the process. As a result, his writing grew by leaps and bounds. In his words, “Since we did a lot of essays, I feel pretty good about my writing. I still ask a little bit of questions but I'm more on a positive side, when I write, I feel very confident hitting that submit button” (personal interview, December 10, 2018).

When students feel connected, they are more likely to feel comfortable using their authentic voice when communicating in class. Student #3 (male, white, free/reduced-

price lunch) described this causal relationship well: “If I needed to, like if I wanted to talk about something else in the class, I could talk to someone. It wasn't like I was isolated by myself, I just don't know if there is a—everyone was like—everyone was in the same thing” (personal interview, January 23, 2019). Even though students were reading separate texts, Student #3 felt that “everyone was in the same thing,” working together toward our common learning goals. Figure 10 visualizes this process:

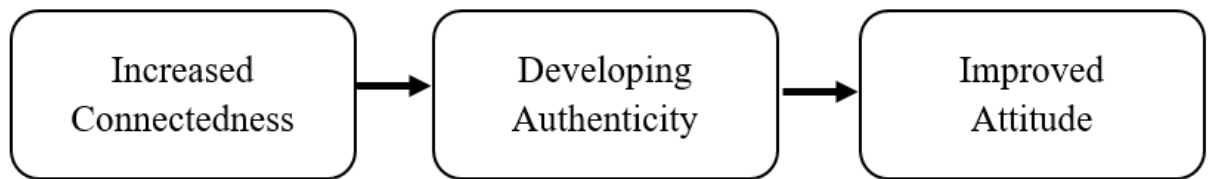


Figure 10. How does connectedness impact attitudes toward reading? The “missing link” that helps to explain how the increased connectedness of workshop model improved attitudes toward reading was in the way it helped students feel more comfortable developing and expressing their authentic voices when responding to their reading.

A common sticking point for teachers thinking of trying workshop model and increasing student-choice in their classrooms is that it will damage this sense of community and connectedness; however, evidence from this study suggests that it is possible to accomplish both goals at the same time.

Competence promotes confidence. The third and final basic condition for the feeling of self-determination is one of competence, the feeling that the work one is doing is hard enough to offer a challenge while not being hard enough to make one feel hopeless. This Vygotskian “Goldilocks Zone,” the zone of proximal development (ZPD) (Vygotsky, 1978), helps learners build confidence to keep pushing and reaching higher levels of achievement. Many students spoke of how the instruction provided throughout this study helped them develop this sense of competence.

Student #6 (female, African American, standard lunch) spoke of how the individualization inherent in workshop model instruction helped her reach this feeling of competence more often:

I feel like also when we like read group books, we don't move at a pace, like that people wanna move at. I'm a fast reader but sometimes I do wanna like slow down and I don't wanna like always be like I've gotta read this and this chapter this day. You know, I just wanna be able to enjoy the book in the period of time I want. (personal interview, January 9, 2019)

To speak truly, she is somewhat exaggerating the amount of choice she had to set her own reading pace. Students *were* asked to complete their books in a certain period of time; however, within that overall time-frame, they were free to set and monitor their own reading goals. The kind of reading Student #6 describes, though—this “slow[ing] down” when she wants to—allowed her to “enjoy the book.” Since she had more freedom to adapt her pace, she felt confident enough to actually enjoy her schoolwork. Recall that, above, she spoke of her previous school in complete opposite terms: “Even though we moved like slower than like my old school, it's like helpful to understand what's going on” (personal interview, October 25, 2018). It seems an obvious thing to state that not all learners move at the same pace, and yet much of our instruction in English classes implies that the opposite is true. Workshop model allows for additional flexibility and differentiation, letting more students enter the ZPD more often.

Student #5 (female, white, standard lunch) spoke on this theme, describing how her past English classes, which she described as having less autonomy in terms of the

writing she was asked to do about her reading, put her creativity and her desire to comply with teacher expectations at odds:

Student #5: Yeah, that was really freeing... What was the original question, what was I trying to answer?

Researcher: Oh, just how much choice or independence have you felt like you had as a writer?

Student #5: A ton. And that's been really liberating to have, because we haven't really had that in the past. We didn't get to choose a book, but we got to choose the topic we wanted to tackle inside of the book, which is still pretty limited.

Yeah, it only allows certain topics to be addressed. And if you wanted to actually find some choice in there, it would be super hard to stretch it, super hard to find quotes and it would just be a mess. Which I've tried to do in other classes, I've tried to look at under meanings, but it was just too difficult to do.

Researcher: So having those choices as a learner, do you think that makes you a better writer? Do you think that allows you to grow as a writer in some way or is it just more comfortable?

Student #5: That's an interesting question, because you could argue that it's more comfortable, but if it's a topic that you love, you would find it comfortable to learn more about it. So you would... I guess it's comfortable in saying you wanna take the easy way out, but if you wanted to actually learn more in depth about a certain topic, it's perfect because you enjoy learning. (personal interview, January 9, 2019)

She contrasts these past experiences, which “only allowed certain topics to be addressed,” to her experience during this study, which she describes as “really liberating.” Again, for the record, students did not have complete *carte blanche* when it came to how they would be writing to make sense of their readings; however, I took care to craft prompts which would allow, within their boundaries, a wide amount of choice. In her previous classes, she describes how she felt that, when she tried to pursue an original idea within the confines of the more restrictive prompts, she would be hard-pressed to “stretch it” to fit those expectations. During the study, though, she describes her experience in terms of comfort and confidence, a “willing[ness] to stretch further” (personal interview, January 9, 2019).

Student #4 (male, African American, free/reduced-price lunch) explained that he felt most of the work we did during the study held him in his ZPD:

Researcher: So, in general, the assignments that we've had this semester, how many of 'em or how often do you feel like they were just difficult enough, like not difficult enough to totally stump you, but difficult enough to stretch you?

Student #4: I feel like everything we did was just that. I feel like you don't too much, just, "Here you guys go, and do your best." That's what I felt. I feel like you never gave us something that was too hard that we couldn't do.

Researcher: Okay. So it felt doable, but you knew it would...

Student #4: It would be a challenge. (personal interview, December 10, 2018)

Here, another chain reaction begins to emerge. When students are allowed and encouraged to work within their own, individualized zones of competence, motivation

improves, and students are more likely to take ownership of that work. Figure 11

visualizes this chain reaction:



Figure 11. How does competence impact attitudes toward reading? The “missing link” that helps to explain how the increased sense of competence provided by workshop model improved attitudes toward reading was in the way it invited students to take pride and ownership over the meaning they constructed.

Student #8 (female, African American, free/reduced-price lunch) evinced this process at work as she spoke of her experience writing about her readings during the study:

Student #8: I feel like I had a lot of choice. We didn't have like a... We never had a prompt. It was kinda always open to us to say how we felt, like how we... What's the word I'm thinking of? Interpreted the book, what we got from it.

Researcher: Remember the second time we were writing, I just wanna refresh your memory, it wasn't about literature at all. It was the research-based piece and the storytelling piece.

Student #8: Yeah, and we still got to pick how the research connected to what we were thinking, we still had that, didn't really give us how does this connect to so and so. We made those connections ourselves.

Researcher: Yeah, searched for them and make it for yourself. So does that, does having those kind of choices matter to you as a learner?

Student #8: Yes. I feel like... I don't know, I got to actually think about it myself. I got to think about how it connected, like I was saying, I got to make the

connection, even if I didn't know like, in the beginning of the research project I was like, "How am I gonna connect cochlear implants to this stuff?" [chuckle] I don't know. It took me a minute, but I like that I was able to figure it out and make the connection. Even if you thought it connected in a different way, that wasn't a wrong answer. (personal interview, January 16, 2019)

Again, students certainly had writing prompts. It is possible that what she is used to thinking of as a writing prompt, though, was much more prescriptive than the ones to which she responded during the study. Regardless, Student #8 describes how she and her classmates “had to make those connections,” synthesizing meaning from the things they read, “by [them]selves.” She describes this process in terms of productive struggle, that it “took a minute” but that she “was able to figure it out and make the connection.” Her sense of competence led her to take ownership over the work we were doing and carve her own path through the writing.

Student #4 (male, African American, free/reduced-price lunch) also experienced this developing ownership over our work during the study:

Researcher: You've talked a lot about all the things that you've enjoyed about the class and our approach, do you think you've actually improved your skills as a reader and writer this year?

Student #4: Most definitely, especially writer. Back then, I just used to follow the teacher's formats and stuff like that. But now, it's me writing, it's me quoting. It's pretty cool. I feel like I'm ready for college. (personal interview, December 10, 2018)

His improved attitude, increased ownership, and confidence toward literacy tasks is obvious. This is a student who is ready to attack the next steps in his education.

Student #6 (female, African American, standard lunch) followed a similar path:

Student #6: I had a lot of independence. You gave us a topic . . . Well, you gave us a specific thing to write on, but we got to pick what we wrote about. So we knew where we was going but, say, like the interviews, you didn't say, "You have to interview your teachers." So we got to interview someone that we wanted to interview and not someone we had to. So, yeah, I feel, yeah, we were pretty independent on that.

Researcher: Did that matter to you at all as a learner, or would you like more structure? Was it good? What do you think?

Student #6: I think it was perfect. Doing something that I want to do would make me do it better and, say, like if I had to interview a teacher, it's like for me, I am new to the school, so I don't know a lot of teachers. So I wouldn't... I don't know a lot about the teachers, and I've only known them from just in a class experience more than if I just see you in the hallway. Like with people who have been here longer, they like, "Oh, I know them 'cause we talk in the hallway," or something like that. But I just feel like I had more open, I was more open to what I want to say about it. (personal interview, January 9, 2019)

Student #6 describes this feeling of increased competence, confidence, and ownership as feeling "more open to what [she] want[ed] to say about it." Since she was able to choose a topic in which she felt some measure of competence, she was able to push herself further as a writer. Since she was "Doing something that [she] want[ed] to do," she felt

like it “would make [her] do it better.” Her motivation sprang more from within than from me. This activated state, this openness, authenticity, comfort, confidence, and ownership is what all teachers should want for their students, as this creates a mind-state ripe for learning.

Summary Discussion of Research Question 3

The overall picture that emerges from the qualitative data collected under the third research question of this study [How can the basic tenets of self-determination theory (autonomy, connectedness, and competence) help us understand the efficacy of workshop model pedagogy?] seems to validate the idea that workshop model increases students’ senses of autonomy, connectedness, and competence experienced by students, that these increases help them to develop the capacities of taste, authenticity, and ownership, and that these developments help to lead to an overall improvement in attitudes toward reading and other literacy tasks (writing, speaking, listening) recursively tied to it. Figure 12 provides a concept model to help visualize the process observed in this study.

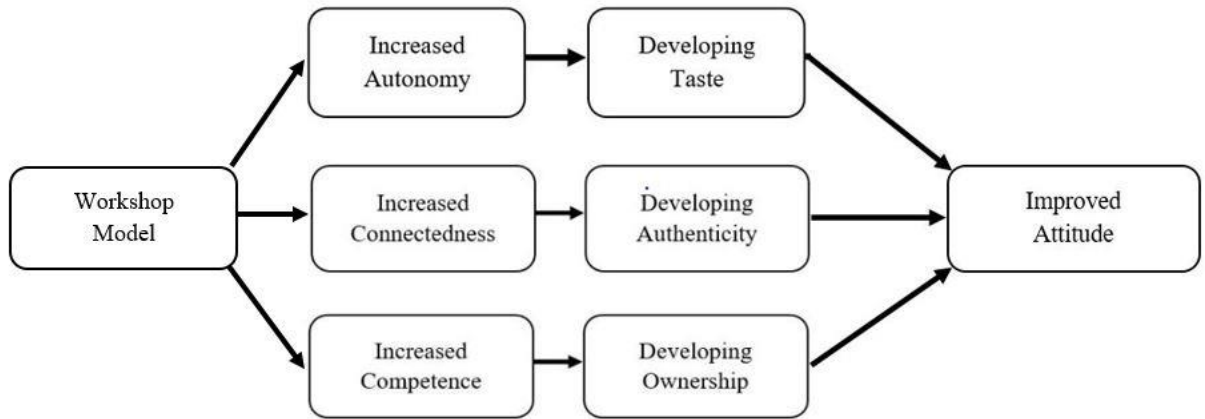


Figure 12. How can the basic tenets of self-determination theory help us understand the efficacy of workshop model pedagogy? Workshop model pedagogy helps to create the conditions necessary for learners to develop a sense of self-determination, thereby developing taste, authenticity, and ownership in the learners reading and writing under those conditions. These outcomes each help to contribute toward improved attitudes toward reading.

Interviewees were each asked the following question near the end of their second interview, and their answers help to clarify the nature of these improved attitudes.

Student #1 (male, white, standard lunch) responded as follows:

Researcher: If somebody were to ask you, just from outside, if whether this semester's English class was more similar or more different from those you've had in the past, how would you rank, like how it compares with others you've had in the past? What would you say?

Student #1: Yeah. Well, I think the main difference between this semester and previous semesters is just the amount of structure that we have in class, and because there's that like... What's that, oh, workshop. That's what you... That's how you dubbed it. That's... Just the introduction to workshop has been very good for improving my English skills. I think it's just a better structure, in general, for

learning. And so I would say that this, because of the lack of structure in this class, and just nature of workshop in general, that's been better than previous semesters. (personal interview, January 16, 2019)

Student #1 speaks keenly on the balance between autonomy and structure, between encouraging creativity and establishing the field in which that creativity can develop. It is telling that, in the course of his response, he calls it both “a better structure” and also notes “the lack of structure.” The reader’s workshop is certainly not a complete lack of structure, but neither is it a constrictive, teacher-centered pedagogy. Student #1, who reports an increase in reading volume and out-of-class reading, clearly prefers learning under this more balanced model when compared to previous years.

Student #4 (male, African American, free/reduced-price lunch) focused mainly on his feeling of connectedness with me when answering this question:

Similar, I'd say teachers, of course you guys picked assignments and stuff like that, that we have to do. That's always been the case with any class you go to. You guys offer y'all help. Differently, I'd say they didn't give that feedback. They'll help, but each individual of the class, they never gave that feedback. They'll just be like “You guys need to . . .” or, “You guys need to do that.” It wasn't ever one-on-one. And I think that's where you overdid all the English classes because you gave us one-on-one feedback. (personal interview, December 10, 2018)

At several points in the interview, Student #4 longed for even less constraint than I provided, but the individualized conferences and conversations about books had an extremely positive impact on his motivation and attitude toward our work.

Student #6 (female, African American, standard lunch) also thrived under the workshop model, and in her answer to this question, she focused on her increased feelings of comfort and confidence, and of being able to find and use her authentic voice:

Student #6: I will say, "Be ready for some difficult things, be ready to work, but then also be ready for improvement and more confidence, and it's way better than other English classes," I will say. 'Cause I feel like... I don't know, I do feel like I have a voice in this class. I feel just... I feel that it's comfortable.

Researcher: And that's a little different than what you've experienced in the past?

Student #6: Yeah. [chuckle]

Researcher: Wow. I wish the recording could see that expression you just made.

[laughter] (personal interview, January 9, 2019)

The expression was one of wide-eyed certitude. "Yes," she seemed to be saying, "*Definitely* different."

Student #3 (male, white, free/reduced-price lunch) focused on the issue of competence in his response: "It was easier, but also more... Helped me learn more. And it definitely... And it got me back into reading" (personal interview, January 23, 2019). If students are learning more, more easily, isn't that a highly desirable outcome for the work we do?

Chapter 5: Concluding Discussion

Since Maslow (1943) and before, educators have known that students must have certain basic needs met in order to get primed for learning and activate the higher levels of self-actualization and creativity. The diversity of instructional approaches flows from how teachers answer the question of which of these needs to prioritize and how to create

conditions in the classroom that satisfy these fundamental needs. Self-determination theory, in identifying autonomy, connectedness, and competence as critical to developing “the natural propensities for growth and integration,” (Ryan & Deci, 2000, p. 68) coheres well to Maslow’s early work. In fact, above physiological and safety needs, the top three levels of his famous hierarchy appear to line up with Ryan and Deci’s (2000) fundamental tenets of self-determination point for point (see Figure 13).

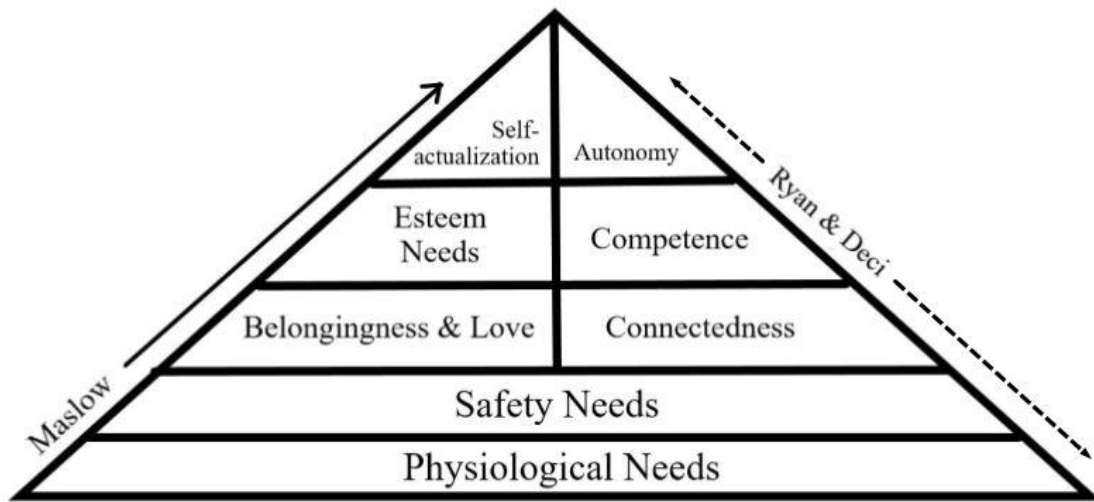


Figure 13. Coherence between Maslow’s hierarchy of needs and self-determination theory. Above Maslow’s basics of physiological and safety needs, these two theories align well, although self-determination theory allows for the “higher” needs to positively impact those “beneath” them.

Focusing on the higher levels of these needs is not in any way to discount the importance of Maslow’s fundamentals—physiological and safety needs. Indeed, we certainly need to help make sure our learners are physically comfortable and safe; however, this study focuses on those upper-level needs because those are the ones that generative pedagogies like the workshop model impact most directly. When teachers decide on which activities will lead their students toward mastery of the skills and content they are responsible for helping them acquire, these top three levels are the primary field in which they are acting.

Pedagogical approaches which increase and improve these qualities—which satisfy these needs—should be sought out and explored in search of methods which create the conditions for satisfying, authentic learning.

Still, in perhaps the same way that reader’s workshop is a less rigidly structured method than many teacher-centered approaches, the idea of a hierarchy is perhaps inadequate to describe how these qualities can interact within a learning environment. These needs often interact in complex ways. For example, it is certainly true that a student’s feelings of belonging help create the conditions for a boost in self-esteem, but it is equally true that a student with low self-esteem will have difficulty imagining him- or herself being loved or accepted within a given learning community. Like many rigidly defined constructs, the hierarchy breaks down upon closer inspection.

In a real, live classroom, these needs recursively intermingle, and what Maslow’s rigid hierarchy fails to recognize is how satisfying a learner’s need for autonomy can actually have a positive impact that runs “downhill” and gives a learner’s other needs a boost. Feeling more free, or “liberated” as one of the participants phrased it, to make choices and create within the learning community helps students to feel more connected to each other. As social walls come down and students share authentic ideas with their teacher and peers, and as students feel more free to speak and/or write with that authentic voice, they gain confidence and feel more competent—more able to risk new ideas and approaches. This is how the “natural propensities for growth and integration” (Ryan & Deci, 2000, p. 86) can be activated—not just by satisfying the underlying foundation, but by erecting a safe, inviting scaffold upon which learners can build and progress.

The data resulting from this study suggest that workshop model instruction can be one such scaffold in the high school English classroom, that the activities and practices most central to this approach—cutting teacher-talk by keeping direct instruction short (mini-lessons), progressive transfer of responsibility to students, increased student choice in both what they read and how they respond, ongoing teacher research through one-on-one conferences, and differentiated instruction through those conferences as well as small-group strategy lessons—can activate *all* learners and lead them toward significant growth, at least in the area of their analytical reading skills.

Deci, et al. (1999) performed a meta-study of 128 experiments investigating the impact of internal vs. external sources of motivation. These studies were performed in many different contexts—athletics, schools, work environments, etc. The meta-study found compelling evidence that in all these contexts, people reported a more positive outlook and performed better when they experienced autonomy, connectedness, and competence. These conditions have also been shown to be intertwined (Ryan & Deci, 2000) such that, for example, people do not experience improved attitudes toward the subject of their learning *only* because of their perception of competence. For that shift toward ownership and intrinsic motivation to occur, they must *also* perceive their own behavior as self-determined. The intermixing of these three factors, present in varying degrees, happens every day in classrooms. This study suggests that workshop model instruction is an approach that may improve all three factors, and further, that these improvements are associated with positive learning outcomes.

Additionally, the evidence collected during this study suggests tentative evidence that workshop-oriented approaches may have an equity-building effect on the racial

achievement gap in reading. The Stanford study of achievement gaps (2015) found that, although racial achievement gaps have been narrowing over time, in some states, those gaps are still wide enough that they cannot be accounted for by socioeconomic differences alone. This suggests that, especially in such states (like the one where this study took place), teachers are in an especially powerful position to have an impact on that gap by working to help students of color find new, more culturally relevant ways to access the curriculum. By helping students of color develop and expand their tastes as readers, by increasing their comfort-levels (even in this predominantly white setting), and by boosting their confidence as learners, workshop model pedagogy meets all learners where they are and opens the path forward on an individual basis. All learners, including those found on the underperforming side of the reading achievement gap, get more point-of-need instruction and high-interest reading material than they might under other approaches, and this in turn boosts their motivation and effort. These more fully activated learners then attack new challenges with greater energy, creating a positive feedback loop with the power to bring them along quickly.

Limitations of the Research and Recommendations for Future Study

The setting of this research—a predominantly white, suburban, relatively affluent high school—is one potential limitation in generalizing results from this study. It is possible that there were special, unseen mechanisms at work that influenced the attitudes of the students involved in this study. The issues of race, class, and gender were never directly addressed in the interviews, and future research may find fertile ground digging into just how these factors influence performance and attitudes in a workshop classroom. The fact that the participants in this study were not accurately representative of broader,

national trends is further evidenced by the lack of a gender- or socioeconomic-gap in students' ARLI scores. It is possible that these gaps might become more visible in other settings, and if so, they might have been impacted by workshop model instruction to a different degree.

Another limitation worth considering is the fact that I am a relative novice in implementing the reader's workshop, and as such, there are many elements of this approach about which I am still learning and which I am still (always) in the process of refining. For example, although the practices implemented during this study seemed to engender small-scale connectedness in table-sized groupings (3-5 students), several students spoke of feeling disconnected to the class at large. For example, Student #8 (female, African American, free/reduced-price lunch) said of her first hour class, "As far as the whole class, I probably could have been more interactive. . . . We had a quiet class. I feel like everybody was just . . ." She never finished that sentence, but when I asked Student #1 (male, white, standard lunch) about how connected he felt to the class as a whole, he helped to explain this feeling further: "I don't think that we really, as a class, had a moment in which we felt that we could necessarily co-exist, and I wish that that was... Just the sense of community was a little bit stronger, but yeah, it's hard to find." There are, undoubtedly, other blind-spots remaining in my implementation of workshop model instruction, and these weaknesses may have colored the outcomes presented in this study. Would similar or even more striking results be produced by a seasoned practitioner of this method? Could improved feelings of connectedness amongst the class as a whole have contributed even more powerfully toward improving attitudes and learning during the study? What impact would that kind of large-scale connectedness

have had on different demographic groups? Unfortunately, this study must leave those questions unanswered.

Another notable limitation of this study exists in its use of the ARLI, an assessment which, for the purposes of this study, only produced data related to analytical reading of fictional texts. How might reader's workshop impact students' ability to read nonfiction or digital texts? How might it impact their ability to, say, empathize with characters instead of making inferences and analyzing theme and structure? Future study might look into these areas to more fully understand the impact of workshop model in the secondary English classroom.

Lastly, future studies might be designed to measure the efficacy of workshop model instruction *in comparison with* other, more teacher-driven approaches. Based on the evidence gathered here, it seems clear that reader's workshop is an effective method of organizing reading instruction, but is it truly *more* effective than *other* approaches? Quasi-experimental studies that feature workshop pedagogy as the independent variable seem rare, and although schools are indeed extremely complex systems, and it is often difficult to tease out the impact of individual variables, future explorations regarding workshop model in secondary English classrooms may prove valuable to teachers, instructional coaches, principals, and other school leaders seeking to find the most powerful ways to build equity and promote student literacy growth.

Implications for Schools

Despite these limitations, the exploratory results of this study provide tentative evidence for the ability of workshop pedagogy to work toward racial equity and build collective analytical reading skills in high school classrooms. Within the practices

associated with this approach, students developed their individualized reading tastes, their authentic written and spoken voices, and their sense of ownership over their own progress and effort. By boosting student autonomy, connectedness, and competence, students' attitudes toward reading were revitalized and rekindled. Their motivation toward reading was re-internalized and reignited, and the result was the development of a community of readers involved in passion-driven literacy work. More study is necessary before schools invest major resources in promoting these practices; however, these results may be enough to inspire other individual educators to begin moving toward building a more autonomous *and* more connected classroom, one where students are involved in reading "just-right" books and working at individually appropriate levels of difficulty. There may be other ways to build such a learning community, but based on the results of this study, it seems there is reason for optimism that a pathway may already exist that, when followed, leads students and teachers toward improved equity and growth.

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Appendix A

ARLI1

"The Chaser," John Collier

Short Answer Questions: Answer each question on loose leaf paper. Use complete sentences. Make sure you explain your answer as completely as possible.

Level 1 – Basic State Information

- 1) What kind of a shop is Alan visiting?
- 2) What kind of potion does Alan want?
- 3) Where is the shop located?

Level 2—Key Detail

- 4) What is the price of the potion the old man calls the "glove cleaner"?
- 5) What is the price of the love potion?
- 6) What does Alan do at the end of the story?

Level 3—Stated Relationships

- 7) What are the effects of the potion that the old man calls the "glove cleaner"?
- 8) What are the specific effects of the love potion?
- 9) According to the old man, why must one be older than Alan to purchase the "glove cleaner"?

Level 4—Simple Implied Relationships

- 10) Why does Alan believe he needs a potion?
- 11) How did Alan know about the existence of the shop?

(more on back)

Short Essay Questions: For each level, choose one question and answer it *thoroughly using quotes* from the story to support your answer.

Level 5—Complex Implied Relationship (choose one to answer)

12a) How does the author suggest that the specific effects of the love potion work to the old man's advantage?

or

12b) How do Alan's concerns about the effects of the potion change as more information is revealed?

Level 6—Author's Generalization (choose one to answer)

13a) What generalization does this story suggest about the attitude that young men have toward love?

or

13b) What generalization does this story suggest about the motives of business owners?

Level 7—Structural Generalization (choose one to answer)

14a) How does the timing of the revelations of the respective costs of the potions affect the reader's judgment of the old man's character?

or

14b) Explain how the author uses tone in the story to develop and/or emphasize one of its themes (see level 6 questions).

Appendix B

ARLI2

**“August 2026: There Will Come Soft Rains,” by Ray Bradbury
(published in 1950)**

Short Answer Questions: Answer each question on loose leaf paper. Use complete sentences. Make sure you explain your answer as completely as possible.

Level 1 – Basic Stated Information

- 1) On what date does the story begin?
- 2) Where is the house located?
- 3) On what date does the story end?

Level 2—Key Details

- 4) What do the little robotic mice do?
- 5) What color was the entire west face of the house (except for five places)?
- 6) What were the house’s final words?

Level 3—Stated Relationships

- 7) As the story opens, how is the house different from those which surround it?
- 8) What caused the fire in the house?
- 9) What did the city look like at night?

Level 4—Simple Inferences

- 10) What happened to create the five silhouettes on the side of the house?
- 11) After it died, what ultimately happened to the body of the dog?

(more on back)

Short Essay Questions: For each level, choose one question and answer it *thoroughly* (think: a body paragraph) using quotes from the story to support your answer.

Level 5—Complex Inference (choose one to answer)

12a) Explain how the poem by Sarah Teasdale relates to the rest of the story.

or

12b) How does the character (attitude, tone) of the house change over the course of the story?

Level 6—Theme (choose one to answer)

13a) What generalization does this story suggest about how we use technology?

or

13b) What generalization does this story suggest about the forces of nature?

Level 7—Structural Generalization (choose one to answer)

14a) Explain how Bradbury uses the repetition of clock's voice to develop and/or emphasize a theme in the story?

or

14b) Explain how Bradbury uses personification to develop and/or emphasize a theme in the story.

Appendix C

Semi-structured Interview #1

“First, thanks for talking with me today. I’ll learn a lot from the numbers I look at this semester, but I hope to learn even more my conversations with students. Here’s a couple of things to keep in mind as we talk:

- 1) If you give me one-word answers, expect some follow-up questions. If you want to save us the trouble, explain yourself more fully than that.
- 2) Please be honest. I am way more interested in learning more about your experience as a student than I am in JUDGING you in any way, negatively OR positively. Don’t tell me what you think I want to hear. Just tell it how it is.”

General	Autonomy	Connectedness	Competence
How have you felt about your English classes in the past? ---Why?	Before this year, how much choice have you had in what you read for English class? ---Does having those choices matter to you as a learner? ---Which do you prefer: Little choice, or a lot of choice?	Before this year, how often were you asked to share your writing with people other than the teacher? ---Does sharing your writing with people other than the teacher change your approach to writing at all?	Before this year, how have your English teachers helped build your skills as a reader and/or writer?
Before this year, how would you describe yourself as a reader? ---How do you know?	Before this year, how much choice have you had in what to write about for English class? ---Does having those choices matter to you as a learner? ---Which do you prefer: Little choice, or a lot of choice, or somewhere in between?	Before this year, how often were you asked to share your impressions of the reading assigned for class? ---Does sharing impressions about the reading with others matter to you as a learner?	Before this year, were there ever times in English class when you felt like the task you were given was just too difficult, that success was impossible?
Before this year, how would you describe yourself as a writer? ---How do you know?	Before this year, were you ever asked to set individual goals for your reading or writing? ---Describe that experience. ---Did setting those goals and monitoring them have an impact on your learning?	Describe your experience with getting teacher feedback on your writing before this year. ---Does getting teacher-feedback matter to you as a learner?	Before this year, how free did you feel to develop and express your own opinions in English class?
Before this year, how would you describe yourself as a speaker/listener in English class? ---How do you know?	Before this year, did you feel that, in English class, you had a chance to express your “authentic voice”? ---If so, how did your teacher encourage that? ---If not, what kept you from being able to express yourself authentically?	Describe your experience with peer feedback (on writing) before this year. ---Does getting peer-feedback matter to you as a learner?	Before this year, did you feel like assignments for English class were “just difficult enough”? Not difficult enough to totally stump you, but difficult enough to challenge and stretch your skills?
Do you think people can improve as readers/writers/speakers/listeners? ---What’s your best guess as to how that happens?		Before this year, did you ever talk with your English teacher about books? ---Does talking about books with your teacher matter to you as a learner?	Before this year, what percentage of the assigned reading did you complete? ---Why?
			Before this year, did you ever use sources such as Schmoop or SparkNotes instead of actually reading the assigned text? Why?

Appendix D

Semi-structured Interview #2

“First, thanks for talking with me today. I’ll learn a lot from the numbers I look at this semester, but I hope to learn even more my conversations with students. Here’s a couple of things to keep in mind as we talk:

- 1) If you give me one-word answers, expect some follow-up questions. If you want to save us the trouble, explain yourself more fully than that.
- 2) All of today’s questions are about the first semester of English IV.
- 3) Please be honest. I am way more interested in learning more about your experience as a student than I am in JUDGING you in any way, negatively OR positively. Don’t tell me what you think I want to hear. Just tell it how it is.”

General	Autonomy	Connectedness	Competence
How is this year’s English class similar to or different from those you’ve had in the past? ---(follow-up questions)	Describe your experience with the self-selected reading you’ve done this year. ---Does having those choices matter to you as a learner?	This year, how connected did you feel to our classroom community? Why? What helped or hurt that connection?	This year, do you think you’ve improved your skills as a reader? As a writer?
This year, how would you describe yourself as a reader? ---How do you know?	---How much choice is the right amount for you as a learner?	Describe your experience with getting teacher feedback on your writing this year. ---Does getting teacher-feedback matter to you as a learner?	This year, did you feel like assignments for English class were “just difficult enough”? Not difficult enough to totally stump you, but difficult enough to challenge and stretch your skills?
This year, how would you describe yourself as a writer? ---How do you know?	This year, how much choice have you had in what to write about for English class? ---Does having those choices matter to you as a learner?	Describe your experience with peer feedback (on writing) this year. ---Does getting peer-feedback matter to you as a learner?	This year, were there ever times in English class when you felt like the task you were given was just too difficult, that success was impossible? If so, how did you handle that?
This year, how would you describe yourself as a speaker/listener in English class? ---How do you know?	--- How much choice is the right amount for you as a learner?	Describe your experience talking with me about books this year (in 1-on-1 conferences, in the margins of class, etc.) ---Does talking about books with your teacher matter to you as a learner?	This year, have you read more or less than in previous years? ---Why?
What might I have done differently or better in order to better help you grow as a reader/writer this year?	This year, did you feel that, in English class, you had a chance to express your “authentic voice”? ---If so, what helped make that possible? ---If not, what kept you from being able to express yourself authentically?		This year, did you ever use sources such as Schmoop or SparkNotes instead of actually reading the assigned text? Why?

IDENTIFYING & DEVELOPING MINDSET TO EXPLAIN ACHIEVEMENT AND
MOTIVATIONAL DIFFERENCES FOR SECONDARY STUDENTS WITH
DISABILITIES THROUGH THE LENS OF COGNITIVE EVALUATION THEORY: A
QUALITATIVE STUDY WITH A MIXED METHODS APPROACH.

by

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Abstract

The purpose of this convergent parallel mixed methods study was to identify and develop growth mindset for secondary students with disabilities. This study examined how mindset impacted student's achievement and motivation. The study also explored ways to develop growth mindset through explicit mindset instruction for students with disabilities, in grades nine through twelve. The theoretical lens was the Cognitive Evaluation Theory, specifically the effects of internal and external influences on motivation. The overarching questions for this study were (a) What type of mindset do students with disabilities exhibit, and how much variation is there in the mindsets of study participants? and (b) After explicit mindset instruction, will the mindset of study participants change? If so, how does mindset impact performance (i.e., academic achievement and motivation)? Quantitative data was produced from the following: Dweck (2000) Theories of Intelligence scale, teacher-generated Mindset Student Survey 1 (MS1) and Mindset Student Survey 2 (MS2), Woodcock Johnson IV Tests of Achievement Form A, Aimsweb reading fluency and reading comprehension probes, and the schools report card data. Qualitative data was collected using one-on-one, semi-structured interviews. Both quantitative and qualitative results suggest mindset is connected to performance and it can be changed. The results corroborate Dweck (2006) in that when students exhibit growth mindset, they “embrace challenges, persist in the face of setbacks, value effort as a necessary means for achievement, learn from criticism and find inspiration in the success of others” (p. 12).

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Chapter 1: Introduction

Marie is a 21st century, generative thinker. She is on the move, initiating learning, investigating problems, navigating choices, constructing meaning, utilizing technology, collaborating with peers, solving problems, using inquiry methods, and easily adapting to change. However, when teachers expect students like Marie to be still, turn off technology, follow explicit directions the first time they are given, and provide basic answers by reciting facts, teaching and learning clash. Observations such as these suggest yesterday's methods do not match today's students. We have the responsibility and tools needed to reach learners on their academic levels. How can we continue to teach this way? How can we shift educators thinking to meet the needs of today's learners? Mindset.

Purpose of the Study

The purpose of this mixed methods study was to identify participants' mindsets and determine if a participant's mindset affected their academic achievement and motivation. Academic achievement was defined as a participant's ability to improve their scores in the following areas: Aimsweb reading fluency and reading comprehension, WJIV Tests of Achievement in reading, and overall grades in English. Motivation was defined as a participant's ability to identify intrinsic and/or extrinsic factors they apply to help them be successful in the school setting. My first hypothesis was that having a fixed mindset may limit students academically, with the assumption that growth mindset can change it. The second hypothesis was that a participant's mindset can change after explicit mindset instruction. Similarly, having a growth mindset could be directly correlated to academic achievement and motivation. Participants in the study were in

grades nine through twelve at a small, rural high school in the Midwest. A mixed methods design was used to “collect both quantitative and qualitative data concurrently, then integrate the data to provide a comprehensive analysis of the research questions” (Creswell, 2014, p. 15). Quantitative data included: Dweck’s Theory of Intelligence Scale, additional teacher-generated mindset survey, report cards, Aimsweb reading fluency scores, and formal achievement test data were used to establish a baseline of students’ current academic levels. In addition, qualitative semi-structured interviews and observations of participants provided insight to student mindset and motivation. Previously proto-typed, teacher-generated mindset curriculum and instructional modification (including explicit mindset instruction and student choice), was implemented to determine what academic changes occurred. Both quantitative and qualitative data were utilized to provide accurate feedback with minimal bias from participants regarding mindset. This study could also prompt further research surrounding the impact of student, teacher, and administrator mindset on instructional practice and academic achievement.

Research Questions, Hypotheses, and Objectives

The overarching research question for this study was as follows: how do participants’ mindsets impact performance (as measured by academic achievement and motivation), for high school students with disabilities? Using quantitative and qualitative methods, specific research questions for the study were:

1. What type of mindset do students with disabilities exhibit and how much variation is there in the mindsets of study participants?

2. After explicit mindset instruction, will the mindset of study participants change? If so, how does it impact performance (i.e., academic achievement and motivation)?

Chapter 2: Review of Literature

The concept of mindset and the effect it may have on achievement and behavior involved many factors. The following review of the literature was organized into four significant themes related to mindset, including leadership mindset, the connection between teachers and students' mindset as it relates to academic and social performance, instructional methodology, resiliency, and grit. The key descriptors used to identify the sources of literature include growth mindset, grit, students with disabilities, and mindset. Grit was defined as "passion and persistence for long-term goals" (Duckworth & Quinn, 2009, p. 166). Using these descriptors, Google Scholar produced 223,600 results, and Ebscohost produced 183 results. Through my synthesis of the literature, four overarching themes emerged to demonstrate how developing a growth mindset helped to explain achievement and/or motivational differences for students with disabilities: teachers' mindset, instructional methodology, resiliency, and grit.

Teachers' Mindset

According to Gutshall (2013), research suggests our beliefs regarding our personal abilities are implicit. Our ability is either malleable or fixed. Some with a fixed mindset believe we are born with a specific amount of intelligence while others believe through effort, hard work, and motivation our ability can change. These individuals are described as having a growth mindset (Gutshall, 2013). For these reasons, educators with a fixed mindset can be detrimental to students in the classroom. Likewise, teachers who

overpraise students for their ability “undermine resiliency and persistence”, whereas emphasizing the individuals’ effort appears to “encourage resiliency and persistence” (Gutshall, 2013, p. 1073). Praising effort and providing encouragement for growth is more profound. According to Gutshall, teaching student’s what mindset is, and ways to develop a growth mindset, can increase student motivation in a school setting. One study in Canada with 142 elementary, secondary, and pre-service teachers surveyed, “73.6% of teachers had a growth mindset, 26.4% had a fixed mindset, and 9.15% did not have a clear understanding of mindset theory” (Gutshall, 2013, p. 1074). This study showed practicing and older teachers tend to have a fixed mindset, when compared to pre-service teachers. The study suggests, teachers’ mindsets can play a significant role in pedagogical practices, which impact students in the classroom setting.

Another facet of this research involved teachers’ views of students with learning disabilities. More than thirty studies were conducted, revealing that teachers initially viewed students with learning disabilities with negative stereotypes and had lower expectations (Osterholm et al., 2007, p. 5). Previous research suggested teachers held initial bias toward students with learning disabilities. The summary of their findings could suggest that when a teacher has low expectations for their students, the students will put forth less effort, thus leading to decreased performance. Similarly, teachers who have high expectations will positively impact student effort and performance. Additional research is needed to determine the specific impact a teacher’s mindset can have in the classroom and whether a teacher’s mindset can be modified to improve student learning.

An important component of this research was self-regulation. Self-regulation was defined as an individual’s ability to be actively involved in their own learning. According

to Matheson (2015), past research supports the idea that action is the driving force behind motivation. Personal expectations, beliefs and goals help us to understand why we act, how we process successes and failures, and how much effort we put into tasks. In an exploratory study of 230 (117 male, 113 female) at-risk secondary students, researchers sought out information regarding students' ability to self-regulate their learning, as well as their confidence and motivation levels based on their achievement level (Matheson, 2015). The term *at-risk* was defined as "individuals who demonstrate poor achievement, personal problems, and overall disengagement from school" (Matheson, 2015, p. 67). Of the 230 participants in the study, 38 identified themselves as having a learning disability. Demographic information, implicit theories of intelligence, learning versus performance goal preferences, effort versus ability attributions, self-regulatory efficacy, and English mindset data were collected from all participants (Matheson, 2015). Data was analyzed "using (ANOVA) to determine differences in offline variables by school stream, gender, LD status, and achievement" (Matheson, 2015, p. 80).

The study found that students who earned higher grades had higher self-regulatory efficacy, while students earning lower grades had lower self-regulatory efficacy. Students with learning disabilities showed no significant differences in their ability to self-regulate than their non-LD peers. Researchers believe this is inconsistent with past studies, and attribute this change to targeted interventions these students may have received from instructors, to improve their self-regulation (Matheson, 2015). Another possibility mentioned in the study was that this population of students with learning disabilities may have overestimated their ability to self-regulate in specific contexts. In addition, the study revealed females have higher abilities to self-regulate

than males which is consistent with past data showing females outperform males in language arts (Matheson, 2015). “According to the results, mindset (fixed or growth), about reading appears to distinguish between academic path, gender, and achievement, whereas writing does not” (Matheson, 2015, p. 84). Past research indicated females may feel additional pressure (because of a gender gap), to perform higher in literacy tasks than males, which attributes to their growth mindset. The results of this study indicated students’ confidence levels when it comes to self-regulation and their ability. This seemed to have an impact on their achievement and academic path, indicating a need for growth mindset on the part of the educator, specifically related to reading (Matheson, 2015, p. 84). Recommendations based on this study included; “providing substantial reading instruction with time for practice, helping students develop confidence in their self-regulatory abilities, and parents and educators need to communicate messages consistent with a growth mindset” (Matheson, 2015).

In the classroom setting, promoting a growth mindset, and creating growth goals is a key element in developing a growth mindset. In one study, 969 students from Australia were selected to participate in a longitudinal study surrounding “implicit theories about intelligence and growth goals” (Martin, 2014, p. 212). Out of the 969 participants, 54% were ages 11-14, and 46% were ages 15-19. Just over half (52%), of the participants were male. The participants were reported to have mixed abilities and came from high socioeconomic backgrounds. They were also reported to be slightly higher achieving than the national average. The instruments used were administered to students during class time (Martin, 2014, p. 212).

The results of the study indicated “effective growth goal-setting is extremely relevant to changing mindset” (Martin, 2014, p. 218). Process and outcome growth goals are two suggested approaches. “Process goals focus on effort, engagement, skill development, participation, attendance, and enjoyment” (Martin, 2014, p. 218). A specific example would be if a student was assigned one reading passage for homework and they took it upon themselves to read an additional passage without being told to do so. Outcome growth goals focus on “targets such as improved achievement, attainment, performance, and productivity” (Martin, 2014, p. 219). An example would include performing higher on a mid-year assessment than a beginning of the year assessment (Martin, 2014). Previous research found lower achieving students were more likely to pursue “avoidance-oriented goals” instead of growth goals (Martin, 2014, p. 219). Considering this research, one might focus on targeting this demographic with an intervention to change this mindset.

Instructional Methodology

Can educators use choice of instructional methods as an intervention for students with disabilities? According to Sutherland and Wehby (2001), one population of students, identified as students with behavior disorders, may have the lowest grade point average of any other disability group. In addition, these students have a higher failure rate and are more likely to drop out of school. Educators are provided few resources for delivering and facilitating adequate instruction to this population during initial teacher-preparation programs and beyond. Often, students with behavior disorders are not given ample opportunity to respond to teacher-led prompts. Instead, they exhibit inappropriate behaviors that compete with classroom instruction. Offering students choice in both

assigned tasks and ways to respond to teacher-led prompting, can significantly reduce disruptive behavior. When instruction is provided in an adequate manner, and these students are given an increased opportunity to respond, their academic performance has been shown to improve (Sutherland & Wehby, 2001).

The participants in the following study were two 7th grade students from a public school who were diagnosed with behavior disorders (Daly et al., 2006, p.17). One participant was male, while the other was female. The students were being instructed individually in separate locations while receiving criterion and instructional passages at a fourth-grade reading level. The dependent variables included correct words read and errors per thirty seconds in criterion passages. The independent variables included choice of antecedent instruction, including whether they would be instructed, and for how long, as well as what rewards they would receive when they met their goals. Students were assessed using multi-probe tasks repeatedly across passages. A baseline was established for all passages and the treatment was implemented while performance was probed. The study included pre-experimental screenings and exposure to antecedent instructional procedures. (Daly et al., 2006, p.17-19).

The results for the female participant showed there were immediate changes in her reading level with the introduction of the treatment (i.e., reading passage, choice of instructional method, and choice of reward). The female participant chose not to practice or receive instruction on the first passage. For the remainder of the passages she chose to receive instruction on every other passage. She maintained or improved reading fluency in all but the fourth-grade passage. The male participant chose to receive instruction for every passage. The results for the male participant showed steady, slight increases in

performance when presented with the treatment. These results indicated when students had the opportunity for choice (both of whether to receive instruction and instructional method as well as choice of reward), participants chose to receive instruction in the hopes of earning higher scores on the assessments. “Both students increased their reading fluency rates in criterion passages with a choice of instructional antecedents and their delivery, when combined with reinforcement” (Daly et al., 2006, p.25). Ultimately, these choices led to a greater opportunity for them to respond, and an increase of effort, which is required when one makes a choice to practice and receive instruction.

Instructional methodology is critical to the success or failure of students. Dweck (2006), outlines that the impact of teachers maintaining high standards for all students is vital to their success. “Lowering the standards leads to uneducated students who feel entitled to lower level work and lavish praise” (Dweck, 2008, p. 193). Teachers must find a balance of maintaining high standards while allowing students to reach them. Dweck (2008), believes in “growth-oriented instructional practices” which unlock a student’s mind. Teachers must care about their students, believing they can improve, while creating the means for them to succeed in a nurturing environment. They must shift their focus from the product to the process of learning. (Dweck, 2008).

Resilience

Another challenge facing today’s youth is resilience. Education is more rigorous and time consuming than ever before. As students transition from high school to post-secondary careers and educational or personal opportunities, their ability to overcome adversity is essential for success. Two theories of intelligence, entity and incremental, support this idea. The entity theory measures one’s ability to attempt challenging tasks,

effort, and setbacks. Incremental theory measures learning, growth, and how we use challenging tasks, effort and setbacks to learn and grow (Dweck, 2008). The two theories demonstrate two very different worlds; the first being a world of “threats and defenses,” the second being a world of “opportunities to improve” (Yeager & Dweck, 2006, p. 303). The difference between these two theories also shapes students’ goals, beliefs, effort, attributions, and learning in the face of setbacks (Yeager & Dweck, 2006). As academic expectations become more rigorous, a students’ implicit theory of intelligence can affect their ability to respond with resilience.

This idea of resiliency also impacts students’ “social competence,” specifically whether they are valued and respected by their peers (Yeager & Dweck, 2006, p. 306). Two areas of concern, especially for early high school students, is exclusion and peer victimization. Students believe social labels put on them tend to be fixed, meaning they cannot be changed. Considering these social setbacks, educators need to be more proactive in “reducing negative outcomes such as aggressive retaliation, stress, and academic underperformance” (Yeager & Dweck, 2006, p. 306). Research findings imply “young people are more vulnerable to adversities when they have a fixed mindset; however, when their mindset is such that people have the ability to change socially relevant traits, they will be more resilient in the face of exclusion and peer victimization” (Yeager & Dweck, 2006, p. 310).

How can messages from adults unintentionally create mindsets that undermine resilience? According to Yeager and Dweck, “adults giving too much praise or comfort to struggling students, can lead to students adopting a fixed mindset, which unintentionally undermines resilience” (Yeager & Dweck, 2006, p. 310). This study revealed that when

given the choice, students would prefer to complete less difficult work that does not challenge their intellectual ability. In addition, if an adult conveys their belief that a poor-achieving student has a lower ability in that specific area, it can create low confidence and poor resilience. As Mueller and Dweck (1998) suggest, adults, both parents and educators, need to focus on the learning process versus the product, resulting in students having a mindset to help them respond to situations with resiliency. In a similar fashion, adults can utilize their influence to positively affect social outcomes, allowing children to face challenges in a resilient manner. Adults should acknowledge the injustice and comfort the child without placing blame on the character of the aggressor, resulting in vengeful responses and additional social conflict. As adults, we can “emphasize people’s potential to change to better prepare our children to face life’s challenges with resiliency” (Yeager & Dweck, 2006, p. 312).

Changing the climate in schools to inspire and motivate students is no small task. Students must become problem solvers and creative thinkers. Learning experiences must be designed with the intention to help students figure out what they want to do in life to “explore and develop their passion” (Kallick & Zmuda, 2017, p. 2). Kallick and Zmuda (2017) discuss ways teachers can turn their classrooms into learning communities that provide “opportunities for co-creation, voice, social construction, and self-discovery” (p. 2-4). We must work to create an environment to support curiosity. Ostroff (2016) reminds us that it is difficult for teachers and parents to “let go” and trust our children will learn (p. 14).

Grit

Why do some students succeed, and others fail? One significant predictor of success is persistence or *grit*. Students who learn in educational environments where growth mindset and grit are taught and developed learn to persist in the face of adversity. When students hold a fixed mindset, quite the opposite occurs. These students believe they cannot change, put forth minimal effort and flounder in the face of adversity. Hochanadel and Finamore (2015), wrote about a “grit effect study that was conducted by Angela Duckworth in collaboration with the U.S. Army and the University of Pennsylvania” (p. 47). In this study, Duckworth (2007) studied military cadets at West Point, focusing her attention on which cadets stayed and which dropped out. She analyzed the results from the National Spelling Bee to see which children would advance and which were more likely to drop out (Duckworth, 2007). Duckworth collaborated with private corporations to see which sales managers would be successful and which would be likely to leave. Finally, she “analyzed data from first-year inner city elementary school teachers to measure which of them would return to teaching, and if their students met learning outcomes” (Hochanadel & Finamore, 2015, p. 47). One significant characteristic emerged from all areas of her study: grit. “Grit can be developed by having a growth mindset and participants who value effort are said to have a growth mindset” (Hochanadel & Finamore, 2015, p. 48).

In the same grit effect study, participants with a fixed mindset believed they were born with a specific amount of intelligence. In contrast, participants with a growth mindset believed they could learn and grow over time (Dweck, 2010, p. 16). Duckworth found that grit, more than any other characteristic was the one predictor of goal

achievement for the cadets at West Point. Furthermore, she also found that talent fell second to grit as a predictor of achievement when faced with challenges (Duckworth & Quinn 2009, p. 166). “When teachers teach students how to persevere, they can develop a growth mindset, improving grit to conquer obstacles to their success” (Hochanadel & Finamore, 2015, p. 49).

Duckworth (2016), stands by the belief that grit can be grown from inside out, or it can be taught from the outside in. She suggests we dispel the talent myth and focus on “growing our grit” (Duckworth, 2016, p. 17). Individuals can rely on others such as teachers, parents, coaches, and mentors to help develop personal grit. The two essential components which make a person “gritty” include passion and perseverance. For most people staying focused on a goal for long periods of time is more difficult than putting in the hard work and overcoming obstacles toward personal goals (Duckworth, 2016). There are no shortcuts to reaching our goals. Stamina is more necessary than intensity in the pursuit of success. “Without effort, your skills are nothing more than what you could have done, but didn’t do” (Duckworth, 2016, p. 51). Since individuals with disabilities may have difficulty with specific skills such as processing, attention, reading, math, etc., it is the instructor’s responsibility to recognize effort is equally as important as talent and achievement. We should not allow students to settle for the status quo, where little effort is all that is needed for basic achievement. Over time, exposure to tasks with repeated practice allows skills to become second nature. “Effort builds skill, while effort also makes skills more productive” (Duckworth, 2016, p. 51). Achievement occurs when you put your newly acquired skills to use.

Chapter 3: Research Design

This study used a mixed methods design, which incorporated elements of qualitative and quantitative approaches. Understanding the impact of participants' mindset requires a complex form of inquiry. Using both quantitative and qualitative data collection provided a more in-depth understanding of the participants. In the first phase, quantitative data from the Dweck (2000) scale, surveys, achievement tests and report cards described students' current level of academic performance and mindset, while qualitative interviews and teacher observations provided insights to student motivation in the classroom. In the second phase, curriculum and instructional modifications (including a 10-week, teacher-created mindset curriculum) were implemented to determine what academic changes occurred. Follow-up interviews, surveys, achievement tests, and report card data were collected and analyzed. As Creswell (2014) states, "the rationale for this approach was to utilize the qualitative and quantitative findings to determine where convergence and divergence existed" (p. 15).

Potential threats to internal validity included history, maturation, and regression. History and maturation threats were minimized by selecting participants who were a similar age and grade. Unfortunately, given the population of students the researcher was responsible for, regression may have occurred. As a researcher, these threats were minimized by ensuring students understood concepts, re-teaching necessary concepts that may have been difficult, and choosing a large enough sampling of students to account for any participants dropping out of high school during the study. Potential external validity threats to a mixed methods study may have occurred as well. These threats included "interaction of selection and treatment, interaction of setting and treatment, and

interaction of history and treatment” (Creswell, 2014, p. 176). These threats could be minimized by conducting additional experiments in new settings to see if the results are similar and replicating the study later to determine if one would get similar results.

In this form of inquiry, the researcher did not generalize the findings of “individuals, sites or places outside of those being studied” (Creswell, 2014, p. 201). The researcher employed a “consistent approach across all projects” (Creswell, 2014, p. 201). To minimize generalizations of the qualitative portion of the study, several procedures were implemented; “good documentation of qualitative procedures and developing a protocol for documenting the problem in detail” (Creswell, 2014, p. 204).

Sampling

The qualitative and quantitative target population for this study were participants with disabilities in grades nine through twelve at a small, rural high school in the Midwest. Participants were selected based on their enrollment in special education English courses at the high school. The overall phenomenon this study attempted to address was participants’ mindset and how it affected academic achievement. For the quantitative data collection, 22 ninth through twelfth grade students with disabilities enrolled in special education English participated. For the qualitative data collection, 21 ninth through twelfth grade students with disabilities enrolled in special education English participated. Participants were assessed both individually and as a small group throughout the study. Participants made up 42% (22/53) of the total number of students with disabilities at the school. Of those 53 students with disabilities, only 33 were enrolled in a special education English course meaning 67% of those students agreed to participate in the study. This sample size was sufficient, given the size of our school

district and the percentage of students with disabilities enrolled in a special education English course.

Participants

The sample was divided into four groups based upon the four sections of English or Community Reading in which participants were enrolled. Group A included five participants (students) enrolled in one section of Community Reading, which served as a special education English Language Arts requirement. Three of the participants were in grade nine, while two were in grade ten. Four participants were male, and one was female. Three participants had a primary eligibility of intellectual disability (ID), while two participants were categorized as other health impairment (OHI) for attention concerns. One of the participants with an OHI eligibility also had a secondary eligibility of autism. Participants' mindsets were assessed utilizing two pre-tests, The Theories of Intelligence Scale (Dweck, 2000) and Mindset Student Survey 1 (MS1), to establish a mindset baseline. They were also assessed using a post-test, the Mindset Student Survey 2 (MS2), to assess growth after a ten-week mindset curriculum was implemented. In addition, participants were given the Woodcock Johnson IV Tests of Achievement Form A (Houghton Mifflin Harcourt, 2014), as well as Aimsweb reading fluency probes (Pearson 2013) in August of 2018 and again in January 2019 to establish a baseline of academic achievement and measure growth after the treatment.

Group B included seven participants enrolled in one section of Cinema & Literature, which served as a special education English Language Arts requirement. All the participants in Group B were in grade twelve. Four of the participants were male and three were female. Five participants had a primary eligibility of specific learning

disability (SLD) in reading, while the other two participants were categorized as other health impairment (OHI) for attention concerns. One of the participants with an OHI eligibility, also had a secondary eligibility of oppositional defiant disorder (ODD). Participants' mindsets were assessed utilizing two pre-tests, The Theories of Intelligence Scale (Dweck, 2000) and Mindset Student Survey 1 (MS1), to establish a mindset baseline. They were also assessed using a post-test, the Mindset Student Survey 2 (MS2), to assess growth after a ten-week mindset curriculum was implemented. In addition, participants were given the Woodcock Johnson IV Tests of Achievement Form A (Houghton Mifflin Harcourt, 2014), as well as Aimsweb reading fluency probes (Pearson 2013) in August of 2018 and again in January 2019 to establish a baseline of academic achievement and measure growth after the treatment.

Group C included four participants enrolled in one section of English 101, which served as a special education English Language Arts requirement. All the participants in Group C were in grade nine. Three of the students were male and one was female. One participant had a primary eligibility of specific learning disability (SLD) in reading. Another participant had a primary eligibility of emotional disturbance (ED). A third participant had a primary eligibility of hearing impairment (HI). The remaining participants had primary eligibilities of other health impairment (OHI) for attention concerns. Of the three participants with OHI as their primary eligibility, one participant had a secondary eligibility of central auditory processing disorder (CAPD), another had a secondary eligibility for an anxiety disorder, and the third had a secondary eligibility of neural immune deficiency (NID). Participants' mindsets were assessed utilizing two pre-tests, The Theories of Intelligence Scale (Dweck, 2000) and Mindset Student Survey 1

(MS1), to establish a mindset baseline. They were also assessed using a post-test, the Mindset Student Survey 2 (MS2), to assess growth after a ten-week mindset curriculum was implemented. In addition, participants were given the Woodcock Johnson IV Tests of Achievement Form A (Houghton Mifflin Harcourt, 2014), as well as Aimsweb reading fluency probes (Pearson 2013) in August of 2018 and again in January 2019 to establish a baseline of academic achievement and measure growth after the treatment.

Group D (Control Group), included six participants enrolled in one section of English 201, which served as a special education English Language Arts requirement. Four of the participants were in grade eleven, and two were in grade ten. Five participants were male and two were female. Three of the participants had primary eligibilities of specific learning disabilities (SLD) in reading. Another participant had a primary eligibility of autism (A). The final two participants in Group D had a primary eligibility of other health impairment (OHI) for attention concerns. Group D was used as a variable non-treatment group. The four eleventh grade participants in this group were given a mindset prototype treatment two years ago when they were in the ninth grade. The other two participants had no mindset treatment. This group completed routine curriculum tasks and did not have explicit mindset instruction during the study. Participants' mindsets were assessed utilizing two pre-tests, The Theories of Intelligence Scale (Dweck, 2000) and Mindset Student Survey 1 (MS1), to establish a mindset baseline. They were also assessed using a post-test, the Mindset Student Survey 2 (MS2), to assess growth. In addition, participants were given the Woodcock Johnson IV Tests of Achievement Form A (Houghton Mifflin Harcourt, 2014), as well as Aimsweb reading

fluency probes (Pearson 2013) in August of 2018 and again in January 2019 to establish a baseline of academic achievement and measure growth at the end of the semester.

Variables

For the correlation analysis portion of the study, the following variables were studied: special education eligibility category, gender, and attendance. Statistical analysis, including grades and reading level, were also evaluated. Mindset was measured by the Theories of Intelligence Scale (Dweck, 2000) and an additional teacher-generated mindset survey obtained from the website Teachers Pay Teachers, created by Christina, the Darling English Teacher. Independent variables, such as instructional methodology served as the treatment to select groups of students to determine how explicitly teaching mindset may impact student outcomes. The demographic data was obtained through the school data base system. Quantitative data (including achievement testing, reading fluency probes, grades, scale and mindset surveys) were collected, which recorded the knowledge base of the participants, while the qualitative, semi-structured, one-on-one interviews recorded attitudes of the participants.

Methods of Data Collection

Data were collected utilizing the following approaches: observations, interviews, and printed instruments. Observations occurred weekly and were recorded by the researcher. Field notes of observations were written from a participant observer stance. Pre-intervention, face-to-face, one-on-one interviews with 21 participants were conducted, followed by post-intervention, face-to-face, one-on-one interviews with the same 21 participants. Audio recording was utilized to ensure the focus was on the participants instead of the process of recording data. Later, information was transcribed

from the audio. Printed instruments included Mindset 1 and 2 surveys, the Dweck (2000) Theories of Intelligence Scale, the WJIV, and Aimsweb reading probes were distributed, collected, and reviewed as part of the normal school day. Students' grades in English class were collected as the percentage reported on Teacherease, the grading software program. Independent variables included student participation in a mindset curriculum unit (see Appendix A), while dependent variables included students' understanding/mastery of concepts. The control variables included demographic data, including, special education eligibility category, gender, and attendance. For a table of data collection procedures, see Appendix B.

Data Analysis

Twenty-one semi-structured, one on one, student interviews were conducted. Throughout the analysis process, interview data was transcribed and analyzed by writing codes which are included in the appendices. Codes were then grouped into categories and separated into themes to maintain organization of findings. Microsoft Excel, a computer data analysis program was used to allow for ease of efficiency and access to materials. Data collection was stopped when saturation occurred, or, when the new data no longer sparked new ideas or revealed new insights. Interview data collection was focused on emic perspectives--the insight of the participants. Throughout the process, a reflective data analysis method was utilized.

Ethics and Human Relations

As a researcher, a code of ethics was implemented prior to the study to ensure the participants, and the organization where the study took place, were protected. Ways to safeguard the participants included having the researcher "obtain permission from the

research site prior to conducting the study, conduct a needs assessment, or have an informal conversation with participants to inform them of the purpose of the study, obtain consent from parents and children, build trust with participants, and clearly explain how the data will be used” (Creswell, 2014, p. 96-98). Permission to conduct research at the site (the researcher’s place of employment) was approved by the researcher’s administration. Because participants were already enrolled in the school, and information remained confidential throughout the study, cooperation of participants was a non-issue.

Chapter 4: Results

Demographic Data and Descriptive Statistics

The first section will describe the participants using demographics and descriptive statistics.

Participation Rate. The sample for this study included 22 ninth - twelfth grade students with disabilities from a rural, mid-western high school. All participants were enrolled in either a special education English or Community Reading course for the 2018 - 2019 school year. Each participant was between the ages of fifteen to eighteen years old and agreed to participate by signing both personal and parental consent prior to the study. In addition, students signed assent forms explaining the purpose of the study, ensuring that they understood they would not be penalized or rewarded in any way for their participation. Despite my best efforts to get full participation, out of the 33 potential participants, eight students did not return signed consent forms, one student graduated early, one dropped out near the end of fall semester, and one moved into general education English.

Demographic Data. Demographic information was obtained by the school district after verbal and written consent was obtained from school administration. Demographic data was gathered from the district-wide school information system in the following categories: gender, attendance, grades, and Individualized Education Plan (IEP) data.

Gender. For the purpose of this study, gender was defined as participants identifying as either male or female. Of the 22 participants in the study, 16 were male and 6 were female.

Attendance. During the study there were a total of 104 student attendance days. Student attendance was something the researcher wanted to cross-reference with mindset and performance to determine if there was a negative or positive correlation. The attendance data is shown in figure 1.

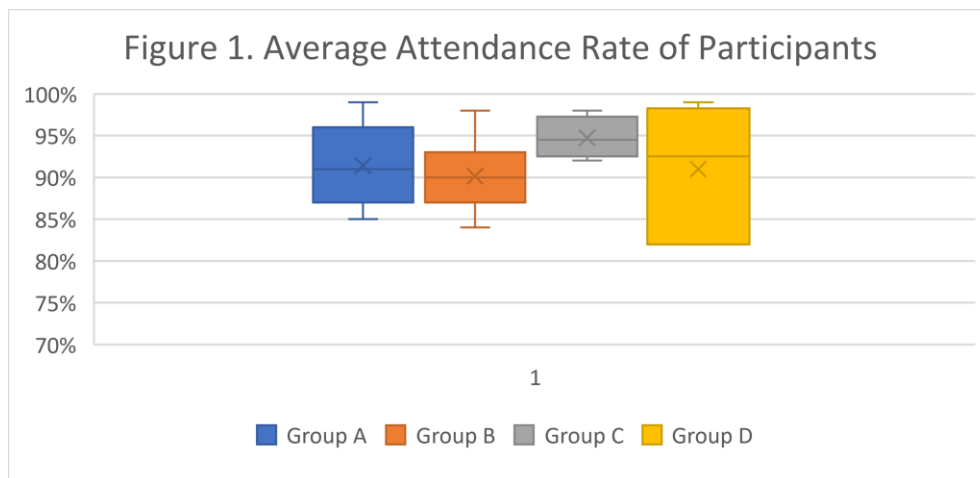


Figure 1. Average attendance rate of participants by group.

Special Education Eligibility Category. All 22 participants in the study had Individualized Education Plans (IEP’s) and received individualized instruction in deficit areas in a small group setting. This study was comprised of students in six different eligibility categories including other health impairment (OHI), specific learning disability

(SLD), intellectual disability (ID), emotional disability (ED), hearing impairment (HI), and autism (A). Figure 2 shows the overview of eligibility categories.

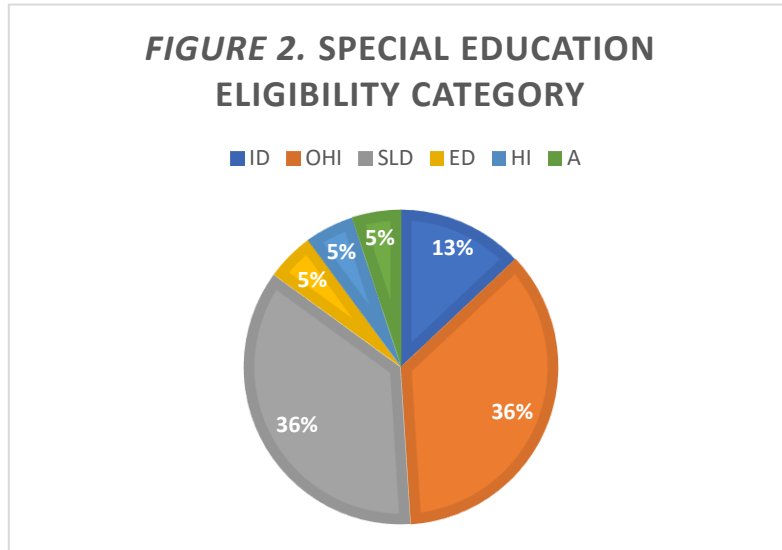


Figure 2. Special education eligibility category of participants.

Data Analysis Procedures for Phase One

Participants’ Mindset was assessed utilizing two pre-tests--the Theories of Intelligence Scale (Dweck, C. S. (2000), and Mindset Student Survey 1 (MS1), to establish a mindset baseline. The Mindset Student Survey 2 (MS2), was given in order to post-assess growth after a ten-week mindset curriculum was implemented. On the Dweck Theories of Intelligence Scale, participants answered 8 questions on a scale of 1 – 6, ranging from Strongly Agree to Strongly Disagree. Participants could earn a possible score ranging from 8 – 48. Scores in the 8 – 24 range indicated a Fixed Mindset. Scores in the 25 – 31 range indicated a Balanced Mindset, and scores in the 32 – 48 range indicated a Growth Mindset. The results of the Theories of Intelligence Scale (Dweck, 2000), were as follows.

Table 1
Theories of Intelligence Scale (Dweck, 2000) Scores with Categories

Group/Participant	Score	Mindset Category
A1	19	Fixed
A2	24	Fixed
A3	21	Fixed
A4	30	Balanced
A5	25	Balanced
B1	32	Growth
B2	27	Balanced
B3	28	Balanced
B4	27	Balanced
B5	29	Balanced
B6	25	Balanced
B7	25	Balanced
C1	28	Balanced
C2	27	Balanced
C3	22	Fixed
C4	28	Balanced
D1	26	Balanced
D2	26	Balanced
D3	30	Balanced
D4	22	Fixed
D5	33	Growth
D6	32	Growth

Note. Range of scores: 8 - 48

The results of the Dweck Survey as presented in Table 1, indicate 13% of participants had a Growth Mindset, while 63% indicated a Balanced Mindset. The remaining 24% of participants fell into the Fixed Mindset Category. Since 63% scored in the Balanced Mindset category, the researcher sought to learn more specific information about each participants' mindset hoping to place them in a more precise category to identify if/when change took place. An additional mindset tool (MS1) was used to establish a more definite mindset baseline.

On Mindset Student Survey 1 (MS1) participants could earn a possible score ranging from 10 – 60. Scores in the 10 – 20 range indicated a Strong Growth Mindset.

Scores in the 21 – 30 range indicated a Slight Growth Mindset. Scores in the 31 – 40 range indicated a Balanced Mindset, Scores in the 41 – 50 range indicated a Slight Fixed Mindset, and scores in the final range of 51– 60 indicated a Strong Fixed Mindset. The results of the fall (MS1) and the winter (MS2) were as follows:

Table 2
MS1 and MS2 Scores with Categories

Group/Participant	Pre-Test (MS1)	Mindset Category	Post-test (MS2)	Mindset Category
A1	32	Balanced	39	Balanced
A2	30	Slight GM	30	Slight GM
A3	35	Balanced	28	Slight GM
A4	28	Slight GM	36	Balanced
A5	31	Balanced	34	Balanced
B1	21	Slight GM	13	Strong GM
B2	39	Balanced	27	Slight GM
B3	13	Strong GM	22	Slight GM
B4	33	Balanced	25	Slight GM
B5	34	Balanced	32	Balanced
B6	37	Balanced	24	Slight GM
B7	33	Balanced	32	Balanced
C1	27	Slight GM	26	Slight GM
C2	19	Strong GM	15	Strong GM
C3	37	Balanced	36	Balanced
C4	38	Balanced	26	Slight GM
D1	22	Slight GM	20	Strong GM
D2	56	Strong FM	53	Strong FM
D3	26	Slight GM	21	Slight GM
D4	42	Slight FM	36	Balanced
D5	44	Slight FM	44	Slight FM
D6	19	Strong GM	16	Strong GM

Note. Range of Scores: 10 – 60

According to the results presented in Table 2, nearly all participants fell into one of three Mindset Categories: Strong Growth Mindset, Slight Growth Mindset or Balanced Mindset. Only one participant fell into the Slight Fixed Mindset category, however that participants’ mindset changed to the Balanced Category by the end of the study. A final participant fell into the Strong Fixed Mindset category and showed slight improvement at

the end of the study; however it was not enough to place them into a new category. Relating this survey to the Dweck 2000 scale, 18% of participants had a Strong Growth Mindset and 4% of Participants fell into the Fixed Mindset categories. In summary, 77% of participants saw an improvement in their mindset, 4% saw little or no change in their mindset, and 19% of participants' mindsets had a negative change.

The third data source used for all groups was the Woodcock Johnson IV Tests of Achievement Form A (WJIV). Participants were assessed in August 2018, and again in January 2019, after the treatment to determine if there was a change in their reading scores. The results were presented in Figures 3, 4 and 5.

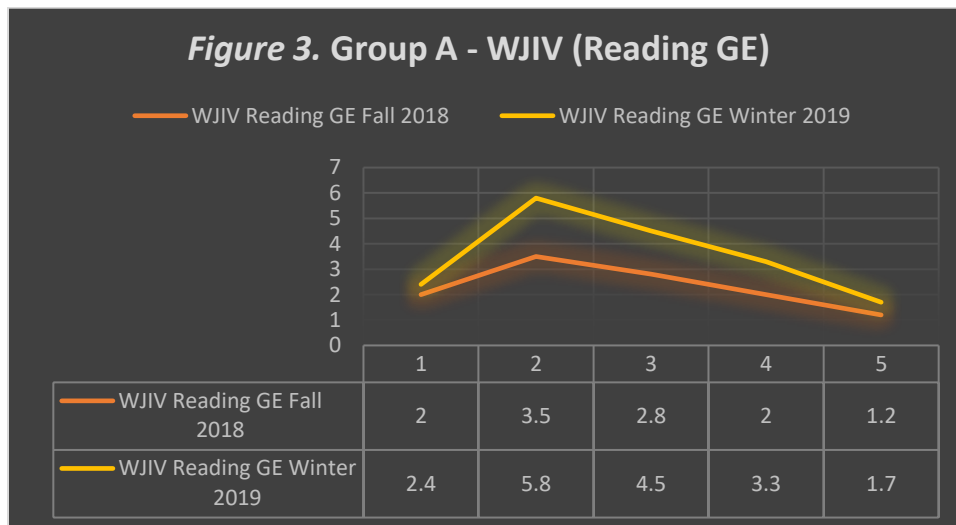


Figure 3. Woodcock Johnson IV Tests of Achievement grade equivalent, group A.

Table 3
t-test: Paired Two Sample for Means (WJIV Tests of Achievement, Fall/Winter Reading Grade Equivalent; Group A)

	Variable 1	Variable 2
Mean	2.3	3.54
Variance	0.77	2.693
Observations	5	5
Pearson Correlation	0.977428199	
<i>df</i>	4	
<i>t</i> Stat	-3.444444444	
<i>p</i> (T<=t) two-tail	0.026187077	
<i>t</i> Critical two-tail	2.776445105	

A *t*-test was used to determine if results were statistically significant. Table 3 showed Variable 1(fall test scores) had a mean of 2.3, while Variable 2 (winter test scores) had a mean of 3.54. Variable 1 had a Variance of 0.77, and Variable 2 had a Variance of 2.69. There were 5 observations in this group. A Pearson correlation of 0.97 showed a very strong positive linear relationship between the two values. The two-tail *p*-value was 0.02, indicating the means were significantly different, thus rejecting the null hypothesis. The winter scores were higher than the fall scores. Participants in Group A saw an average increase of 1.24 years of growth in Reading in a period of five months.

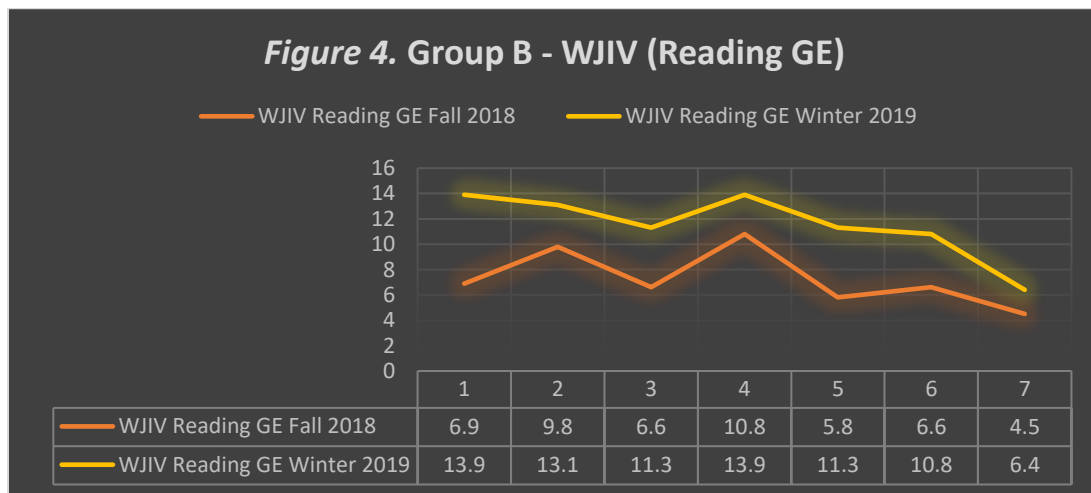


Figure 4. Woodcock Johnson IV Tests of Achievement grade equivalent, group B.

Table 4
t-test: Paired Two Sample for Means (WJIV Tests of Achievement, Fall/Winter Reading Grade Equivalent; Group B)

	Variable 1	Variable 2
Mean	7.285714	11.52857143
Variance	4.954762	6.775714286
Observations	7	7
Pearson Correlation	0.766661	
<i>df</i>	6	
<i>t</i> Stat	-6.65389	
<i>p</i> (T<=t) two-tail	0.000557	
<i>t</i> Critical two-tail	2.446912	

A *t*-test was used to determine if results were statistically significant. Table 4 showed Variable 1(fall test scores) had a mean of 7.28, while Variable 2 (winter test scores) had a mean of 11.5. Variable 1 had a Variance of 4.95, and Variable 2 had a Variance of 6.77. There were 7 observations in this group. A Pearson correlation of 0.76 showed a strong positive linear relationship between the two values. The two-tail *p*-value was 0.0005 indicating the means were significantly different, this rejecting the null hypothesis. The winter scores were higher than the fall scores. The participants in Group B improved their Reading Grade Equivalent by an average of 4.8 years in a period of five months.

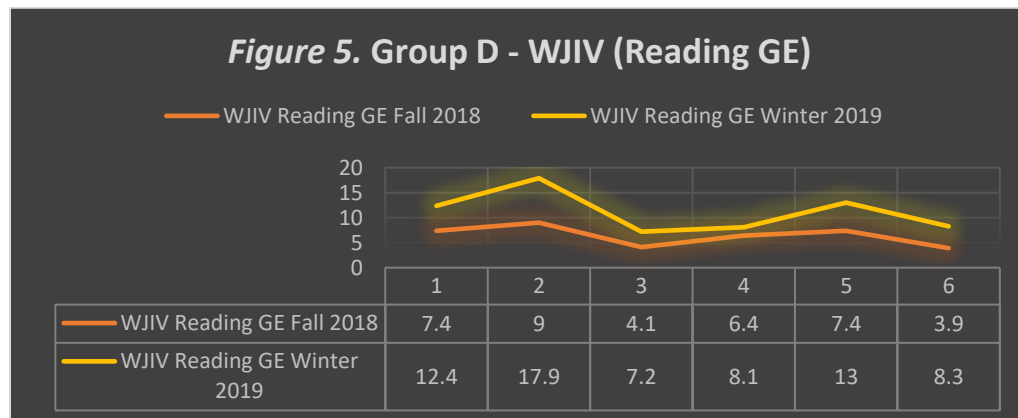


Figure 5. Woodcock Johnson IV Tests of Achievement grade equivalent, group D.

Table 5

t-test: Paired Two Sample for Means (WJIV Tests of Achievement, Fall/Winter Reading Grade Equivalent; Group D)

	Variable 1	Variable 2
Mean	6.366667	11.15
Variance	4.058667	16.715
Observations	6	6
Pearson Correlation	0.895036	
<i>df</i>	5	
<i>t</i> Stat	-4.77155	
<i>p</i> (T<=t) two-tail	0.005008	
<i>t</i> Critical two-tail	2.570582	

A *t*-test was used to determine if results were statistically significant. Table 5 showed Variable 1(fall test scores) had a mean of 6.36, while Variable 2 (winter test scores) had a mean of 11.15. Variable 1 had a Variance of 4.05, and Variable 2 had a Variance of 16.71. There were 6 observations in this group. A Pearson correlation of 0.89 showed a strong positive linear relationship between the two values. The two-tail *p*-value was 0.005, indicating the means were significantly different, thus rejecting the null hypothesis. The participants in Group D improved their Reading Grade Equivalent by an average of 4.78 years in a period of five months.

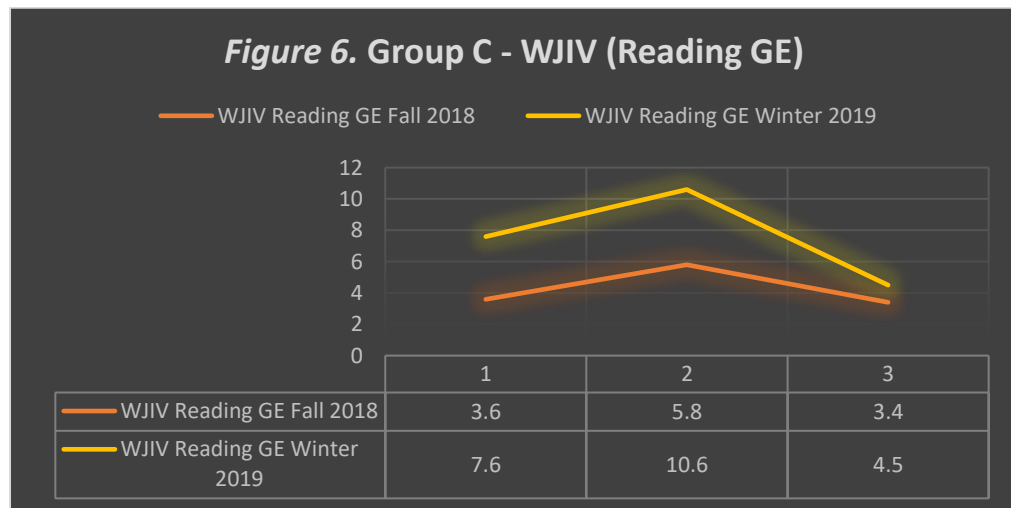


Figure 6. Woodcock Johnson IV Tests of Achievement grade equivalent, group C.

As presented in Figure 6, Group C participants’ results indicated a substantial improvement in their reading grade equivalent scores, however *t-test* results were not significant to the researcher’s hypothesis. The average increase was 3.6 years from the fall of 2018 to the winter of 2019.

A fourth data source, the Relative Proficiency Index (RPI), was used on the WJIV to predict a participant’s percentage of achievement on tasks that same age-grade level peers would perform with 90% proficiency. For example, Participant 2 had a fall RPI score of 22, which means that on a similar task, they would be 22% proficient, while their same age-grade level peer would be 90% proficient. In the winter, that same participant scored a 61, indicating 61% proficiency in reading when compared to same age peers. An RPI of lower than 24 is a strong indicator of significant impairment on a sub-test when compared to same-age peers. This index is also a good predictor of how an individual might fare in college. Participants’ results were displayed in Figures 7, 8, 9 and 10.

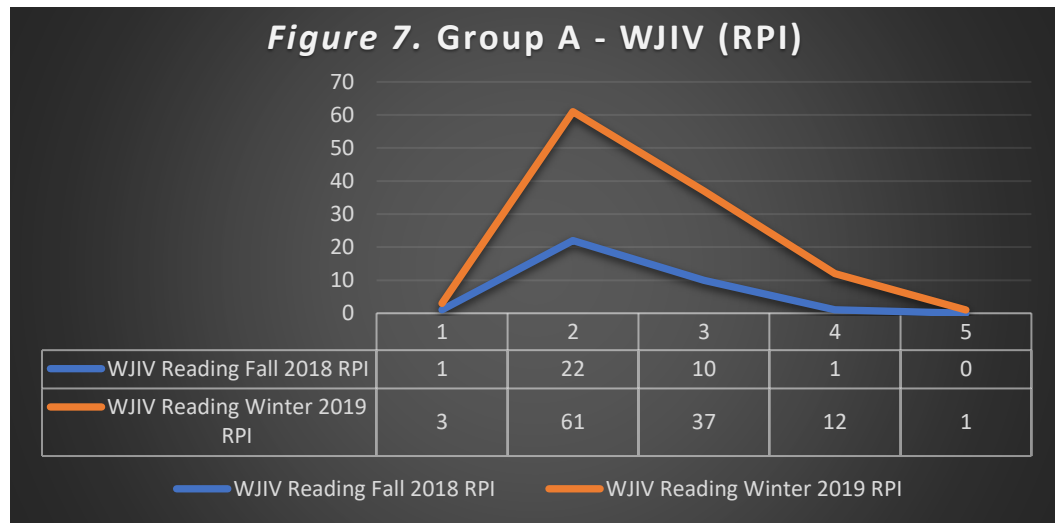


Figure 7. WJIV, Tests of Achievement (relative proficiency index), group A.

Three out of five participants in Group A scored a 24 or lower on the RPI, indicating a significant impairment in reading when compared to their same age peers. Group A participants' *t-test* results did not yield significance to the researcher's hypothesis. Please see Appendix C for all test results not included in the narrative.

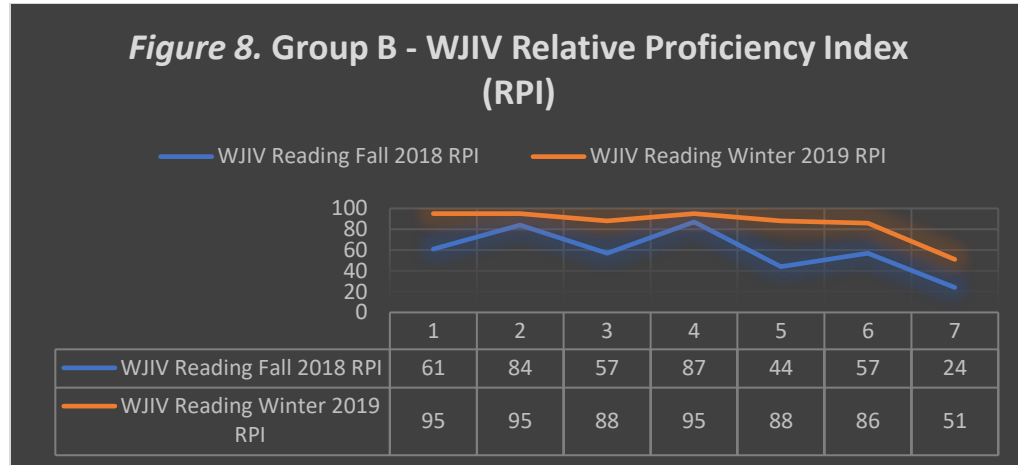


Figure 8. WJIV Tests of Achievement (relative proficiency index), group B.

Table 6
t-test: Paired Two Sample for Means (WJIV Tests of Achievement, Fall/Winter Relative Proficiency Index; Group B)

	Variable 1	Variable 2
Mean	59.14286	85.42857143
Variance	478.4762	245.6190476
Observations	7	7
Pearson Correlation	0.819959	
<i>df</i>	6	
<i>t</i> Stat	-5.46561	
<i>p</i> (T<=t) two-tail	0.001564	
<i>t</i> Critical two-tail	2.446912	

A *t-test* was used to determine if results were statistically significant. Table 6 showed Variable 1 (fall test scores) had a mean of 59.14, while Variable 2 (winter test scores) had a mean of 85.42. Variable 1 had a Variance of 478.47, and Variable 2 had a

Variance of 245.61. There were 7 observations in this group. A Pearson correlation of 0.81 showed a strong positive linear relationship between the two values. The two-tail *p*-value was 0.001, indicating the means were significantly different, thus rejecting the null hypothesis. Winter RPI scores were higher than fall RPI scores.

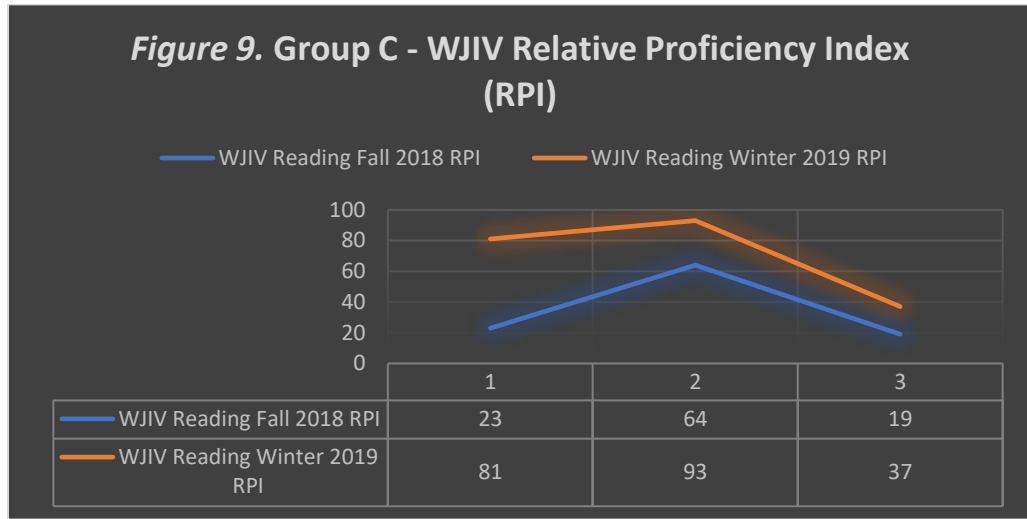


Figure 9. WJIV Tests of Achievement (relative proficiency index), group C.

All participants in Group C showed a substantial improvement on the RPI from fall to winter with all scores falling in a range higher than 24, suggesting these participants may be successful if they chose to attend college. Group C participants' *t*-test results did not yield significance to the researcher's hypothesis.

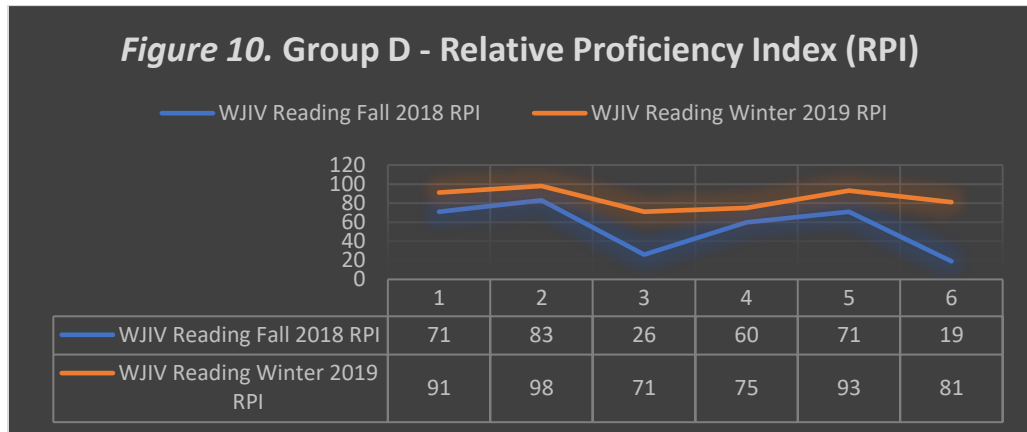


Figure 10. WJIV Tests of Achievement (relative proficiency index), group D.

Table 7

t-test: Paired Two Sample for Means (WJIV Tests of Achievement, Fall/Winter Relative Proficiency Index; Group D)

	Variable 1	Variable 2
Mean	55	84.83333333
Variance	691.6	116.1666667
Observations	6	6
Pearson Correlation	0.767698	
<i>df</i>	5	
<i>t</i> Stat	-3.78595	
<i>p</i> (T<=t) two-tail	0.012811	
<i>t</i> Critical two-tail	2.570582	

A *t*-test was used to determine if results were statistically significant. Variable 1 (fall test scores) had a mean of 55, while Variable 2 (winter test scores) had a mean of 84.83. Variable 1 had a Variance of 691.6, and Variable 2 had a Variance of 116.16. There were 6 observations in this group. A Pearson correlation of 0.76 showed a strong positive linear relationship between the two values. The two-tail *p*-value was 0.01, indicating the means were significantly different, thus rejecting the null hypothesis. Winter RPI scores were higher than fall RPI scores.

The fifth and final data source was a comparison of participants' first quarter versus second quarter grades in their special education English course (i.e., English or Community Reading). The results were presented in Figure 11.

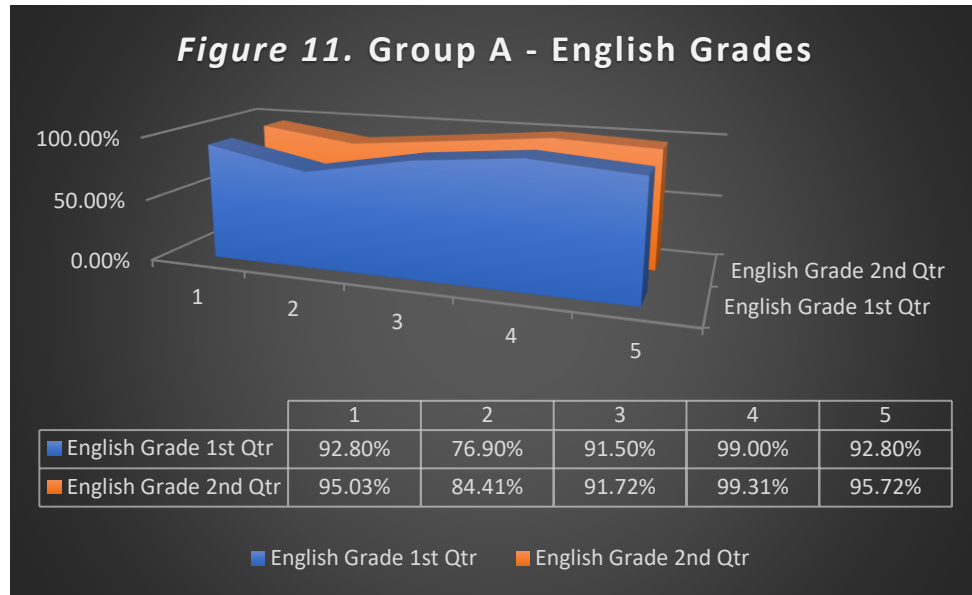


Figure 11. 1st quarter/2nd quarter english grades; group A.

All five of the participants in Group A saw an average increase of 2.63% in their Community Reading grade from first quarter to second quarter.

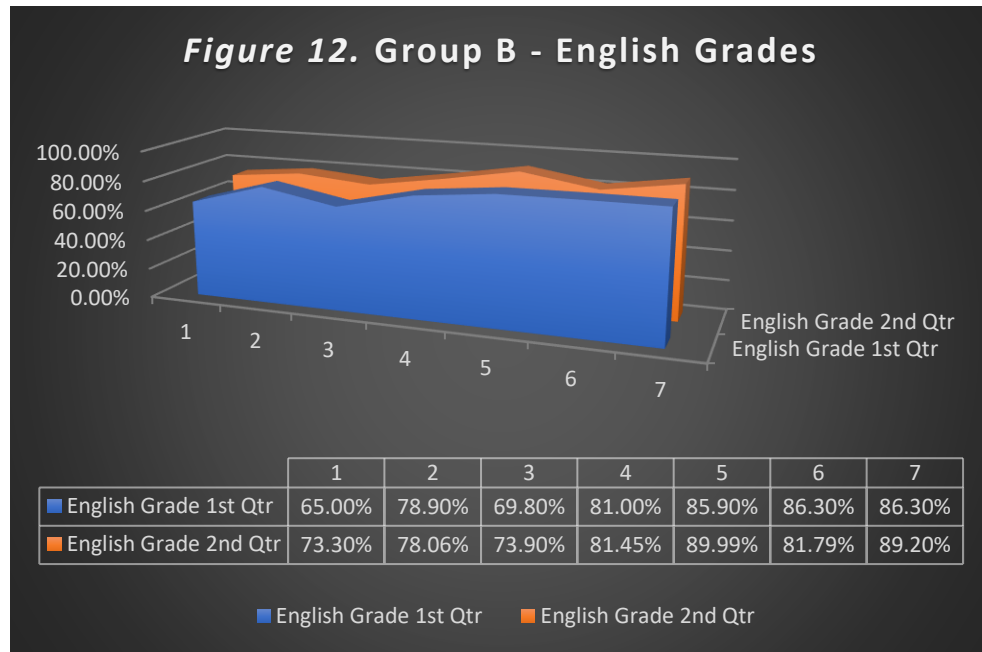


Figure 12. 1st quarter/2nd quarter english grades; group B.

As presented in Figure 12, four out of seven participants in Group B saw an average increase of 4.23% in their English grade from first quarter to second quarter.

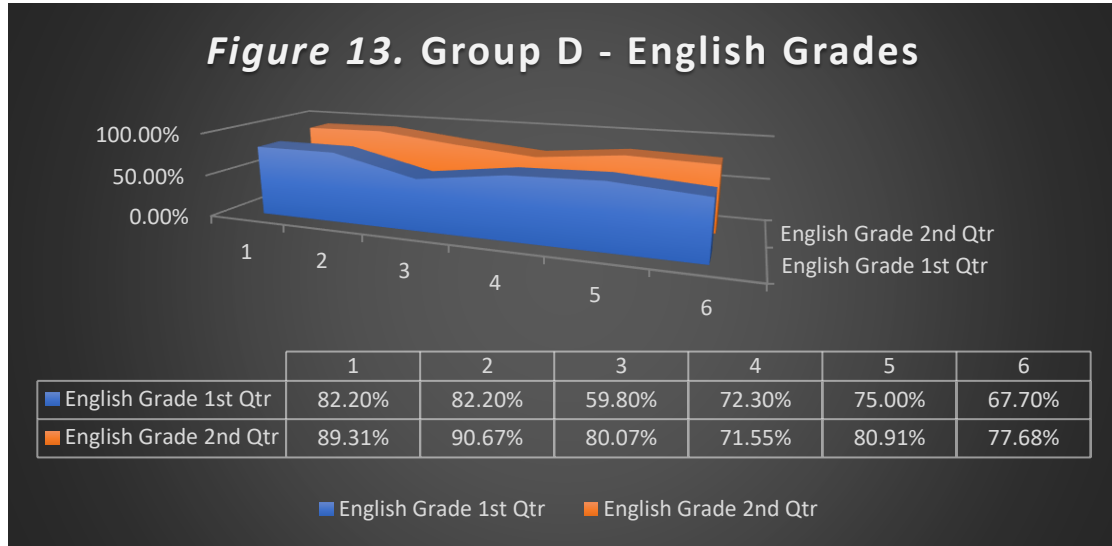


Figure 13. 1st quarter/2nd quarter english grades; group D.

Table 8

t-test: Paired Two Sample for Means (1st/2nd Quarter English Grades, Group D)

	Variable 1	Variable 2
Mean	0.732	0.816983333
Variance	0.007517	0.005216738
Observations	6	6
Pearson Correlation	0.641579	
<i>df</i>	5	
<i>t</i> Stat	-3.03688	
<i>p</i> (T<=t) two-tail	0.028853	
<i>t</i> Critical two-tail	2.570582	

A *t*-test was used to determine if results were statistically significant. According to the results of Table 8, Variable 1(1st Quarter grades) had a mean of 0.73, while Variable 2 (2nd Quarter grades) had a mean of 0.81. Variable 1 had a Variance of 0.007, and Variable 2 had a Variance of 0.005. There were 6 observations in this group. A

Pearson correlation of 0.64 showed a positive linear relationship between the two values. The two-tail *p*-value was 0.02, indicating the means were significantly different, thus rejecting the null hypothesis. Five out of six participants in Group D saw an average increase of 10.34% in their English grade from first quarter to second quarter. The remaining participant saw a decrease of .75% in their English grade from first to second quarter.

A final test was run to determine growth in reading after explicit mindset instruction was achieved by participants in each special education eligibility category including autism (A), intellectual disability (ID), specific learning disability (SLD), emotional disturbance (ED), hearing impairment (HI), and other health impairment (OHI).

Table 9
Wilcoxon Rank Sums and Kruskal-Wallis ANOVA Table for Variable; WJIV Reading Grade Equivalent, Fall

Eligibility	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
A	1	18.00	10.50	5.757604	18.000000
ID	3	6.00	31.50	9.433005	2.000000
SLD	8	98.00	84.00	12.941976	12.250000
ED	1	6.00	10.50	5.757604	6.000000
HI	1	10.50	10.50	5.757604	10.500000
OHI	6	71.50	63.00	12.106110	11.916667
Kruskal-Wallis Test					
Chi-Square		DF		Pr > ChiSq	
9.4510		5		0.0924	

Note: Average scores were used for ties.

Table 10
Wilcoxon Rank Sums and Kruskal-Wallis ANOVA Table for Variable; WJIV Reading Grade Equivalent, Winter

Eligibility	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
A	1	20.00	10.50	5.761944	20.00000
ID	3	6.00	31.50	9.440116	2.00000
SLD	8	94.50	84.00	12.951732	11.81250
ED	1	8.00	10.50	5.761944	8.00000
HI	1	11.00	10.50	5.761944	11.00000
OHI	6	70.50	63.00	12.115236	11.75000

Kruskal-Wallis Test		
Chi-Square	DF	Pr > ChiSq
9.6332	5	0.0863

Note: Average scores were used for ties.

According to Tables 9 and 10, in three out of six eligibility categories, autism (A), emotional disturbances (ED), and hearing impairments (HI), there was an increase in the means, indicating growth. The Wilcoxon Rank Sums results confirmed reading achievement in all eligibility categories are not equal; however since ($p > .05$), there is no significant difference in the means.

Data Analysis Procedures for Phase Two

After the intervention, analysis of the post-treatment, semi-structured interviews were compared with those of the pre-treatment, semi-structured interviews. The researcher transcribed and coded the interviews aligned with the theoretical framework of the cognitive evaluation theory (Weiner, 1972). Three a priori terms from this framework including the following: achievement, responsibility, and competence. The researcher used these terms to develop codes and sub-categories to further analyze interview data. Coding procedures followed Creswell (2014). See Appendix D for coding and frequency data. The results and analysis of the semi-structured one-on-one interviews are presented in this section.

Nineteen out of the twenty-two participants who participated in the quantitative portion of the study participated in the qualitative interviews. One participant who could not complete the interview portion was not selected because of the nature of their disability. All interview participants were asked to verbally answer interview questions, whereas the final participant was unable to do so. The remaining two participants did not want to take part in the interview portion of this study. Participants from this group were currently enrolled high school students who were seeking a regular high school diploma. All participants willingly agreed to provide honest answers to the questions they were asked. The goal of the qualitative data collection was to further explain the results of the quantitative data. The following themes emerged as a result of the interview analysis: (a) students' definitions of mindset, (b) students' disability awareness, (c) characteristics of effective/ineffective teachers, and (d) student motivation.

Students' Definitions of Mindset

Students' definitions of mindset relate to Research Question 1: What type of mindset do students with disabilities exhibit? This question led me to develop interview questions asking participants to define mindset in their own words and to identify what type of mindset they believe they have. Throughout the analysis four sub-categories emerged: (a) innate traits, (b) the brain, (c) personal beliefs/attitudes, and (d) fixed or growth mindset.

Innate traits. Many participants described mindset as the ability to learn something new. These definitions were based on two types of mindset--Fixed Mindset and Growth Mindset. For instance, to the question "In your own words, define *Mindset*?" Participant B4 replied, "Your outlook on certain situations; your own life. What you feel

you can and can't do. Whether you think you can't get better because you are born with a certain level of intelligence and you can't learn new things. Or you find out new things about yourself and you learn that you can go out there and see the world" (Participant B4, personal interview, October 18, 2018). Another participant, B1 added, "People's thoughts on how they were born, how they think, how smart they are when they are born and how you grow as you get older" (Participant B1, personal interview, October 18, 2018).

Throughout the many mindset discussions, five participants defined mindset as innate traits, where from birth, an individual's ability to learn new things is dependent upon the growth of their physical body.

The brain. While five participants focused on traits one is born with, another group of participants described their ideas of mindset related to the brain. Participant A2, simply stated, "Mindset is the brain, and how it changes" (Participant A2, personal interview, November 27, 2018). Another participant, C2 added, "When you have a certain way you can learn, a certain way you know how to learn" (Participant C2, personal interview, October 18, 2018). A few participants defined mindset as one's ability to concentrate or focus on something. Participant B6 replied, "Mindset is your train of thought. How you look at something, and how you act on it" (Participant B6, personal interview, October 18, 2018). A final participant, B7, defined mindset as "What you put in your mind that you can do or can't do. You can either think that you can do something, and you can get better at it. Or you can think you can't do anything better and you're only good at one thing" (Participant B7, personal interview, October 18, 2018). After the mindset unit, participants recalled information about the brain being malleable. As we

learn new things, parts of the brain change, and some participants included that information in their interviews.

Personal beliefs and attitudes. Personal beliefs regarding mindset are a powerful thing. Some participants had strong feelings, while others were more nonchalant. One participant, C1 stated, “Mindset is whether you believe you can or cannot do something” (Participant C1, personal interview, October 18, 2018). Some participants generally discussed mindset as the way in which one views the world--how one sees things. When someone must work to get past their limits, they change and grow. Participant B2 added, “The way someone thinks about how they can grow or not grow” (Participant B2, personal interview, October 18, 2018). Another participant, B5, defined mindset as “Learning or achieving something; anything new or difficult” (Participant B5, personal interview, October 18, 2018). Participant A5 added, “Learning something new every day. Getting smarter and allowing teachers to help you” (Participant A5, personal interview, November 27, 2018). A final participant, B3 thought of mindset within the context of his life outside of school, saying “I think of it in more of video game terms; me and my friends always use the word mindset when it comes to playing games. If you have a rage type of mindset while playing a game, you usually play really bad and lose the game. If you are more of a calm player, and don’t let people get to you when you’re playing it usually helps you a lot” (Participant B3, personal interview, October 18, 2018). This participant was clear about how mindset played a significant role in everything one does both in school and outside of school.

Fixed or growth mindset. Participants were asked the following question, “What type of mindset do you think you have? Fixed Mindset, Growth Mindset, or Balanced

Mindset? Explain.” Out of the twenty participants interviewed, fifteen identified as Growth Mindset, three identified as Balanced Mindset, and one identified as Fixed Mindset. Three participants who identified as having a Growth Mindset indicated they had the ability to learn new things which helped them grow. One participant, C3 stated, “I like learning something all the time, especially Math” (Participant C3, personal interview, October 18, 2018). One participant, B5, simply stated, “I think anything is possible” (Participant B5, personal interview, October 18, 2018). Participant A5 felt they had a Growth Mindset because they “recognize the need for help in certain areas like reading and spelling” (Participant A5, personal interview, November 27, 2018). This participant, along with a few others felt their ability to learn and grow was dependent upon teachers providing support for them in an educational setting. To them, this idea meant they had a Growth Mindset. Participant C2 shared, “I always want to improve so I can do better in school and other activities” (Participant C2, personal interview, October 18, 2018). Another participant, B6 stated, “I just try to work things out in order to understand them better” (Participant B6, personal interview, October 18, 2018). There were three participants who identified as having a Balanced Mindset, meaning they had both Growth and Fixed qualities. They were not able to give an explanation as to why, but they were confident they fell somewhere in between. The only participant, D4 who identified as having a Fixed Mindset said, “I just am. When I fail, I just give up because I don’t care” (Participant D4, personal interview, October 18, 2018). This participant was in the group that did not receive direct mindset instruction this year, however they were in the prototype group two years ago. This participant is an upper classman who wants to drop out of school. Despite my best efforts to change their mindset, it has been fixed since they

started school. Although this participant's mindset is fixed, they are making progress in other areas of the curriculum. Even though they may not recognize it, their mindset has changed for the better since starting school.

Students' Disability Awareness

Students' Disability Awareness is framed in the following way by Research Question 1: How much variation is there in the mindsets of study participants? This question led me to develop interview questions that asked participants to discuss their disability in terms of the effect it had on their ability to learn, both academically and socially. Throughout the analysis, three sub-categories emerged: (a) does my disability define me (b) academic impact/adversity, and (c) social impact/adversity.

Does my disability define me? Participants were asked the following question: "Do you think having a disability means you are unable to learn? Explain." The general consensus of the participants was an emphatic no! They felt having a disability did not mean they could not learn, they just learned in a different way. Participant B4 replied, "I don't think it means you are unable to learn because it's a disability; it's not like you don't have a brain. You're able to learn new things. If you see someone doing something you know how to do it, or you start to learn how to do it. It's not like you are never going to do it, that's not how it works" (Participant B4, personal interview, October 18, 2018). Another participant, B7, added "It just takes me longer to learn something" (Participant B7, personal interview, October 18, 2018). Participant C1 mentioned, "With practice, anyone can get better" (Participant C1, personal interview, October 18, 2018). A few additional participants commented that having a disability meant you just need a little more help, but everyone has the capacity to learn new things. Participant B3 replied, "If

you have a disability that effects your ability to learn, that may be the case, but I think you can still learn, just maybe not on the same scale as others. It just may be more difficult or in some cases, much more difficult for you to learn” (Participant B3, personal interview, October 18, 2018). Participant A5 added, “Some people think because you have a disability you can’t learn anything new, but you can always learn something new. Like a math problem you never knew before or reading or spelling” (Participant A5, personal interview, November 27, 2018). One very insightful response from participant A2 was, “No, it does not mean you can’t learn. You can still do things that the disability doesn’t effect” (Participant A2, personal interview, November 27, 2018). When asked to elaborate, the participant discussed that not everyone is good at the same things, like working with their hands. Some people are good at book things while others are good at work related skills. These participants offered great insight to their disability awareness.

Academic impact and adversity. To assess the academic impact of having to be removed from the General Education population to take classes in Special Education, participants were asked the following question: “What does being in Special Education mean to you academically?” Most participants shared that, academically, being in Special Education classes meant they were in those classes because they needed more help. Some mentioned specific classes (e.g., reading, math, spelling) while others spoke generally about needing more help than their General Education peers. A few participants mentioned being in Special Education meant things were easier for them to understand. The remainder of the participants shared their thoughts through a more negative perspective. Participant B4 shared “Academically, it’s a cripple for my future; no matter whether my GPA is good or not, colleges are looking for the smartest so if you’re in

Special Education it puts you below everyone else. You must work twice as hard” (Participant B4, personal interview, October 18, 2018). Another participant, C2, added “I have Special Ed classes for a reason, my disability made me behind” (Participant C2, personal interview, October 18, 2018). An additional participant, A2, commented, “They are doing high stuff in other classes” (Participant A2, personal interview, November 27, 2018). This comment gave me the impression there was resentment on behalf of this individual feeling as though they were missing out on more complex information offered in General Education classes. The final few participants shared they felt they were taught at a slower pace in the Special Education setting. Overall, the academic impact was positive for participants; however, there were a few who felt Special Education was a hindrance.

Social impact and adversity. To assess the social ramifications of having to be removed from the general education population to take classes in special education, participants were asked the following question: “What does being in special education mean to you socially?” Participants answers fell into one of three categories; positive, negative or neutral. Five participants reported not seeing any difference socially, because they are enrolled in one or more special education classes. In fact, they had no thoughts about it whatsoever. Four additional participants saw being in special education as a positive experience. Participant A5 reported, “I told one of my friends I was in special ed, but he didn’t believe it. He was surprised because he never knew that. A lot of my friends are in special education” (Participant A5, personal interview, November 27, 2018). A second and third Participant, B1 and D4, added a similar sentiment stating, “I have more friends because I am in special education” (Participants B1, & D4, personal interview,

October 18, 2018). The final participant in the positive category, participant B4 referred to special education as family. “For me it’s not socially awkward talking to anyone outside of special education because they all know how I am. special education is pretty much like a family. There are not a lot of people in the classes, so you feel like you are with family all day” (Participant B4, personal interview, October 18, 2018).

In the final category, seven participants discussed the negative impact of being enrolled in one or more special education classes. A few participants commented that people look at them differently or think they are slow. They often are asked questions about why they are in smaller classes and are told they do not have to work as hard as students in general education. One participant, C2, shared, “I hate being in special education! I want to feel normal and be with my friends” (Participant C2, personal interview, October 18, 2018). Another participant, C1, had a very emotional reaction to this question, crying as they were giving their answer saying, “Some people like my cousins have said because I am in special education, I don’t have to work as hard” (Participant C1, personal interview, October 18, 2018). Participant D3 reported, “People think it is hilarious. They make fun of me for it. They laugh saying I am dumb and stuff” (Participant D3, personal interview, October 18, 2018). Another participant, C3, concurred, stating “I am judged socially in very mean ways. Some people bully me because I am in special classes instead of regular” (Participant C3, personal interview, October 18, 2018). A final participant, B7 stated, “People think it’s a bad thing like we can’t do a lot of things they can, but we can prove them wrong by doing it” (Participant B7, personal interview, October 18, 2018). The consensus from this group of participants was alarming. Many of them felt isolated and mis-judged. How can we change this?

Is Mindset Connected to Performance?

Characteristics of effective/ineffective teachers. Participants' views regarding characteristics of effective and ineffective teachers were framed by Research Question 2: Is mindset connected to performance (i.e. motivation, and academic achievement)? To determine factors contributing to a student's success or failure in the classroom, participants were asked the following questions: (a) what is the worst class you have ever had to take? Why was it your worst class? (b) describe the characteristics of your ideal classroom teacher. Many different subject and grade level areas came up as responses to question (a). Subjects included science, math, english, world cultures, spelling, social studies, and band. In addition, the classes chosen ranged from elementary, to middle school, to high school. Most participant responses mentioned the fast-pace of the lessons. Participants said they could not keep up with the content in the general education setting. They also mentioned a lack of support they received from the instructor. The instructor appeared too busy to take questions, re-teach difficult concepts, and allow time for independent work at the conclusion of a lesson. A few participants mentioned the classes were too difficult, or they simply did not like the subject matter. One participant, B6, shared "The teacher never helped me or cared" (Participant B6, personal interview, October 18, 2018). A second participant, C3, added, "The teacher would not help me or slow down when I asked her" (Participant C3, personal interview, October 18, 2018). A few participants took accountability for their dis-like of certain classes for personal reasons including participant D4, stating, "science or American history – They were really hard, and I did not understand things. They were boring so I could not focus and keep track of things" (Participant D4, personal interview, October 18, 2018). Participant

D3 added, “Science – HS; I don’t like it, I don’t get it” (Participant D3, personal interview, October 18, 2018). One participant, A1 associated a struggle in math to the entire 3rd grade year as a bad experience for them saying, “3rd grade, the whole grade. Learning my times. I could not learn them that much” (Participant A1, personal interview, November 27, 2018). Overall, participants were very open about what they viewed as ineffective instructional methods.

When asked to describe characteristics of an ideal classroom teacher, participants did not hesitate for more than a second before blurting out their responses. Participants seemed eager to provide a short list of qualities that would make a great teacher. Qualities included the following traits: nice, kind, patient, funny, caring, helpful, creative, respectful, honest, friendly, positive, and understanding. A few participants elaborated upon these ideas with more specific qualities. For example, participant C1, stated, “The perfect teacher would just know when I need help” (Participant C1, personal interview, October 18, 2018). Another participant, B3 shared, “The perfect teacher would be a person who cares a lot. I always enjoy teachers I can make a personal connection with. Someone who takes time and resources to do things for their students” (Participant B3, personal interview, October 18, 2018). Participant A5 stated, “The perfect teacher would break it down in little parts to make it easier for me, explain it better. Most teachers give you a paper to do by yourself. She reads to you if you need any help with anything” (Participant A5, personal interview, November 27, 2018). Participant B4 added, “It would be awesome if every teacher was like you. Kind, caring, understanding, if they don’t shove homework in your face and tell you to do it without explaining. Or when you ask for help from a teacher, they tell you, you should have taken more notes, and they

don't actually help you" (Participant B4, personal interview, October 18, 2018). Several participants spoke about the need for a teacher to be understanding; Participant B1 mentioned, "A teacher who takes the time to truly understand what we are going through" (Participant B1, personal interview, October 18, 2018). An additional quality Participant D4 listed was "A teacher who was willing to stop everything and re-teach. Someone who was open for questions and cared about students" (Participant D4, personal interview, October 18, 2018). A final participant, C3 shared, "Someone who would help me in different ways on homework, and class work. Not give me answers but help me figure it out" (Participant C3, personal interview, October 18, 2018). This participant touched on a common stereotype for students enrolled in special education. Often, the general population believes everyone in special education receives grades, instead of earning grades. This participant was sensitive to that stereotype and was open about it during the interview.

Changing mindset. Participants' views regarding mindset and whether it can be changed were framed by Research Question 2: After explicit mindset instruction, will the mindset of study participants change? To assess the impact on mindset after explicit mindset instruction, participants were asked the following questions: (a) what type of mindset do you currently have? Fixed, Growth, or Balanced? (b) has your mindset changed since the beginning of the year? Why or why not? Fifteen participants identified as having a Growth Mindset, while three participants had a Balanced Mindset, and one participant had a Fixed Mindset. Of the nineteen participants, sixteen indicated their mindset had changed since the beginning of the year, while three participants indicated no change. Six participants who felt their mindset had changed shared a general

explanation for this change, saying they felt like they had learned a lot of new things since August. Participant D6 stated, “I have been completing my goals, both personally and related to my education” (Participant D6, personal interview, March 4, 2019).

Another participant shared “I used to feel I could not do things by myself. I have been practicing and doing things better” (Participant B7, personal interview, March 4, 2019).

Generally, participants shared they just felt as though they could do things differently after learning about what type of mindset they had. Participant, B2 simply said “I am more open to change” (Participant B2, personal interview, March 4, 2019). Participants who rated themselves as having a Fixed Mindset, did not offer a reason as to why their mindset did not change.

Personal accountability. Participants’ views regarding personal accountability are framed by Research Question 2: Is mindset connected to performance (i.e. academic achievement and motivation)? To determine precipitating factors contributing to a student’s success or failure in the classroom, participants were asked the following questions: (a) Do you feel learning about mindset has helped to improve your overall performance? If so, how? (b) Do you feel you have performed better or worse since the beginning of the year on the following; Aimsweb, WJIV Testing, and Daily Assignments? Two categories emerged from this set of questions including: (a) effort and (b) achievement.

Effort. According to the dictionary, effort is defined as the following: “(a) conscious exertion of power: hard work, (b) a serious attempt: try, (c) something produced by exertion or trying, (d) effective force as distinguished from the possible resistance called into action by such a force and, (e) the total work done to achieve a

particular end” (Merriam Webster, 2019). Several participants shared insights as to how mindset had made a significant impact on the effort needed to achieve success or failure not only in the school setting, but in life. Participant C2, stated “Yes, mindset has helped me to be a better person and try to do more things all around” (Participant C2, personal interview, March 4, 2019). Participant B5 added, “Yes, I did not know what growth or fixed mindset was until we talked about it. It has helped me. I thought there were certain things I could not do, but I can” (Participant B5, personal interview, March 4, 2019). Another participant shared “Yes, mindset has impacted my overall performance. I don’t think I can’t do anything anymore. It helps me to think I can do stuff more. I think a lot differently about if I can or I can’t do stuff” (Participant C1, personal interview, March 4, 2019). The next participant, B1 said “I’ve learned to understand people better with different things like when they don’t understand something, I can relate to them and try to help them” (Participant B1, personal interview, March 4, 2019). Another participant simply stated, “Yes, learning about mindset makes me think about all of the things I can do. Instead of thinking I can’t do something” (Participant B7, personal interview, March 4, 2019). A final participant gave insight as to how effort impacted their personal goal of getting out of Special Education, saying “I understand my mindset more. I want to try to achieve the goal of getting smarter and getting out of Special Ed” (Participant D6, personal interview, March 4, 2019).

Achievement. Participants were asked the following question related to achievement: Do you feel you have performed better or worse since the beginning of the year on the following assessments: Aimsweb, WJIV Testing, and Daily Assignments? See Table 11 for participant results.

Table 11
Participant Responses Regarding Growth on Academic Assessments

Type of Assessment:	Aimsweb Testing			Woodcock Johnson IV Tests of Achievement (Reading)			Daily Assignments		
	Yes	No	Same	Yes	No	Same	Yes	No	Same
Overall Performance Category: *Yes – I improved *No – I regressed *Same – No change									
Participant Response:	17	1	1	16	0	3	13	4	2
% of participants out of 19	89.4%	5.3%	5.3%	84.2%	0%	15.8%	68.4%	21.1%	10.5%

While looking over the interview data, participants gave insights for why they felt they did not improve on the Daily Assignments category. Participant, B3 shared “I don’t think I did any better because I have trouble focusing” (Participant B3, personal interview, March 4, 2019). Another participant stated, “I did not do better, because I am not turning things in” (Participant B4, personal interview, March 4, 2019). A third participant shared “I am not doing better because the worksheets are hard” (Participant B6, personal interview, March 4, 2019). The final participant who indicated they had not improved in the Daily Assignments category shared, “My attendance is bad, so it is hard to get better” (Participant D3, personal interview, March 4, 2019). All these reasons from participants supported the idea of personal accountability.

Motivation

Participants' views regarding motivation are framed by Research Question 2: Is mindset connected to performance (i.e. motivation, and academic achievement)? To provide insight to the participant's motivation, the following question was asked: (a) do you feel intrinsically or extrinsically motivated to do well in school? If so, whom or what motivates you? Out of the nineteen participants interviewed, twelve reported being intrinsically motivated, three participants were extrinsically motivated, and the remaining four participants were a mix of both intrinsically and extrinsically motivated to do well in school.

Intrinsic vs. extrinsic motivation. As framed by the cognitive evaluation theory, intrinsic motivation is a strong desire to determine one's own actions. Extrinsic motivation is where external factors contribute to one's success or failure. All participants who indicated they were intrinsically or extrinsically motivated to do well in school listed either family, a career/job, teachers, or graduation as their key motivator. Of the nineteen participants, seven chose a career/job as their primary motivator. Participant, B7 stated, "I am intrinsically motivated by everything I want; a career, family, and my friends" (Participant B7, personal interview, March 4, 2019). Another participant added, "I am intrinsically motivated. I am motivated by my future and having a career. I don't want to live like I did growing up" (Participant D6, personal interview, March 4, 2019). Eight participants indicated family was a motivating factor for their success in school. A few participants who identified as being extrinsically motivated stated their family is the reason why they have to come to school each day. The final group of four participants indicted their primary motivation is teachers, and/or favorite classes. These participants

named specific teachers who have been instrumental in their educational journeys. All participants who chose teachers as their primary motivator were also intrinsically motivated.

Chapter 5: Discussion of Results

A mixed methods design was used to “collect both quantitative and qualitative data concurrently, then integrate the data to provide a comprehensive analysis of the research questions” (Creswell, 2014, p. 219). Participants’ mindsets were assessed to establish a baseline, as well as an initial achievement test, reading fluency and reading comprehension assessments, and current grades. A ten-week mindset curriculum unit was implemented, and post-test data was collected and analyzed. One-on-one semi-structured interviews were conducted and analyzed. Finally, the quantitative and qualitative data was merged to determine emergent themes and significant findings.

Statistical analysis, both correlation and comparison of means tests showed there were several significant findings. First, according to the mindset survey results, 77% of participants saw an improvement in their mindset after explicit mindset instruction. In addition, nearly all participants self-reported they fell into one of three mindset categories: Strong Growth Mindset, Slight Growth Mindset, or Balanced Mindset. One participant fell into the Strong Fixed Mindset category, while an additional participant fell into the Slight Fixed Mindset category, indicating nearly all participants not only improved their mindset category, but also self-reported as falling in one of three growth categories. Both participants who fell into one of two Fixed Mindset categories were in the control group, which did not receive explicit mindset instruction, thus signifying the importance of incorporating explicit mindset instruction into the curriculum.

An analysis of qualitative data further supported the researcher's hypothesis that participants who rated themselves as having a fixed mindset may limit themselves academically. The study revealed two out of three participants who self-reported as having a fixed mindset through survey data, showed a decrease in grades, oral reading fluency and reading comprehension scores. Out of the remaining 19 participants who self-reported as falling into a balanced, slight growth mindset or, 71% improved their grades, 69% improved their oral reading fluency scores, and 100% improved their reading achievement test scores. Although there were five participants who did not self-report a positive change in their mindset, through explicit mindset instruction, those participants showed an increase in their achievement. All five participants increased their grades and their reading achievement test scores, while four out of five participants improved their oral reading fluency scores. These results indicated explicit mindset instruction may be related to improvement of student achievement and students' mindsets and self-awareness.

Further analysis of qualitative data, revealed there were several important findings. At the beginning of the study, one-on-one, semi-structured interviews were conducted, and fifteen participants identified as having a growth mindset. Three identified as having a balanced mindset, and three identified as having a fixed mindset. At the end of the study, all results were the same, indicating no self-reported change. A second important finding from the semi-structured, one-on-one interviews exposed a strong awareness of the academic and social impact of having a disability, and how each participant refused to allow their disability to define them. The significance of this finding lends itself to the idea that participants know they have the capacity to learn and grow.

Participants recognize that although someone can be born with a disability, or later identified, they are still capable of learning. In line with the cognitive evaluation theory, this finding is significant not only to the participants' abilities to do well in school, but it directly impacts their self-esteem, competence, sense of responsibility and their achievement in general (Deci & Ryan, 1985). Nearly all participants stated having a disability does not mean you cannot learn. You may learn in a different way, and your disability may make it more difficult; however, everyone has the capacity to learn.

A third important finding indicated participants had vast experiences of being in difficult classes. However, what was perceived as making the class difficult was not the content. Instead, participants gave insights regarding instructors who they believed used ineffective instructional practices in the classroom, leading to their lack of success. Participants were able to cite specific examples of effective teachers who helped make a lasting impact on their success or failure in the classroom. Participants indicated several instructional qualities that hindered their success, including pace of instruction, presentation of content, classroom environment, limited teacher support, lack of appropriate materials, and boring instructional methods. Although participants were very honest about the negative aspects of their educational experiences, they were equally as thoughtful when providing characteristics of effective teachers. These characteristics included descriptors such as having classroom resources (i.e., computers, and provides materials for students); being patient, nice, friendly, respectful, honest, cares a lot, funny, creative, positive and helpful; and provides thoughtful explanations, breaks things down, reads things aloud, can understand what students are going through, makes personal connections, someone who gets you through, someone who knows when a student needs

help, not give me answers, but help me figure it out, make time for students, re-teach, open for questions, and someone who keeps me awake. These findings were significant, because although participants took more time to come up with effective instructional characteristics, you can see their list was much greater and more personal than the list of ineffective traits. In addition, these findings support previous research from the review of literature where instructional practices and leadership mindset can positively or negatively impact resiliency and persistence.

Another important finding was related to a participants' views of their academic achievement and personal accountability. Participants who felt their achievement was poor, assumed personal accountability for the probable causes leading to decreased performance, such as attendance and effort. All participants showed significant growth on many of the quantitative tests, including, WJIV Tests of Achievement, Grade Equivalent; WJIV Relative Proficiency Index; English grades; and Mindset Surveys. Although this growth was significant, when participants were asked to explain whether they felt they made progress in three academic areas, 21% of participants self-reported not improving their overall performance on daily assignments. This finding is important because although participants appeared to report a negative result, they were able to provide insight as to why they did not improve, showing personal accountability. Participants mentioned poor attendance, not turning things in, and not liking certain types of assignments, as explanations for poor performance. Participants were not placing fault on the instructor; in fact, they were doing quite the opposite. As a researcher, these responses provided a lens through which to view participants personal accountability related to their mindset.

The next important finding participants revealed was their understanding of being intrinsically or extrinsically motivated in accordance with the cognitive evaluation theory. In this study, 69% of participants identified themselves as intrinsically motivated, 11% as extrinsically motivated, and 20% as both intrinsically and extrinsically motivated. Many participants identified effort as a key factor to determining their success or failure related to completing tasks and staying motivated. Individually, participants were asked to provide information regarding what motivates them to come to school each day and do their best. The following motivators were shared: career, job, family, friends, teachers, and wanting more for themselves and their future. It is reasonable to conclude that, participants with a growth mindset were intrinsically motivated, while participants with a fixed mindset were extrinsically motivated.

According to the U.S. Department of Education, students with disabilities are 1.5 times more likely to be chronically absent (more than 15 days), than their non-disabled peers; in addition, these rates are higher in high schools. The researcher made an assumption that participants who self-reported as having a fixed mindset may have poor attendance, which may have attributed to their mindset category. Instead, two of the three participants had a 95% attendance rate, while the third participant had an 82% attendance rate, indicating no significant correlation between attendance and fixed mindset. Finally, the researcher was interested in determining if participants' mindset were impacted by their special education eligibility category, specifically, whether there was growth in one eligibility category over another. The researcher discovered there was growth by participants in all categories, indicating there was no significant difference based on a participant's special education eligibility category.

Conclusion

After explicit mindset instruction, there was a significant change in participants' mindsets. According to quantitative data, after receiving explicit mindset instruction for a period of ten weeks, 69% of participants saw a positive change in their mindset. Qualitative data revealed that 77% of participants' mindsets improved. In addition, mindset had a significant impact on performance, including academic achievement in reading, as well as the motivation of participants. It is reasonable to assume explicit mindset instruction has a significant impact on participants' mindsets and their capacity for growth.

Summary

Students of all ability levels should receive quality instruction, including guidance on how they may learn best. Exploring strengths and weaknesses while experiencing academic and social setbacks and discovering new ways to unlock potential through explicit mindset instruction is the key. This study sought to understand what type of mindset participants had, and whether it could be changed through explicit mindset instruction. In addition, the researcher sought to determine if there was a correlation between mindset, achievement and motivation. The researcher was interested in improving student outcomes and classroom instructional practices through mindset.

This study provided insight into students' day-to-day interactions and adversities, not only in the classroom, but in their social circles, and even in their own families. Gaining trust by establishing meaningful relationships and implementing mindset instruction may be essential in students' personal and academic growth. Providing a

judgment free environment for students to feel safe, valued, and respected should be an immediate priority for all educators.

Limitations of the Research and Recommendations for Future Study

The study was conducted at the researchers' place of employment, a predominantly white, rural, relatively small high school which could be a potential limitation when transferring results to other sites. In addition, given the variability of participants, the potential for extreme responses could have indicated regression. For example, there were participants from six different special education eligibility categories, including those with significant intellectual impairments. The study revealed three categories of participants (including participants with autism, emotional disturbances, and hearing impairments) who showed an increase in the means (i.e., WJIV Reading grade equivalent). Participants in the intellectual disability category had no change in the means (i.e., WJIV Reading grade equivalent), while participants in the specific learning disability and other health impairment categories, showed a slight decrease in the means (i.e., WJIV Reading grade equivalent). An additional limitation of this study may be the small sample size given the low response rate, and size of the research site.

During the study, the researcher's presence may have biased responses. In other words, participants may have wanted to please the researcher by providing the most desirable responses to semi-structured interview questions (Creswell, 2014). Had rapport not been established, would the outcome of the study have changed? Another important limitation to acknowledge was the absence of data regarding transference across other areas of the curriculum. For example, what type of mindset does a participant exhibit in

other special education settings? This study focused on special education English and Community Reading courses; however, it would be imperative to know if participants' mindsets varied in other settings. In addition, the relatively small sample size could have yielded results on too small of a scale, not easily transferable to a larger setting.

Future studies may be designed to compare several different types of mindset curriculum units against each other. Are there aspects of one curriculum that students connect with more than others? Are there more effective methods to measure mindset and recognize change over time? A deep analysis of what materials are available and what processes work well with different populations of students needs to be considered. In addition, further examination could be done to determine when is the most crucial time to introduce mindfulness (i.e., elementary school, middle school, or high school). Studies could also be done to explore if a participant's IQ has an impact on their mindset. Additionally, further research with a larger sample size regarding the effects of chronic absenteeism on performance would be useful for educators. These types of studies are essential to enhancing student achievement and motivation, not only in secondary special education classrooms, but in other grade levels and educational settings.

Implications for Schools

Despite limitations presented from this study, the preliminary results support the researcher's hypotheses that: (a) having a fixed mindset may limit students academically, and (b) explicit growth mindset instruction can impact achievement and motivation for secondary students with disabilities. Students' mindsets were established, nurtured, and in most cases transformed through explicit instruction. By studying motivational categories, both intrinsic and extrinsic, students were able to articulate preferred methods

of instruction, as well as identify prohibitive factors influencing their success or failure in the classroom. Similarly, explicit mindset instruction may have played a role in improving student achievement in reading. Students' motivation to be successful was related to their personal beliefs and attitudes developed through their mindset explorations. The results from this study may inspire change for schools and beyond to embrace growth mindset practices to reach all learners in an effort to impact motivation and achievement for our youth.

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Appendix A

Treatment Groups A, B, and C: Mindset Curriculum Unit

Introduce mindset unit focusing on the following:

Week 1-2: Introduction to Mindset

- Mindset Defined
 - Build a Mindset background (Read What is Mindset)
 - Do Activity; Fixed vs. Growth Mindset Statements
- Pre-Assessment - What is your mindset
 - Student survey
 - Do Mindset Survey 1 (Teacher-generated)
 - Theories of Intelligence Scale
- Brain Development
 - Read/Research; Neuroplasticity (Mindsets in the Classroom by Mary Cay Ricci © 2013, Prufrock Press)
 - Read/Research; How the brain plays into mindset (M. Meacham; <https://www.td.org/insights/the-growth-mindset-starts-in-the-brain>)
 - Visual/Spatial Activity: What do you already know about the brain, what do you believe to be true about intelligence.
 - Research; Left/Right Brain Traits
 - Personality Test (Online): Retrieved from <http://personality-testing.info/tests/OAHBDS/>

Weeks 3-4: Failure Effort and Success

- Failure, Effort & Success Defined
 - Research: Failure, Effort and Success (Create working definitions as a class)
 - Provide Examples of Failure, Effort, and Success through both a Fixed and Growth Mindset Lens
- Famous Failures
 - Research: 6 Famous Failures: Albert Einstein, the Beatles, Walt Disney, Michael Jordan, Oprah Winfrey, and Steve Jobs. Answer the following questions:
 - 1. How did they overcome tragedy?
 - 2. How did their failure lead to success?
 - Activity: Learning from Failure: Use the template provided to list four types of failure and what you learned from each type of failure
- Reflection: Turning Discouragement into Success
 - Write about a time you were discouraged by something someone said to you. Were you able to overcome that feeling? Why, or Why not?
 - Write a letter to yourself explaining how you turned a moment of failure or discouragement into success.
- Pessimism vs. Optimism

- Read through the quotes from the following: Robert F. Kennedy, Ken Robinson, Ellen DeGeneres, and Carl Jung
- Write down how each quote demonstrates either optimism or pessimism
- Develop your own quote about optimism or pessimism.

Weeks 5-6: The Keys to Motivation

- Motivation Defined
 - Research Motivation (Create a class definition)
 - Created a list of synonyms/antonyms for motivation to make the terms visible
 - Explain the importance of motivation
- Goal Setting
 - Motivation Task Cards: (Use Chrome books for Tracking)
 - Write a SMART Goal to complete by the end of the year
 - Develop a detailed plan of action for the SMART Goal. Identify what type of Mindset you will need to achieve that goal.
 - Create a tracking element to track your progress
 - What will you do if you fail at reaching your goal? Create an “I will statement to reference when things get tough.
 - What emotions, feelings, and thoughts will exist if, and when you reach your SMART goal?
 - Research and find a motivation quote to help you achieve your goal.
- Perseverance Defined
 - Research; Perseverance (Create a class definition)
 - Create a list of Synonyms/Antonyms to make Perseverance visible
 - Activity: Test your grit by completing these tasks:
 - 1. The student sitting in the far left is preparing for a test in Algebra II. In the past she has failed all of her Algebra II tests. How would you coach her on perseverance and why?
 - 2. The student sitting in the far right is about to have her artwork critiques and is very nervous. If they appreciate her art, she will receive a full-ride scholarship. How would you coach her on perseverance and why?
- Attribution Theory
 - Research/Read about the Attribution Theory (F. Heider)
 - Discuss as a Class: How does the Attribution Theory relate to Growth Mindset?
- Confidence Building

- Activity: Use template to complete the following activity: Write your name on the sheet of paper. Pass the paper around so each classmate can write a statement intended to build up your confidence using growth mindset.
- Complete Confidence Building Reflection:
 - How did reading the statements make you feel?
 - How did using Growth Mindset terminology make difference in the compliments?
 - Write 3 positive statements about yourself using growth mindset.
 - Research, define and explain the importance of positive self-talk

Weeks 7-8: Developing Your Identity

- Identity Defined
 - Describe: What do you think of when you hear the word “identity?”
 - Research the deeper meaning of one’s identity using scholarly sources
 - What components make up one’s identity
 - Why is important to know and understand your personal identity?
- Self-worth, self-confidence, self-efficacy, self-talk
 - Research/Define (Class definitions)
 - Activity: Choose one concept (personal identity, self-worth, self-concept, self-knowledge, self-talk, or self-efficacy to complete either a visual aide or writing assignment.
- Reflection (100 – 150 word written response)
 - Discussion (whole class)
- Developing an Identity Statement
 - Complete a teacher-generated diagram to describe own identity

Week 9-10: Critical Thinking and Leadership

- Critical Thinking Skills Defined
 - Define/Discuss:
 - Analyzing, differentiating, information seeking, logical reasoning, predicting, transforming knowledge
- Cafe Conversations
 - Use prompts to initiate conversations surrounding Leadership and Critical Thinking
- Reflection
- Leadership Skills Defined
 - Define/Discuss:
 - Inspires and motivates, solves problems and analyzes issues, communicates powerfully, builds

positive relationships, develops others, and exhibits innovation.



Materials Adapted from Teachers Pay Teachers

Appendix B: Data Sources, Methods and Timelines

Evaluation Questions	Data Sources	Data Collection Methods	Timeline
<p>1. What type of mindset do students with disabilities have? (as measured by the Mindset Self-Assessment, observations, and interviews)</p> <p>2. How much variation is there in the mindsets of study participants? (as measured by the Mindset Self-Assessment, and observations)</p> <p>3. Is mindset connected to performance (i.e. motivation, and academic achievement)? (as measured by grades, attendance, Oral Reading Fluency Progress Monitoring, Achievement Tests and interviews)</p> <p>4. After explicitly teaching a Mindset unit, will the mindset of study participants change? (as measured by, pre-post scores, reflections, interviews, and grades)</p>	<ul style="list-style-type: none"> * Study Participants (students) * Teachers * Special Education Coordinator 	<ul style="list-style-type: none"> * Mindset Rating Scales/Surveys * Student Observations * Interviews – Face-to-face, one-on-one * Attendance Records * Academic Records – Grades * Woodcock Johnson Tests of Achievement (Extended) Scores * Aimsweb Oral Reading Fluency, and Comprehension Probes 	<ul style="list-style-type: none"> - Mindset Assessment (Pre) (Aug 2018) - Mindset Assessment (Post) (Jan/Feb 2019) - Aimsweb ORF (Oral Reading Fluency) Benchmark Assessment: Fall (Aug) 2018. Used to establish a baseline. - Aimsweb ORF probes administered Monthly (September 2018 – Feb 2019) - Baseline Achievement Test Administration (Aug 2018) - Mid-Year Achievement Test Administration (Jan/Feb 2019) - Initial Qualitative Student Interviews (Sept/Oct 2018) - Follow-up Interviews (Feb/Mar 2019) - Observations during self-selected reading time; charting bi-weekly. (Sept -Jan 2018-2019) - Attendance Records (Aug 2018 - Jan 2019) - Grades: first nine weeks (Oct 2018), then end of semester (Dec 2019)

Appendix C: Statistical Test Results

Test	N	Mean	Std Dev	DF	Pr > t 	Pearson Correlation
WJIV GE; Group C	3	-3.3000	1.9468	2	0.0991	0.896983
WJIV RPI; Group A	5	-16.000	16.5529	4	0.0967	0.982556373
WJIV RPI; Group C	3	-35.000	20.6640	2	0.0992	0.723538
English Grades; Group A	5	-0.0264	0.0297	4	0.1178	0.976251
English Grades; Group B	7	-0.0207	0.0412	6	0.2326	0.881861678
English Grades; Group C	4	0.0492	0.0845	3	0.3285	0.675526
Aimsweb ORF; Group A	5	-10.400	16.6523	4	0.2351	0.824052
Aimsweb ORF; Group B	6	1.000	9.8184	5	0.8129	0.94809
Aimsweb ORF; Group C	2	-7.500	9.1924	1	0.4546	1.0
Aimsweb ORF; Group D	6	4.500	25.6418	5	0.6852	0.93451
Aimsweb RC; Group B	7	-8.5714	19.5265	6	0.2896	0.833699
Aimsweb RC; Group C	3	-6.000	9.1652	2	0.3745	0.962362
Aimsweb RC; Group D	6	-3.333	9.4798	5	0.4284	0.931333

Appendix D: Coding Results/Frequency

Table 11 Number of Students Expressing Ideas Relating to Mindset					
Category:	CODE: Innate Traits	CODE: The Brain	CODE: Personal Beliefs/Attitudes	CODE: Fixed or Growth	CODE: Change in Mindset
Group A	0	2	1	4	5
Group B	3	4	7	5	7
Group C	1	1	2	3	3
Group D	1	2	4	4	4
Total Number of Participants: 19					

Table 12 Number of Students Expressing Ideas Relating to Disability Awareness			
Category:	CODE: Does My Disability Define Me	CODE: Academic Impact/Adversity	CODE: Social Impact/Adversity
Group A	5	4	1
Group B	7	7	5
Group C	3	3	3
Group D	4	4	4
Total Number of Participants: 19			

Table 13 Number of Students Expressing Ideas Relating to Personal Accountability			
Category:	CODE: Effort	CODE: Academic Achievement	CODE: Overall Performance
Group A	4	5	5
Group B	6	7	7
Group C	3	3	3
Group D	2	4	4
Total Number of Participants: 19			

Table 14 Number of Students Expressing Ideas Relating to Characteristics of Teachers		
Category:	CODE: Effective Teachers	CODE: Ineffective Teachers
Group A	5	4
Group B	6	6
Group C	3	3
Group D	4	4
Total Number of Participants: 19		

Table 15 Number of Students Expressing Ideas Relating to Motivation		
Category:	CODE: Intrinsic Motivation	CODE: Extrinsic Motivation
Group A	5	1
Group B	6	4
Group C	3	0
Group D	3	1
Total Number of Participants: 19		

Appendix E: Mindset Survey



growth mindset
STUDENT SURVEY

Name: _____ Class: _____

DIRECTIONS: Complete the survey by answering strongly agree, agree, slightly agree, slightly disagree, disagree, or strongly disagree for each statement. When you are finished, tally up your score to reveal your mindset.

1. I am born with predetermined intelligence.

strongly agree agree slightly agree slightly disagree disagree strongly disagree

2. I do not respond well to constructive criticism.

strongly agree agree slightly agree slightly disagree disagree strongly disagree

3. I tend to give up easily when confronted with a challenging task.

strongly agree agree slightly agree slightly disagree disagree strongly disagree

4. I tend to choose the safer and easier paths in life.

strongly agree agree slightly agree slightly disagree disagree strongly disagree

5. I am able to learn new things, but I cannot change my intelligence.

strongly agree agree slightly agree slightly disagree disagree strongly disagree

6. When I complete a task it is good enough and I do not usually need to or want to improve it.

strongly agree agree slightly agree slightly disagree disagree strongly disagree

7. I am born with predetermined skills and abilities.

strongly agree agree slightly agree slightly disagree disagree strongly disagree

8. The fear of failure sometimes prevents me from trying new things.

strongly agree agree slightly agree slightly disagree disagree strongly disagree

9. Even if I work hard, there will still be things I will not be able to accomplish.

strongly agree agree slightly agree slightly disagree disagree strongly disagree

10. Only successful people can be successful.

strongly agree agree slightly agree slightly disagree disagree strongly disagree

growth mindset STUDENT SURVEY

NUMBER OF <small>ccc</small>				
Strongly agree		x6	=	
Agree		x5	=	
Slightly agree		x4	=	
Slightly disagree		x3	=	
Disagree		x2	=	
Strongly disagree		x1	=	
TOTAL SCORE				

DIRECTIONS: Write the total number of each response you have in the blank. Then, multiply that number by the number in the corresponding box. When you are finished, add up your final score to reveal your mindset.

10-20	21-30	31-40	41-50	51-60
Strong Growth Mindset	Slight Growth Mindset	Balanced Mindset	Slight Fixed Mindset	Strong Fixed Mindset
<p>You have a strong growth mindset. You feel you can increase your intelligence with determination, hard work, and effort. You believe smart and successful people have worked hard to get where they are. You view mistakes and failures as learning opportunities. You learn through hard work and embrace difficult challenges.</p>	<p>You have a slight growth mindset. You feel it is possible for you to increase your intelligence through hard work. You welcome constructive criticism and mistakes as an opportunity to learn. You also care about learning and are willing to put forth hard work to achieve your goals.</p>	<p>You are in the middle of a fixed and a growth mindset. You are not sure if you can change your intelligence and abilities. You want to do well and you care about your performance, but you do not necessarily want to put forth the effort and work too hard for it.</p>	<p>You have a slight fixed mindset. You mostly think that you cannot change your intelligence. You do not want to work hard because you might think that learning should be easy. You do not like to make mistakes and sometimes the fear of failure might prevent you from starting something new.</p>	<p>You have a strong fixed mindset and believe that your intelligence and abilities do not change much, despite what you do. You believe that talents and success comes easily for people and that smart people do not need to work hard. You do not respond well to constructive criticism, and mistakes and failures intimidate you.</p>

Appendix F: Theories of Intelligence Scale

Theories of Intelligence

Dweck, C.S. (2000). *Self-theories: Their role in motivation, personality and development*. Taylor & Francis: Philadelphia, PA.

This questionnaire has been designed to investigate ideas about intelligence. **There are no right or wrong answers.** We are interested in your ideas.

Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements by writing the number that corresponds to your opinion in the space next to each statement.

1	2	3	4	5	6
Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree

_____. You have a certain amount of intelligence, and you can't really do much to change it.

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

_____. No matter who you are, you can significantly change your intelligence level.

_____. To be honest, you can't really change how intelligent you are.

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

_____. You can learn new things, but you can't really change your basic intelligence.

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

_____. You can change even your basic intelligence level considerably.

THE RESILIENT AND IRRERESSIBLE EFFECTS OF
EDUCATORS WHO DEMONSTRATE GROWTH MINDSET
by

Jane A. Zappia

M.S. Ed. In Curriculum Design and Instruction, December 2013, Southern Illinois
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Abstract

Students often recall educators who made a positive impact in their learning. These educators are often those to whom their students felt deeply connected. Initially, this study explores the definition of what it is to be an individual who exhibits and values the characteristics of growth mindset. Secondly, it investigates the correlation between educators who exhibit growth mindset, and whether or not students perceived educators with whom they connected as someone who exhibited growth mindset traits. This mixed methods study was comprised of two samples and two phases. The first sample included adult students who were at least 18 years old. These students were asked to recall an educator with whom they had connected to in the past, and then respond to questions regarding their educator's mindset when they had the educator in class. The second sample consisted of educators who were asked to respond to a survey which questioned their beliefs about the nature of intelligence. Both populations were recruited through a public post on the researchers social media site and followed by snowball sampling. The first phase of the study interpreted correlation data. Quantitative results suggested a positive correlation between educators' self-report data and students' data about an educator with whom they connected. The second phase interpreted quantitative data by clustering self-reported and student reported data measuring growth mindset. After the groups were clustered, participants were chosen for qualitative analysis. Qualitative findings suggest students perceive a connection with educators who exhibit growth mindset traits.

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As the journey for writing this dissertation is coming to an end, I am eternally grateful for all of the encouragement and support I have received from family, friends, and colleagues.

All of this would not be possible if it weren't for my husband, Dominic, who has always believed in my abilities, and consistently made sure the path was clear for me to reach any of my goals. If there has ever been a time that I lost confidence in myself, he was always there to remind me that I can complete whatever I set out to accomplish.

I also want to thank my daughter, Hayley, who has adapted to play independently through karaoke, drawing, piano, or her favorite video games. We are normally attached at the hip and she gave up a lot of time with me through this process, whether it was because of my trips to the university, or the many hours I spent in preparation for this research. I pray I will be an inspiration for her to continue her education and pursue whatever she wants to do to make a difference in our world.

I can't imagine where I would be without the unconditional love and support of my parents. I am grateful for their example and steadfast love. I am certain they were exhausted at times as a result of my spirited and tenacious curiosity, especially during my younger years. I believe they have given me the gift of resilience through their continued understanding. They have taught me so much, and I am forever grateful.

Lastly, thank you to my newly found friends from the Creativity and Generative Design Cohort; especially to my supportive Generative Pedagogy family. We will be forever connected through this fantastic research experience.

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Chapter 1: Introduction

Teaching is a profession that can have long-lasting effects on learners, including how they approach (or reject) new tasks. Because of this, it is important that educators model energy and enthusiasm in the face of challenges. In my experience, when educators come together for professional development, some educators tend to embrace challenge, while others have a tendency to resist it. For example, introducing new technology to a group of educators can be quite tedious since some embrace the challenge and inquire how it can improve learning and make the classroom more efficient, while others feel comfortable in their routine, feel intimidated by innovation, or perhaps feel the effort of learning a new method may be a waste of time. So how important is it for educators to embrace challenge? Growth mindset theory suggests embracing challenges, innovation, and exploration is important for educators' own growth and as an example to students.

The purpose of this mixed methods study was to examine the presence of growth mindset among two populations (educators and educators with whom students perceived a connection) and to analyze if a students' perception of growth mindset among educators influenced the students' sense of connection to that educator. Analysis of data included a combination of both qualitative and quantitative approaches, which allowed a more complete and thorough understanding of the questions asked during the study. Surveys were given to both groups of participants. Surveys began with quantitative items followed by qualitative short-answer items in order to clarify the results of the data analysis.

The research consisted of analyzing growth mindset and behaviors in two populations, including educators and former students who are now adults. This study uses the term *educators* to include any adult who serves in an instructional capacity (i.e. teacher, mentor, coach, church leader, social worker, etc.) for minors because many different types of educators, including those in informal settings, are influential in the shaping of an individual’s learning experience.

Research Questions

After decades of research, psychologist Carole Dweck (2006) discovered the groundbreaking idea of the power of mindset. While the concept of growth mindset has been used in psychology for several years, applying this theoretical framework to educational settings is relatively new.

The primary research question is as follows: Are educators with growth mindset more likely to develop a connection with their students? Additional sub-questions are as follows:

1. How prevalent is growth mindset among educators?
2. Did student respondents frequently identify characteristics of growth mindset among “influential” educators?

Chapter 2: Review of Literature

The following review of selected literature includes examples of what is considered growth mindset in education settings. Key descriptors used to identify preliminary sources included growth mindset, tenacity, perseverance, and scaffolding approaches. The literature review is organized as defining growth mindset, its effect on the learner, and the importance of educators’ and students’ practice of growth mindset.

What Is Growth Mindset?

It has been shown that students who exhibit a fixed mindset are at a greater risk of negative pedagogical results, such as decreased trust of self, loss of joy, and difficulty with problem solving when faced with obstacles or hindrance. On the other hand, advances in neuroscience have indicated the brain is more malleable than once thought, and continued practice can actually reinforce neuronal connections, leading to greater achievement (Dweck, 2006). Believing this is known as *growth mindset*. Currently, many educators are implementing growth mindset by encouraging their students to accept and even enjoy the learning process as a step to mastering a new skill. In fact, some research indicates a strong connection between academic success and the students' attitudes toward environment, perception, action, and sociocultural systems (Barsalou, 2010). Other research refers to growth mindset as tenacity, a non-cognitive skill related to strategies, attitudes, motivation and performances (Farrington, 2007). In other words, growth mindset is an attitude and an optimistic belief that the learning process is always evolving and with practice individuals can improve upon any skill.

What Are Effects on the Learner as a Result of Growth Mindset?

Though there is evidence that growth mindset is effective in creating a positive attitude toward learning and school in general, another aspect to consider is how growth mindset has implications for African-American and Latino learners.

Blackwell et al (2007) performed a growth mindset intervention with minority groups which consisted of eight study skills sessions with growth mindset training for the experimental group study skills alone taught to the control group. The experimental group had specific lessons such as “You Can Grow Your Intelligence” or “Neural

Network Maze: Showing How Learning Makes Your Brain Smarter”. The intervention within the experimental group halted the decrease of grades and students began to see greater achievement and success.

In the US, according to Good, Aronson, and Inzlicht (2003), each year’s statewide tests report lower scores among African-American and Latino/a groups as compared to Caucasian and Asian-American students. As a result of lower test scores and grade point averages (GPA), the dropout rate for African-American and Latino/a students is much higher than for Caucasian and Asian-American students. In 2003, Good et al.’s research concluded that there has actually been an increase in the achievement gap between minorities and the white population. Additionally, standardized test scores are the basis of admission to most colleges, and may be the reason they report an average of only 10% of African-American and Hispanic populations among their annual admissions (Good et al., 2003).

The researchers hypothesized based on Steel and Aronson’s (1995) stereotype threat research that an emotional tax is imposed upon minority populations that are associated with negative academic stereotypes. A negative stereotype is a significant factor in how a student or groups of students perform on standardized tests (Steel and Aronson, 1995). Good et al. (2003) found evidence that groups who are negatively stereotyped are likely to underperform academically. They noted the effects of this phenomenon are most pronounced when students are transitioning into junior high school. Good et al. designed an intervention program to aid students who are most at risk for underperforming due to the negative societal stereotypes. Through Good et al.’s experiment, students were arbitrarily allocated to one of four exploratory groups where

mentors counseled, encouraged, and informed the students in an effort to change their mindset. The four groups were named incremental, attribution, a combined condition (which included both incremental and attribution), and an anti-drug control condition. Students in the incremental group had mentors who taught them about the malleability of intelligence. The attribution group of students focused more on perseverance and tenacity. Students were counseled by mentors and peers regarding difficulties with transitions such as a change in school or grade. Mentors and peers who counseled the attribution group encouraged and coached the students to overcome obstacles. The third group, known as the combined group, counseled the students using both incremental and attribution methods. The anti-drug control condition group mentored the students regarding the perils of drug use and how it can interfere with academic achievement.

Good et al. hypothesized that, after the intervention of mentoring in the four groups, there would be improvement in the students' standardized test scores. Their findings were consistent with the hypothesis. The mentoring environment increased math outcomes, but this climb in math results was more noticeable for students who were counseled in the combination group in which both incremental and attribution address, qualities associated with mindset (Good, 2003). The incremental discussions were about learning goals, positive effort beliefs, positive strategies, and achievement which are all related to growth mindset because it is through this belief that intelligence is malleable. The attribution discussions were about learned helplessness, low effort, and mastery orientated, which are related to fixed mindset because it defines intelligence as unchanging. These considerations were necessary to help students become more aware of their own mindset and their approach to learning.

What Are the Long-Term Implications of the Practice of Growth Mindset in Education?

Classrooms can be complex and complicated. Educators are fostering relationships between individuals, the class as a whole, and with colleagues. Educators must foster relationships with their students while also cultivating a classroom community. Additionally, educators must work to establish strong professional relationships among their staff. Research indicates that student success is influenced by a strong relationship between the student and the educator (Dweck, 2006). Frequently, a student's performance is related not only to their own mindset, but also the educator's. If an educator believes in his or her students' abilities and expresses this belief to his or her students, then the students might carry the attitude of progress into their continued efforts. In a survey conducted by Gutshall (2016), students and educators answered survey questions which classified them into one of three categories: fixed mindset, clear mindset, or growth mindset. The scaled survey was created and used with permission by Carol Dweck (1989). Gutshall's (2016) survey revealed 68.24% perceived their educator as having the same mindset beliefs as themselves. Additionally, 59.33% of students were realistic in their sense of their educators' mindset beliefs, and 55.7% of students shared the same mindset as their educator (Gutshall, 2016).

Malleable Intelligence and Socioeconomic Status

Factors relating to socioeconomic status (SES) such as trauma, inattention, apathy, or depression are also related to not being able to learn effectively. These factors can even lead to stereotypes and a speculative impression that low SES populations cannot learn effectively. This type of stereotype can erode educators' optimism that all populations can learn effectively (Jensen, 2009). Duyme, Dumaret, and Tomkiewich (1999),

conducted a study in of children in foster care and orphanages between the ages of 4-6 years old. Sixty-five children with IQ scores <86 from a low SES group were adopted. The children were carefully placed in families with high SES. As a result, the children were actively participating in more discussions, which added to their vocabulary. The children continued to gain confidence by asking questions, and saw a surprising increase in their IQ scores (+13.9 to +19.5), which proved the brain can be given more capacity and is malleable. The children's brains actually became more capable, flexible, and faster with greater processing; therefore, IQ is not a fixed trait (Jensen, 2009). The findings of this study are very encouraging and lend support for educators, because the study illustrates the positive effects adults can have on their children.

The Importance of Educators Modeling Growth Minds

Though studies have shown that having students practicing growth mindset in the classroom setting is essential to active learning, it is essential that the educator models growth mindset traits to encourage students. We can all think of educators who are stuck in their routines, and often times reject new ideas, but how do we recognize the educators who have growth mindset traits? According to Dweck (2000), educators who exhibit growth mindset traits are continually reflecting how they can improve their practice. These educators are continuous learners and careful listeners, which is especially significant to their own professional development. Another growth mindset trait educators exhibit is that they are not afraid to try new methods or practices. These educators are not afraid to fail at their new attempts. We all may remember an educator who played the role of the 'all-knowing' presence within the classroom, but educators

who have growth mindset traits are not afraid to ask questions and learn along with their students.

Today, schools are often tasked with teaching students to be divergent thinkers, innovators, and design thinkers. Should educators not be adapting the same mindset of being innovators to their own practice? This should not just be limited to technology, but also to classroom management, project ideas, and so many other options that can be put into teaching practice (Gunn, 2018). Educators who model growth mindset traits are not in the classroom to continuously place information in the student's mind, but are comfortable when learning goes beyond their own knowledge base. These educators are confident enough that they do not fear the students who know more than them. They understand that it is important to allow students to increase their learning capacity and not hold them back. All of the attributes of the educator who practices growth mindset traits encourage connectedness with the student, which essential to active learning (Dweck, 2000). Students have a reason to perform better and challenge themselves in school if they know someone is invested in their success.

Chapter 3: Methodology

Procedure

This study used a mixed method design to collect and analyze both quantitative and qualitative data to explore how prevalent growth mindset is among educators, as well as if former student respondents identify characteristics of growth mindset with educators with whom they felt a connectedness. This mixed methods study is twofold. The first phase of data collection consisted of two sliding scale surveys using the Theories of Intelligence Scale (Dweck, 2000): one for educators, in order to understand their mindset

and a second survey for students, which will show the extent of growth mindset they perceived to be possessed by a former educator with whom they felt connectedness. The survey consisted of six out of eight items from the Theory of Intelligence Scale: three fixed mindset statements (e.g., “You have a certain amount of intelligence, and you really can’t do much to change it”) and three growth mindset statements (e.g., “You can always substantially change how intelligent you are”; Dweck, 2000). The population for both educator and student participants was recruited through a public post on the researchers social media site and followed by snowball sampling. Interested participants in both populations were emailed the survey and encouraged to share with others in the similar population. The results of these surveys were analyzed, followed by a second qualitative phase which consisted of short answer survey questions where participants’ responses were used to clarify the responses in the initial survey.

Phase one comprised two quantitative survey collections. First data were obtained through an online survey which was offered to the general population of individuals who are in a variety of professions and careers. This questionnaire asked participants about their attitudes toward learning, school, and educators who they believe made a difference in their attitudes toward learning. The goal of the quantitative portion of this study was to seek data from participants describing educators with whom they felt a sense of connectedness. This was measured using a modified Theories of Intelligence Scale (Dweck, 2000). It was modified by the researcher to allow former students to evaluate the growth mindset characteristics of their most influential educators. The second survey was focused on educators who have indicated growth mindset characteristic on the

survey. These data were collected and measured using the Theories of Intelligence Scale (Dweck, 2000).

Phase two had the same two groups of participants with qualitative data collected via open response items on the surveys. One focused on written testimony from students who have had positive effects from the encouragement of educators. The second group of participants' open response items were focused on educators' self-perceptions. The open-ended responses from the educator and student participants revealed more about their thoughts, feelings, and beliefs about the nature of intelligence.

Participants

The study was comprised of two samples in which both samples completed quantitative and qualitative surveys in both phases. The first sample consisted of 266 adults who were at least 18 years old. These adults were asked to recall an educator who they had connected to as a student in the past, and then responded to the questions regarding what they thought their educator's mindset was when they had the educator in class.

The second sample consisted of 133 educator participants who had at least three years' experience. These educators were asked to respond to the survey which asked their beliefs about the nature of intelligence and whose answers would identify their flexibility of intelligence regarding Dweck's (2006) growth and fixed mindsets. The surveys of both educators and students were coded to retain confidentiality.

Variables

During phase one, the quantitative correlation portion of the study, the following variables were analyzed: mindset, behavior, tenacity, connectedness to others, the level of

persistence, and instructional practice and methodology using the Theories of Intelligence Scale (Dweck, 2000). These independent, controlled variables were compared based on the experiences of the respondents. Independent variables included mindset behavior along with defining it and how it impacts the dependent variables, a person's connectedness with educators.

Research Hypotheses Phase One

It is hypothesized that there is a correlation between educators who exhibit growth mindset traits and former students who perceive educators as exhibiting growth mindset traits. Pearson bivariate correlations were used to examine the relationships between items in each of the samples. If a pattern emerged, such as growth mindset questions correlating positively with other growth mindset questions and negatively or not at all with fixed mindset questions, then it would be considered as further evidence for the separation of growth and fixed mindset.

Research Hypotheses Phase Two

It is hypothesized that students who felt connectedness with a growth mindset educator expressed the nature of their connectedness using language in their short answers that would indicate the educator was exhibiting growth mindset. Alternatively, students who felt connectedness with an educator who scored as fixed mindset, did not express a sense of connectedness using language in their short answers. The cluster analysis resulted in four groups and participants were chosen for the qualitative portion from each of the four groups. The first two groups were comprised of the students who perceived their educator as exhibiting growth mindset or fixed mindset. The second two groups were educators who scored as growth or fixed mindset. The top ten scores of

each group were used and their responses were compared via the open-ended questions or directions that were at the end of both surveys in order to better understand the responses in phase one.

The questions at the end of the student survey were, “Write more about the educator/mentor who you connected with and why.” This was necessary to compare perceived growth or fixed mindset of an educator to the comments about connectedness or how they felt toward an educator.

There were seven open-ended questions at the end of the educator survey; however, only two questions were specific of growth mindset traits. Growth mindset educators are continuous learners, whether it is practiced in their professional development or along with the students in the classroom (Dweck, 2000). The first question chosen was, “How do you manage your own professional growth?”, and the second question was, “How do you teach students to learn what you don’t know?” These questions, when compared to the educator’s mindset score, were used to determine the overall flexibility of each educator’s mindset.

Chapter 4: Results

Phase One Analysis of Quantitative Responses

To test the efficacy of the surveys, a Pearson Bivariate Correlation was run to see if the questions intended to indicated fix mindset correlated to each other and if the questions intended to measure growth mindset correlated to each other. The student sample correlations between the fixed mindset questions (1, 2, 5) were positively interrelated, ranging from .33 to .63. The correlations between the growth mindset questions (3, 4, 6) were also positively interrelated, ranging from .67 to .77. The fixed

mindset and growth mindset questions were generally negatively related to each other, ranging from $-.34$ to $-.05$, as expected.

The educator sample correlations between the fixed mindset questions were positively interrelated, ranging from $.52$ to $.78$. The correlations between the growth mindset questions were also positively interrelated, ranging from $.53$ to $.70$. The fixed mindset and growth mindset questions were negatively related, ranging from $-.40$ to $-.28$. See Table D for the correlation matrix.

The students who connected with their educators ascribed growth mindset traits on the modified Dweck scale at a higher frequency than the fixed mindset traits. These traits positively correlated with educators who exhibited growth mindset traits according to the data from the Dweck Scale. This relationship between students' feeling of connection with educators and educator high scores on growth mindset questions show that growth mindset may foster connection between student and educator. These interpretations of the quantitative data are informed by the educator's responses on the qualitative portion of the survey. See Table 1 for the correlation matrix.

Table 1:

Pearson Bivariate Correlation Matrix of Student and Educator Responses

	Q1	Q2	Q3	Q4	Q5	Q6
Q1: Your educator/mentor believed you had a certain amount of intelligence, and you couldn't really do much to change it.	-	.777**	-.398**	-.355**	.521**	-.275**
Q2: Your educator/mentor believed intelligence is something about you that you couldn't change very much.	.625**	-	-.403**	-.339**	.596**	-.309**
Q3: Your educator/mentor believed no matter who you are, you can significantly change your intelligence level.	-.045	-.158**	-	.626**	-.334**	.527**
Q4: Your educator/mentor believed you could always substantially change how intelligent you are.	-.045	-.163**	.769**	-	-.408**	.701**
Q5: Your educator/mentor believed you could learn new things, but you can't really change your basic intelligence.	.327**	.424**	-.340**	-.303**	-	-.372**
Q6: Your educator/mentor believed no matter how much intelligence you have, you can always change it quite a bit.	-.048	-.137*	.671**	.692**	-.339**	-

Note: Student correlations are presented in the bottom of the matrix. Educator correlations are in the top of the matrix. Student *n* ranged from 256-262. Educator *n* ranged from 131-132. *. Correlation is significant at the 0.05 level (1-tailed). **. Correlation is significant at the 0.01 level (1-tailed).

A cluster analysis was run on the two quantitative data sets, 1) educator responses about their own growth mindset and 2) student responses about their educators' growth or fixed mindset. The cluster analysis results indicated with a high level of confidence that there were two distinct groups between growth and fixed mindset. For the student sample, the analysis resulted in one group with 141 students answering questions indicating that their educator exhibited growth mindset qualities (cluster 1). The second cluster with 114 students answered questions indicating that their educator exhibited fixed mindset qualities (cluster 2). Students assigned to group 1 who perceived their educator as exhibiting growth mindset scored significantly higher on the growth mindset questions than the fixed mindset questions with the highest percentage at 81% and the lowest fixed mindset percentage at 16%. Students in group 2, who perceived their educator as exhibiting fixed mindset scored significantly lower on the growth mindset questions, but all questions were answered in the 50%-58% range. These results indicated that the survey was measuring growth mindset in a way that was expected.

The educator cluster analysis also resulted in two clusters. There were 54 educators who were assigned to cluster 1 and 78 educators were assigned to cluster 2. These cluster results also indicated with a high level of confidence that there were two distinct groups between growth and fixed mindset. Educators assigned to group 1 who exhibited growth mindset scored significantly higher on the growth mindset questions than the fixed mindset questions with the highest percentage at 78.9% and the lowest fixed mindset percentage at 10.8%. Educators assigned to group 2 who exhibited fixed mindset scored significantly lower on the growth mindset questions, but all questions

were answered in the 42% -55% range. See Table 2 for the results of the cluster analyses.

Table 2

Student and Educator Cluster Analysis

	Cluster 1 Growth	Cluster 2 Fixed	Distance
Student Sample			
Your educator/mentor believed you had a certain amount of intelligence, and you couldn't really do much to change it.	22	58	
Your educator/mentor believed intelligence is something about you that you couldn't change very much.	16	55	
Your educator/mentor believed no matter who you are, you can significantly change your intelligence level.	81	58	
Your educator/mentor believed you could always substantially change how intelligent you are.	78	55	
Your educator/mentor believed you could learn new things, but you can't really change your basic intelligence.	26	56	
Your educator/mentor believed no matter how much intelligence you have, you can always change it quite a bit.	74	50	
n	141	114	73.847
Educator Sample			
You have a certain amount of intelligence, and you can't really do much to change it.	13.1	42.4	
Intelligence is something about you that you couldn't change very much.	10.8	45.8	
No matter who you are, you can significantly change your intelligence level.	78.9	49.9	
You could always substantially change how intelligent you are.	73.5	46.1	
You can learn new things, but you can't really change your basic intelligence.	24.8	54.6	
No matter how much intelligence you have, you can always change it quite a bit.	73.2	43.1	
n	78	54	76.499

Phase Two Analysis of Short Answer Responses

In this section the cluster analysis is informed by the quantitative responses of the participants to choose the short answer questions to be analyzed. The cluster analysis clustered the 1) fixed mindset educators, 2) growth mindset educators, 3) students who perceived educators they connected with as fixed mindset, and 4) students who perceived educators they connected with as growth mindset. Of these four clustered groups, the top ten highest scoring on the survey were chosen and compared to their responses. The top ten of each cluster were chosen for comparison with the qualitative analysis of responses because they would most differentiate disparities between groups.

At the end of the student survey, students were asked to “Write more about the educator/mentor whom you connected with and describe why.” The language in the responses was coded according to how they described the educator with whom they felt connectedness. Similarly, the top ten participants in the fixed mindset cluster were chosen to compare their data score with the written responses. Responses describing traits of a growth mindset educator included specific words and word meanings such as persistence, thoughtful, motivated, caring, enthusiasm, explore, and high expectations.

All but one student who perceived their educator as exhibiting growth mindset traits expressed connectedness with their educator. On the contrary, one out of ten students who perceived their educator as exhibiting fixed mindset expressed connectedness through their educators. The only student who scored as perceiving the educator they connected to as exhibiting a fixed mindset, described the educator as exhibiting growth mindset traits by using the words “encouraged” and “challenged”. See

Table 3 for growth mindset student responses. See Table 4 for fixed mindset student responses.

Table 3
Students Who Perceived Their Educator as Exhibiting Growth Mindset

Participant	Distance	Write more about the educator/mentor who you connected with and why
136	103.7	I connected with my teacher for a number of reasons. She always believed in me and pushed me to work my hardest. Most teachers I have had in the past didn't connect as well with me because I felt that they didn't necessarily strive to help me succeed.
213	93.7	Third grade teacher because she opened a whole new world up for her students and listened to us. If we had a difficult time she would stay over and help us until we understood. Patience and kindness were her best qualities
15	93	She saw me as a person and tailored lessons to the individuals
97	91.8	She was our 9th grade civics teacher. To me she was much more than that though. She was extremely straightforward and spoke openly and honestly about social issues, in particular, sexual topics, which were still mostly taboo in the seventies. Her openness and willingness to answer questions made us smarter and safer.
179	91.2	My typing teacher was great
125	89.4	I connected with a specific educator due to their open personality and caring attitude. I could tell they wanted me to reach my goals and they would do anything to help me do that.
115	89.4	She was very patient & encouraging.
227	83.1	He took the time to get to know me, what motivated me, and what it took to pull me away from my insecurities in order to feel valued, capable, and smart
66	82.1	Her enthusiasm and belief in me, made me want to teach high school English.
12	76.2	5th grade teacher. Believed in anything I tried and gave us the opportunity to try and explore new avenues

Note: All bold responses are students who connected with educators who were described as exhibiting growth mindset traits

Table 4
Students Who Perceived Their Educator as Fixed Mindset

Participant	Distance	Write more about the educator/mentor who you connected with and why
142	112	They focused on my strengths and subtly worked on improving the faults.
146	95	My dad was my mentor. He knew I had it in me just needed to bring it out. Had a few teachers that had the same theory
49	91	Many of the educators I remember were very positive, however they did not go out of their way to make students feel valued. I do not remember any specific teacher who encouraged me to pursue my interests. They answered all my questions and made sure I understood the content; however, they did not take more time to lead me down a path for my future.
83	90	My teacher acted professionally
65	85	Sadly, I had favorite teachers, but none that let me believe I could be or do anything. I excelled in secretarial classes and art. No clue there was a possibility of doing art and business together.
196	81	My mother. She always told me I could do whatever I put my mind to if I didn't understand something, I should ask how to solve problems.
140	78.9	I didn't have a specific teacher that I connected to however I had several mentors outside of school that believed in me, encouraged me to do my best and help me accountable.
84	77	I don't think I connected with most of my elementary educators
201	68	Encouraged and challenged me
205	62	I really didn't connect with any of them. Moved around too much.

Note: All bold responses are students who connected with educators who were described as exhibiting growth mindset traits

There were seven open-ended questions at the end of the educator survey; however, only two questions were chosen for the analysis because the answers to the selected questions are specific of growth mindset traits. Growth mindset educators are continuous learners whether it is practiced in their professional development or along with the students in the classroom (Dweck, 2000). The first question chosen was, “How do you manage your own professional growth?” and the second question was, “How do you teach students to learn what you don’t know?” These questions, when compared to the educator’s mindset score were used to determine the overall flexibility of each educator mindset.

Of the educators who were clustered as growth mindset, all answered the first open response question using language that would be considered as growth mindset. They all expressed interest in managing their professional growth with comments such as, “I would say I am a pretty reflective person. This everyday leads to researching new ideas, concepts, strategies to improve on my teaching methods.” or “Opportunities and a lot of reflection.” For the second question, however, only half of the growth mindset educators answered in a manner that would reflect growth mindset traits. Examples of these questions were, “By learning the material with the students.” or “I always make a point to express when I don’t know something, but I always challenge the students to find out for themselves and to share.”

Of the educators who were clustered as fixed mindset, half of the educators answered the first question using language that would be considered as growth mindset. For the second question, three of the educators, even though in the fixed mindset group, answered in a manner that would reflect growth mindset traits. Educators from both

clusters who answered in a manner as a fixed mindset trait for the second question, left the learning experience up to the student, the educator left the answer as blank, or they stated they did not know how to answer the question. See Table 5 for growth mindset educators. See Table 6 for fixed mindset educators.

Table 5
Growth Mindset Educators

Participant	Distance	How do you manage your own professional growth?	How do you teach students to learn what you don't know?
13	86	By taking classes and attending workshops	By learning the material with the students
20	84	When something is new, I research it.	Involve and ask other teachers, media
18	83	Take classes, participate in Twitter chats, and connect with other educators.	I present it as a challenge and try to give them ideas of how to learn it.
115	75	Opportunities and a lot of reflection	That is a complicated question.
118	72.5	I manage my own professional growth by staying aware of current trends by reading publications, attending professional development sessions, leading seminars/sessions/discussions, and actively participating in area/regional groups	Their own research, listen using media as YouTube, etc
8	68	Keeping current by discussing topics with peers and other educators and professional, taking classes and reading	Being resourceful by asking other teachers, researching from books and other types of media.
51	66.5	I would say I am a pretty reflective person. This everyday leads to researching new ideas, concepts, strategies to improve on my teaching methods	I always make a point to express when I don't know something. But I always challenge the students to find out for themselves and to share.
39	66.3	Continuing education	Ask questions
86	65.8	Talking with colleagues, teaching summer school which is a different grade level than I usually teach, reading articles	Learning from others and reputable sites
4	65.4	By learning	(Blank)

Note: All bold responses are students who connected with educators who were described as exhibiting growth mindset traits

Table 6
Fixed Mindset Educators

Participant	Distance	How do you manage your own professional growth?	How do you teach students to learn what you don't know?
90	99	Workshops	Research
44	88	Via professional development plan	(blank)
94	87	Constantly assessing where my students are and what is working or not working. I think about everything I encounter as a possible lesson. I am constantly changing and evolving as a teacher	I make sure we work on most assignments together. I am often having them use programs that I (and they) don't know how to use!
36	86.7	Courses, internet, reading books	I try not to answer their questions, but rather have them first search in the internet
53	83.3	I haven't been very focused on my own professional growth in recent years outside of attending the occasional conferences. I give a lot to my students and my daily preparations.	This is a good question-I'll think about it.
67	79.8	Taking classes when can; discussing ideas with others; asking for student feedback	I will research and get back to them
99	79.6	By continuing to challenge myself and to seek new ways to teach what my kids need to learn in meaningful ways	I'm not sure, we research it together, by paying attention to what they want to know
79	76.6	Attending seminars	I challenge them to come up with something they think I don't know
82	75.8	I need to know the important areas and new trends in education. From there I look for professional discussions, workshops, and articles that will help me to grow in my position.	Through inquiry, reading, sharing information, specialists in the area they are working in
28	74.9	continually strive for excellence	don't understand the question

Note: All bold responses are students who connected with educators who were described as exhibiting growth mindset

Chapter 5: Discussion

While students practicing growth mindset in the classroom setting is essential to active learning, it is important that educators model growth mindset traits while encouraging students to become aware of their own thought processes. Educators should model a love for learning. The results of this study illustrate that students who connected with their educators attributed growth mindset traits on the modified Dweck scale at a higher frequency than the fixed mindset traits. Additionally, students' perceived growth mindset traits of educators positively correlated with educators who exhibited growth mindset traits according to the data from the Dweck Scale (2000). Qualitative data used from open ended questions support this interpretation of the quantitative analysis.

The practice of educators modeling growth mindset in the classroom includes reflection, persistence, flexibility, embracing mistakes, or even failures as learning experiences, and an openness of learning from others including colleagues and students. Modeling these traits can foster connectedness with others. Students who are connected with their educator(s), feel a sense of support and a strong desire to meet higher expectations set by the educator and the student (Gunn, 2018). An important implication from the findings of this study are the traits students identified as helping them connect with the educator. They remember connecting with educators who were persistent, thoughtful, motivating, caring, enthusiastic, and held high expectations.

Similar Studies

Student success is influenced by a strong relationship between the student and the educator (Dweck, 2006). In other words, the results of this study corroborate previous research on a student's performance is strongly related to not only their own mindset, but

also the educator's mindset. If an educator encourages their students and expresses a belief in their success, students will carry the attitude of progress into their continued efforts and may imitate the educator's mindset (Dweck, 2006; Gutshall, 2016). The results of the study also corroborate that an educator who is exhibiting growth mindset traits, and reflection is paramount to the relationship of an educator to the student (Good et al., 2003). Adding to the research of Good et al. (2003), the findings in the study address the importance of educator mindset as part of connectedness between educator and student. Connectedness is highlighted as related to a student's perception of their educator's growth mindset.

Interestingly, considering the student responses related to connectedness, there were several statements that referred to a sense of empathy from the educator and its relationship to growth mindset. As noted by Warren (2017) and Jordan (2009), illustrating empathy toward students improves their ability to respond to their students. This suggests that empathy can be an important component of growth mindset. For example, actions such as creating an environment promoting understanding and trust, sharing stories, working on communication strategies, and identifying shared values and differences are similar to the comments of students who perceived their educator as exhibiting growth mindset traits.

In addition, the results of this study provide further validation of the Theories of Intelligence Scale (Dweck, 2000). The results also provide initial validation of using the scale with educators and with students to describe educators' growth mindset.

Limitations

This study consisted of 266 students who are at least 18 years of age, and 133 educators who have had at least three years teaching experience. The survey was given only through online resources through each person sharing the survey. Because the survey was online, the results were limited to participants who had online access with email and some type of social media.

Participants may not have understood the survey questions, or did not take the time to read and answer the questions carefully. For example, it was noted that some participants clustered in the fixed mindset group answered the open-ended questions in a way that would suggest they would have been clustered in the growth mindset group.

While the survey was completed anonymously, demographics, access to survey, and personal interviews would have confirmed that the participants were from diverse backgrounds. This would have included economic status, private or public education, age, and location.

Further Research

It would be useful to further explore if connectedness between the educator and student is more prevalent or rare in certain learning environments. Educators who are in educational environments that lack support may struggle with the day to day tasks and feel overwhelmed. If it is assumed that connectedness is a foundation of learning, comparing and contrasting the degree of student and educator connectedness in a variety of learning environments would be a constructive approach toward improving student success.

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Appendix A

Theories of Intelligence Intended for Educators

Theories of Intelligence Survey (modified): Intended for Educators

Dweck, C.S. (2000). Self-theories: Their role in motivation, personality and development. Taylor & Francis: Philadelphia, PA.

This questionnaire has been designed to investigate ideas about intelligence. There are no right or wrong answers. We are interested in your ideas.

Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements by writing the number that corresponds to your opinion in the space next to each statement.

1 2 3 4 5 6

Strongly Agree, Mostly Agree, Mostly Disagree, Disagree, Strongly Disagree

_____. You have a certain amount of intelligence, and you can't really do much to change it.

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

_____. No matter who you are, you can significantly change your intelligence level.

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

_____. You can learn new things, but you can't really change your basic intelligence.

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

How do you teach students to become problem designers?

How do you manage your own professional growth?

What are your expectations for student to self-assess their work and publish it for a wider audience?

What does your global network look like?

How do you give students an opportunity to contribute purposeful work to others?

How do you teach students to learn what you don't know?

How do you teach students to manage their own learning?

Appendix B

Theories of Intelligence Survey (modified): Intended for Student Perception of Educator

Theories of Intelligence Survey (modified): Intended for Student Perception of Educator

Dweck, C.S. (2000). Self-theories: Their role in motivation, personality and development. Taylor & Francis: Philadelphia, PA.

This questionnaire has been designed to investigate ideas about intelligence from a teacher you felt connectedness with. What approaches and philosophies about learning did you feel they emulated as you perceived it? There are no right or wrong answers. We are interested in your ideas.

Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements by writing the number that corresponds to your opinion in the space next to each statement.

1 2 3 4 5 6

Strongly Agree, Agree Mostly, Agree, Mostly Disagree, Disagree, Strongly Disagree
 _____. Your educator/mentor believed you had a certain amount of intelligence, and you couldn't really do much to change it.

_____. Your educator/mentor believed intelligence is something about you that you couldn't change very much.

_____. Your educator/mentor believed no matter who you are, you can significantly change your intelligence level.

_____. Your educator/mentor believed you could always substantially change how intelligent you are.

_____. Your educator/mentor believed you could learn new things, but you can't really change your basic intelligence.

_____. Your educator/mentor believed no matter how much intelligence you have, you can always change it quite a bit.

Write more about the educator/mentor who you connected with and why:

Without mentioning names, write about an educator/mentor you did not connect with and why:

ENGAGING ELEMENTARY ART STUDENTS IN THE TEACHING FOR ARTISTIC
BEHAVIOR (TAB) CHOICE BASED ART PROGRAM USING THE EIGHT STUDIO
HABITS OF MIND (SHoM) TO DEMONSTRATE CREATIVITY, CRITICAL AND
DIVERGENT THINKING SKILLS IN THE ARTISTIC PROCESS.
A CLASSROOM ACTION RESEARCH STUDY
by

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Abstract

The purpose of this classroom action research was to study teaching practices focused on increasing students' content knowledge and skills in developing ideas and themes in the production of art through choice, autonomy, and expression. The Teaching Artistic Behavior (T.A.B.) model and 8 Studio Habits of Mind (SHoM) model were implemented to engage students in critical thinking skills in a choice-based art class to develop and increase their ability to think of and generate ideas while problem-solving.

My rationale for conducting this study was to provide authentic learning experiences for my art students that encouraged them to think and be engaged in the artistic process of creating choice-based art that reflects personal, school, community, and societal interests. The eight dispositions framework of the Studio Habits of Mind are used to guide a choice-based art class, and to incorporate twenty first century techniques, that engage students in critical and divergent thinking skills and procedures to be used beyond the classroom toward college and career readiness for productive citizens.

Data sources that were implemented into this study include the Creativity Assessment Packet (CAP) created Williams (1980), divergent and critical thinking test, an artifact photo log of student work, a gallery T.A.L.K. (**T**ell, **A**sk, **L**ook, **K**ey) and walk art critique, and semi-structured student interviews.

The data was triangulated to determine the new strategies' impact on teaching students how to understand the artistic enterprise and how the design of engaging hands-on classroom learning experiences developed and increased student voice, ideation, and critical and divergent thinking skills. Additionally, the study revealed how the design of themed art project activities developed and increased students' choice and autonomy

skills while demonstrating the use of tools and practices of an artist. Lastly, the study showed art educators how to implement activities to reinforce the dispositions necessary for students to acquire artistic habits.

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Chapter 1: Introduction

“What if education was about engaging rather than controlling” (Graham, 2009, p. 91)? The art classrooms in Figure 1 and Figure 2 below appear to be very similar in aesthetics, demographics, and classroom size. However, if you look closer, you will notice that the students in Figure 1 are intently watching the projector to follow along with each step of the directions the teacher is leading them through in order for them to complete identical projects. The students in Figure 2 are independently working and looking at the Smartboard for inspiration while their teacher, who is in the back of the classroom taking the photo, is able to walk around to monitor and give feedback to the students as they work at the various drawing center tables for still life, figure drawing, stencils, and drawing books.

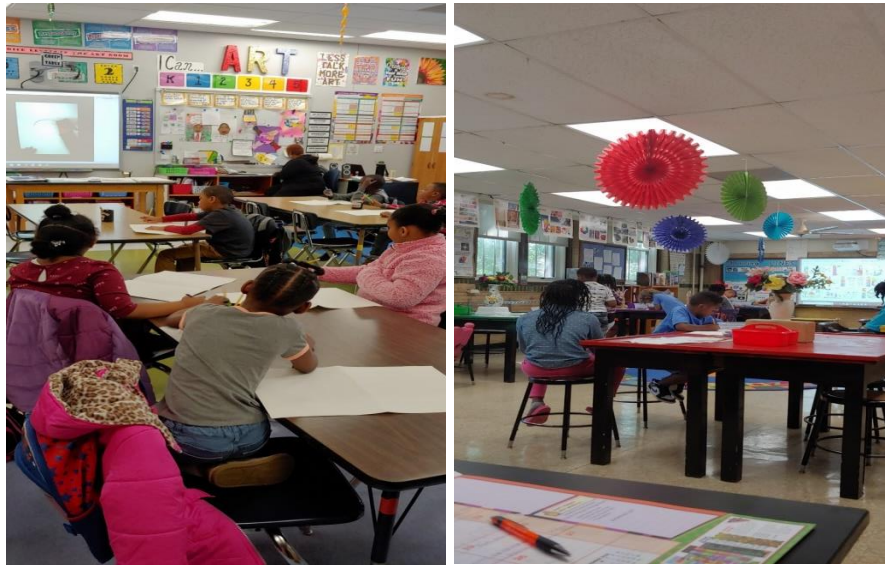


Figure 1. Traditional teacher-led art classroom. Figure 2. Student-centered choice art classroom.

Ten years ago, when I began my teaching career as an art educator, I was the center of attraction at the front of my classroom directing all students to copy everything I was doing in order to construct an art project. The teacher-led instruction (Figure 1) that

I and so many other educators' practice, is not inherently wrong, but it may not be the most effective in engaging the creativity and critical thinking of learners. I found teacher-led instruction to be a comfortable style because I was in control as the gatekeeper, which unfortunately in my art classroom, was at the expense of engaging the students in creative and critical thinking.

The journey to this classroom action research (CAR) with my art students began with the desire to give my students an engaging, hands-on learning environment that would allow them to be creative, forward thinkers, and lovers of exploration. But how would I transition from using direct instruction to an engaging, hands-on learning environment? This was the conundrum I faced. I first had to assess my teacher-led practices and the outcomes they yielded versus the outcomes I desired. As a twenty-first century educator, many of the teacher-led lessons I presented were very much like the lessons my twentieth century art teacher taught me when I was in elementary school. With all the modern-day advances in technology that flood the world amidst the use of smart phones, computers, video games, Global Positioning Systems (GPS), self-scanning check-outs, voice activation, automatic start engines and so much more, it is hard to comprehend that some schools' classroom instruction still resembles that of the early 1900s.

The Problem

I have observed in my classroom that students who have limited choice rely heavily on teacher-led direction, information, prodding, and guiding. In a study on student choice, Brooks and Young (2011) state that when educators offer students choice in the classroom, self-determination and intrinsic motivation to participate in class

activities is enhanced (p. 56). They also state that students in a traditional teacher-led, instructed, planned, lectured, and guided classroom are not as engaged in the critical and divergent thinking idea generation process. These researchers conclude that some traditional classroom instruction styles, such as when the teacher is controlling student movement and work, are “antagonistic” to critical and divergent thinking, thereby potentially limiting students’ motivation to engage in such independent thinking (Brooks & Young, 2011, p. 51). When I first introduced choice-based art, I noticed my students were more apprehensive about coming up with ideas of their own when given free choice, and some struggled to think of any ideas on their own. They only wanted answers to questions instead of asking questions or being curious about finding other possibilities, approaches, or techniques. Developing an intervention to address these initial observations of students in my art classroom was the motivation driving my CAR study. Figure 3 below describes the action research model used by researchers to design and direct-action research studies (Hendricks, 2012).



Figure 3. Illustration of the Action Research Cycle. From *Improving schools Through Action Research*, (p. 3), by Cher Hendricks, 2012.

Rationale for Choosing Classroom Action Research

I began to question my own teaching practices where everyone made the same Georgia O’Keefe flower with variations of color, or the same pinch pot with variations of glazes, and the same cityscape with variations of building sizes and colors. Where, in these examples, was the internal process of students *working through* (the formation of brainstorming ideas, images, and concepts of ideation)? How would my students develop critical and divergent thinking skills, student choice, voice, creativity, and autonomy? In my teacher-centered classroom, students were shown a teacher inspired and led art project example of an already pre-determined, finished product requiring the use of pre-selected art materials aligned to a rubric. I noticed that students who could not think of a way to add variety to their pre-selected project would just make an identical copy of the versions in front of them, perhaps only choosing a different color than mine. I would stress to students not to copy my version exactly so that they would not get in trouble for copying “off of me.” However, the assignment was for them to copy “off of me,” because in many cases, I did not teach my students how to apply any personal motivation, interests, or curiosity to their art work. “It is crucial that students have the opportunity to be active participants in what and how they learn” (Kosky, 2008, p. 22). I do not believe that I was equipping my students with twenty-first century learning skills by using rote art project class assignments. Something needed to change. Figure 4 below illustrates the higher order thinking skills needed as students create art.

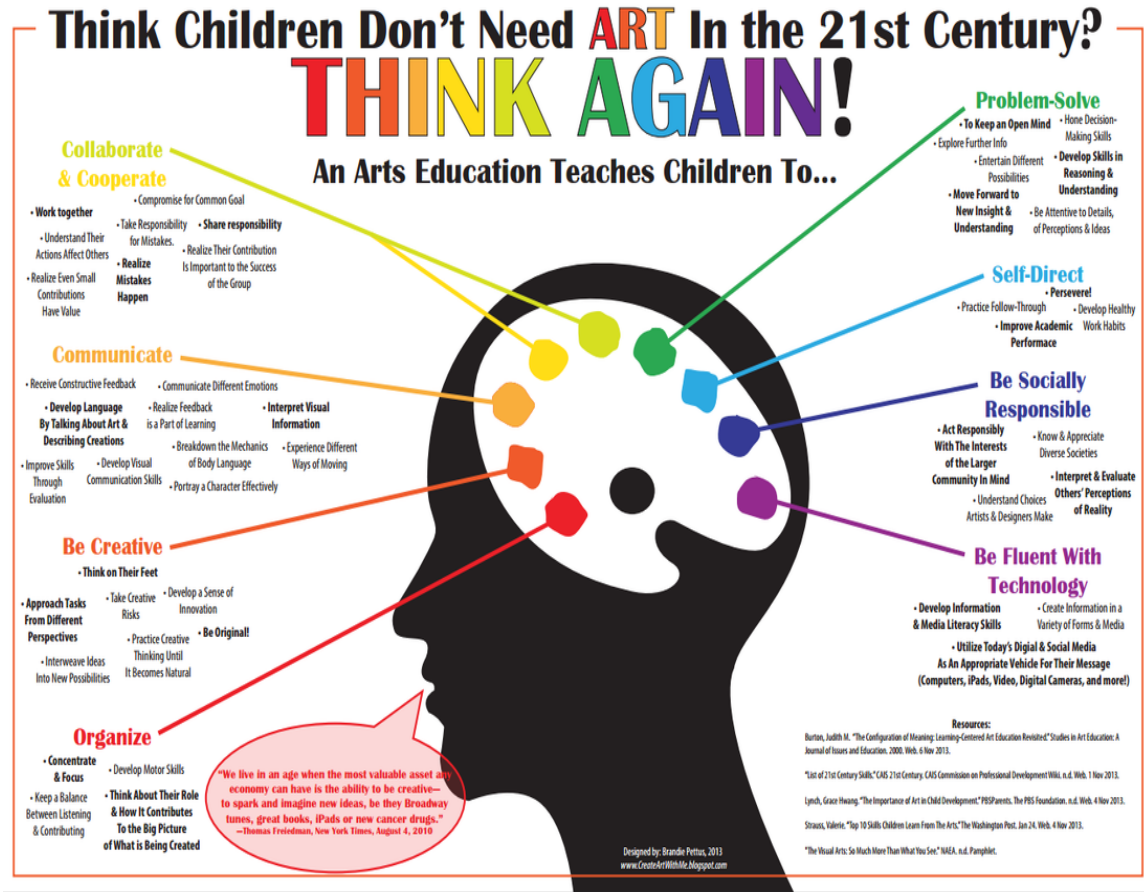


Figure 4. Illustration of 21st century higher order thinking skills in art diagram. From www.CreateArtWithMe.blogspot.com, by Brandie Pettus 2013.

In a West Virginia University action research exploration of integrating student choice in the arts in middle school social studies, Kosky (2008), found that, “when students were forced to think for themselves, encouraged to ask questions, were given choice, and be active participants in learning, student motivation was higher and they scored higher on tests and assignments” (p. 26). On the contrary, he states, “Student motivation, assignments, and test scores were lower when the same students were given rote workbook pages and had to just sit and listen for an entire lesson of teacher-led instruction” (Kosky, 2008 p. 26). The hands-on engaging outcomes needed for my

classroom would be the results of incorporating a student led environment with the teacher role becoming that of a facilitator.

Theoretical Framework

The study by Kosky (2008) showed that the highest rated lessons and participation scores for the student choice arts integration action research were when students worked together on big projects that gave them choice in what was to be created (Kosky, 2008, p. 26). In my inquiry, I looked closely at what innovative schools, gifted classes, and hands-on problem-solving learning environments did to engage their students. I questioned the skills and procedures that students and teachers in traditional learning environments needed to implement so students could be creative, have autonomy, and engage in critical and divergent thinking skills in order to develop and improve the process of generating ideas and cultivating student voice. That is when I discovered Teaching for Artistic Behavior (TAB) and the 8 Studio Habits of Mind (SHoM) Framework. Both were being incorporated by art teachers nationwide for student-centered learning environments and higher order thinking skills to help teachers transform classes from teacher-led to student choice (Hogan, Hetland, Jaquith, & Winner, 2018).

The problem of engaging students in critical thinking skills to generate ideas to solve problems is not unique or particular to the art classroom. These twenty-first century skills are needed in middle school classrooms, high school classrooms, trade schools, colleges, and universities, as well as the work force. Research by Alshare and Sewailem (2018), supports the importance of incorporating the necessary twenty-first century skills into our educational systems to increase students' critical thinking skills,

and to foster creativity, ideation, and innovative skills. Additionally, these skills are necessary to equip and prepare students for the challenges of being in the workforce. (Alshare & Sewailem, 2018, p. 1).

TAB was pioneered by new teacher, Katherine Douglas, in 1972, as she sought to meet these needs and increase the skills of her students in a small Massachusetts elementary school of 960 first through fourth grade students. She developed TAB in order to combat limited supplies, large classes, and short class periods (Douglas & Jaquith, 2009). The 8 SHoM Framework developed by Lois Hetland and the Project Zero research team of Harvard University's Graduate School of Education (Hetland, 2013) and TAB, have partnered to create a choice art class that incorporates twenty first century skills. Together, TAB and the 8 SHoM, engage students in critical and divergent thinking skills where students use their creativity, student voice, and autonomy to implement techniques and procedures for personal, school, community, and societal interests and influences which can be used beyond the classroom and toward college and career readiness skills as productive citizens.

Context

I, the researcher, am an African-American female, currently in my tenth year as an educator. The K-5 elementary school where I teach is a suburban Midwestern school that is predominantly African-American. The school district is currently accredited; however, our Missouri Assessment Plan (M.A.P.) scores have consistently declined over the past three years. More than seventy-five percent of the students at my school qualify for free and reduced price lunch, and mine is a trauma informed district with building wide peace corners in every classroom. These peace corners exist to assist students due

to the high volume of traumatized children in the district. There are approximately three hundred and twenty-five students enrolled to date, but students move in and out of the district within the given academic school year. Table 1 below details the demographics of the classrooms chosen for this CAR.

Table 1
Students by number, demographic, grade, race, and gender in the study

Grade	Boys	Girls	Black	White	Other racial identity	Total # of students
Kindergarten	9	8	14	3	0	17
First	7	8	14	1	0	15
Second	7	8	9	5	1	15
Third	13	7	18	2	0	20
Fourth	6	4	9	1	0	10
Fifth	13	9	18	4	0	22
Totals	55	44	82	16	1	99

Overarching Research Question

1. How can I implement a K-5th art program to prepare my students to understand the artistic enterprise when creating art?

Secondary Research Questions:

2. How can I design engaging hands-on classroom learning experiences to develop and influence my students' ability to apply student voice, ideation, and critical and divergent thinking when creating art?
3. How can I design activities to develop and increase my students' execution of choice and autonomy while demonstrating the use of tools and practices of the artist (TAB) when creating art?
4. How can I design and implement activities to enhance the dispositions necessary for my students to acquire and exhibit artistic habits (8SHoM) when creating art?

Defining the Problem and Formulating the Argument

I wanted my art students to be able to think for themselves and be engaged in the artistic process. I desired the look, feel, and sound of a student led choice-based art learning environment in order to give my students autonomy, choice, voice, and hands-on engaging experiences. I wanted students who attend schools with socio economic struggles, moderate to high diversity demographics, and moderate to high free and reduce price lunch to have the same classroom environments, experiences and opportunities as those who attend schools with the curriculum content and structure of some of the elite private and forward-thinking schools.

Chapter 2: Review of the Literature

As mentioned previously, my students did not know how to think of what to create in art when given free choice, so I began using ideation (a strategy defined by design thinking) with my students to increase creativity and engagement. The review of literature discusses the important role of ideation and planning through the development of creative and divergent thinking skills, engagement, and student voice. The literature review also describes and illustrates the definition of the underlying principles of choice and autonomy in TAB, as well as the importance of the 8 SHoM disposition frameworks in developing students' ability to think like an artist as a part of the artistic process.

Important Role of Ideation and Planning

Having all the materials and resources at their fingertips to create anything their heart and mind can think of should be exciting for art students. I have observed that when students are not used to engaging in the learning process because of traditional rote teaching, it can be terrifying, paralyzing, and can overwhelm them. Research that

supports the important role of ideation and planning was done by Fahey and Cronen (2016). The authors state that using digital art portfolios to document the learning process to include such strategies as planning, ideation, creating, and reflecting, provides concrete visual references for students and makes their learning visible so they can understand how they know (p. 139).

Definition of the Underlying Principles of Teaching Artistic Behavior (TAB)

Katherine Douglas (Douglas & Jaquith, 2009), explains that TAB is well known across the country and is a nationally commended and implemented choice-based educational art program that provides alternative approaches that teachers can use for teaching art to their students (Douglas & Jaquith, 2009, p 18). The choice-based educational art program is designed to supports diverse learning and assessment needs of students (Douglas & Jaquith, 2009, p. 23).

Student choice and autonomy. A distinct way that TAB is different than teacher-led instruction is that TAB allows for more self- directed learning for students, while the teacher's role is more of a facilitator (Douglas & Jaquith, 2009, p. 33). Having teachers who are also practicing artists brings about a natural progression of choice and autonomy in the art classroom (Douglas & Jaquith, 2009, p. 47). In an article where Graham (2009) discussed the important role and ability that a teaching artist has to change the dynamics of teaching and learning, my experiences of un-engaged rote style education were echoed. In a teacher-led classroom where there is no student choice, the author states that “students are treated like products in a factory and learning is viewed as a standardized process with predetermined outcomes” (Graham, 2009, p. 88).

Pioneer of the TAB curriculum, Katherine Douglas, developed the program out of necessity, because she had eight hundred students in Kindergarten through eighth grade, no money in the budget to order enough supplies, and eight, forty-minute classes each day (Douglas & Jaquith, 2009, p. 9). The birth of TAB by Katherine Douglas was her own unique and sincere way to provide a meaningful and substantial art experience to her students with her limited budget, resources, time, and energy (Douglas and Jaquith, 2009, p.10). Student choice in this scenario came about because of the creative way an art teacher divided up her classroom to engage all students with various materials she had available for them to use.

Douglas and Jaquith outline how art educators can implement the TAB choice-based art program in a few different ways. The first is slowly, with just a few choices for students in the beginning for those art educators who may have a hard time relinquishing control of the artistic process in the beginning. Second is moderately, for those who want students to experience choice and autonomy with some teacher directed lessons. And lastly, fully, for those art teachers who want their students to experience and explore choice and autonomy uninhibitedly (Douglas & Jaquith, 2009, 41).

In an action research exploration on student choice and art activities for an integrated social studies project, Kosky (2008) reported that giving students' choice in what type of activities to complete had the greatest perceived impact on their motivation and participation, and many of the students' grades increased as a result of the integration of arts activities and student choice into their social studies curriculum (p. 22). This study was a catalyst to inform whether or not providing choice for my art students would

increase their divergent thinking skills, as well as raise their engagement in when producing their art projects.

Brooks and Young (2011) conducted a research study on how self-determination theory empowers student motivation and learner empowerment as related to student choice. The study concluded that there is a strong positive correlation between choice of assignments, combined with student empowerment of their learning that increased intrinsic motivation. This research sought to support my understandings and findings that student choice and autonomy in the art classroom promote motivated learners to think and create meaningful art for themselves.

Student Voice and Autonomy. Robinson and Aronica (2018) discussed some of the nuances of what innovative schools did that most teacher-led schools did not, which is, they give their students a voice (p. 2). A key way to give my students a voice in the art classroom is to give them the autonomy to choose what they make and freedom to express their art through critiques and artist statements. Giving the students more ownership of the artistic process will strengthen their voice as well as their skills. Robinson and Aronica (2018), also stated that “innovative schools everywhere are breaking the mold of convention to meet the needs of their students, families, and communities, as well as how art curriculum in the innovative schools was redesigned, as in TAB curriculum, giving students a fresh enthusiasm for learning and the opportunity to display and showcase their work” (p.2). By inviting artists to come and work with students, parents, and teachers, and decorating the halls and walls with student work, teachers helped to create a more stimulating environment and a sense of ownership for students to be able to use their artistic voice and creativity, thereby keeping them engaged

(Robinson & Aronica, 2018, p. 4). Periodically, guest artists visit my classroom to demonstrate their expertise, teach, and work alongside my students. Students will also have the opportunity to curate their own art exhibit at the end of the school year as a way to develop, grow, and strengthen their student voice, autonomy, choice, creativity, and engagement in the artistic cycle.

Importance of 8 Studio Habits of Mind Disposition Framework

The 8 Studio Habits of Mind (SHoM) Framework was developed by a group of researchers at the Harvard Graduate School of Education called Project Zero, named as such because zero was known about thinking and learning in the arts (Hetland, Winner, Veenema, & Sheridan, 2013). Multi-year research was conducted in visual art schools and classes on the East and West coasts to determine the types of strategies, techniques, and teaching dispositions of the arts would give their students an understanding of how artists think, learn, and work (Hetland, Winner, Veenema, & Sheridan, 2013). As the researchers studied and surveyed teaching artists, various art class disciplines, and art students, there were eight dispositions observed that were repeatedly being used by artists to evolve their craft (Hetland, Winner, Veenema, & Sheridan, 2013). The 8 SHoM promote critical and divergent thinking skills, autonomy, and student voice and choice because of the structure incorporated in them to help students think like an artist. In an article outlining the structure of how to incorporate the studio habits, authors Rankine and Landers state that, “The 8 SHoM are not a hierarchy of steps but a circular process which can be used by teachers in guided instruction or constructivist teaching” (2015, p.1).

Table 2 below displays the eight Studio Habits of Mind dispositions that developed from the studio thinking framework.

Table 2
8 SHoM Dispositions Framework Definition Chart

Studio Habit Disposition	Studio Habit Definition
Develop Craft	Learning to use tools and materials: Taking care of tool, materials and work space
Envision	Idea generation, imagery, next steps, and future planning
Express	Creating art that is meaningful and that can be communicated or expressed
Engage & Persist	Focusing on a project and seeing it through, even when it is challenging
Observe	Looking closely and noticing the world around you more intently
Stretch & Explore	Experimenting with new tools, techniques, and materials to try new things
Reflect	Thinking about how and why art is made and thinking about the art of others
Understanding Art Worlds	Learning about other artist, styles, and cultures: Collaborating with others to create art

Critical and divergent thinking. Giving students choice in art without leading them through the process of ideation and critical/divergent thinking can lead to chaos (Bedrick, 2012). In a research study conducted by Adams-Jones (2012), she shares how teachers must begin first with thinking-centered classrooms that are intellectually and actively engaged. Secondly, teachers need to create real world thinking strategies to help students understand broader concepts (Adams-Jones, 2012, p. 67). Intentionally teaching the 8 SHoM in real world concepts may give my art students the opportunity to gain an understanding of the art worlds around them, artists and their styles, art movements, and how to use their art for social justice (Adams-Jones, 2012, p. 68).

When walking through the halls of many public schools you will find the teacher as the “sage on stage” and the students being studious at best. This type of traditionally led teaching does not typically lend itself to critical and divergent thinking. Researchers Smit, Bradbender, and Martins (2014) found that:

In traditional learning environments, like TLEs, tasks are mainly theoretical (De Corte 2003). Knowledge in these tasks is de-contextualised. The focus of learning is on content, not on the learning process. Second, students' role is mainly passive; knowledge is transferred from teachers to students, whereupon students practice the assigned exercises individually. The learning activities are identical for all students and performed simultaneously. Third, teachers mainly provide whole-class instruction and control the learning process. Fourth, teachers and text books are the main sources of information. Finally, assessment concerns the content only and winds up a learning period. (p. 5)

The Project Zero research team found that “the arts programs teach a specific set of thinking skills rarely addressed elsewhere in the curriculum; including a remarkable array of mental habits not emphasized in other facets of the school curriculum” (Hetland & Winner, 2008, p. 30). This is in part because visual art allows students to engage critical and divergent thinking skills on a personal level with hands-on activities using a variety of materials and resources other than books, paper, pencils, computers, crayons, and markers. As the analysis of the Project Zero research team's data of art class observations unfolded, they discovered the 8 SHoM framework that an artist cultivates as a part of their craft. The 8 SHoM dispositions promote critical and divergent thinking through the artistic process. Implementing these 8 SHoM dispositions in the art class will help develop and grow critical and divergent thinking skills in my students that choice-based art or TAB by itself could not accomplish.

Intentionally teaching specific skills is how students acquire knowledge. I will focus on implementing the 8 SHoM along with TAB choice-based art to develop and

strengthen my students' critical and divergent thinking skills. In the article "Does Studying the Arts Engender Creative Thinking? Evidence for Near but Not Far Transfer" the authors were formulating a consensus regarding whether learning in traditional teacher-led art classes led to creative thinking, and the answer was no (Moga, Burger, Hetland & Winner, 2000, p. 34). I witnessed that providing a choice-based art program coupled with student autonomy did not develop or improve critical thinking skills for my students. I observed them struggling to be creative and think on their own, without me intentionally teaching thinking skills of incorporating ideation (how to come up with an idea of what to create) and theme techniques such as their favorite movies, celebrations, or foods. The free reign of materials and resources did not yield creative, inspired, and thoughtful projects because I did not intentionally teach my students to practice empathy (creating art that was personal and meaningful to them), and perseverance (how to push through and not give up when it gets difficult), throughout the art making process. Appendix I shows the ideation prompt I developed for my students to use in order to help them generate ideas for future projects.

Chapter 3: Methodology: Plan-Act-Observe-Reflect

Pilot Study

As a result of conducting a pilot study (the new CAR intervention study of my elementary art classes) in the winter of 2017, I implemented the TAB choice-based art program in addition to the 8 SHoM. The classroom was set up into six differently colored media studio centers. There was also a computer research station that students could access to search for topics and ideas. In the book "*The Learner Directed Classroom: Creative Thinking Skills Through Art*" the TAB practicing authors help

educators such as myself with how to arrange the art classroom into a space that is conducive to student choice and learner autonomy (Jaquith & Hathaway, 2012, p. 61). Figures 5 and 6 below are pictures of the colored classroom studio set up of: blue-drawing, yellow-fibers, red-painting, green-sculpture, purple-architecture, and orange-collage.

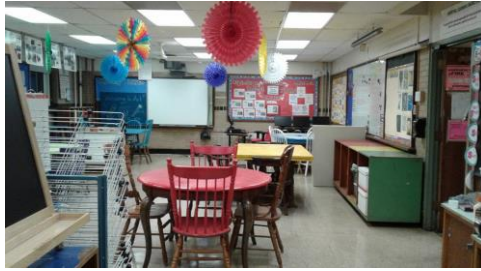


Figure 5. Researcher's art class set up.



Figure 6. Researcher's art students' working in studios.

January 17, 2017, I ambitiously began the pilot of TAB choice-based art in my class, focusing primarily on the students choosing their studio medium and generating their own art project ideas for art production. The intent was to open up a new studio each class period after students completed art challenges for the current studio so they would be familiar with tools, procedures, and materials available at each of the studio centers. The first studio grand opening to kick-off was drawing, which TAB founder Katherine Douglas recommends introducing to students in the beginning (Douglas & Jaquith, 2009, p. 10). After students completed the drawing challenge for that studio, then the next studio, painting, had a grand opening and similar challenge procedure. The procedure was repeated until each studio was introduced and challenges completed. The grand openings consisted of creating a poster board of the studio with all the available tools, resources, mediums, techniques, and definitions related to it. Because each studio has color coordination, students learned to keep track of where and how they worked.

Once all studio centers were opened, students chose where they wanted to go to create an art project.

Students were told that TAB teachers do not make lesson plans for what the whole class will create, but that each student will need to plan and think of ideas of projects they would like to make in order have autonomy with their work.

During the studio challenges, students were exposed to a variety of project ideas and resources that could be made in each particular studio. TAB teachers refer to students as artists, and the TAB classroom acts as their personal art studio (Jaquith & Hathaway, 2012, p.20). This mindset helps students transfer ownership and responsibility of the materials and their projects from the teacher to themselves. Planning is a huge part of the TAB choice-based art program. As students learn to be organized, responsible for materials, manage their time, and self-direct, they also develop the skills needed to persevere and trust that what they are interested in creating is valuable to themselves and others (Ray & Daniel, 2017, p 1). TAB teachers spend valuable time with students demonstrating how to use their plan and idea sheet for their art-making project (Jaquith & Hathaway, 2012, p. 15). Students are taught that they cannot just work in a studio without having a plan or an idea for what they would like to create. Students can sketch, use drawing books, try to replicate or remember a similar item at home, or think back to something demonstrated or discussed in class (Jaquith & Hathaway 2012, p. 21).

Once a student completes the art project they envisioned, planned, and completed in a TAB studio, they are ready to write an artist statement to discuss their artistic process and crafted project created. After the artist statement is complete, students are then able

to share out at the end of a class period in front of their peers. Sharing out at the end of class allowed students to participate in the T.A.G. critique method. When students design and create art that is meaningful to them or has a personal connection to their own lives, they understand and are able to explain their work and be much more deeply engaged with their learning (Hogan, Hetland, Jaquith, & Winner, 2018). T.A.G. stands for: Tell the artist something you like about their work, Ask the artist a question about their work, and Give the artist a suggestion about their work (Jaquith & Hathaway 2012, p. 39).

Soon after having the grand opening for the first TAB studio, drawing, and completing the challenge for the studio, I discovered that my students in all grades, but mostly 2nd through 5th, did not or could not come up with their own ideas of what to create in the studio. Many Kindergarten and 1st graders were able to freely think and create ideas from their imagination or fantasy play worlds that they are allowed to explore during class time in dramatic play centers. I quickly realized the same pattern after opening our second studio, which was painting. I worked with students to think about their favorite things to do, places to visit, things to eat, etc. I was then constantly bombarded with statements such as “I don’t know what to do, I can’t think of anything, this is hard to think of stuff, can you tell me what to draw, paint, etc.?”

The comment that flabbergasted me the most was when a fifth grader, who I had taught since Kindergarten, told me after doing TAB all semester long, “I liked it better when you just told us what to make, because this is too hard to think of things on my own.” I was devastated at how my teacher-centered practices had robbed this student of learning how to be a critical and divergent thinker in years prior. I was so excited to give

my students a new learning experience that it never occurred to me that it would be intimidating for some of them. I was shocked and had to immediately re-evaluate how to continue the implementation of TAB student choice-based art in my class. Prior to beginning the TAB pilot, I had only watched one experienced TAB teacher for half a day in a more affluent school district, and no one there reacted the way my students did to TAB. The teacher and school I observed were an excellent representation of how the TAB program should operate. Additionally, I attended a training that lasted two days over summer break, and again, I recall no one specifically mentioning what I was experiencing- that my students “did not know how to think!”

To intervene, I began to brainstorm with the students around themes that they could use to develop their own personal ideas. For example, each student received an idea sheet that had several categories or themes listed, and they had to think of something they would like to make related to the theme or category. We also created a huge newsprint poster paper of ideas and themes to display on the classroom wall for students to reference when they needed inspiration. From there, we as a class would have themes and ideas for projects that began to show students “how to think”. The school year progressed with students learning to think of ideas related to themes and whole group projects centered on themes. Figure 7 is an illustration of my 2017-2018 pilot study Kindergartners engaging in creating their self-portraits



Figure 7. Illustration of 2017 pilot study Kindergarteners engaging in the drawing studio.

Implementing Classroom Action Research

The self-reflective process of the action research methodology requires continuous evaluation of processes and procedures, systems and solutions, as well as feedback and assessment tools to incite change (Herr & Anderson, 2015). Conducting a CAR study gave me the experience of being a part of the research to focus on issues and concerns that are important and relevant to me, my students, parents, administration, school board, and optimistically, the educational realm at large (Pine, 2008, p. 243). I am hopeful that this classroom action research study will have the potential to positively impact educational practices.

I teach art to one classroom of each grade level, K-5th for fifty minutes each for a total of eighteen classes every three days. Table 3 displays the “ABC” rotation of the art classes. The number of participants in the study from each grade level is also represented in Table 3.

Table 3
Art Class Rotation Cycle

Grade	A Day Art 50 min	B Day Art 50 min	C Day Art 50 min
Kindergarten	Researched class 14 students in study	No research	No research
First	Researched class 13 students in study	No research	No research
Second	No research	Researched class 14 students in study	No research
Third	Researched class 19 students in study	No research	No research
Fourth	Researched class 9 students in study	No research	No research
Fifth	No research	Researched class 20 students in study	No research
Total number of students in study	55 students A day	34 students B day	89 students total in study

Data Sources and Collection Description

The 2018-2019 school year CAR study used several sources to triangulate the data. The use of share out T.A.G. critiques, art project planning sheets, and artist statements for completed projects were implemented from a continuation of the 2017 pilot study. In addition, for the 2018-2019 school year, I used a group Gallery T.A.L.K. and Walk art critique method to demonstrate student expression, ideation, planning, collaboration, and presentation. An artifact photo log was implemented as a method to exemplify student autonomy, choice, voice, ideation, planning, reflection, and exhibition curation.

I worked with students from each grade level, eight-Kindergarteners, four-first graders, three-second graders, four-third graders, four-fourth graders, and eight-fifth graders, to conduct semi-structured interviews in order to get a clearer picture of the impact of the study. I also conducted unstructured interviews with two-first graders,

four-second graders, three-third graders, two-fourth graders, and six-fifth graders to gain their perspective as to why they had a higher score on the CAP divergent thinking pre-test than the post-test.

Other data sources that were implemented to ensure there was triangulation included, the incorporation of an 8 SHoM reflection rubric and the “3-H” think like an artist sheet into my teaching practices, and I intentionally focused on exhibiting the 8 SHoM framework dispositions into my instruction (e.g. video lesson demonstrations). Students also participated in curating an art exhibit where each student chose what piece they wanted to display in the show, along with completing an artist statement for their art piece. Also, an ideation brainstorming sheet was created to help students develop and increase their ability to think of their own ideas for creating art projects. In addition, Appendices A-E are examples of the artifacts I created to be used by students to answer my research questions. Table 4 describes the data framework for this CAR study.

Table 4
Data Research Questions Methods

Research Questions	Data Source Artifact	Indicator of Growth or Analysis	Collection and Implementation Process (how often)	Timeline	Yield
How can I implement a K-5 th art program to prepare my students to understand the artistic enterprise when creating art?	“3-H” think like an artist sheet	Intentionally taught students to make art from their heart, hand, and head.	I used this tool daily for myself as I gave students instruction as a way to model for students the way an artist thinks	January to March	Creativity, divergent thinking skills and engagement in the artistic enterprise of thinking like an artist
	Pretest and post-test using CAP Divergent thinking test (Williams, 1980)	A higher score on the post-test than the pretest.	One time for pretest and one time for post-test	September/February	
	8 SHoM reflection rubric sheet	Intentionally taught students by using the 8 SHoM	I used this tool daily for myself as I gave instruction, feedback, and assistance to students while they created art	September to March	

Table 4 (continued)

Research Questions	Data Source Artifact	Indicator of Growth or Analysis	Collection and Implementation Process (how often)	Timeline	Yield
How can I design engaging hands-on classroom learning experiences to develop and increase my students' ability to apply student voice, ideation, and critical and divergent thinking when creating art?	Gallery T.A.L.K. and walk art critique sheet	Students sharing ideas verbally, collaborating, and presenting art	Once for grades 1 st -5 th	March	Student voice and expression, creativity, divergent thinking skills, choice, collaboration, engagement, and reflection
	T.A.G. critique share out photo log		Once for Kindergarten grade	March	
	Ideation brainstorming sheet	Students ability to think and draw ideas to make art projects in the studios	Every time a student needed ideas for art projects in each of the studio centers	October to March	
	Artist statements	Students ability to give titles to art and reflect on the art making process	Every time a student completed an art project they filled out a statement	October to March	
How can I design activities to develop and increase my students' execution of choice and autonomy while demonstrating the use of tools and practices of the artist (TAB), when creating art?	Artifact photo log	Students show more detail in art projects and variety of mediums as the year progressed	Weekly assessed students detail of projects as they were completed	September to March	Student choice and autonomy, creativity, and engagement
	Student curated art exhibition	Students' diligence and engagement to create and select their own artwork to be displayed	One for each student and one exhibit	January	

Table 4 (continued)

Research Questions	Data Source Artifact	Indicator of Growth or Analysis	Collection and Implementation Process (how often)	Timeline	Yield
How can I design and implement activities to enhance the dispositions necessary for my students to acquire and exhibit artistic habits (8SHoM), when creating art?	Art project planning sheet	Students can complete a sheet using reflection and ideation before they begin an art project	Every time a student decided on an art project idea to create in a studio center for each student	October to March	Student expression, reflection, autonomy, divergent thinking skills, and creativity
	Student semi-structured interviews	Students' ability to openly express their view of the classroom art experience	One time for each interviewee	February	
	Student unstructured interviews	Students ability to reflect and give insight on their creative progress	One time for each interviewee after the administration of the CAP Divergent thinking post-test	March	

Data Analysis Positive Impact Criteria

To determine if the data sources, gallery talk and walk art critique, artifact photo log, and student interviews, that were used to address my research questions had a positive impact, I looked for several different criteria to be met. Some of the most important criteria that were needed to exemplify a positive impact were, whether or not students could think, plan, create, express, and reflect. Data sources that had a positive impact would also demonstrate whether or not students could think of or generate an idea, plan out that idea, use the necessary tools to create that idea, express that idea

verbally and in written form. As well, data sources would have a positive impact if students could reflect upon the idea and the process that accompanied creating the idea. Other criteria needed to demonstrate if the data sources were positively impactful or not would be if students used autonomy when necessary, collaborated with others when needed and were engaged in the artistic process. Positive impactful data sources needed to allow for students to exercise their autonomy and independence in choosing their ideas, mediums, and project execution, as well as present opportunities for collaboration, student voice, or expression, and exploration. Lastly, positive impactful data sources would be able to address student engagement and participation in the artistic process by the students' selection of choice, confidence in using oral expression, along with the ability to think and plan their art projects.

Statement of Qualification

As an insider action researcher study participant, I needed to be aware of any and all biases that may have evolved during the study. I was qualified to conduct this study because I am familiar with the TAB program, the students know me and are familiar with me, and I have the best interests of my students at heart. I desire to see them develop and grow as artists, students, and life-long learners.

Research Ethics

A code of ethics was implemented prior to the study to ensure the protection of the participants. Each student in all of the classes selected for this CAR study was given a participant's permission form requesting their participation and each parent of the student also received a consent form requesting permission for their child to participate in the study. Approval by my school district to conduct this CAR study was granted in July

Chapter 4: Results of Data Analysis

In this CAR study my intentions were to teach students how to think creatively and divergently. I wanted students to be able to generate their own ideas in order to create art projects that were meaningful to them in a student-centered choice art program. The research questions that drove the CAR study were:

1. How can I implement a K-5th art program to prepare my students to understand the artistic enterprise when creating art?
2. How can I design engaging hands-on classroom learning experiences to develop and increase my students' ability to apply student voice, ideation, and critical and divergent thinking when creating art?
3. How can I design activities to develop and increase my students' execution of choice and autonomy while demonstrating the use of tools and practices of the artist (TAB) when creating art?
4. How can I design and implement activities to enhance the dispositions necessary for my students to acquire and exhibit artistic habits (8SHoM) when creating art?

The first section describes the quantitative data collection and results. The second section describes the qualitative data collection and analysis, and lastly the analysis across qualitative sources.

Pre/Post Divergent Thinking Test

The Creativity Assessment Packet (CAP) divergent thinking test by Williams (1980) was used to assess the research question regarding students' creative and divergent thinking skills as a means of gauging the students' initial and summative abilities to understand the artistic enterprise of thinking like an artist when creating art.

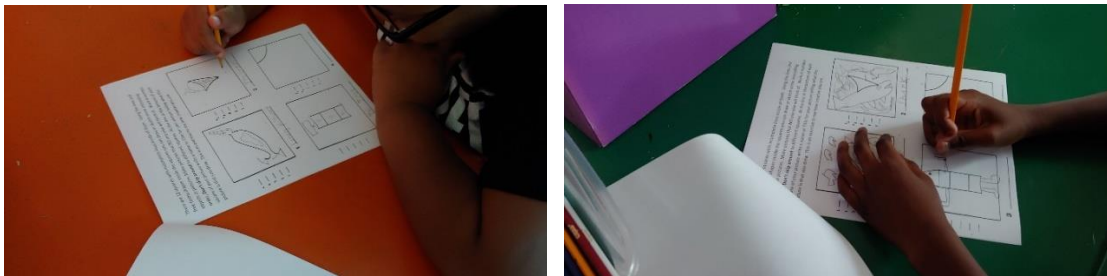
The test instruments, Forms A and B, collectively assess children's divergent thinking levels and were developed initially to screen for gifted or talented children in first through twelfth grade. The CAP measures the four divergent thinking categories of

fluency, flexibility, originality, and elaboration derived from Guilford's research on human intellect (Guilford, 1948). In addition, a fifth category of title is measured on the test, giving each testing square a total of five assessment criteria. Forms A and B are one test broken up into two sections of twelve squares each, for a total of twenty-four squares that students are to complete by creating a drawing with the pre-existing line or shape inside the square.

The CAP pre-test Forms A and B were given on two separate days spanning five different classes, with Form A on one art class day, and Form B on another art class day. The CAP test allows first through third graders twenty-five minutes to complete the twelve sections of Form A, and twenty-five minutes to complete the twelve sections of Form B. Additionally, the test allows fourth through twelfth graders twenty minutes to complete the twelve sections of Form A and twenty minutes to complete the twelve sections of Form B. The CAP does not assess Kindergarten students

At the beginning of the year I gave each first through fifth grade student a creativity and divergent thinking pre-test, and at the end of the semester I gave them the same test to determine if their critical/divergent creativity skills had increased. Below, Figures 8 and 9 exhibit the pretest given to students during the third week of school. Once the pretest was conducted, data was calculated and averaged, and students then received an average raw data point score on the test. The entire grade level score was averaged for an over-all class score. Each student's pretest score was entered into a spread sheet in Microsoft Excel. Approximately five months later, first through fifth grade students were given the same test as a post assessment, and each student's score was entered into a spread sheet in Microsoft Excel. The pre-test and post-test raw data

point score differences, as well as the overall averaged class scores by each grade level, were compared to show differences within the grade levels. When the post-test scores were higher than pre-test scores, the data showed that divergent thinking skills increased or grew. Examples of the CAP test Forms A and B are in Appendix F.



Figures 8 and 9. Illustration of the creativity and divergent thinking test given to K-5th art students.

On September 5, 2018 Form A was given to a first and third grade class for twenty-five minutes and a fourth grade class for twenty minutes. On September 6, 2018, Form A was given to a second grade class for twenty-five minutes and a fifth grade class for twenty minutes. Form B was given more than two weeks later on September 21, 2018 to a first and third grade class for twenty-five minutes, and a fourth grade class for twenty minutes. And on September 24, 2018, Form B was given to a second grade class for twenty-five minutes and a fifth, grade class for twenty minutes. Five months later on February 19, 2019, Forms A and B of the CAP were both given during one art class period as the post test. Students in a first, third, and fourth grade class had approximately forty to forty-five minutes to complete Forms A and B because of the time that remained after classes transitioned from their classroom to the art classroom. Directions and supplies for the test were given to the students. On February 20, 2019, Forms A and B were also both given during one art class period as the post test. Students in one second and one fifth grade class had approximately forty-five minutes to complete Forms A and

B due to the time that remained after the classes transitioned from their classroom to art class. Directions and supplies for the test were given to students.

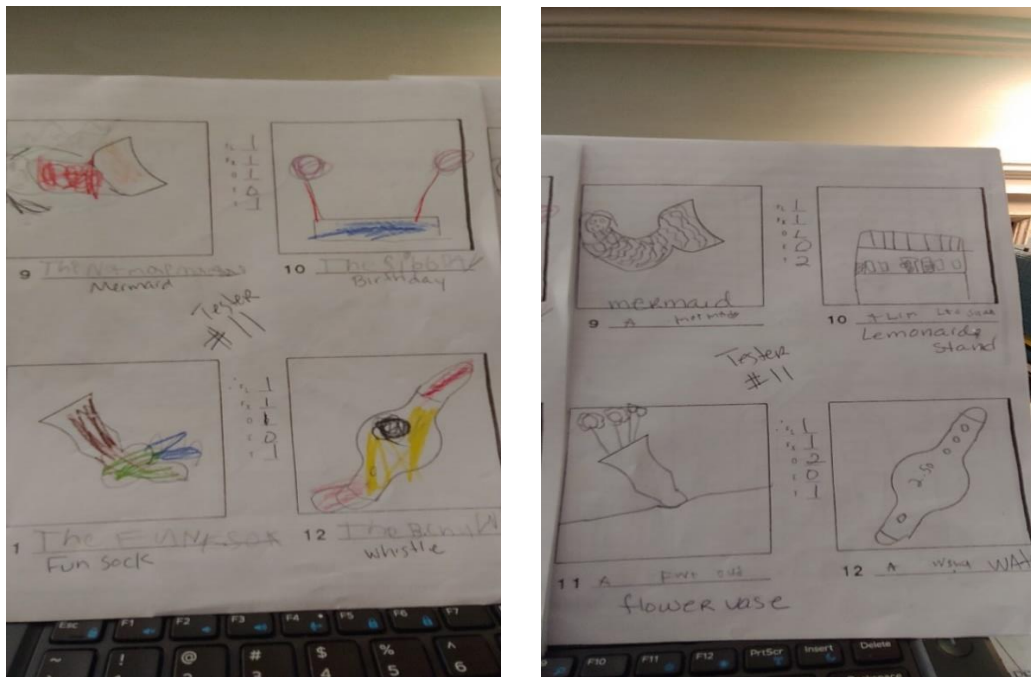
Quantitative Results

Graphs 1-6 in Appendix G are the Microsoft Excel data charts that were used to analyze the pre-and post-test data for all grades and by each grade level. When I compared the overall pre and post-tests data charts for grades first through fifth, it showed an average point score difference of $-.72$ between the pre-test and post-test for Form A, and a point score difference of 6.05 between the pre-test and post-test for Form B. The point differences presented a $-.72$ decrease overall for Form A, and a 6.05 point overall growth for Form B in grades first through fifth. However, when I compared pre-and post-tests' data by grade levels, I found that each individual grade had their own data story.

When I initially looked at the Microsoft Excel data chart of all grade levels, there did not appear to be much growth. I needed to analyze each grade level separately to find out if there were any trends that developed which would demonstrate growth in divergent thinking among the individual grades. Upon investigating the grades separately, I discovered there was an enormous variability between the grades which provoked me to delve deeper into the data. It is difficult to see gains between grades levels; however, when I looked at individual students, I received a lot of solid information that "thickened the plot" for each grade level's overall story.

In first grade, the average pre-test score for Form A was 38.85 , and the average pre-test score for Form B was 44.40 . Their average post-test score for Form A was 47.23 , and 52.08 for Form B. This gave the first graders an average point score

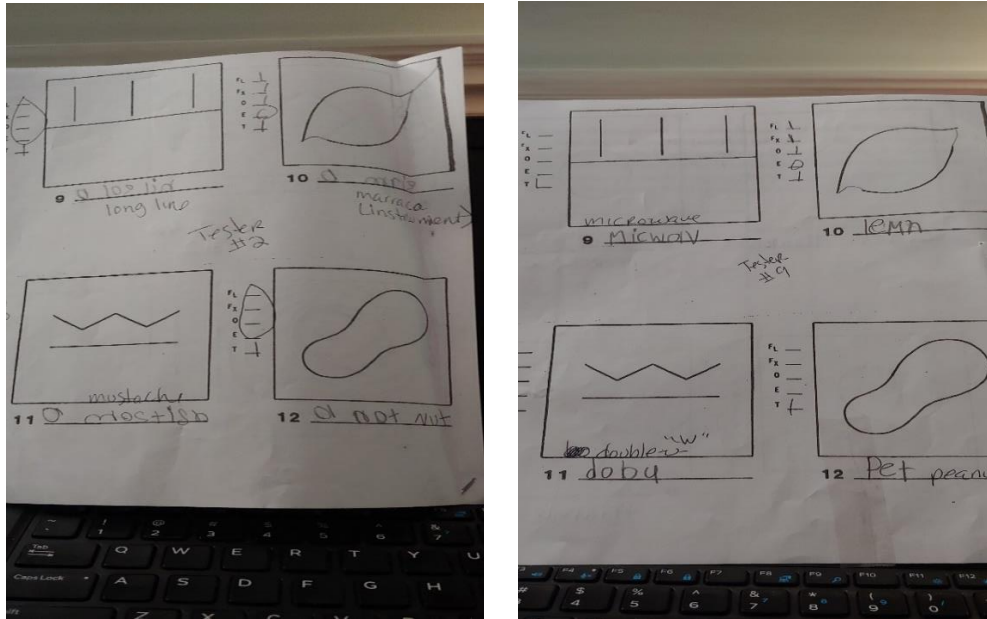
difference of 8.38 growth for Form A overall, and 7.77 growth for Form B overall. First grade is the only grade level that has seven or more whole growth points on the post-test for both A and B Forms. Tester #11 has an overall divergent thinking growth of fifty-four points, and Tester #10 has an overall divergent thinking growth of seventy-one points. Figure 10 below on the left shows the work created by Tester #11 on pretest B, and Figure 11 below on the right shows the work created by Tester #11 on post-test B. In Figure 11, the artwork is more detailed, the titles coincide with what is drawn, and the picture ideas drawn have evolved from a birthday to a lemonade stand for picture drawing box ten.



Figures 10 and 11. Example of a first grader's tests scores.

Conversely, first grade Tester #2 scored twelve points lower on the post-test than on the pre-test, and Tester #9 scored twenty-one points lower on the post-test than on the pre-test. Upon investigating their testing sheets, I discovered that they both titled the pictures' squares, but did not draw anything in the squares, and neither of the two students sat near one another during the test. Figure 12 is an example of the incomplete

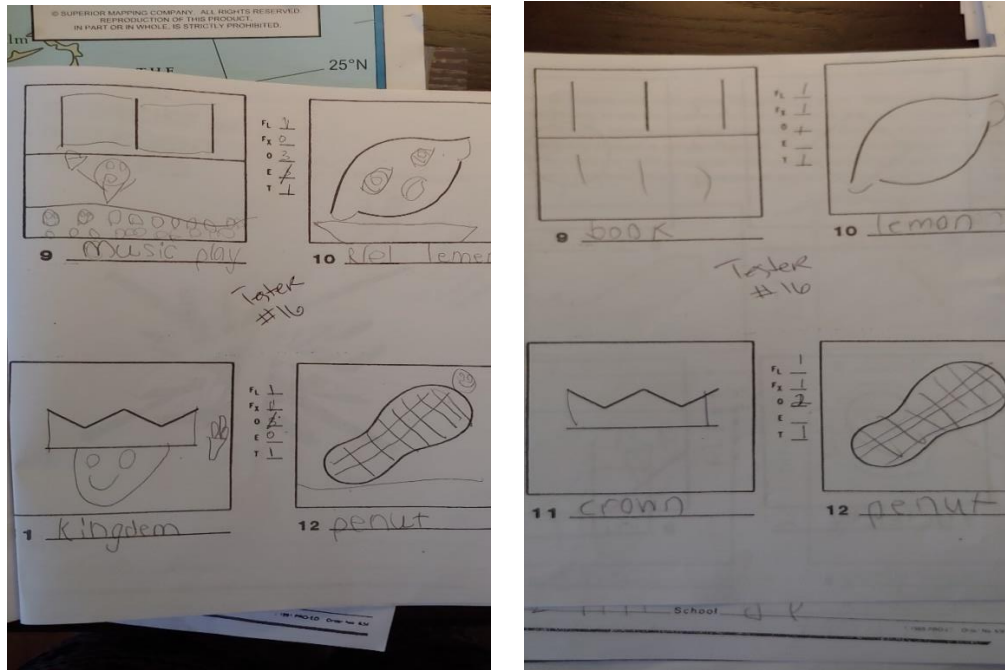
work of Tester #2, and Figure 13 is an example of the incomplete work of Tester #9. An unstructured interview was held with Tester #9 to gain insight into why the score for the post-test was lower than the pre-test.



Figures 12 and 13. Example first graders test scores.

Second grade had an average pre-test score of 53.64 on Form A, and an average pre-test score of 57.0 on Form B. The second graders' average post-test score for Form A was 55.93 and 57.79 on Form B. This gave the second graders an average point score difference of 2.29 growth for Form A overall and .79 growth for Form B overall. After reevaluating their pre and post-tests, I noticed that many of the students gave fewer details in their drawings and picture titles on the post-test than they did on the pre-tests. Tester #16 scored nineteen points lower on the post-test than on the pre-test. I noticed that Tester #16 was one of the students who gave fewer details on the post-test than on the pre-test. Figure 14, pre-test, and Figure 15, post-test displays the difference between the drawing and title details that Tester #16 created on the pre-test versus the post-test.

Unstructured interviews were held with Testers #23, #24, and #25 to gain a perspective regarding why their post-test scores were lower than their pre-test scores.



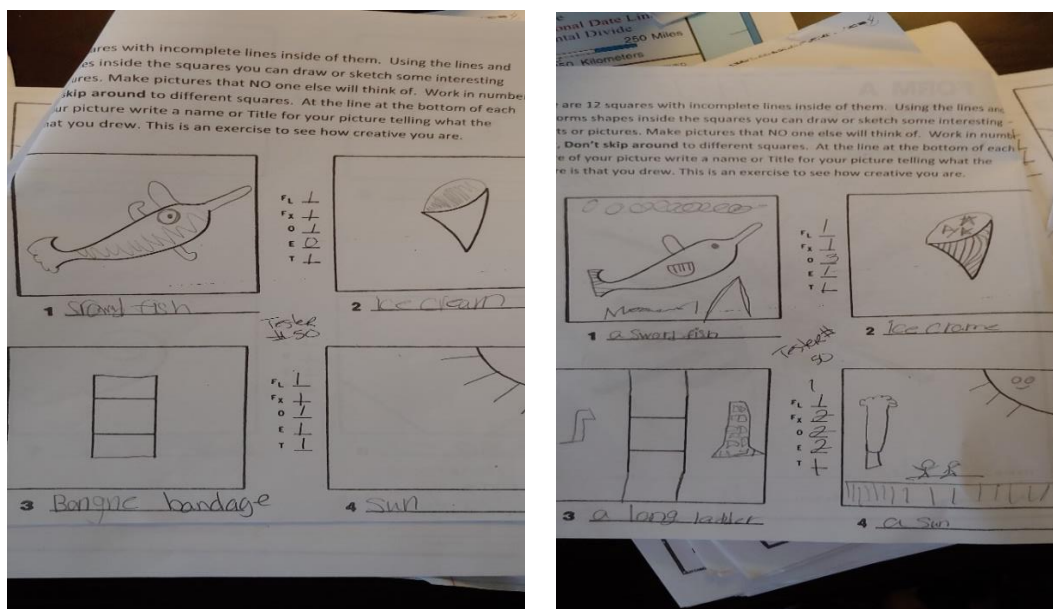
Figures 14 and 15. Example of a second grader's tests scores.

Third graders had an average pre-test score of 55.37 on Form A, and the average pre-test score on Form B was 55.94. The average third grade post-test score for Form A was 48.05 and 59.79 for Form B. This gave the third graders an average point score difference of -7.32 decrease on Form A overall and 3.84-point growth on Form B overall. After unpacking the individual tests scores for third grade, I was able to identify several factors that impacted the post-test for Form A's negative score. One important revelation was that Testers #41 and #46 did not begin working on Form A of the post-test, so all twelve of their drawing squares were blank. Tester #40 only completed one of the twelve drawing squares, and Tester #32 only completed four of the twelve drawing squares on Form A of the post-test. Tester #38 did not begin working on Form B of the post-test at all. Tester #35 did not complete six of the twelve drawing squares on Form A of the

post-test, causing his pre-test and post-test scores to show no growth. All of the aforementioned Testers did complete all, or the majority of, drawings on Forms A and B of the pre-test that was given in September of 2018. Tester #42 did complete all of the drawing squares of Forms A and B on the post-test, but scored lower than the pre-test on both forms. After viewing who the Tester was, #42, I realized a possible reason why their post-test scores were lower than their pre-test scores. Tester #42 has struggled with behavior problems in school for the last three months, and has had numerous write-ups, parent communications letters, and parent meetings regarding their behavior choices in art class. I have taught Tester #42 since they were in Kindergarten. During their third-grade year, we unfortunately developed a strained teacher/student relationship. I believe that the performance of Tester #42 has been compromised in lieu of the current student/teacher climate. I reached out to Tester #42 privately to discuss the changes experienced between student and teacher in hopes of rectifying the relationship back to one of mutual respect, understanding, tolerance, and edification. It is of utmost importance that I am able to turn things back around with Tester #42, not just for their art performance, but to ensure they continue to enjoy school, love learning, and get the support needed to be successful in every area of their life.

In the fourth grade, the average pre-test score for Form A was 54.44, and their average pre-test score for Form B was 57.78. Their average post-test score for Form A was 68.56, and 58.33 for Form B. This gave the fourth graders an average point score difference of 14.11 growth on Form A overall and .56 growth on Form B overall. Fourth graders appeared to excel more on Form A than on Form B. While diving deeper into their test scores, I noticed that Tester #49 only completed one drawing square of Form B,

and Tester #52 also did not complete Form B; but, both Testers completed all of Form A. Upon comparing Tester #47's pre and post-test forms, it appears that they may have rushed to finished based off of how much less detail was given in the post-test drawings versus the pre-test drawings. Tester #50 grew twenty-one points on the post-test overall. I observed that each of the drawing squares had more details in artwork and titles as shown below in pre-test Figure 16 and post-test Figure 17. Tester #56 had fifty-six-point growth overall on the post-test, but they also completed twice as many drawing squares on the post-test than they completed on the pre-test, suggesting that they may have left early or come to class late back in September.



Figures 16 and 17. Example of a fourth grader's test scores.

For fifth grade, and perhaps the most diverse analysis of all the grades, their average pre-test score on Form A was 63.60, and their average pre-test score on Form B was 63.55. The fifth graders' average post-test score for Form A was 54.45, and 76.75 for Form B. This gave the fifth graders an average point score difference of -9.15 decrease for Form A overall, and 13.20 growth for Form B overall as shown in Table 5

below. There was an enormous point score difference between Forms A and B. One possible explanation was that, of all the grades, fifth grade had the least amount of time to complete their Forms A and B of the post-test in one class setting due to coming to class late (and having to leave art each day earlier than all my other classes because of end of the day school dismissal). The timing for the post-test was shortened, thus hindering the overall outcomes of their data in one major way, which was that many fifth graders did not complete Form A, but all completed Form B. It is apparent that when handing out testing materials I gave out Form B first, followed up by Form A. Students began to work on the Form they received first, then upon completion of Form B, moved on to Form A. Of those who did not finish Form A, many left four to five drawing squares incomplete, and a few left one or two drawing squares unfinished. However, Tester #71 left ten and a half drawing squares incomplete, resulting in only finishing one and a half drawing squares on Form A, while Tester #66 left eight drawing squares unfinished, while completing only four of the twelve drawing squares on Form A. Despite some Testers not completing Form A, they still exhibited growth on their individual forms from pre-test A to post-test B. For example, Tester #57 grew nine points overall despite not completing four drawing squares on Form A, and Tester #60 grew twelve points overall despite not finishing eight drawing squares on Form A. Tester #70 appeared to show no growth; however, when analyzing the test forms, I discovered that they scored 130/131 (nearly a perfect score) on Form B and did not complete several drawing squares on Form A. See Appendix H for an example of the drawings from this test. There were five Testers who completed both Forms A and B whose post-test scores were lower than their pre-test scores, so I conducted unstructured interviews with those testers to gain insight

regarding why their scores dropped. The unstructured interviews were held with testers #61, #63, #66, #68, and #69. Table 6 below is a visual summary breakdown of the CAP creativity and divergent thinking pre and post-test scores, averages, and growth indications for each grade level.

Table 6
Pre and Post-Test Summary Data Results for Grades 1-5

Pre/Post Test	Average pre-test scores	Average post-test scores	Point difference averages for A grades 1 st -5 th	Point difference averages for B grades 1 st -5 th	Does the data show growth: Yes or No
Grade 1	38.85 44.30	47.23 52.08	+8.38	+7.77	Yes
Grade 2	53.64 57.0	55.93 57.79	+2.29	+7.9	Yes
Grade 3	55.37 55.94	48.05 59.79	-7.32	+3.34	Yes
Grade 4	54.44 57.78	68.56 58.33	+14.11	+5.6	Yes
Grade 5	63.60 63.55	54.45 76.75	-9.15	+13.20	Yes
Overall	54.26 56.37	53.55 62.43	-.72	+6.05	Yes

Interpretation of pre and post-test data. The C.A.P. divergent thinking test given to first through fifth graders was a useful assessment to gain an understanding of

students' creating thinking abilities both before and after the intervention. Every grade level demonstrated overall growth. There were serious testing errors on behalf of the researcher when administering the post-test. I did not give my students the recommended amount of time needed to complete the post-test, prompting many of their pre-test scores to be higher than their post-test scores. Fifth grade had the most disadvantage of timing for the post-test, because fifth graders leave to go home from art, music, and gym; before coming, they have to gather all their things from their home room and then leave about five minutes early to get to busses, pick-ups, and after care programs.

Despite the test timing hindrances, most students grew, and those who exhibited no growth or decline were casually interviewed to gain insight into their performance. The testers that I spoke with in each grade revealed to me that they felt rushed to complete the post-test all in one day and that they felt they have grown artistically with adding details, coming up with ideas of what to create, and having the freedom to choose what they create. For example, first grade Tester #10, who scored higher on the pre-test, than on the post-test, explained that he gave all of his pictures titles first, then was going to go back and draw details on them all, but ran out of time. I was pleased to know that students recognized the change in the art program, liked the changes, and wanted to explore more on their own.

I had one fifth grade student tell me that she loves doing art. She explained to me that she did poorly on the post-test because she has a lot more things going on at home now than at the beginning of the school year, and she would love to come to the art room on her free time to draw and escape, because the art room inspires her and is her happy place. That interview really motivated me to be more available to my students in and out

of the classroom. I had noticed a change in her and discussed it with her teachers, but it never occurred to me that my classroom could be the place she felt her best in.

Qualitative Data Collection and Analysis

The following section describes the collection, analysis, and triangulation of the qualitative data sources used in this CAR study.

Gallery T.A.L.K. and Walk Art Critique

I designed a gallery critique art project called “Gallery T.A.L.K. and Walk Critique”, which was implemented to assess the research question regarding the impact of how engaging hands-on classroom learning experiences can develop and improve student voice, ideation, and critical and divergent thinking skills in my students. This critique is similar to a popular art critique called T.A.G. (Jaquith & Hathaway, 2012), where students stand in front of the class and *t*ell, *a*sk, and *g*ive, feedback on one another’s art projects near the end of an art class period. Inspired by Dr. Sharroky Hollie’s gallery walks used by educators implementing his culturally and linguistic responsive teaching and learning strategies (Hollie, 2011), I created the gallery T.A.L.K. and walk art critique for my students to use as a group project art critique. In the gallery art walk critique, *T.A.L.K.* stands for; *t*ell the artist something you like about their project, *a*sk the artist a question about their art project, *l*ook for suggestions to give the artist, and describe *k*ey elements of art used by the artist (See Appendix I). The group gallery T.A.L.K. and walk art critique project gave students the opportunity to engage hands-on in the learning experience by having the time and space to collaborate with their peers to receive feedback, as well as answering questions regarding their ideas and work on the project.

Kindergarten students presented their group projects using the T.A.G. art critique in order to introduce them to listening and sharing art in a big group.

In Figures 18-23 below, Kindergarten through fifth grade students from each grade are participating in the gallery T.A.L.K. and walk art critique. See Appendix J for more photo examples of students delving into the critique.



Figures 18-20. Kindergarten T.A.G. art critique, 1st, and 2nd grade gallery T.A.L.K. and walk art critiques.



Figures 21-23. 3rd, 4th, and 5th gallery T.A.L.K. and walk art critiques.

Interpretation of gallery T.A.L.K. and walk art critique data. The gallery walk afforded me the opportunity to have my students collaborating, planning, presenting, and discussing art with their peers using the gallery T.A.L.K. and walk sheet and the art project planning sheet. Kindergarten through fifth grade students had to work with a group of two or three people on a collaboration project using an idea prompt that an elected group member chose from a cup. All participants had to give an equal contribution to the project, from deciding who would select the stick from the cup (usually chosen by students doing rock, paper scissors), to who would present their group project to their classmates in the critique. Many of my students had never experienced group work prior to this project, and it was very difficult for them to express their creative voice without getting emotional. There were many tears, arguments, and disagreements that ensued because I made it mandatory that each person had to have input, and all members had to agree on the final decisions for the project. I was not expecting fifth grade boys to cry and students requesting time in the peace corner to calm down. It became so stressful for students and me at times, that I struggled with whether or not to continue the project. However, I knew this was a valuable skill in general that my students needed to work on.

I had to revise some groups, talk individually with my students about their hurtful actions within the group, and call home to some parents for a few students who needed a little more reinforcement to continue on with the work. In the end, the students thrived, and I was overjoyed at how the presentation of their art critique projects turned out with students demonstrating voice, expression, creative and divergent thinking skills, and collaboration. Students modeled how they were able to critique one another's work, how

engaged they were, and how confident they were in presenting their art projects to the different groups.

The use of the gallery T.A.L.K. and walk art critique sheet helped to develop and increase ideation and reflection. First, students demonstrated student voice as they were required to have an active role or voice in the project from the beginning and with such small group numbers as two or three, passivity and dominance were apparent to observe, address, adjust, and redirect. Second, students demonstrated ideation by creating an art project that used a prompt, which included naming the project, developing the idea, designing the layout, and the color scheme. And lastly, students demonstrated critical and divergent thinking skills by discussing the logistics of the project and its purpose, then presenting the project to their peers. As documented in the photos of the gallery T.A.L.K. and walk, art critique changed student behavior, and my students rose to the occasion of leadership that I had desired but had not given them the tools to achieve prior to this activity. I will do more group critiques as we go forward and will keep revising the process to ensure no child is left behind.

Artifact Photo Log

I kept an artifact photo log of students working on their different art projects from the start of the CAR study to the completion of the study, which was used to assess the research question about the implementation and application of TAB (Teaching for Artistic Behavior). The artifact photo log data demonstrated how students' art skills progressed from the beginning of the school year to the end of the study, by exhibiting how students would add more detail and background to their drawings, as well as the use of choice and autonomy in selecting studio centers to create their art projects in. The

TAB classroom activities were intentionally designed to develop and improve students' choice and autonomy skills while demonstrating the use of tools and practices of an artist. Student choice curriculum of TAB reinforced a student-centered learning environment that accompanied artistic development of tools as well as practices learned with each studio grand opening. The studio mediums of drawing, painting, collage, sculpture, fibers, and architecture were pertinent resource tools for young artists to experiment, explore, and investigate as they created their art projects. Student artists exercised autonomy by choosing art project ideas that were meaningful, interesting, and exploratory to them. Using the "3-H" Think Like an Artist data source was instrumental in students stopping to think about what they wanted to make, taking ownership of the TAB studios, valuing their work, and reflecting on the artistic process of thinking, planning, creating, sharing, and expressing. Intentionally focusing on the 8 SHoM Framework and modeling the dispositions for my students when I gave instruction, feedback, and assistance, helped to give them the courage to take risks.

The artifact photo log displays how in the beginning of the year, students demonstrated autonomy and choice in the drawing and painting studio challenges by exploring the new mediums, resources, and work space. In the middle of the year, students exhibited autonomy, choice, ideation, planning, and written expression by developing architecture blue prints and restaurants, sculpture designs and artist statements, and collaging art portfolios. At the end of the research project year, students displayed choice, autonomy, and oral expression by choosing studios to work in to create the ideas they thought of, planned, created, and shared or expressed orally and in written reflection then curated. The artifact photo log captures how students were able to

experience the artistic enterprise from beginning to end. Figures 24-30 below are examples of students working the artistic enterprise in studio choice art and curating an art exhibition. See Appendix K for additional student artifact photo log examples.



Figures 24-26. Examples of choice studios in fibers, architecture, and collage.



Figure 27-30. Examples of students curating the gallery hall for school art exhibition display.

Artifact photo log data interpretation. The artifact photo log exhibits the growth of how students practiced ideation, planning, creating, sharing, reflecting, and curating. The data sources, ideation brainstorming sheet, art project sheet, and artist statements were then utilized by students working in the different studios to create their own art projects and curate the art exhibit. Students gradually gained autonomy and choice as the year progressed. I slowly unveiled studio choices throughout the year in order to ensure that students would understand and demonstrate how to work on their own productively. I was adamant about not giving students free choice, and they had no foundation of how to be successful in creating the art projects they envisioned. The artist statements used by my students gave them a platform to discuss their ideas and thoughts to a wider audience of viewers who walk along the halls. By the end of the study, students were able to understand the artistic process from beginning to end in the cycle format that it exists within. For example, on Friday, March 8, 2019, I had a substitute teacher. I had left plans for all grades to create a Google design for the doodle for Google art contest. I left instructions for the theme of the project and the supplies to draw and color the project as they completed the drawing. When I returned the next day, I discovered that most of the classes first through fifth had taken it upon themselves to get planning sheets from where they are stored, and complete a planning sheet for their art project before they began to work on the real project. I was overjoyed to see this transfer of learning. I had not left any plan sheets out for the substitute, nor had I mentioned it in my sub plans for students to use. I am excited to see my students learn, grow, and take ownership of the artistic process.

Semi-Structured Student Interviews

Student semi-structured interviews were conducted with Kindergarten through fifth graders to assess the research question, regarding how art teachers can design and implement activities to enhance the dispositions necessary for students to acquire artistic habits (8SHoM). When I spoke directly with my Kindergarten through fifth grade students in semi-structured interviews about their personal beliefs and opinions regarding art class, it provided an uninhibited bird's eye view into their world. This methodology was able to capture their insightful and natural responses and gave a means for students to demonstrate their understanding and execution of the dispositions necessary for them to acquire the artistic characteristics of the eight studio habits of mind. The eighteen interview questions were created to address all four research questions, but the responses from the semi-structured student interviews were coded as in-vivo, direct quotes, in alignment with the eight studio habits of mind dispositions, to demonstrate each students' creativity and ability to think like an artist.

For example, research question number seven asked students, "How do you decide what to make or create in the TAB art classroom?" While coding answers to question number seven, responses were placed under the SHoM disposition of Envision. Examples of feedback Kindergarten students gave to question seven included the following by interviewees #5, #7, and #9. "I think about it while I'm coming down the stairs and walking in" (Kindergartener #5, personal communication, February 25, 2019). "First we have to think of where we want to go, the teacher helps decide or you decide" (Kindergartener #7, personal communication, February 25, 2019). "I like to draw houses,

so I just sometimes draw houses with a background” (Kindergartener #9, personal communication, February 25, 2019).

Research question number fourteen asked students the following: “What happens when you feel like you made a mistake or that your project is becoming too hard or difficult for you?” The coded answers for question fourteen were placed under the SHoM disposition of Stretch and Explore. Examples of responses that first grade students gave to question fourteen included the following from interviewees #19, #21, #25, and #26. “I try to draw it and I ask somebody to help me” (First Grader #19, personal communication, February 25, 2019). “I just erase it and then plan a new one” (First Grader #21, personal communication, February 25, 2019). “I feel really a little bit angry and a little nervous so I breathe in and just let it go (First Grader #25, personal communication, February 25, 2019). “If you have a pencil you could use the eraser...but if you have marker you could use the back” (First Grader #26, personal communication, February 25, 2019).

This data source was successful in student demonstration and understanding of all of my research questions because each interview question was created to assess each of the four research questions. The student interview responses were able to align with the eight SHoM dispositions, which help to perpetuate the artistic behaviors students need to possess throughout the creative process. See appendices L and M for the semi structured interview questions, coding of student interview questions in alignment with the SHoM, and their direct responses to the questions.

Interpretation of student interview data. The semi-structured interviews I conducted with my Kindergarten through fifth graders were a highlight in this CAR

study. I conducted one-on-one interviews with thirty-one students using a semi-structured interview protocol to allow for probing and clarification of students' ideas. The interviews took place during my planning time and after school to give students privacy. The interviews allowed me to get to know my students on a personal level outside of the regular teacher/student dynamics. Students showed their personalities with their responses and appeared to be uninhibited in my presence. I observed students' faces light up when giving their responses, laugh about their art experiences, and share intimate and personal things about themselves that sometimes had nothing to do with art at all (especially with my Kindergarten students). The semi-structured interviews displayed how the eight SHoM have been exemplified in the classroom in my teaching and demonstrations as the educator although not rehearsed by name with students. Prior to the interview, my students had only received two art classes with full blown choice format. Students adapted quickly to charting their studio choices, using a plan to start the ideation process, and insight as to what studio medium they wanted to create their projects in. I was elated to see the students actually creating and working with all the different mediums of paint, collage, fibers, drawing, sculpture, and architecture. During the two open studio days, the art class was a hub of action, wonder, engagement, and chatter, which the student semi-structured interviews confirmed. I am excited to see what creations my students will make throughout the rest of the year.

Chapter 5: Conclusion of Classroom Action Research Study

I began this journey on a path to provide student choice to my art classes when I stumbled upon a road block that my students did not know how to think. The purpose of this CAR was to teach my Kindergarten through fifth grade students how to think of

ideas that were meaningful and interesting to them for creating authentic, engaging art projects in a student-centered learning environment that offered choice and autonomy. In order to address these pivotal points of study with my students, I used a variety of data sources that consisted of, pre- and post-divergent thinking tests, gallery T.A.L.K. and walk art critiques, photo log journals, and semi-structured student interviews. All data sources worked in conjunction to illustrate several themes derived out of this CAR study.

Themes Abstracted from Data

The themes that emerged from conducting my CAR were organic to the nature of providing a student-centered learning environment to grow and explore alongside my students, as well as intentionally addressing my research questions.

Students think like artists. At the conclusion of the CAR intervention, the K-5th grade students in my art class have demonstrated that they can think like an artist. Students, as illustrated through application of the data sources used in this CAR, can implement ideation, planning, creating, sharing, reflecting, and revising their art to align with what they initially envisioned in their heads. Students must be motivated and engaged with their environment, displays, posting, visible materials, and supplies, in order to aid in the process of thinking like an artist. As their teacher facilitator I had to model the artistic process of thinking, planning, prompting, creating, revising, reflecting, and sharing with students every step of the way.

Autonomy and choice grew from intentionally teaching SHoM with TAB.

Freedom of choice can be a very liberating concept, but it can also feel intimidating, stifling, or even paralyzing if one is not equipped to handle the responsibility of freedom and choice. Prior to this intervention, most of my students did not fare well with the

introduction of implementing the autonomy and choice of TAB into the art class. After assessing the need to teach my students how to think, using the eight SHoM was the precise tool needed to bridge the gap of successful autonomy and choice to demonstrate to my students how to think like an artist. Throughout this CAR intervention I intentionally used the 8 SHoM dispositions to instruct my students on how to incorporate the artistic process as we progressed from limited choice, to moderate choice, to full choice in the TAB studios. I parallel this concept to a baby first crawling, then walking, then running, as my students and I took baby steps to grow in the ability to choose and have autonomy.

Student voice and expression. In a student-centered classroom, it is imperative that they have the opportunity and freedom to demonstrate student voice and expression. A huge outcome of student engagement is the voice (i.e., opinion, question, exploration, collaboration, and debate) and expression (i.e., visually, orally, and written) of the student as a part of the learning process. When students are able to freely express themselves as relates to their learning, they are more involved in class and appear to be more confident with their contributions, as I observed in students' critiques and artist statements. When my students were able to explore in a safe environment, they always surprised me with their efforts and surpassed my expectations of creativity. The more I listened to the voice and expressions of my students, the more I learned from them and about them, which is something that I had never experienced at this level before the implementation of this CAR intervention.

Collaboration and unintended outcomes. At the onset of this CAR study, I did not expect collaboration work to have such a positive impact, because I was not

intentionally researching that outcome. However, after using the gallery T.A.L.K. and walk art critiques as group projects, I discovered another level of engagement, planning, and ideation from my students that was a happy surprise. My students created meaningful group projects that applied real life experiences for them as relates to working with others to accomplish one common goal. The level of compromise, thought, mediation, inclusion, and collaboration that students exhibited was enlightening for me and encouraging for them.

Limitations of Study

It is very likely that the post-test was not administered favorably in order to give students time to excel because of time restraints. Students had less time to take the post-test at the end of the study than they had for the pretest at the beginning of the study. When the test was given over two days, it allowed students to not feel rushed to complete it, versus when the test was given all in one day resulting in students reporting that they did not feel they had adequate time to be as creative in their thinking.

I experienced using TAB and the 8 SHoM as a challenge with Kindergarteners because of the huge array of skills and abilities necessary to entering school in the beginning of the year. I question how much teacher direction to use without compromising student choice and autonomy, especially if I will re-introduce it to them in first grade.

Reflection: Changes I've Seen

The purpose of action research is to enact change, to be reflective, and transform practices in order to progress towards a positive impact and growth (Her & Anderson, 2015).

On January 17, 2017, I began a journey to powerfully impact my Kindergarten through fifth grade art students with the implementation of a choice-based art program and a focus on student-centered teaching in order to increase engagement among my students. On January 20, 2017, I discovered the journey had to take a different route, one which included me backing up to reassess my students' needs, abilities, and the outcomes I desired for them to have as educated students and future adults. The desire was to have my students know how to think for themselves, generate ideas, and brainstorm so they could be successful with productive choice and engagement in art class.

Today, more than two years later, I have noticed changes in the classroom aesthetics and environment of the art classroom. I have noticed a change in my own teaching style and dispositions. I have also noticed a change in my students' thinking skills, their ability to choose art topics that are interesting and engaging to them as individuals, and how they move through the artistic process when creating art projects.

The structures, procedures, and tools that I have incorporated to enact change for this classroom action research include the transformation of the learning environment from stoic and standardized, to colorful, warm, and inviting. Students now sit at rainbow colored tables and chairs according to the Teaching for Artistic Behavior (TAB) studio centers, instead of long brown wooden tables and metal stools. As a result, I have noticed a change in how now the students' eyes light up with wonder and excitement when they enter the classroom. Also, as students begin each art class on a bright and colorful carpet, I noticed that they are eager to find their spots. As we were opening new studios throughout the school year, they would ask probing questions such as "Are we going to get to finish...?", or "What will we be doing today?"

During this classroom action research project, I have noticed that by switching from a teacher-centered classroom style to a student-centered classroom style, a change has occurred in the way that I interact with my students. By allowing myself to let go of some of the control and give my students more autonomy and choice, it freed all of us to enjoy the development of the artistic process, learn and grow from one another, and for my students to be able to teach and share things with me. Our expectations of how to work together in a student-centered, choice environment, are evolving daily. I have noticed a change in how my students are becoming more confident in their abilities to consult and give feedback to one another before approaching me for help. For example, I heard a kindergartner, at his table, assessing his artwork and say to himself, “I need to add a background” (Kindergartener #12, personal communication, February 27, 2019). I commented back to him from across the room and said, “That was awesome that you noticed your artwork needed a background for more detail.”

I have noticed a change in the way my art students decide what ideas they want to create in art class. In this classroom action research project, I implemented the methodology of practicing ideation and brainstorming skills with my students to help teach them how to think. By using the technique of themes, such as their favorite foods, places to go, games to play, or movie and story book characters, my students now have these types of themed ideation conversations among themselves whenever someone has a difficult time thinking of what to do for an art project.

Lastly, I have noticed a change in how my students use the artistic process during this classroom action research project. My students know and understand that they need to have an idea of what they want to make in art before choosing what studio center they

would like to work in that day. Most of my art students can work with a planning sheet to express the art project idea they want to make, create a sketch or a draft of the project in pencil, as well as have unique ideas that are not the same as their neighbor or friend. And many of my art students know that when they complete their art project, they need to fill out an artist statement talking about and describing their artwork before the artwork can be displayed. My students have delved into collaboration, critique, and presentation, allowing them to exhibit higher order thinking skills. I began this research study with the intent to grow my students' abilities to think, choose, express, and reflect throughout the artistic process and in doing so, I grew as an educator. I have grown in the expectations of all my students and the understanding of how impactful intentional, planned, thoughtful, and cooperative teaching affects the student and the teacher. Figure 31 below was also displayed early on in this research study to exemplify why kids need art and how the application of the artistic process can elicit higher order thinking skills. It is shared at the end of this research study remind me that what I do in the lives of students matters and is important (See Appendix N).



Figure 31. Illustration of 21st century higher order thinking skills in art diagram. From www.CreateArtWithMe.blogspot.com, by Brandie Pettus 2013.

Future Implications

This CAR has the capacity to help spawn a revolution of hands-on, engaging learning environments for students to thrive in autonomy, choice, divergent thinking, and student expression. Going forward with TAB and the 8 SHoM as anchors of my art curriculum, I would adjust a few things. First, I would allow more group collaborations on projects to enhance engagement and ideation. Second, I would share out at the end of each class at least once a week so that students would have the opportunity to express themselves more and learn from one another's ideas. Third, at the end of each quarter, I would use the 8 SHoM student reflection sheet to have students assess themselves, and I

would confer or concede with their statements to grow their engagement, voice, thinking and evaluation skills. I would also have student goal sheets for each student in order to collaborate with them on learning objectives that they would like to achieve. For example, a student would indicate that they would like to learn how to sew, and we would put that goal as something to work towards before the end of the year. In addition I plan to include more technology in the art classroom. I would like to have students use iPads to do artist statements, use QR codes for projects and instructions, and grow to incorporate stop/motion animation as well. Lastly, I would like to allow more TAB choice studios to be experienced throughout the school year, such as jewelry making, print making, ceramics, and digital arts.

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Appendix A: Ideation and Brainstorming Sheet



Ideation is the formation of ideas or concepts: Coming up with ideas or Brainstorming. You will think of some ideas to help you create art projects in the different studios.

Studios: Drawing – Painting - Collage (cut & glue)- Architecture – Sculpture - Fibers (sewing/fabric)

Studio _____ below draw your idea for the studio you put on the line.

Appendix B: The “3-H” Way to Think Like an Artist

The “3-H” Way to Think Like an Artist



I can make art about things that I love to do, places I love to go, things I love to read, things I love to watch and games I love to play. _____



I can think of ideas of things that I want to create and envision in my head many different ways to bring my ideas to life. _____



I can use my hands to experiment with different techniques (collaging) and tools (glue and scissors) to create all kinds of art projects. _____

When I use my heart, head, and hands to create an art project, I am thinking like an artist!

Appendix C: Kindergarten through 5th Grade Artist Statement

KOG/1st

ARTIST STATEMENT

ART PROJECT: Title

ARTIST: _____

CIRCLE WHAT YOU USED TO MAKE IT:

CIRCLE HOW YOU FEEL ABOUT YOUR PROJECT:

WRITE ABOUT YOUR PROJECT: (why did you?)

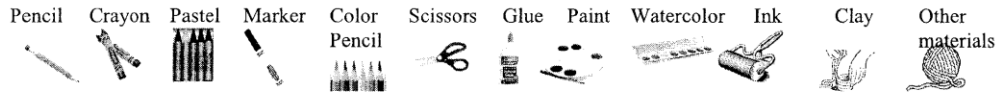
Rubric - can write a title
can circle materials used
can write/scribe about project
knows they are the artist

2nd/3rd

Artist Statement

Title of My Artwork: _____

I used the following media to make my art:



Describe: I created a _____

Analyze: Element(s) and Principle(s) of Art _____

Interpret: My artwork makes me feel _____

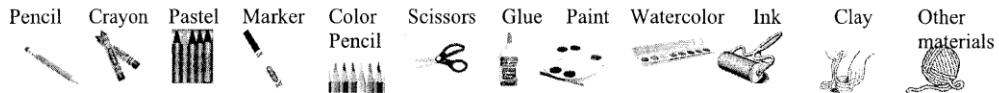
Evaluate: I liked ___ I did not like ___ this because _____

2nd/3rd

Artist Statement

Title of My Artwork: _____

I used the following media to make my art:



Describe: I created a _____

Analyze: Element(s) and Principle(s) of Art _____

Interpret: My artwork makes me feel _____

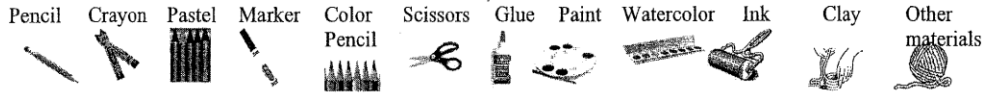
Evaluate: I liked ___ I did not like ___ this because _____

4th/5th

Artist Statement

Title of My Artwork: _____

I used the following media to make my art:



Describe: I created a _____

Analyze: Element(s) and Principle(s) of Art _____

Interpret: My artwork makes me feel _____

Evaluate: I liked ___ I did not like ___ this because _____

I was inspired by _____

I made a life connection _____

Something I learned when creating my artwork _____

Next time I would like to make a _____

The 8 Studio Habits of Mind (SHoM) Art Reflection and Statement

Artist Name _____ Grade _____ Art Project Title _____



Envision: My exciting idea for this art project was _____ in the _____ studio



Develop Craft

I used the following materials to create my art project:

Paper C-Pencil Markers Crayons Paint Pastels Glue Scissors Fabric/Yarn Clay Chalk Other_



Stretch and Explore A new material, tool, or technique I tried was _____.



Engage and Persist When I made a mistake or something was hard I _____.



Observe Something I want you to notice about my art project is _____.



Express My art project shows my interest, curiosity, or love for _____.



Reflect My art project makes me feel _____ because I am happy with how _____ turned out.



Understanding Art Worlds I was inspired to make this art project by (circle your choice): an artist, culture, technique/style or the chance to work with friends because _____.



Envision: A project idea I would like to make in the future is _____.



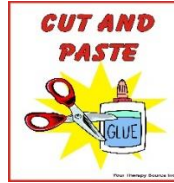
In the _____ Studio: Develop Craft

Appendix D: Student Art Project Planning Sheet

Name _____ **My art project planning sheet** Grade _____

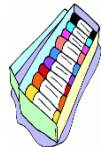
Studio Center (Circle One)

Drawing Painting Fibers Architecture Collage Sculpture Other



Supplies I will use (Circle all that will be used for the art project)

Paper C-Pencil Markers Crayons Paint Pastels Glue Scissors Fabric/Yarn Clay Chalk



Draw a sketch of your project idea

Below, place a ✓ mark on each line that describes how you got the above idea for your art sketch



I can make art about things I love to do, places I love to go, things I love to read, things I love to watch and games I love to play. _____
















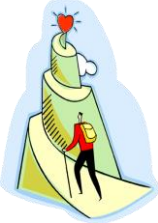


I can think of ideas of what I want to create and envision in my head many different ways to bring my ideas to life. _____







I can use my hands to experiment with different techniques and tools to create all kinds of art projects. _____

Appendix E: The 8 Studio Habits of Mind (SHoM) “I Can” Reflection Rubric for Thinking Like an Artist

The 8 Studio Habits of Mind - SHoM	Picture words for the SHoM	Description Of the SHoM	4 points- Great job 	3 points Good job 	2 points- Okay job 	1 point- need help 
<p>Envision</p> 		<p>I can think of an idea and make a plan of how to create my idea. I can make art about things I love/like.</p>				
<p><u>Develop Craft</u> T- Technical <u>Develop Craft</u> S- Studio Practice</p> 		<p>T-I can choose tools/materials to create my ideas. I can learn to use new tools S- I can take care of materials and tools. I can set up & clean up my workspace.</p>				
<p>Stretch and Explore</p> 		<p>I can take risks, try new things, play with new materials and learn from my mistakes.</p>				

<p>Express</p> 		<p>I can express or create an idea that shows my likes, interests, and curiosity. I can discuss my peers art too.</p>				
<p>Engage and Persist</p> 		<p>I can focus and work hard on ideas that are important, interesting, excite, and inspire me. I can stick with a project when it gets hard.</p>				
<p>Reflect</p> 		<p>I can think about what I made, how/why I made it. I can express how I feel about my art, discuss, & share art projects with friends my peers</p>				

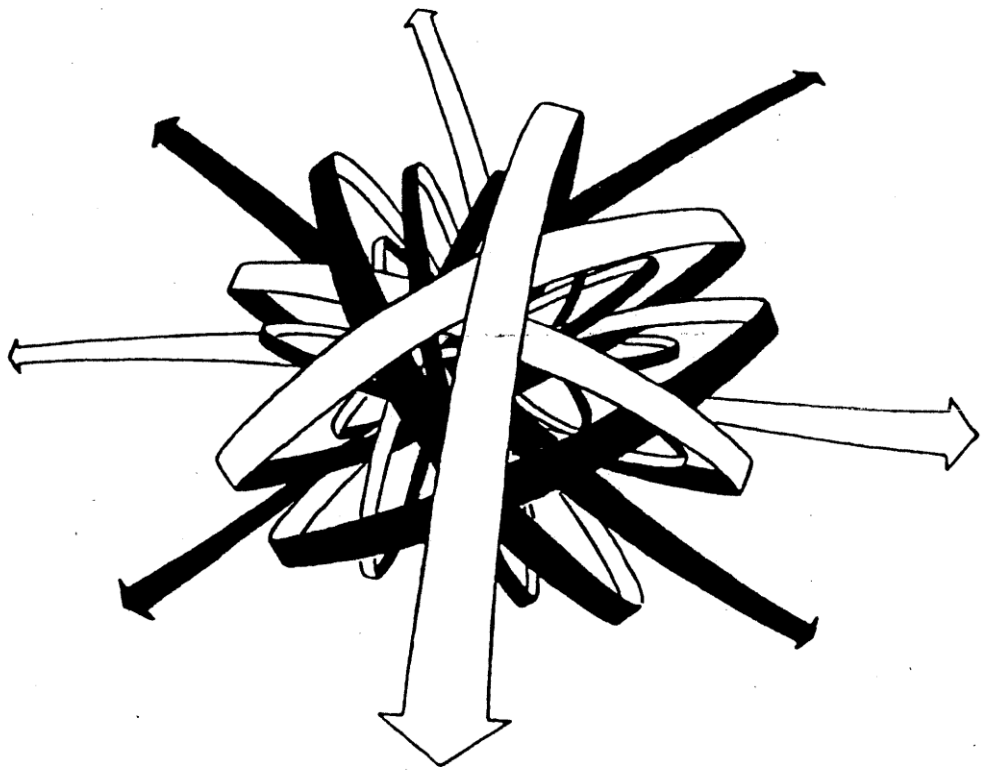
<p>Observe</p> 	 <p><small>© Can Stock Photo</small></p>	<p>I can take my time to look & pay close attention to details & the world around me when I create art.</p>				
<p>Understand Art Worlds D and C D- Domain C- Communities</p> 	 <p><small>shutterstock</small></p>	<p>I can be inspired by other artist, art styles, & cultures to create my idea. I can work with others to create a group project.</p>				

Total Score out of 32 possible points =

Appendix F: CAP Divergent Thinkings Test-Forms A and B

FORM A EXERCISE IN DIVERGENT THINKING

BY
DR. FRANK WILLIAMS



Name _____ Grade _____

Date _____ School _____

There are 12 squares with incomplete lines inside of them. Using the lines and free forms shapes inside the squares you can draw or sketch some interesting objects or pictures. Make pictures that NO one else will think of. Work in number order, **Don't skip around** to different squares. At the line at the bottom of each square of your picture write a name or Title for your picture telling what the picture is that you drew. This is an exercise to see how creative you are.

L —
X —
O —
E —
T —

1 _____

FL —
FX —
O —
E —
T —

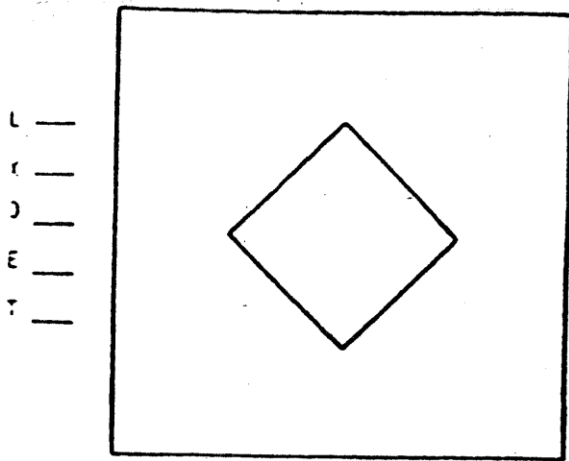
2 _____

—
—
—
—
—

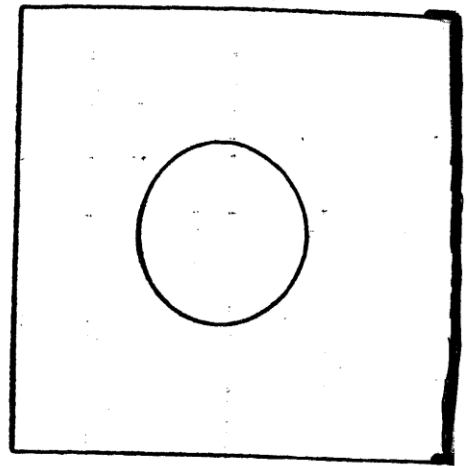
3 _____

FL —
FX —
O —
E —
T —

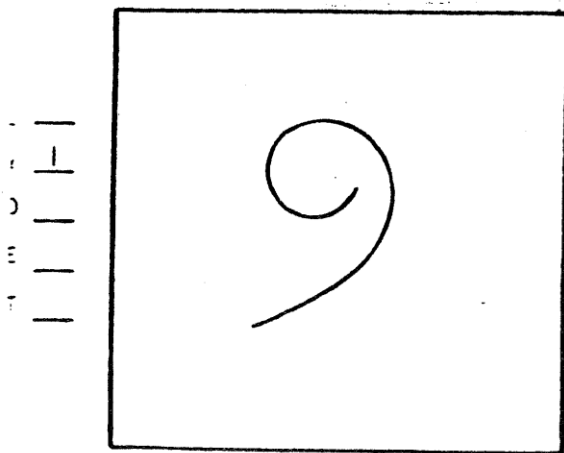
4 _____



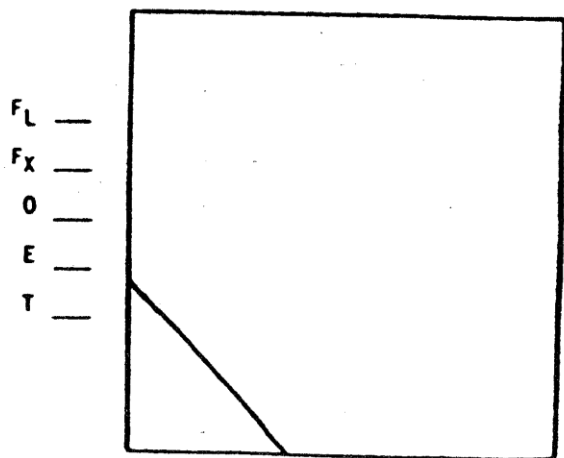
5 _____



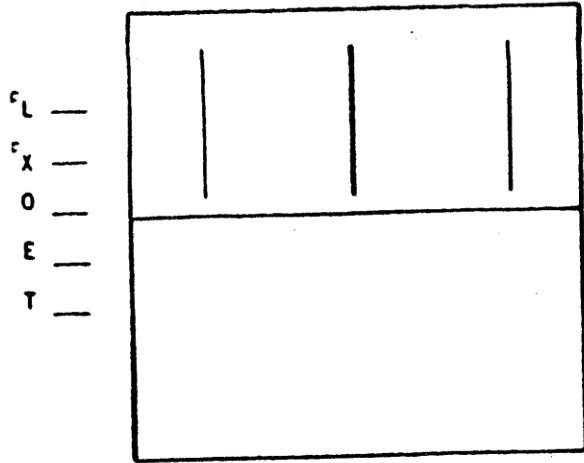
6 _____



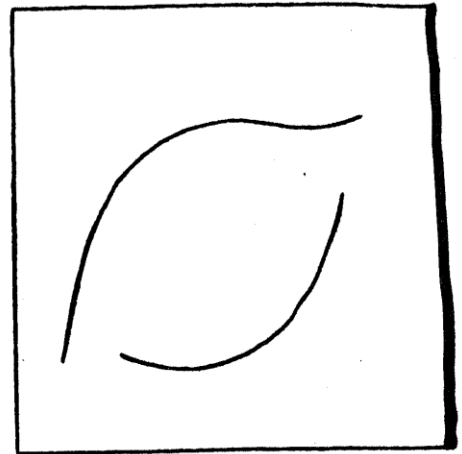
7 _____



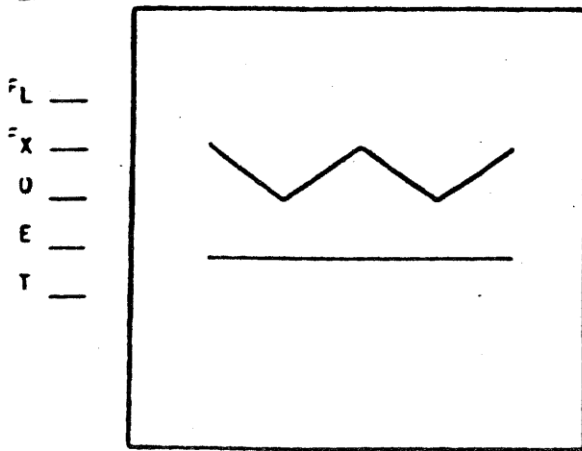
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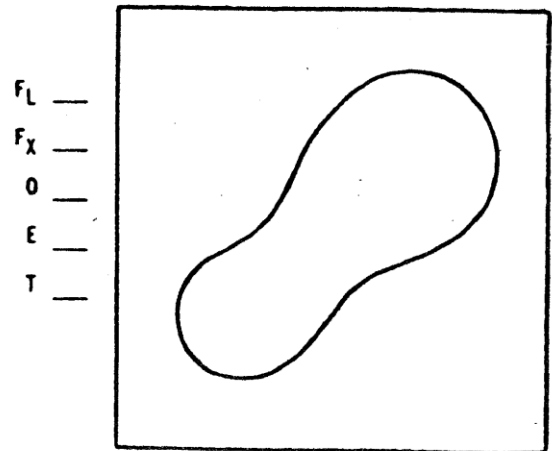
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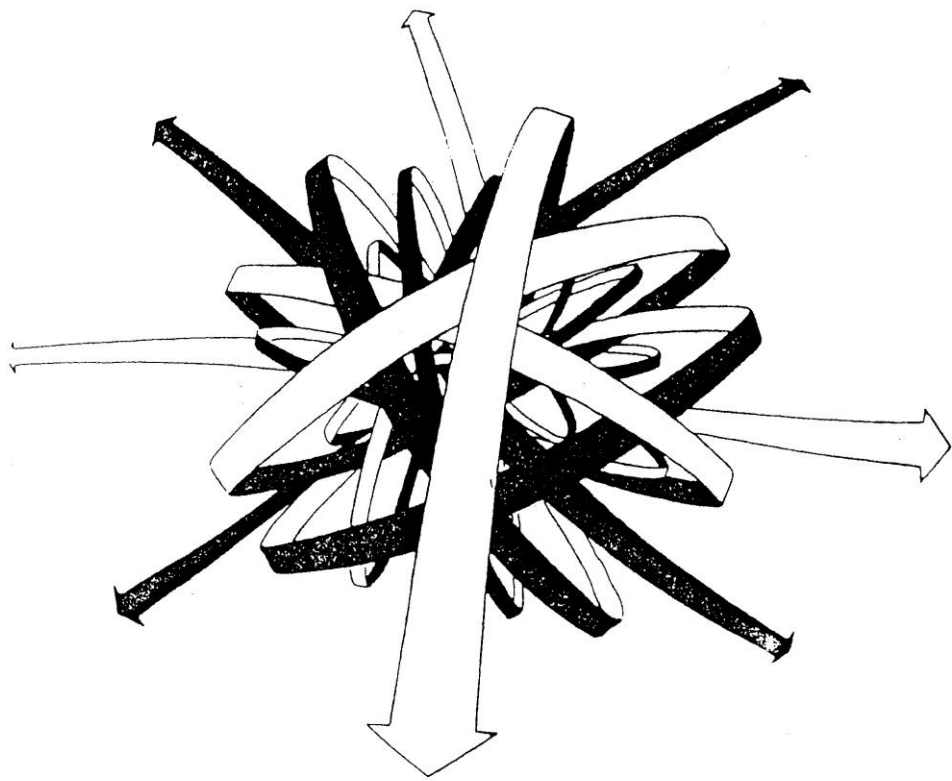
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EXERCISE IN DIVERGENT THINKING

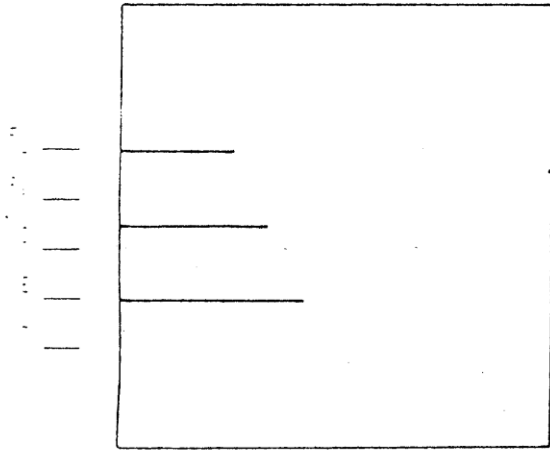
BY
DR. FRANK WILLIAMS



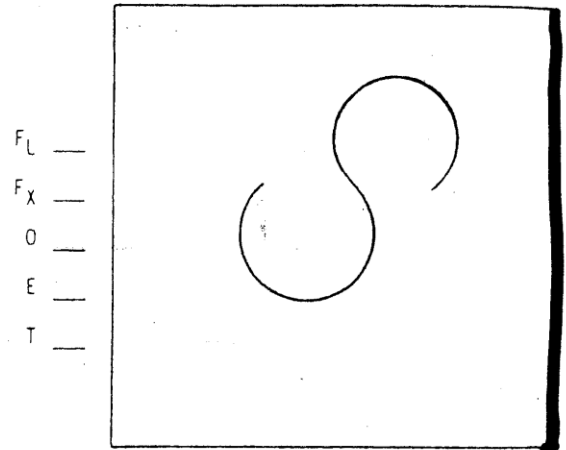
Name _____ Grade _____

Date _____ School _____

There are 12 squares with incomplete lines inside of them. Using the lines and free forms shapes inside the squares you can draw or sketch some interesting objects or pictures. Make pictures that NO one else will think of. Work in number order, **Don't skip around** to different squares. At the line at the bottom of each square of your picture write a name or Title for your picture telling what the picture is that you drew. This is an exercise to see how creative you are.

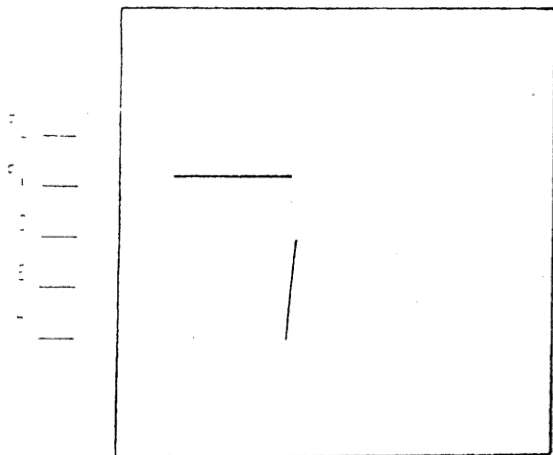


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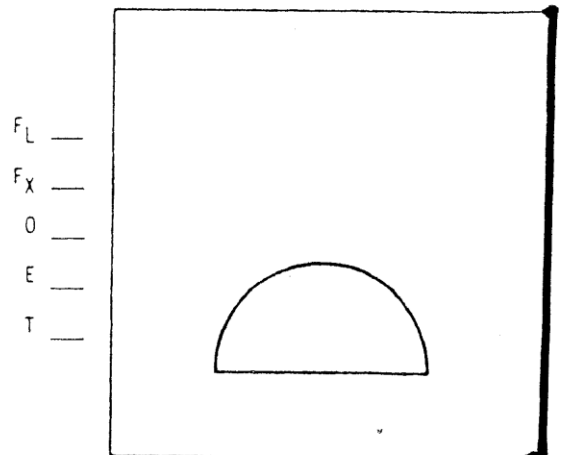


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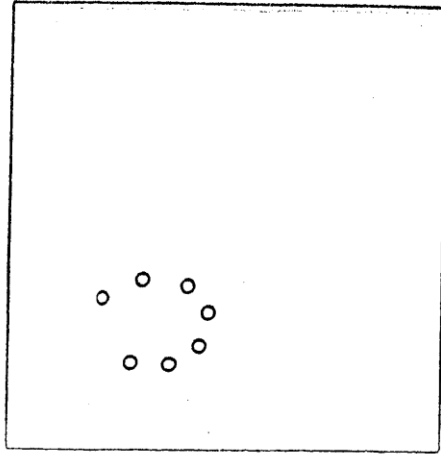
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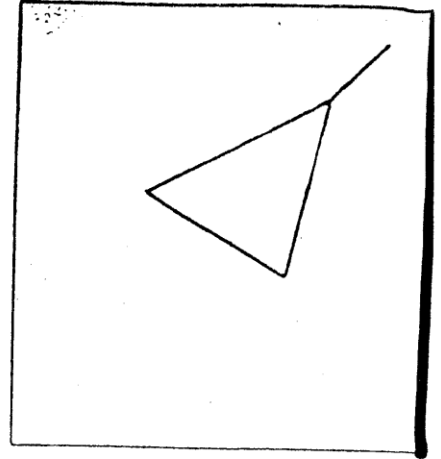
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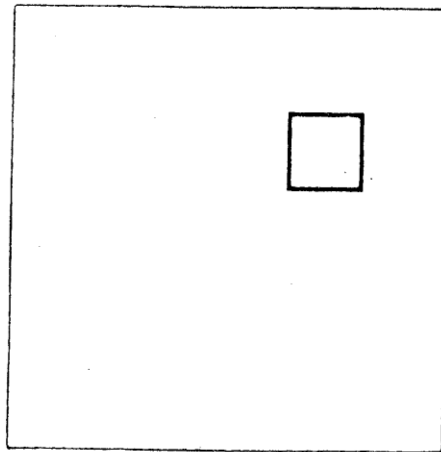
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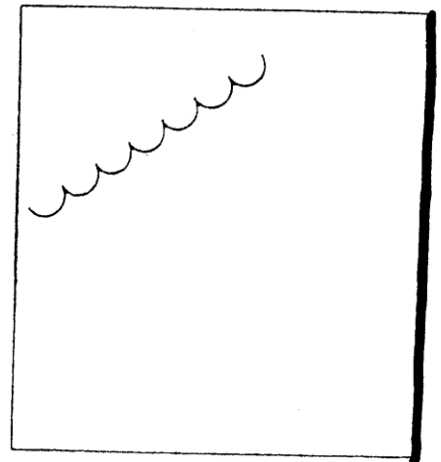
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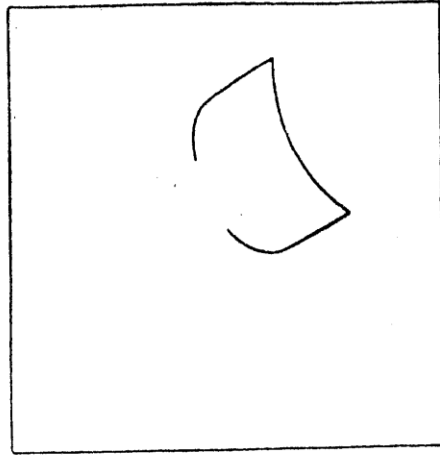
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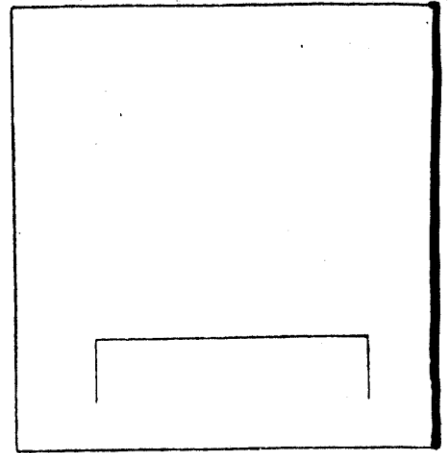
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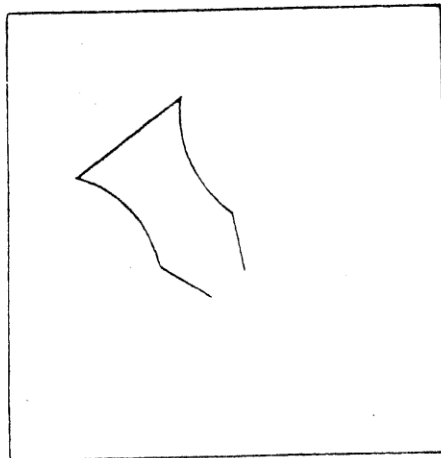
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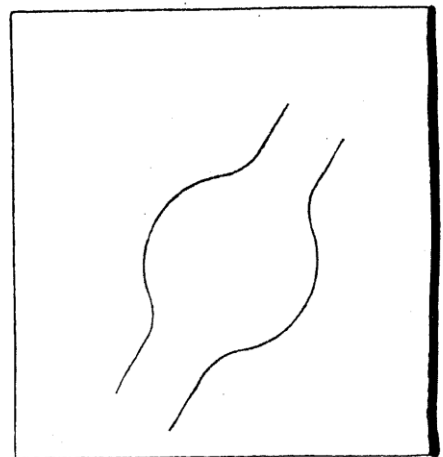
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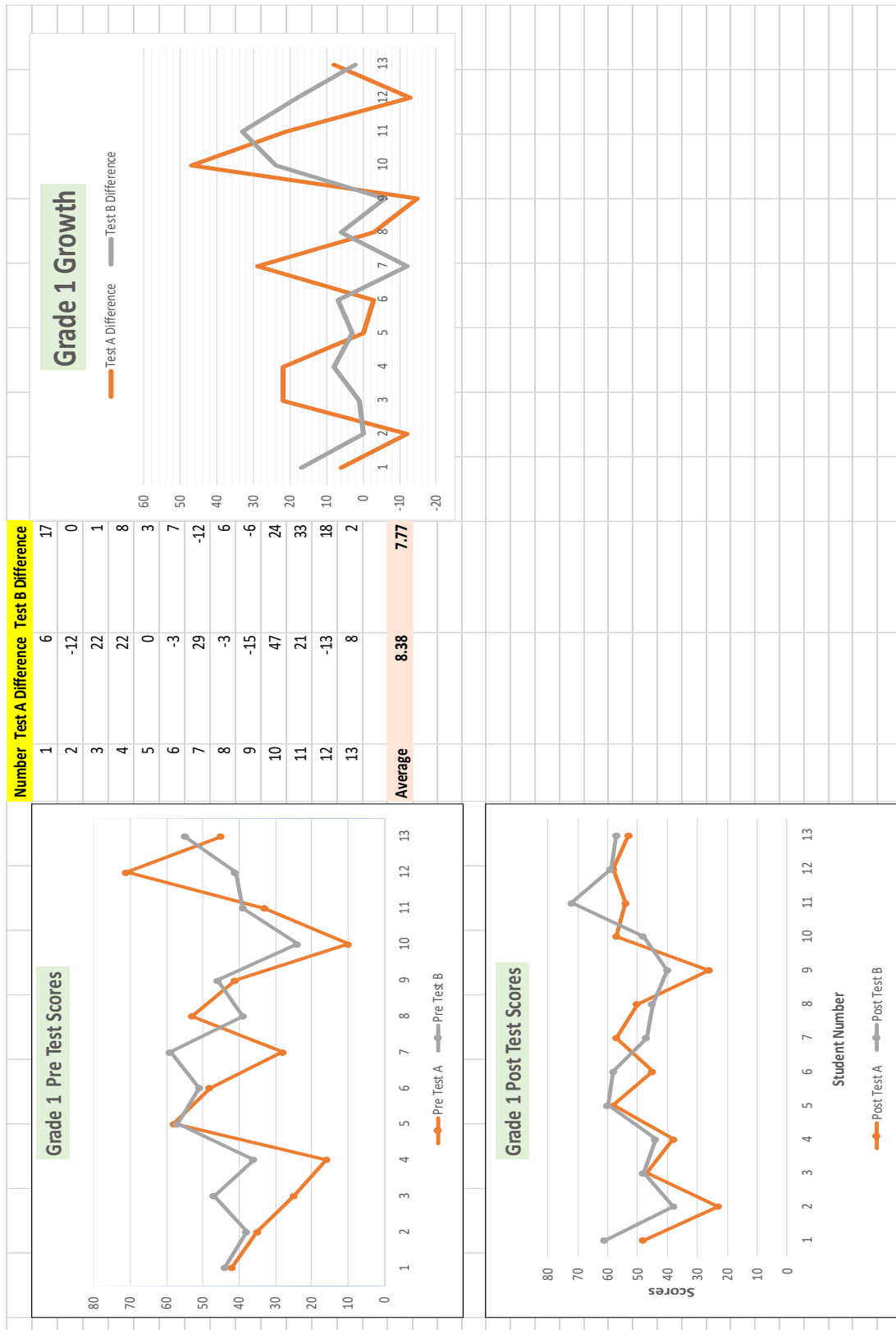
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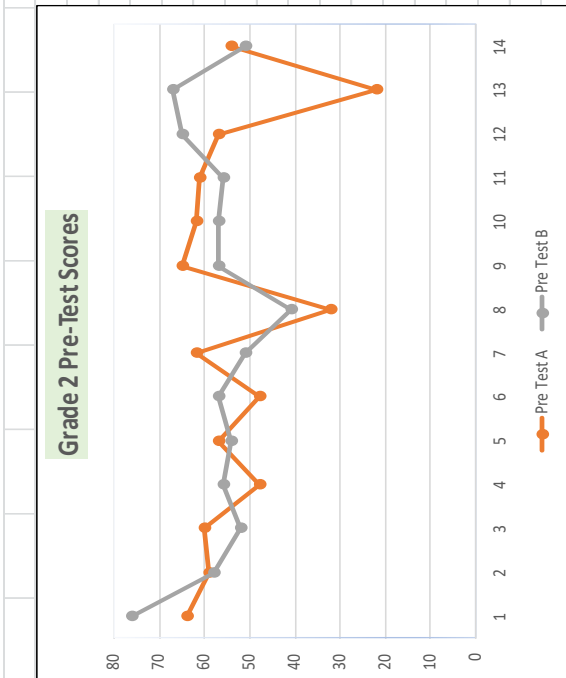
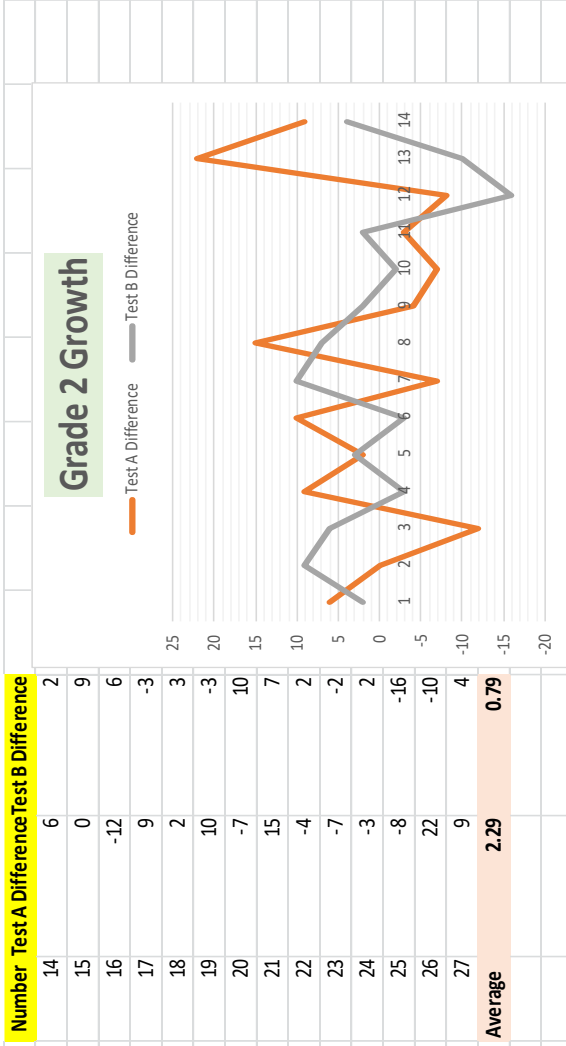
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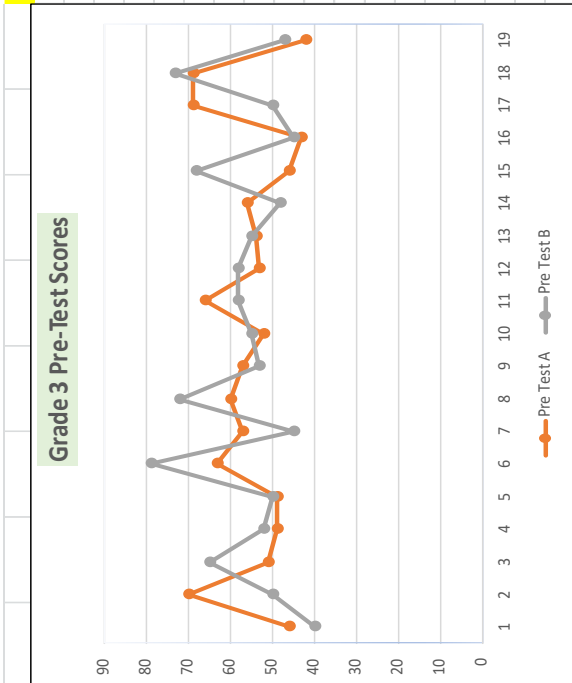
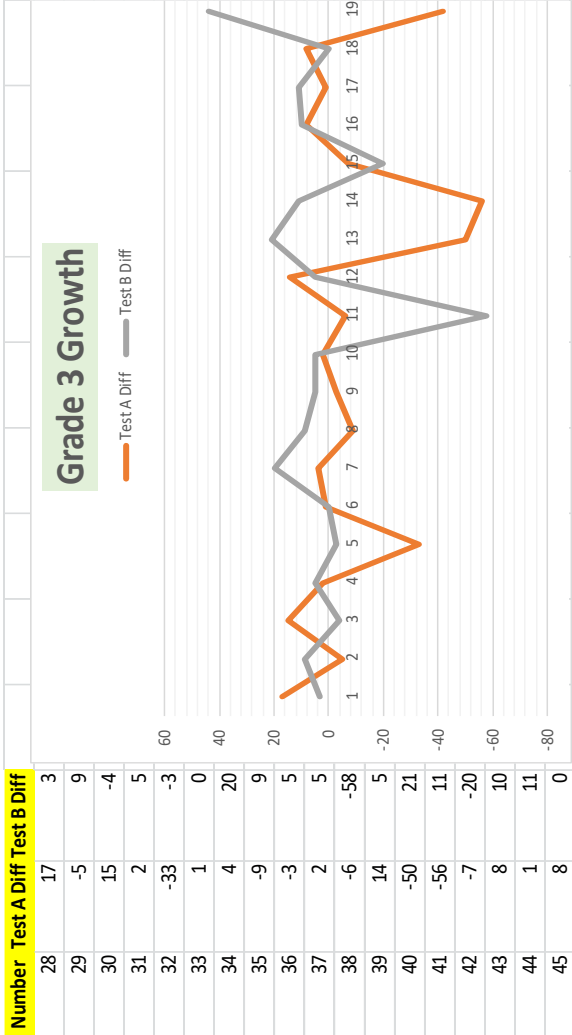
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Appendix G: Pre and Post-Test Graphs

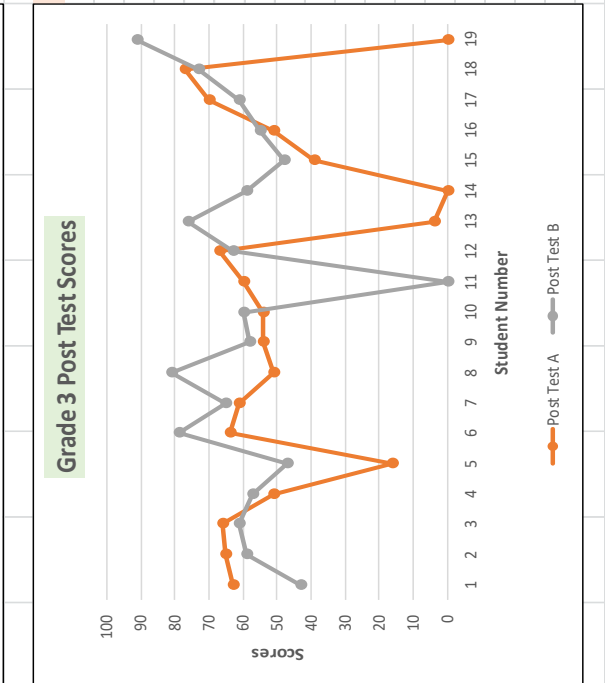




Number	Test A Difference	Test B Difference
14	6	2
15	0	9
16	-12	6
17	9	-3
18	2	3
19	10	-3
20	-7	10
21	15	7
22	-4	2
23	-7	-2
24	-3	2
25	-8	-16
26	22	-10
27	9	4
Average	2.29	0.79



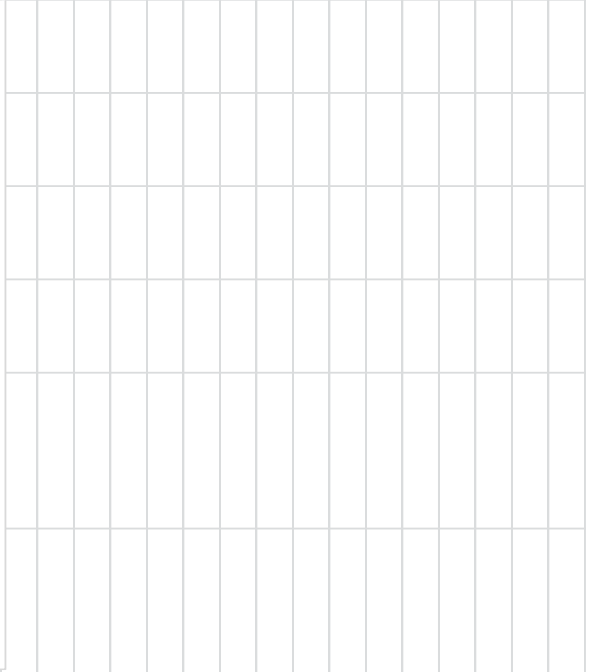
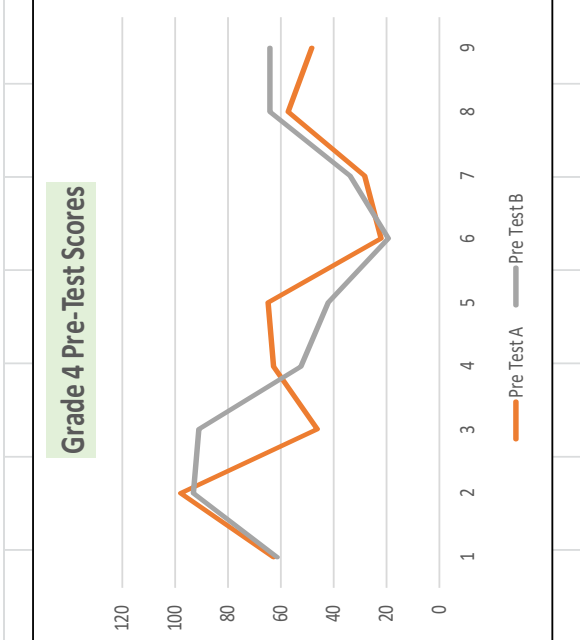
Number	Test A Diff	Test B Diff
28	17	3
29	-5	9
30	15	-4
31	2	5
32	-33	-3
33	1	0
34	4	20
35	-9	9
36	-3	5
37	2	5
38	-6	-58
39	14	5
40	-50	21
41	-56	11
42	-7	-20
43	8	10
44	1	11
45	8	0
46	-42	44



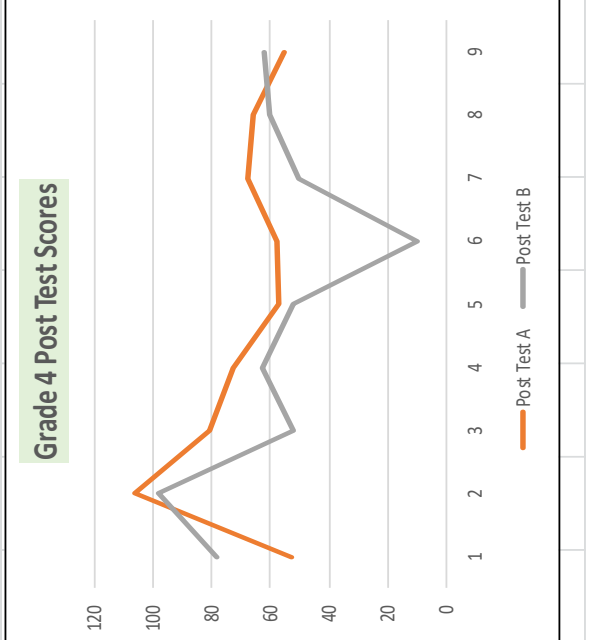
Average	-7.32	3.84
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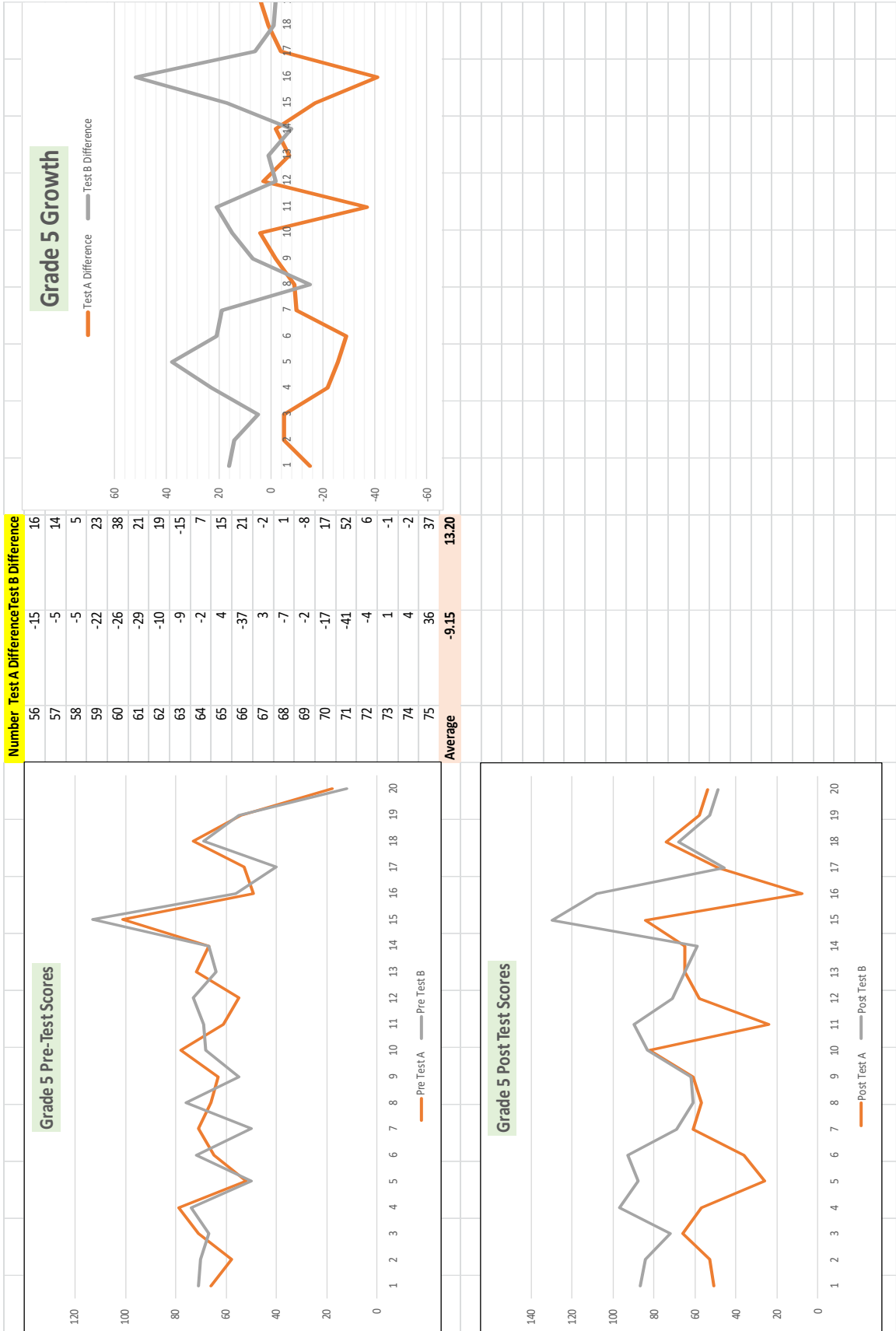


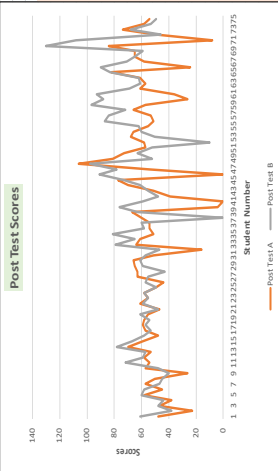
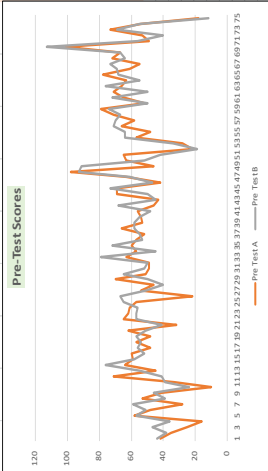
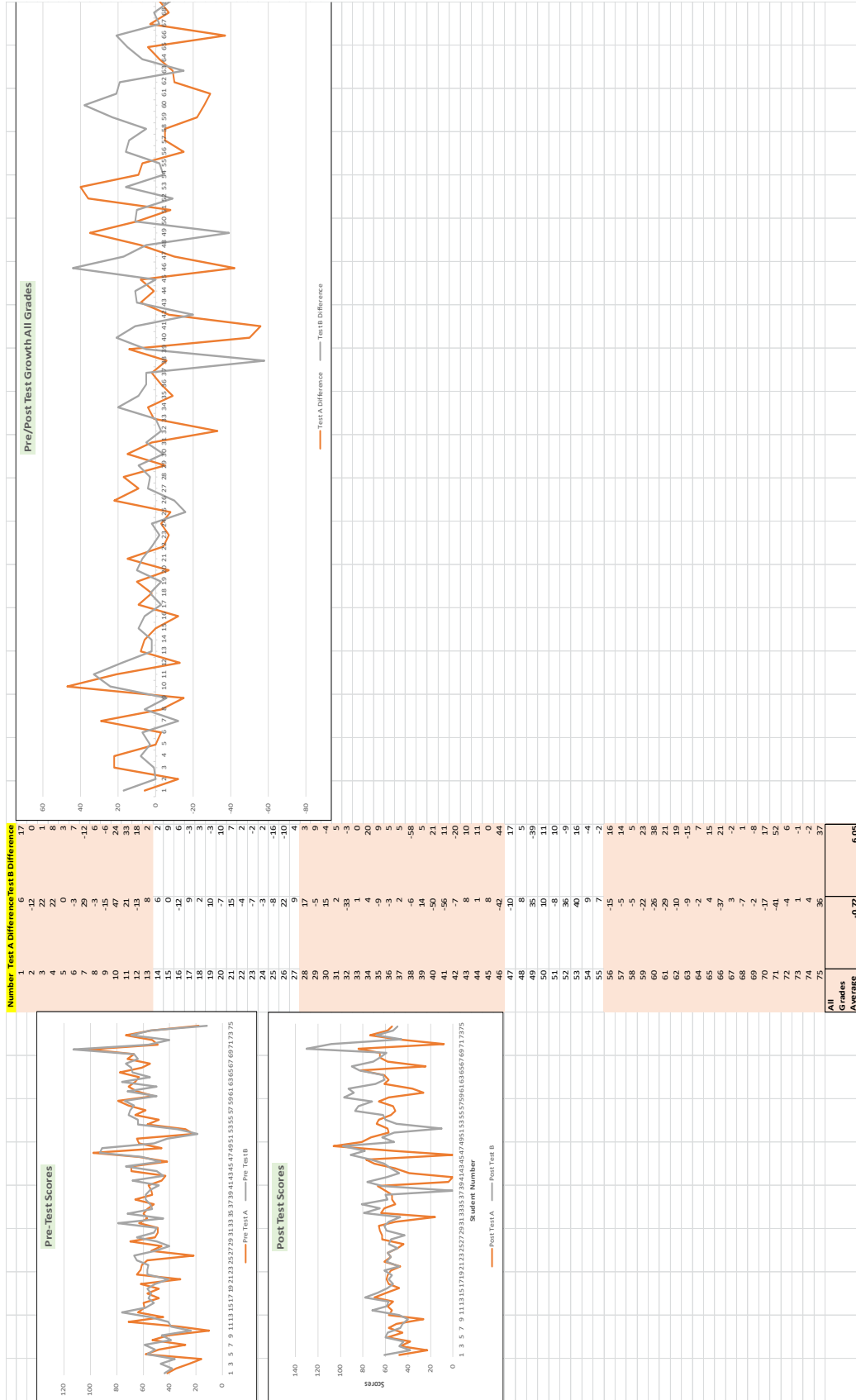
Number	Test A Diff	Test B Diff
47	-10	17
48	8	5
49	35	-39
50	10	11
51	-8	10
52	36	-9
53	40	16
54	9	-4
55	7	-2
Average	14.11	0.56



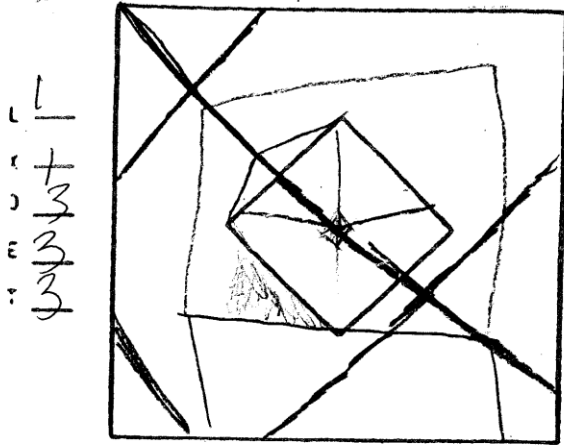
Number	Post Test A	Post Test B
47	100	55
48	105	105
49	105	105
50	105	105
51	105	105
52	105	105
53	105	105
54	105	105
55	105	105
Average	105	105





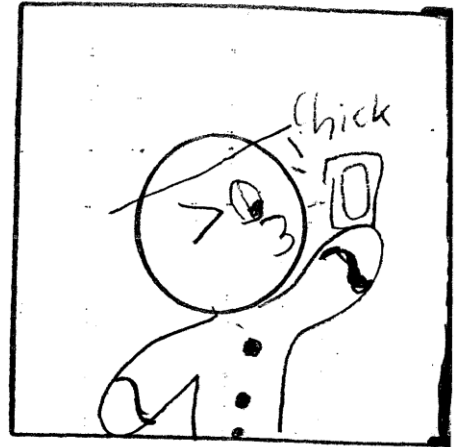


Appendix H: Example of Nearly a Perfect Score Test Page



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3

5 Secured Diamond



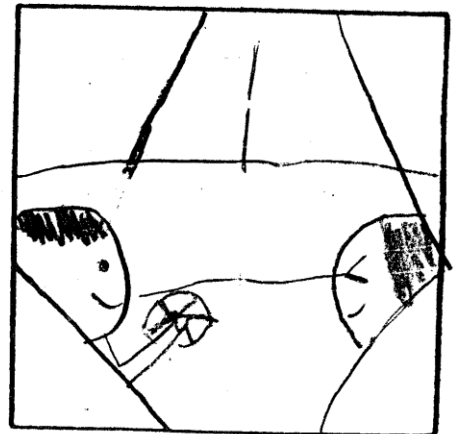
FL
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6 gingerbread selfie



L
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7 Exhausted from cleaning







FL
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8 Riddling @ point of view (child's view)

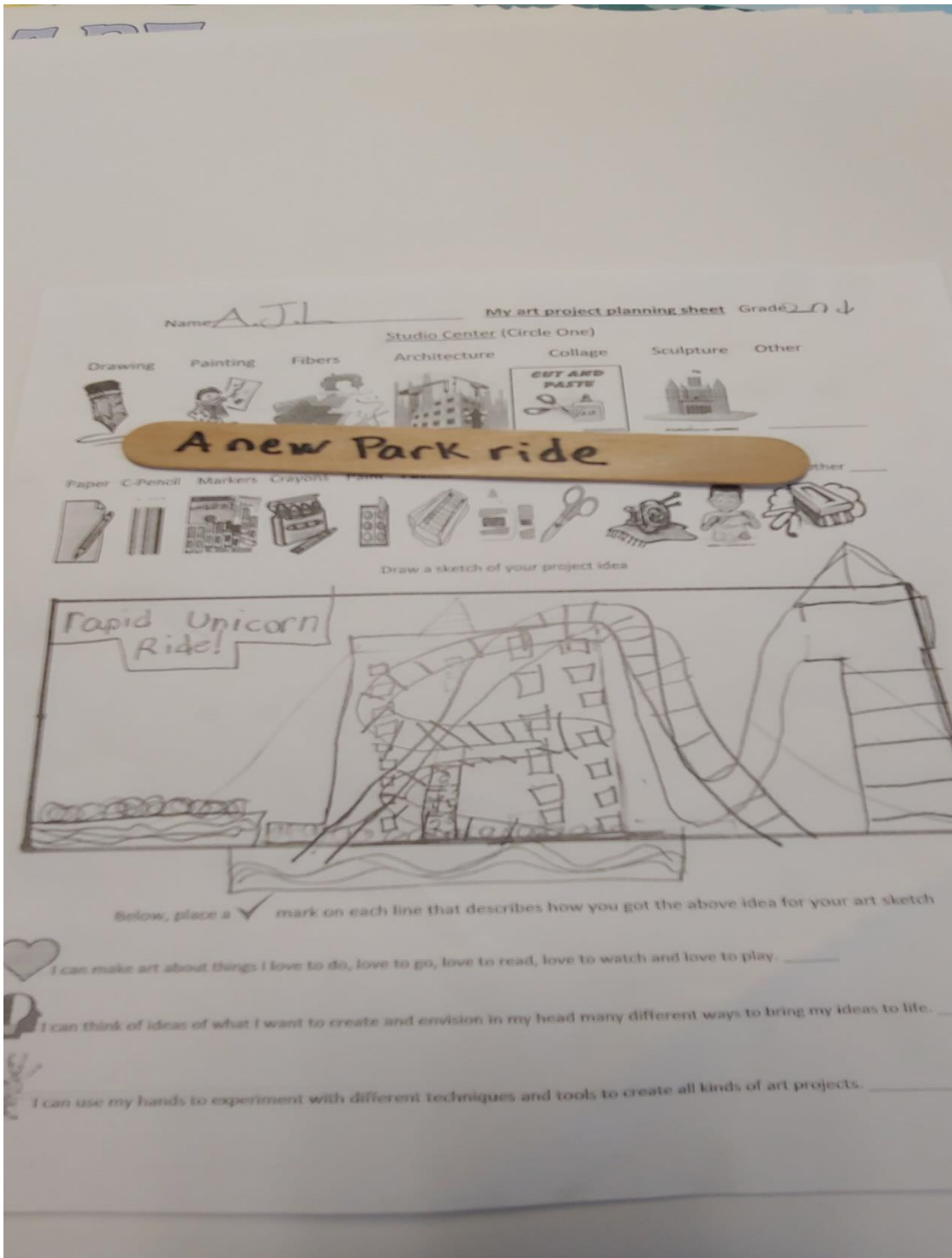
Appendix I: Gallery T.A.L.K. and Walk Art Critique

GALLERY WALK ART CRITIQUE

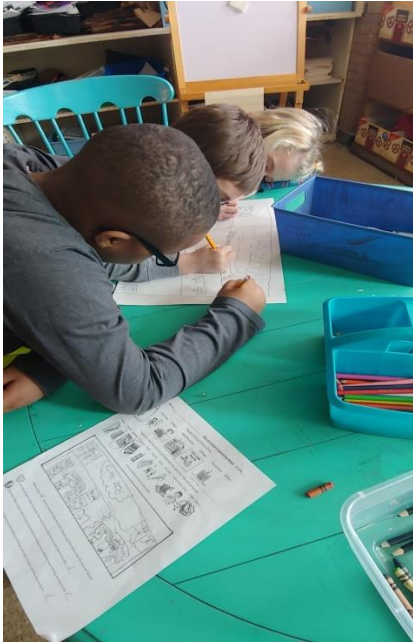
T.A.L.K. (**T**ell, **A**sk, **L**ook, **K**ey) and Walk Art Gallery
 Walk to 4 different artworks and Talk about the art using
 boxes below to write in

 <p>Tell the artist something you like about project</p> <p>I like the way your group...</p>	 <p>Ask the artist a question about their project</p> <p>How did you think of your design layout (how you drew it on the paper)?</p> <p>What was challenging about your group art project?</p> <p>What was rewarding about your group art project:</p>
 <p>look for suggestions to give the artist (title)</p> <p>Another possible name you could title your group art project is...</p> <p>Elements and Principles of Art</p>	 <p>Key elements & principles of art they used</p> <p>I noticed you used the following art elements:</p> <ul style="list-style-type: none"> Line Shape Color Form Value Texture Space

Appendix J: Second Grade Students Gallery T.A.L.K. and Walk Work



2nd graders gallery T.A.L.K. and walk art critique group planning sheet and prompt



2nd graders designing their gallery walk group project using their planning sheet



Kindergarten students designing their gallery walk group projects using their planning sheets

Appendix K: Examples of Students TAB Choice Studio Centers



Kindergarteners choice studio of painting and sculpture, 3rd graders drawing choice studio


Appendix L: Semi Structured Interview Questions

Revised Research Questions K-5th TAB Art

1. How does the way the TAB art room looks make you feel?
2. How does it make you feel to create art in the TAB art room?
3. How would you describe the TAB art classroom to someone who has never seen it before?
4. What would someone who has never been in the TAB art class Notice when they got inside?
5. Can you explain how a TAB Choice Art classroom functions, operates, or is ran?
6. How is a TAB choice art class different from your other classes?
7. How do you decide what to make/create in the TAB art classroom
8. What ways can you express yourself in a TAB art class?
10. How can other people understand what you made and why you made it?
 11. What are some of the different types of art materials you can use to make art in a TAB art class?
 12. Who decides what art projects you want to make in a TAB art classroom?
 13. How does your teacher help you in the TAB art classroom?
 14. Does anyone else help you in the TAB art classroom?
 15. What happens when you feel like you made a mistake or that your project is becoming too hard or difficult for you?
 16. What does your teacher tell you when you tell her "I'm finished"?
 17. If another student didn't know what they wanted to make for an art project, what would you tell them to do?
 18. How do you feel about the art projects that you make in the TAB art classroom?


Appendix M: In Vivo Coding of Semi Structured Student Interviews


The 8 Studio Habits of Mind (SHoM) Coding, Categorizing and Themes of K-5th grade Interviews


The 8 Studio Habits of Mind - SHoM	Interview Question	Descriptive	In Vivo statement Direct quotes from K-5 th graders. Each grade level is typed in a different ink color. Each child's response is separated by a semi color (;)	K	2	4
Envision 	How do you decide what to make or create in the TAB art classroom?	I can think of an idea and make a plan of how to create my idea. I can make art about things I love/like.	Oh, a rainbow, because I love rainbows; Me, I'm gonna create the biggest painting of all; Because I think and draw rainbows; Like sometimes I make rainbows, sometimes I make books, yeah, I'm gonna make a book tomorrow but it's gonna be in paint; I think about it while I'm coming down the stairs and walking in; first we have to think of where we want to go, the teacher helps decide or you decide; I like to draw houses, so I just sometimes draw houses with a background; I think; first I think about it, what I wanted to make and then I plan it, and then I draw it; because I'm good at drawing; listen to see which studios sounds like I want to go to it; I think about what I'm gonna do and I remember some cool stuff that I like or do that I like to draw; I decide what movie or book that I like then I just draw or make it; Well I decide by, I read a book every night and I look at the pictures and then I really like the characters, sometimes I like to re-create them and then it comes to a big deal and I just keep making them. And then I get better and better at it and then I wanna do it in a type of art; Like I think for a moment and when I think of something I think very fast of what I want to do; All I got to do let go close my eyes or I keep them open, think about something and there it is; I always draw something or the first thing that comes to my mind; I think of something, or use my imagination, or I can take an art book and pick stuff	1	3	5

	<p>_____</p> <p>_____</p> <p>If another student did not know what they wanted to make for an art project what would you tell them to do?</p>	<p>out of it to make it my own in my own way; try to use their imagination; because I see a lot of movies with dragons and cool stuff so I like to create that; I just think of something that I like to make then I give it specials touches and color it; I think of something I imagine in my head, and the first thing that pops up I start drawing it; First I would come up with something I will want, thinking of an idea and then plan it and then I would write it down; Well usually I think of an idea that I wand do. I try to come up with ideas before my name is called so that I know what I wanna do; I just think, I look around the classroom to see if I can see anything I'd like to draw. If I don't then I would think about things I'd like to do at home and kinda draw me doing that or from a picture of that thing that I would like to do; I would decide on how I feel, what I'm thinking about, or what's going on outside of the art class; I'll decide because there are like those posters hanging up on the ceilings and I can get ideas from those so I can draw or I can paint whatever I see; I try to think of things that I've done before or I really would like to do, or things I like, like drawing people or places or just like the park or amusement ride.</p> <hr/> <p>I will tell them to do...just make anything, that you can make whatever you want, you can make a dog, a house, just whatever you want; I will tell them you can make different kind of stuff; I'll tell them, hey you can pick out a book and see what book you like to make something you really like; Think; Make a decision, decide what they're gonna make; I would tell them to just let your brain think and think really hard of an idea; Do you need help; Think of what they want to draw; Think about what they're gonna</p>
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		<p>make; I would tell them to think about something and then draw it; Think; Just think about it in your head and then when you get what you want to draw, just draw it; to think about what you like, or what you like to do or eat; I would tell them to go and get one of those art books to see...and draw a background; I would tell them my next idea because I have tons of ideas so it doesn't matter, I can just do my next idea; I would just give them a whole bunch of ideas; Just go to your favorite things, favorite colors, you can draw lines, circles, and design them with a background to do simple stuff; To get ideas from friends, look around the room, or do something that first comes to your mind or just draw something random; try to use your imagination; like do what they want to do in their imaginations like make dragons, or if it was a girl, make princesses and stuff like that; I would tell them to choose something that was special to them like a holiday theme; think of something in your head that you might want to draw; I would ask them what's your favorite thing to do, and once they say their favorite thing they'll kinda get a thing of what they want to do and they'll plan it out; probably to make something based on what they like or something they did or their favorite of something; I would tell them to think of something they like to do. Think of something that they do at home or they do with their friends outside at school; I would tell them to do something based off their feelings or how they like something or I would tell them to look around the room and spot something really colorful something they like and make something based off of that; to draw what you see pretty much; Draw something you might like or enjoy and you could look around the room and you might find an idea; I would give them some</p>
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			ideas and say some words that help me. When I say random words, they give me an idea automatically, so I would do that and tell them and then they will probably get an idea;		
<p><u>Develop Craft</u> T- Technical <u>Develop Craft</u> S- Studio Practice</p> 	<p>What are some of the different types of materials you can use to make art in a TAB art classroom?</p>	<p>T-I can choose tools/materials to create my ideas. I can learn to use new tools S- I can take care of materials and tools. I can set up & clean up my workspace.</p>	<p>You could use yarn, paint, glue; paint; paint, fabric, cut glue, pom balls, and paint; markers, coloring pencils, and paint; clay, paint, paper marker, cloth; paper, paint, spray paint, fabric; pencils; markers; paint; color pencils, crayons, markers; sometimes we can use paint, sometimes we can use markers, crayons, color pencils, and the paint crayons and the paint pencils; I use crayons, some paper, some yarn and needles; crayons, markers, colored pencils, paint brushes, pencils; paint brushes, markers, crayons, and pencils; paper, cardboard, blocks to make the building that you were gonna make, colored pencils, crayons, and paint; I would love to make and use the pompoms for my fluffy textures and then pipe cleaners for if I had a straight line or something since they're colorful and different. I like using Model Magic for sculpture so it's 3D and then you can just mold it and mold it into anything you would like; so like fibers, fabric, and in sculpture you can use paper towel rolls, sticks, ribbon, and normal paper that you can fold to stand up; pencils, coloring pencils, markers, paint, glue, tape, paper towels; paint brushes, pencils, clay, fibers like cloth, colored pencils, markers, model magic; glue, paint brushes, collage and sculptures; paint, crayons, pencils, markers; paints, cloth, scissors, markers, paper, pencils; markers, cloth, crayons, pencils, scissors, glue, paint, you can do a lot in here; you can use glue, scissors, paint brushes, pencils, little pieces of fabric and a few other things you can use; Well there's paint, pencils, and paper, things like</p>		


			<p>clay and fabric. Then there are other materials like pipe cleaners; paper, paint, markers, crayons, felt, blocks, glue, scissors, paint brushes, and always a pencil first; well in fibers you can use fibers and glue or sew it, in drawing you can use pencils and stencils and crayons, in collage you can use different types of paper, and in sculpture you can use toilet paper rolls or things you find around your house. In architecture you can use lots of 3D things and make a tower; markers, crayons, oil pastels; markers, crayons, pastels, paint, felt, magazines, buttons, cotton balls, pens, paper; yarn, paint;</p>			
<p>Stretch and Explore</p> 	<p>What happens when you feel like you made a mistake or that your project is becoming too hard or difficult for you?</p>	<p>I can take risks, try new things, play with new materials and learn from my mistakes.</p>	<p>like I ask somebody at my table that can help me with it; You raise your hand and ask for help; you can get another paper and try; I tell the teacher; I fix it, get it back into lines, like I did today; I just think very hard of what to do; If you just mess up and keep on messing up but you gotta keep trying and trying; I do my best; I try to draw it and I ask somebody to help me; I just erase it and then plan a new one; I feel really a little bit angry and a little nervous so I breathe in and just let it go; If you have a pencil you could use the eraser...but if you have marker you could use the back; I try to think about something else that's similar about it so I can re-do it; I just erase and draw another thing that I know; If it gets too difficult I just try. If it was a clay thing and I messed up a piece, clay is easy to recreate, so if it was just like a wrong spot I could just mold it back together and then reform it; If you just did it with a pencil and you did it lightly, you can do it on the back or think of something else; I kept trying and trying when making sculpture and at first it got worse but then it got better and then I could open my eyes to see what it looked like. I take a deep</p>			

			<p>breath and I don't care what anybody says about my artwork at least I did it myself; I keep on trying because you told us that you can learn from your mistakes. Like if you made a squiggle line on accident you can make something out of that; I raise my hand or try to remember what was in the video; I think of something different to do; I just erase it and redo it and keep doing that until I get it correct; I try to fix it; It's ok, you don't have to erase it. You can X it out or just try to draw it again or you can actually learn from that mistake and by it you can put something that actually matches the mistake that you put; Well I always see if I can like it, if I don't like it and it's a drawing I can flip the paper over and try again on the other side, you can kinda do that with most things; If I think I made a mistake I'll turn the mistake into a piece of art; You keep working on it, or change a little thing in there that makes it eel way better or you jest keep working on it instead of letting it go away because you might actually like it in the end; I just keep on trying. I practice at home a lot; I try to make it into something else, if I mess up, I try to make it into something else on my paper and then sometimes it works but sometimes I can't really visualize anything, and sometimes I just scribble on pieces of paper then I can see what it is so then I can draw a picture;</p>		
<p>Express</p> 	<p>What ways can you express yourself in the TAB art classroom, how you feel or what you are thinking? _____</p>	<p>I can express or create an idea that shows my likes, interests, and curiosity. I can discuss the art of my peers too.</p>	<p>I work hard on rainbows; you can tell people that I'm very happy with my friends working with me; Because I'm thinking and drawing and showed them the picture; I feel very excited; I feel like really excited to do art every single day; I was thinking happy because I love art; Happy; sometimes I feel great and sometimes I feel nervous because I think I might get it wrong; By doing cool feeling, I show them; I think..like</p>		


	<p>How do you feel about the art projects that you make in the TAB art classroom?</p>	<p>when I'm mad I can color with red, and when like I'm happy I can color with any color like the cool colors and I can color with dark colors; I just draw how I feel; ; I feel happy; By using different colors and talking about it; I think of what I want to draw that makes me happy; I will express my feelings in the art picture; Well the way you can express yourself by making things like painting and they would show how you feel and other things you like can express how you feel through that; I think I like most of the ones I do, but somethings don't turn out exactly the way I want them, but mostly I think they turn out pretty well; I draw things I would like to do so it shows what I do and what I like to do and how I do things at home or do things out of school; you can express yourself with happiness and joy; So like I feel like I can do anything when I'm in art class cause I can pretty much draw, paint, and color whatever I want in the TAB art class and it just makes me feel happy when I get to do those things; you can be creative, you can make your own idea; Sensitive</p> <hr/> <p>Well, I feel proud of myself, I make these drawings, I draw too, and I make some nice pictures; Good; I feel happy, but sometimes when I mess up, I feel sad; I feel like so happy; Happy because they are real and look beautiful, like horses, zebras, and rainbows; Very excited cause I think about it; I feel really excited and I'm ready to get started; Good; Happy; I feel great and happy; Kinda good on some of them; Happy and that I think I did a really good job with it; Sometimes I feel kind of not as proud as the ones that I really like that I make because they don't turn out as the way I wanted them to. In my head it would look way better, but then when it comes out it doesn't</p>
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			<p>look as good as I was hoping it to be. But a lot of them I really feel good about them; Good about them; I don't have people over my shoulder saying you need to draw something else because it's my paper and my idea; I feel happy when creating my art; I feel pretty good about them because I put hard work into it and effort; I feel safe and like I can be an artist no matter what; I really like them; I feel great; For my opinion I think they're pretty good and I actually like them; They make me feel good because it's what I wanted to make and not what the whole class has to make so it could be different from everybody else; I like all my projects that I make because they remind me of something when I look at them instead of if I'd made something I didn't really like then it wouldn't remind me of anything. But I've liked all my projects so it reminds me of something that I like; I feel proud of myself because I draw really good and people like my art a lot so it just makes me feel good when I draw; I like them because you get to use lots of materials and I can't really make anything like it at home as good as in the art room; I feel like they could be shown to a bunch of people in public because I think they're really cool and they're very nice looking;</p>			
<p>Engage and Persist</p> 	<p>What does your teacher tell you when you tell her "I'm finished" in the middle of class?</p>	<p>I can focus and work hard on ideas that are important, interesting, excite, and inspire me. I can stick with a project when it gets hard.</p>	<p>You're not done yet, you have to make more details; don't say you're finished, keep working; workers don't say finished, they keep working; Keep working; you keep on going and going; you add more details; You're not finished, add background; To make more details to it; she says to go back you're not finished because you didn't do all the things the paper said to do on there; you're not done cause you need full color. And when we are drawing you always say not to have any white blank pieces of paper on there cause</p>			

			<p>you have to use a lot of color for it; add more details; make more details; go back to your seat and put more details in your art work; I think they're pretty good and cool; to keep working; she says you can do more than that; she tells you to make sure you check all your work and fill in all the white spaces; That art is never finished, you are never done with art because you can always keep adding on to your art to make it better; She says look over it, change some things that you may have forgotten or add some things; She tells you to add more things to your drawing or your sculpture or your fibers. She wants you to go over it or add something new to it because artwork is never finished; an artist's work is never done; To add more...you have to add more because you're never done with your artwork; She tells us that we're not finished because art is never finished, so we keep on working;</p>			
<p>Reflect</p> 	<p>How can other people understand what you made and why you made it?</p>	<p>I can think about what I made, how/why I made it. I can express how I feel about my art, discuss, & share art projects with friends my peers</p>	<p>I would spell rainbow; you can write letters; you have to think and write something down; I draw myself and write words for what I draw; Because of the writing; Because if I added some words, I will tell them what it is; you could write words and then they could read it and it will say what it's about; I will tell about the picture; ; I would tell him or her you can pick colored tables like words like fibers, sculpture, and you can do those and make it or draw; they can understand it if it has a title; They would understand it if I get it really detailed and by doing the art.. the paper, the art statement paper. They would read it, look at the drawing and say Oh I know that; If I have an artist statement I can write it on there or if I have extra room on my paper I can write it on it; Because of my art statement; I can write about how it makes me feel in an artist statement</p>			



			<p>to make sure they understand it; Because I put a lot of detail in my work and the will know what it is; By making an artist statement telling them all the things you used and why you made it; I would use my planning sheet so they could see what I did; One thing that we have is he Artist's statement so that when people read it they can more understand what you made and what the inspiration is; I would draw things realistically; when you make it artistic; Because I put a lot of detail in my picture so they can understand what it is and also because of an artist's statement</p>			
<p>Observe</p>  <p>© Can Stock Photo</p>	<p>How would you describe the TAB art classroom to someone who has never seen it before?</p>	<p>I can take my time to look & pay close attention to details & the world around me when I create art.</p>	<p>I would tell them that the classroom is beautiful and it's good, where you can work at and with your own stations; I would say we do centers in it, we draw, we paint, we do fabric, we use clay and stuff; you could do anything like, you can just paint or color or do anything; Well, I'd just tell them what they're supposed to do in the art room; It's about art and you can paint; It's got a lot of art pictures that we can make; might see some pictures and colored tables; the colored tables; that it's fun and they should try it; they would have said, "that guy was right" cause they would have different colored tables and fibers and all those other things that he said; A fun place to be, it's very colorful and it's a good place to be; I think I would describe it that it is like preschool, you learn how to share. In here you share a whole bunch of thins in the art room and you can't fight about it; I would tell them that you could do cool studios like drawing, paint, architecture and that it would be fun and you get to create your own art instead of somebody telling you to that and that and commanding you; by saying if they want to be an artist they can come and think of new ideas to make them better at it and do different stations</p>			

	<p>What would someone who has never been inside the TAB art classroom notice once they got inside?</p>	<p>like fibers, like me, or collage, make sculptures and make new stuff; colorful, I mean colorful, nice and pretty cool; It's a place with different posters with art studios and things you can make in the studios on them, and posters of different colors and all the things you need to know about the art studios and then you can choose a studio to work in like draw, paint, fibers, sculpture, or architecture; I'd tell them what TAB means; it's a really good thing, a really good thing to do your art in; I would say that it has different colored tables, each table has a different station or activity that you get to do like painting, fibers, collage, drawing, architecture, and sculpture. And by each table there's like art supplies that you use to do those different art projects; colorful, yeah very colorful; It's fun and you get to meet people that you haven't known in your classroom and you can build things that you never gotten to build but you get the opportunity at school; It's a colorful place where you can get ideas for your art; A place where you can make your own ideas and you can't use anyone else's and a place where you can express your feelings; colorful and idea-making;</p> <hr/> <p>They will notice the beautiful room; the paint, the fabric; they would notice there's fun stuff and really exciting; They'd see all of the artwork and stuff; we can build stuff; pictures and colored tables; all the colors, the cool colors on the rug and they might see their favorite color; that they would be doing a lot of cool art by looking at the other pictures people would do; If someone was walking into the room and then the first thing they would see was all of this, some of the elements of art, and some of the sculptures here, and when they got fully into the room they would see</p>
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			<p>all of the different studios, drawing, fibers, sculpture and painting and all the other stuff so they could enjoy; It's fun, people will be having fun because it might be fun making stuff in here; Art, open studios; a lot of art on the walls; That it's a lot of art stations and you can do different things in here. Learn new things and still have fun; there's a lot of posters and art stuff; all the different things hung up on the wall telling you about the different arts; they would notice how colorful it is in here; that the TAB art classroom will look really good with the art, the decorations and stuff; probably one of the things they would notice is the brightly colored tables; how the different color tables have different things by them to create art; How colorful it is and how much materials you can use and how free you can be with all your options; That there were different stations, different colored tables where the different stations are and you can use different materials at each table; There is color on each table; They'd probably notice that this would be a fun place to go do art and have fun doing art here because there's so many things they can do so much stuff;</p>			
<p>Understand Art Worlds D and C D- Domain C- Communities</p> 	<p>How does your teacher help you when you are in the TAB art classroom?</p>	<p>I can be inspired by other artist, art styles, & cultures to create my idea. I can work with others to create a group project.</p>	<p>You help by solving the question; Sounds out the words; when somebody needs help, they don't know where the glue is, you say, here is the glue right over there; so you tell people what they're supposed to use; you're here to help us so when we need stuff you're here; If you raise your hand then the teacher would know you need help; By showing us what we're doing; you show us videos of how to do stuff; One time you helped me with the background; they tell you what to do and tell you to think of what you want to do; we raise our hands and you come and help us; by showing me</p>			

	<p>Does anyone else help you in the TAB art classroom?</p>	<p>what we're about to do first; you could raise your hand and she would come over and try to help you until you can get it right; If I was doing the fibers and I didn't know what to sew, what type of thing or what to use, I could ask the teacher what things to use; you can raise your hand if you need help; We raise our hand if we get confused; all these posters and hangings give me ideas of what to draw, paint, or sculpt; she shows us videos of instructions of what we are doing and then asks if we have questions; By telling us what we can do for the day and what centers we can go to; you show us the videos of what we are doing and how to do it so we know what to do; by giving us a big video of herself showing us what we need to do; the teacher helps you by if you need help on one of your projects you can just ask the teacher and the teacher will come to you and help you with one of your art projects. Let's say you need supplies or something she will help you with it; Using the demo video gives us ideas on maybe how to do something that I don't know how to do; If I sketch out something, I'll bring it to her and she'll say add something to it or take this out; She can come around and give you tips like asking each other for help or she can give you an idea on what to do or she can help you with something that you need help doing; she helps us by giving us ideas in our stations when she does the videos when we come into the classroom; If you have questions or if you need to ask for something to do your artwork;</p> <hr/> <p>Sometimes I use my friends to help me, people in my class; the kids in my class; yes, other's in my class; some of my friends that are at my table; my friends; yes, my friend XX helps me with things that you</p>
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			<p>already taught us how to make and I don't really get it so she helps me make it; Sometimes my friends tell me what to do and I say that's cool, but usually I don't get ideas from them, I just already have my idea and so when my teacher tells me it's art class I already have a new idea because I have tons of ideas and in every art class I can re-create them; your classmates or your table mates and if you are with another student; sometimes if I'm around XX or XX and XX they give me some suggestions; sometimes my friends give me ideas too; yes; yes other students at my table help me with supplies; yes; yes you can have your friends help you or you can have other people if there's someone else in the TAB art room you can ask them; sometimes you classmates can help you like giving you inspiration for something that you wanna do. Like if they think that maybe you should change something; Yes, people that are at my table, I ask them for some ideas to draw or what color should I color this and things like that, and they would tell me or help me out. Your table members can help you because maybe they have an idea that you haven't thought of and you ask them for help and they tell you the idea and you actually like it; people sitting next to me help me, they tell me what they're drawing and then I get an idea of what I should draw. Sometimes they help me to draw things for my picture, like their eyes or hair or something like that; Sometimes the people around me ask how does this look and then when I look at it, it gives me a different idea and then I think I should put a little bit of that in mine;</p>		
Autonomy and Choice	Who decides what art	Student choice	Yourself; Me...Nobody else is going to think about rainbows cause I'm going to sit right here and nobody		

	<p>projects you want to make when you get to a TAB art classroom?</p>		<p>can look at it; the kids; Nobody but me; My brain; Me; Me; Us; Myself; the art teacher or we could come up with one or me; So usually our brains and then you would tell us what we're doing today, but you wouldn't tell us what to make because artist don't copy, they get ideas form other people and they get ideas from themselves when they like look at something and say oh that's cool I wanna recreate that; Yourself; The students. We do, like you said, we have to have at least two choices in our head before you call our name on the stick; I do; Myself; I make them from my imagination like monsters, robots, dragons and decide on those; ME; Myself; you can decide for yourself; usually in the TAB you get to decide, we get to decide what we wanna make; The students do or we would get an idea from the teacher and if we didn't wanna do that we could do what we want to; You decide what you wanna make in the classroom because you're doing everything by yourself and you don't have to do anything by anyone else's orders, so you get to decide what you wanna do; sometimes we just do something we want; Yourself;</p>			
<p>Classroom environment</p> 	<p>Can you explain the way the TAB art classroom functions or operates?</p>	<p>How we do things in art class</p>	<p>You get to choose your own thing, that's how we make it fair; so we walk in, we sit on the rug, go to our tables, get started, go to lunch; so you sit down, listen to the computer, the smart board first, and then go to the centers; So first we sit on the rug, you put on a video, what we're supposed to do, and then we know how to do it, and then second, we do it; We tell you where we wanna go to do like fabric or paint or something; we sit on the carpet spot, we listen to a story or music, and then we go to our tables or pick where we go; we go to the rug and do calming stuff first then you show us a video of</p>			

		<p>what we gonna do and we pick our studios that we want to go to; we get to make things, draw things, build things; we go to our tables, we start on the rug and watch a video to see what to do then go back to the table and do what you are supposed to do...but do anything you want to do; I am not sure; We do choice and choice art and we get to pick what we wanted. We write our names or date and the color that we wanted. So, I wanted to do sculpture which was green and everybody else some people chose fibers, a lot of people chose drawing, some people chose collage, some people chose painting. I think sculpture would be a good one for me; First we come in and then we go sit on the carpet, some people sit at tables facing the smart board and then we watch the video to get our day started and then we watch a video to know what we're going to do. Then you pick names from a stick with our names in sharpie and then we write it on the class chart, that's how you know where we are. We write the date in color by our name by what station you want to go to. You get a big piece of paper and planning sheet, fill out the planning sheet and then there's a sketch thing on the back that you sketch and add color to if you want to. Then you do the sketch on the big paper; When we first walk in, we have to sit on the carpet, watch the video of what we will choose and, on the chart, we pick one studio. You can only pick the same studio two or three times in a row, the next class we have to pick a different studio; We come in and choose studios and go to the studio and do what type of art is at the studio; what we do here is learn what's first so we can understand class more. We do calming music to make us feel like we will never give up. We go to the carpet and sit down, then we listen to calming music, then</p>
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	<hr/> <p>How is the TAB art classroom different from your other classes here at school?</p>	<p>we watch the class video of what to do. Next you pull a stick with our name on it to choose a studio table for us to go to; you choose your stations when the teacher calls you. Then you get your paper and mark the date and color of the studio. Then you go to the studio and work on your art until it's time to leave; we watch a motivational video, then we pick what studio we are gonna be in like architecture, drawing, painting. Then we go to that station and do our work; you will be able to make art and sculptures and other stuff. You'll get to do any type of art that you want. Let's say just like the studios, like architectures, fibers, and all of the other types of studios you can do; At the beginning we watch a demonstration video and then we choose the art station that we wanna go to and then go to that table and create the project that we wanted to create; you will call our name and we will say what studio we wanna go to, then go to a studio and we sketch out our picture and then use the art materials to create a piece of art; sometimes we have a thing we have to follow but if we don't then we get to do something that's on our mind, like if you came up with the idea of a popsicle or something in sculpture then you could make a popsicle, or if the challenge was to make an animal and you were in drawing then you could draw an animal that you like; We watch a video first, then we go to our tables that we want because we get to pick from pulling our name sticks out of the cup. If the table is full, we gotta pick another one so you gotta have at least two ideas. It's organized also you have to pay attention to know what to do because there's lots of things to do at art; we come in, we sit down on our specific spot and then we watch a video to get ideas. Then we get our</p>
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		<p>instructions and then we start doing what we were told to do;</p> <hr/> <p>This class is different because you can do sculptures and art; There's so much art around here; there are lots of different things in it like racks and tables; we can build, we can paint, we can draw, and build stuff; it's big; we get to draw, paint, do crafts here; we do more stuff and we work on teams; they don't have all these colored tables and materials and words like fibers; I think it's different because they don't have all of the colors in it and all of the art stuff. It's cool to have colorful things like water paints over there, then you see all of our books over there, and then you see all the other objects to make cool sculptures or whatever; You get to have more fun and actions too and draw things creative; We can be calm and learn new things and have fun and do new things every day; they are not colorful and they do fun art stuff; in the TAB art class you can make almost anything but in other classes you have to make what the teacher tells you; we draw and do fun work in here; Well a TAB art class is where you can actually make...freely, freely make your own art styles and stuff; Well mostly on the TAB art class you get to choose what you want to do. You get to choose what art you wanna create and that's kind of different than what other classes do; TAB allows us to choose what studio we wanna go to and the we can make an art piece from the materials that we wanna use in that studio. It allows us to create what our minds tell us to; Well in all our other classes we don't get to pick what we want to do so instead of going by orders we have lots of choices on what we wanna do; The TAB art class is stations that we get to pick so we can</p>
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			<p>do whatever we want at the station we want to go to and other classes you go to where you are assigned and you don't get to pick your tables; Art class has studios like sculpting or drawing, we paint, draw, or make projects and sometimes it isn't boring and it's fun;</p>			
<p>Feelings and Values on making art</p> 	<p>How does the way the TAB art classroom looks make you feel?</p> <hr/> <p>How does it make you feel to create art in the TAB art classroom?</p>	<p>Feelings about TAB art class</p>	<p>Happy; It looks beautiful...it makes me feel great; Good; It makes me very happy; It feels amazing and really art-tastic; Cool; Happy; Happy; really artistic to make things; Good; Good because it looks cool and it's fun; It's really nice, I like it, it's colorful and I like how it's organized. It has different colors, red, orange, yellow, green, blue and other colors so when they say go to your tables they know what color so I think that's really cool; Good; It makes me feel like I'm not confused in anything; That the teacher knows a lot about art and can teach me a lot of things; like I can be creative and I can think of anything without anyone's opinion, and I can be an artist no matter what; it's full of colorful stuff and I like it; it makes me feel happy because there's a bunch of different art stuff hung up everywhere and I love art; It makes me feel inspired; It actually makes me feel pretty comfortable; I like it because of how colorful it is and I like that there are a lot of art materials that are out so you can see what you get to make; the colorful tables make me feel bright and make me wanna do art a little more than I usually wanna do my art; It makes me feel happy because every time that we get to choose what we get to make it makes me feel like you don't have to make something based on what someone else did and you can maybe be creative; It makes me want to draw more and do more things with art; I think the way that the classroom is colorful and has lots of materials around it makes you more</p>			

			<p>creative because then you learn more ways to build something without your own idea; It makes me feel very open and very colorful and it feels like it gives me more ideas than being at home doing drawings;</p> <hr/> <p>I love art...I make some good pictures...I like doing art and it makes me happy; Good, I work really hard; It makes me happy because I'm with my friends; I feel happy; Good; It makes me happy cause then I get to show my dad and he'll be really happy; it makes me feel really, really excited; Fun; Kind of Happy; Good; Good; I like drawing; Happy; Happy; I like to create art; It makes me feel calm cause I love doing art and it just helps me. Sometimes I get excited when my teacher tells me that it's art time and I get excited because I just love art and I wanna be an artist when I grow up; It makes me feel like I can create anything that I want; It feels like I got a dream of being an artist; Happy because you get to choose different arts instead of just drawing and painting such as sculpture, architecture and everything including textures; Like I can draw without trying to copy off of something and I can be with my friends and think of an idea that can make me feel happy or sad and move up to being an artist; it's fun and cool; It makes me feel happy because we can create things that we love to create and things that we feel are special; okay, it feels amazing and awesome; It makes me happy to create art; It makes me feel happy because I like art and I like making things. I like the new TAB thing because I like being able to make ideas that I haven't been able to make those ideas; I'm happy that I get to choose what I can do or what I want to do; It makes me feel good because I like making things and I</p>			
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			<p>like being creative and I usually don't get to do that in art classes I've been in because they want you to do something that is based off what they tell you to do; It makes me feel good cause I can draw anything I want pretty much; It makes me feel pretty good about me making artwork and sometimes it's kind of challenging to make it so I like it; It makes me feel like I wanna do art more than anywhere else because it's like so many colors and it gives me more ideas;</p>			
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Appendix N

Think Children Don't Need ART In the 21st Century?

THINK AGAIN!

An Arts Education Teaches Children To...



Collaborate & Cooperate

- **Work together**
 - Understand Their Actions Affect Others
 - Realize Even Small Contributions Have Value
- **Compromise for Common Goal**
- **Take Responsibility for Mistakes**
- **Share responsibility**
 - Realize Their Contribution Is Important to the Success of the Group
- **Realize Mistakes Happen**

Communicate

- **Receive Constructive Feedback**
- **Develop Language By Talking About Art & Describing Creations**
- **Improve Skills Through Evaluation**
- **Communicate Different Emotions**
- **Realize Feedback is a Part of Learning**
- **Breakdown the Mechanics of Body Language**
- **Portray a Character Effectively**
- **Interpret Visual Information**
- **Experience Different Ways of Moving**

Be Creative

- **Think on Their Feet**
- **Approach Tasks From Different Perspectives**
 - Interweave Ideas Into New Possibilities
- **Take Creative Risks**
- **Develop a Sense of Innovation**
- **Practice Creative Thinking Until It Becomes Natural**
- **Be Original!**

Organize

- **Concentrate & Focus**
 - Keep a Balance Between Listening & Contributing
- **Develop Motor Skills**
- **Think About Their Role & How It Contributes To the Big Picture of What is Being Created**

"We live in an age when the most valuable asset any economy can have is the ability to be creative—to spark and imagine new ideas, be they Broadway tunes, great books, iPads or new cancer drugs."
—Thomas Friedman, New York Times, August 4, 2010

Problem-Solve

- **To Keep an Open Mind**
 - Explore Further Info
 - Entertain Different Possibilities
 - Move Forward to New Insight & Understanding
- **Hone Decision-Making Skills**
- **Develop Skills in Reasoning & Understanding**
 - Be Attentive to Details, of Perceptions & Ideas

Self-Direct

- **Persevere!**
 - Practice Follow-Through
 - Improve Academic Performance
- **Develop Healthy Work Habits**

Be Socially Responsible

- **Act Responsibly With The Interests of the Larger Community In Mind**
 - Understand Choices Artists & Designers Make
- **Know & Appreciate Diverse Societies**
- **Interpret & Evaluate Others' Perceptions of Reality**

Be Fluent With Technology

- **Develop Information & Media Literacy Skills**
 - Utilize Today's Digital & Social Media As An Appropriate Vehicle For Their Message (Computers, iPads, Video, Digital Cameras, and more!)
- **Create Information in a Variety of Forms & Media**

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QUESTION FORMULATION AND RESPONSIVE DESIGN:
TWO APPROACHES TO INCREASING DIVERGENT THINKING AMONG
NINTH GRADE STUDENTS AR A RURAL PUBLIC HIGH SCHOOL
By

Jessica Pilgreen
M.A. in English, August 20011, Southern Illinois University Edwardsville

Abstract

The purpose of this study was to explore two protocols that include the teaching of divergent thinking skills: the Question Formulation Technique (QFT) and ResponsiveDesign. Guilford's Alternative Uses Test was used to measure growth in students' divergent thinking before and after the two teaching strategies. This was followed by semi-structured one-on-one interviews conducted with 10 students to understand how they perceived the two interventions. The study revealed that both the Question Formulation Technique and ResponsiveDesign significantly increased students' divergent thinking test scores, but neither protocol was more effective than the other. Additionally, a side-by-side comparison of the two protocols shows that the two involve similar cognitive processes among the student participants, which could explain the similar results in the two groups (QFT and ResponsiveDesign).

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Chapter 1: Introduction

Defining the Problem and Formulating the Argument for the Problem

An important problem has emerged after years of observations within my own practice and that of my colleagues. Students are accustomed to completing educational activities that only require convergent thinking: that is, they are accustomed to “looking up” information in a textbook or possibly synthesizing information from a few sources on the Internet in order to come up with one “correct” answer. The answer is usually predetermined and can be found in the teacher’s manual. However, when students are presented with an open-ended divergent thinking task—one that presents a central problem and has students ideate any of multiple “correct” responses—some students experience anxiety and frustration, sometimes even vocalizing a defeatist attitude. For many of my students, engaging in divergent thinking is very foreign; they simply have not had many opportunities to engage in these types of activities, which lead me to wonder: Why is that? Why are these students not being given opportunities to think divergently?

I do not believe that teachers do this intentionally, but rather in response to the constraints put upon them. Most teachers will likely agree that divergent thinking—and the necessary creativity, collaboration, communication, and critical thinking that make divergent thinking successful—are all qualities that are important for students to develop. Some educational leaders suggest that a lack of emphasis on divergent thinking challenges, and a lack of emphasis on creativity in general, is a sign of the political times, in which standardized testing reigns supreme (Robinson, 2001). Teachers feel a pressure to teach to the test, as poor student scores are often taken as a direct reflection on an

individual's abilities as a teacher—low test scores are viewed as an indicator of ineffective instruction. In fact, standardized test scores are sometimes used as a component of teachers' evaluations, and are also used, frequently, to rate the schools themselves. For example, the Illinois State Board of Education provides information on how teachers are to be evaluated using the Performance Evaluation Reform Act (PERA) of 2010. Specifically, schools are required to “combine multiple measures of student growth and professional practice” when evaluating teachers (ISBE, 2019, para. 1). Additionally, standardized test scores are used to determine if the schools are making adequate yearly progress. Under the pressure to perform well on these tests, teachers are forced to relegate valuable class time to standardized test preparation, rather than devoting class time to creativity instruction that would promote divergent thinking.

Chapter 2: Purpose of the Study

Over the course of my collective case study, my initial focus was to find which instructional practice would best develop divergent thinking skills among a group of ninth grade English students where I currently teach. The population included approximately 40 freshmen at a rural Midwestern high school during the 2018-2019 school year. The population included two convenience samples of general education students. One group used the Question Formulation Technique, while the other group used the ResponsiveDesign Protocol. The students who were involved in the study included males and females from diverse ethnic groups enrolled at a rural public high school, including students who have been deemed gifted, students placed in the general education track, and students who receive academic accommodations for learning

disabilities but have been mainstreamed into the regular education classroom. This study focused on the following two research questions.

Research Questions

1. Which pedagogical practice will be more effective at developing divergent thinking skill, the Question Formulation Technique or ResponsiveDesign challenges?
2. Is there a correlation between students' perceptions of teacher emphasis on creativity and divergent thinking skill growth?

Chapter 3: Review of Literature

Student divergent thinking abilities are influenced by numerous factors, including parents, teachers, peers, and their self-perception of their own divergent thinking potential. The following review of selected research findings notes the influence of these factors, while also considering the validity and reliability of current instruments used to assess divergent thinking in various contexts, and what methods of measuring creativity might be used in the future to give a more accurate depiction of this multifaceted and complex topic.

Important search terms used to find preliminary sources included *divergent thinking* and *education*. Because the term *divergent thinking* is a relatively new area of study in education (it has been part of the business and design discourse for much longer), searching more generic terms, such as “student creativity” or “questioning strategies” was necessary. The literature review is organized into five emergent themes: teacher education programs, classroom climate, student motivation and attitudes, public perception of creativity, and assessments of creativity.

Teacher Education Programs

Both Acar and Runco (2015) and Berger (2014) assert the need for teacher education programs to include methods for teaching creativity, while Robinson (2011) asks how creativity can be encouraged in companies or classrooms, so that creativity becomes a routine part of the community's culture. However, while numerous resources discuss the validity—and necessity—of creativity education and Divergent Thinking (DT) training, few resources provide suggestions of how to make DT a more widely implemented component of the American classroom curriculum.

Baer (1996) conducted an experiment using 157 seventh grade students at a New Jersey junior high school. He divided the students into two groups: one group had a teacher that had received divergent thinking training, while the other group had a teacher that had not received DT training. The DT training was very specific: the focus was on using literary devices to teach poetry writing. The results showed that students whose teacher had received specific training produced more creative poetry, as determined by a panel of experts. As a result of his study, Baer asserts that there is a need for domain – specific teacher training in creativity and design thinking. In other words, teachers should receive training that is specific to the domains that they teach, rather than general DT training aimed at all subject and grade level teachers. This should be conducted as part of initial teacher training and continuing professional development (Baer, 1996).

In a later research review by the same author, Baer (2016) more deeply explored the need for context-specific creativity training, noting that creativity in one domain (for example, poetry writing) does not have any direct correlation to creativity in another

domain (such as painting). The only correlations that occur are among creativity tasks within the same domain. This underscores the importance for divergent thinking training that is domain-specific, rather than general.

Rothstein and Santana (2014) offer a viable method for including creativity in instruction: they suggest that teachers use a protocol known as the Question Formulation Technique (QFT) in order to promote divergent thinking among students. The QFT is a specific practice developed by the Right Question Institute, initially to empower the parents of low-income students, but then adapted for classroom use. The QFT is a multi-step process that, when used appropriately, teaches students how to think creatively and divergently by generating questions to guide them in their own research. Rothstein and Santana provide multiple case studies that illustrate how the QFT has been implemented in diverse settings (urban and suburban high schools) with reliable, effective results. The QFT is a relatively new protocol, and it will require more longitudinal data in order to further assert its reliability and validity. Currently, it does offer one concrete example of methods that teachers can use to foster creativity through DT.

Classroom Climate

Classroom climate is heavily influenced by teacher education programs. Often, solution-driven and standards-driven teacher education programs are the only professional development available to teachers, so teacher attitudes and instructional methods are grounded heavily in what they have learned through these programs. The lack of effective creativity education programs, especially domain-specific programs, can result in a lack of divergent thinking instruction for students. If a teacher has not learned how to properly model and promote divergent thinking, then the classroom climate will

not likely be one that fosters creativity. Teachers who have received effective DT thinking instruction, on the other hand, are more likely to encourage DT among their own students (Baer, 2016).

Sir Ken Robinson, Ph.D., creativity researcher and Professor Emeritus of Education at the University of Warwick, devotes an entire chapter of his book, *Out of Our Minds: Learning to Be Creative*, to “the trouble with education,” asserting that the current classroom cultures hinder, rather than develop, student creativity (such as divergent thinking strategies), causing creativity to dwindle as student age increases (2011, p. 49). He argues that everyone is born with creative potential but, because student creativity is not properly fostered in American schools, it gradually fizzles out.

Miller (2015) cites and builds upon Robinson’s (2011) research in her own argument that the current educational system was not built with the modern student in mind. Rather, it was created during the time of industrialism, focused on churning out factory workers. Miller states that this model of education is seriously outdated, and does not account for the varying needs of individual students. Miller further argues, like Robinson, that this educational structure is at odds with humans’ natural curiosity and creativity, and that major changes need to occur to make classrooms more conducive to inquisitive practices, such as divergent thinking. Faasko (2011) provides evidence showing a decline in creativity education through a historical lens. This evidence provides “a review of the progression of thinking and research in the field of creativity” which ultimately asserts that due to an emphasis on standardized testing, schools seem to be producing less creative students (p. 317).

Berger (2014) also describes the typical classroom climate as not encouraging creativity and divergent thinking, especially in terms of question formulation techniques. Berger points out that most classroom teachers tend to favor rote memorization of facts over the ability to formulate meaningful questions. Berger provides case studies of successful questioners (most from businesses) in order to make a case for the importance of student-generated questions in classrooms.

Ostroff (2016) also points out that today's classroom is not optimized for divergent thinking. Instead, she observes that too much emphasis is placed on standardized tests and rigid learning goals, and no time is left for developing other skills, such as divergent thinking. In fact, Ostroff argues that students' divergent thinking (such as the posing of questions) is often discouraged by teachers when it does occur, because it goes "off-script," eating into valuable instructional time. Baer (2015) does not agree that an emphasis on learning goals is a barrier to teaching divergent thinking. In fact, he believes that many learning goals can be considered skills necessary in order to engage in divergent thinking. Baer places the lack of creativity education in classrooms solely on the American obsession with standardized testing, and the insistence that everything that is taught must be measurable.

Student Motivation and Attitudes

A classroom climate focused on standardized testing, rather than nurturing student creativity and questions, means that few students are intrinsically motivated. Student motivation can be augmented through engagement, empowerment, and independence; all of these motivators are components of divergent thinking. Dweck (2006) suggests that the first step is a change in the attitudes of individuals with a stake in education.

Creativity needs to be viewed as a valuable skill worthy of instructional time, not only by teachers but also by students, their families, and communities. Berger's (2014) research also indicates that successful people tend to be masters of inquiry, which support's Dweck's emphasis on the overall importance of DT training in schools. Both argue that creativity, while sometimes questioned in terms of validity in an elementary or secondary classroom, has been shown to be an indicator of success in the real world.

Rothstein and Santana (2011) found that students who were taught divergent thinking strategies, which they classify as "a distinct form of higher-order thinking" showed marked growth in terms of their abilities, their self-confidence, and their ability to handle challenging or stressful situations, both in school and real-world settings (p. 16). Essentially, students who have the opportunity to deliberately practice divergent thinking will grow their ability to think divergently. This aligns with Dweck's (2006) studies on growth mindset in terms of one's ability to develop a skill over time through practice.

Public Perception of Creativity

Robinson (2011) discusses how creativity manifests itself in different mediums and methods, depending on domain and context. In fact, he argues that "everyone has huge creative capacity as a natural result of being a human being. The challenge is to develop them. A culture of creativity has to involve everybody not just a select few" (p. 3). In other words, everyone is inherently creative, by virtue of being human; the problem is discovering in what context a person is creative, and then determining how to nurture and develop that creativity. The idea that creativity is a predetermined trait possessed by a select few is a false perception that stifles potential creativity.

Ostroff (2011) discusses how teachers need to value creativity and model this belief for students. In her research, she suggests that curious teachers promote curiosity, and that the best method of getting students to think divergently is for teachers themselves to be divergent thinkers. Ostroff agrees with Robinson's (2011) assertion that creativity and curiosity are part of being human, something that Ostroff calls the "exploratory drive" (p. 13). Dweck (2011) points out that this natural inclination towards divergent thinking and questioning declines with age, and that a shift in public perception needs to occur before teachers can effect change in instruction.

Assessments of Creativity

Fishkin and Johnson (1998) address how difficulty in clearly defining creativity has hindered the development of an accurate assessment. Definitions of creativity and divergent thinking tend to be vague, and they rely heavily on context. Robinson (2011) also mentions that when, we talk about creativity, it needs to be clearly defined: "It is important to be clear about what creativity is and how it works in practice" (p. 2). Robinson then goes on to list three related ideas—imagination, creativity, and innovation—which are interrelated, but not synonymous. Multiple studies may all claim to assess creativity, when they are actually measuring closely-related concepts, such as innovation. A lack of a widely-accepted definition that can be used in multiple contexts is the first roadblock to developing an effective measurement tool.

Baer (2016) sums up another barrier to assessing divergent thinking (and creativity in general): it is impossible to develop a standardized test format to accurately measure something as broad and multi-dimensional as creative potential in the ways that we are used to measuring other skills, such as reading fluency. Although character

education often incorporates skills that have been challenging to measure (e.g. citizenship and honesty) when it comes to creativity, the absence of a valid testing instrument has been problematic. In fact, attempts to create divergent thinking tests, most notably the Torrance Tests, have had their validity criticized for years (Baer, 2016).

In an earlier study, Baer (1996) talks about the need for domain-specific assessments of creativity. One way to side-step the difficulty of creating one universal measurement that works well in multiple domains is to create multiple instruments, with each tailored to a specific domain. Baer found that creativity demonstrated in an English Language Arts (ELA) setting does not necessarily carry over into other fields of study, so one option is to develop multiple domain-specific tests.

Chrysikou (2016) and Ostroff (2016) both talk about the need for assessments that are not skewed by external factors. Chrysikou's study examined 63 university students who were randomly assigned to one of three groups. "Participants viewed either names or pictures of everyday objects, or a combination of the two, and generated common, secondary, or ad hoc uses for them" (p. 1). The study found that the mode in which stimuli is delivered (i.e. visual or auditory) can skew the results of creativity tests.

Perhaps the most holistic measurement of divergent thinking to date has been Acar and Runco's (2015) Literal Divergent Thinking (liDT) Index, which was tested for validity and reliability in relation to 13 dimensions of DT to determine if this test is a more accurate indicator of DT than previous assessments. While the new instrument was more thorough than previous standardized assessments, the results of the study remained inconclusive, as the sample size was too small and not random enough (54 university

students) to be applied to other populations. The following section will describe the assessment of creativity chosen for the study.

Chapter 3: Methodology

An explanatory sequential mixed methods design was used (see Figure 2) with quantitative pre-tests and post-tests and interviews with select participants.

Data Collection and Instruments

First, I began by gathering consent forms from the parents of participants and I provided participants with assent forms and information regarding the goals and procedures of my study. Students were separated into two convenience samples determined by the hour that students were enrolled in English Language Arts. The two groups of students each received a different treatment: Group A was introduced to the Question Formulation Technique, while Group B was introduced to the ResponsiveDesign protocol.

Each group received two (one at the beginning of the research study and one at the conclusion) standardized tests of divergent thinking skills (Guilford's Alternative Uses Test) to measure the effectiveness (independently and comparatively) of each of the treatments. The test measured divergent thinking fluency by presenting an everyday object and having the student list up to six non-standard uses for the object (see Figure 1). The results of students' pre-test and post-test scores were analyzed and then used to plan the second, qualitative phase.

Sample Item:

5. BRICK (used for building)

a. _____ (example: to hit someone on the head)

b. _____ (example: a paperweight)

c. _____ (example: to save water in a toilet tank)

d. _____ (example: a doorstep)

e. _____ (example: to build a house)

f. _____ (example: throw through a window)

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Figure 1. Alternative uses test sample item. From *ALT-U License to Reproduce*, (p. 19), by Guilford, Christensen, Merrifield, & Wilson, 1960: Mindgarden, Inc.

One-on-one interviews were conducted with ten students (five from Group A and five from Group B) to clarify the results of the quantitative data and to provide in-depth data for the collective case study. The students with the highest increase and the lowest increase in their Alternative Uses test scores were selected for the one-on-one interviews, as well as students whose scores represented the mean gain scores of their group. Questions were designed to gather information regarding possible influences on divergent thinking skills, including students' perceptions regarding the usefulness of the protocol being used, the rigor of the protocol being used, and teacher emphasis on creativity or divergent thinking skills in the participants' classes.

The semi-structured one-on-one interviews with ten students were recorded and transcribed. Information was coded and then data transformation was used to change emerging themes into quantitative variables that could be more easily analyzed and quantified. Specifically, the rate of occurrences for the recurring themes were examined.

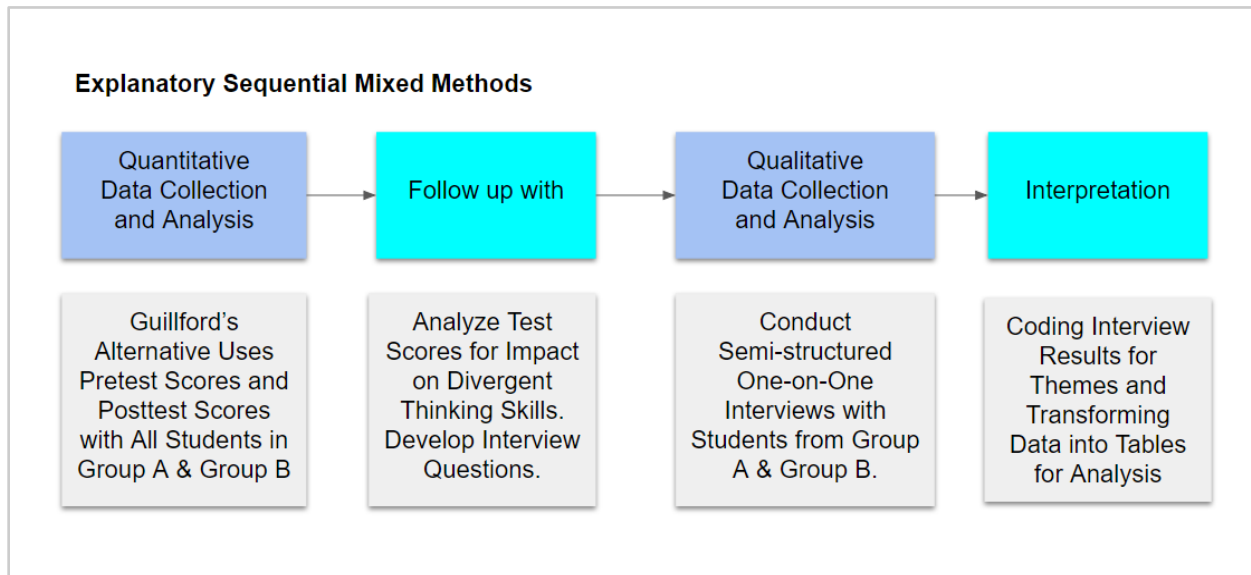


Figure 2. Explanatory sequential mixed methods design.

Question Formulation Technique (QFT) Protocol

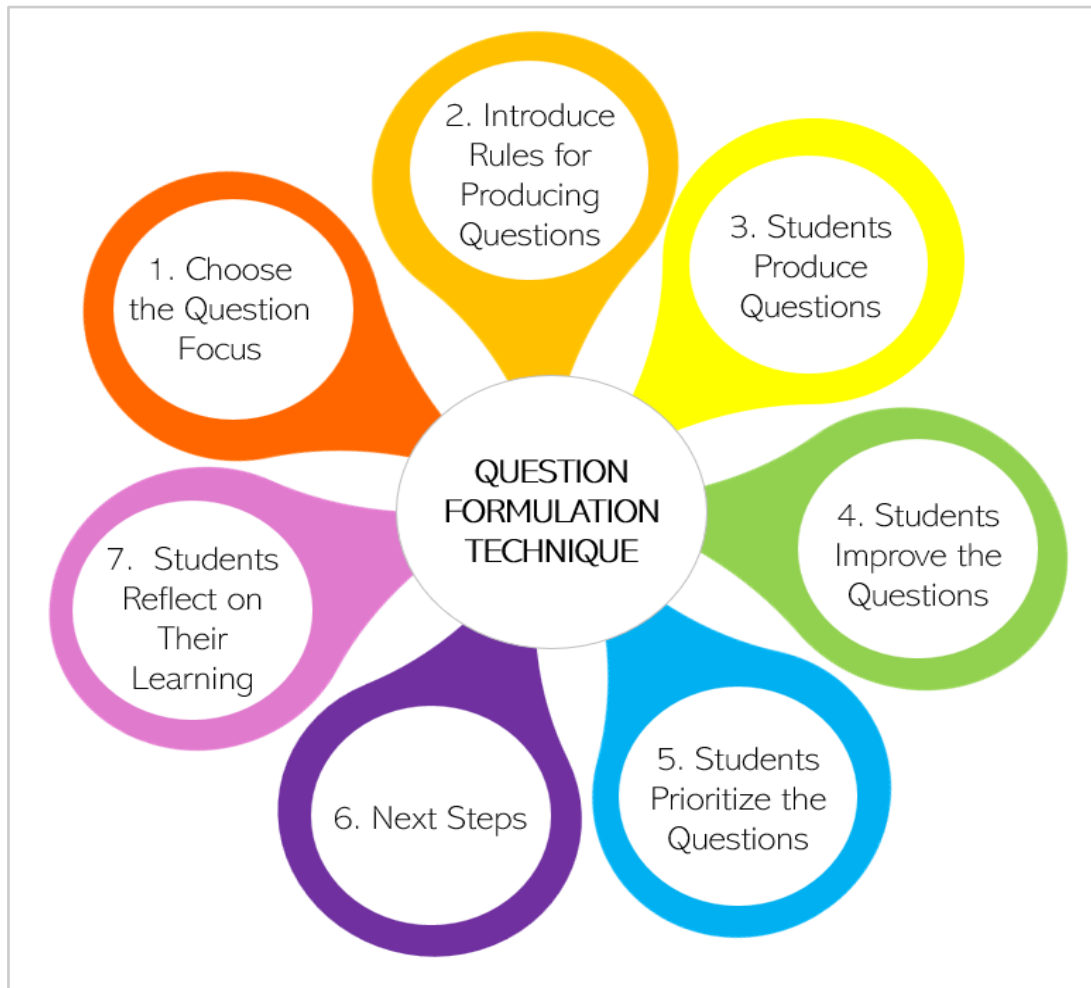


Figure 3. Question Formulation Technique Protocol. Adapted from *Make Just One Change*, (p. 20), by D. Rothstein and L. Santana, 2011, Alexandria, VA: ASCD.

The QFT (see Figure 3) is a 7-step protocol developed by Dan Rothstein and Luz Santana of the Right Question Institute (2016). Initially developed as a means of empowering parents to generate questions for their children's teachers, the QFT has since become a method for teaching students to formulate questions to guide their own learning. The QFT begins with a teacher-generated Question Focus, which can be a topic, question, video, etc. Next, the teacher goes over the rules for producing questions before allowing students to rapidly generate questions, focusing on quantity rather than quality (divergent

phase). Next, students evaluate their questions as either open-ended or closed-ended questions and are given the opportunity to revise. Then, students select a few questions from their earlier brainstorm session (convergent phase). The “Next Steps” phase involves student-led research and reporting of findings using various methods (e.g. informal oral report, written report, or infographic).

ResponsiveDesign Protocol

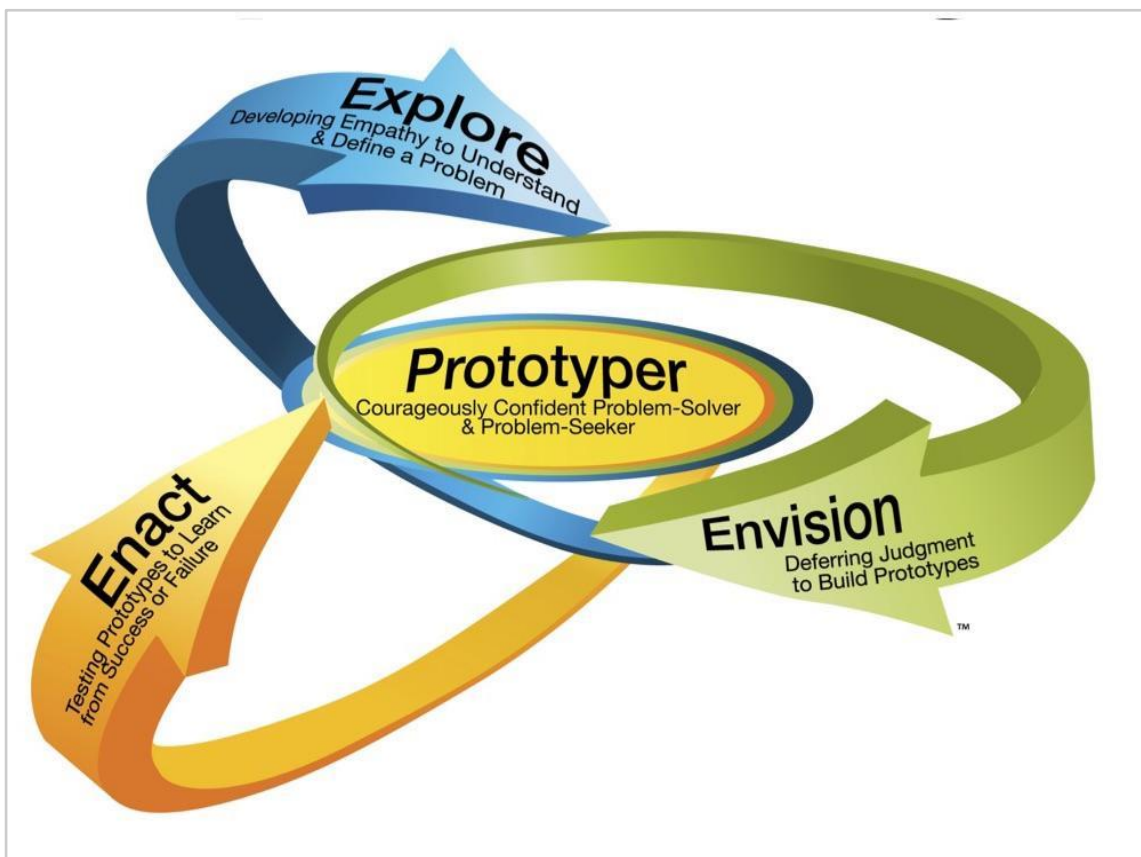


Figure 4. ResponsiveDesign Protocol. From *Nurturing Creativity and Professional Learning for 21st Century Education*, (p. 164), by R. Cordova, K. Kumpulainen, and J. Hudson, 2012, LEARNING Landscapes.

ResponsiveDesign (see Figure 4) was developed by the Cultural Landscapes Collaboratory (Cordova, Kumplainen, & Hudson, 2012) and was influenced by the work of IDEO creator David Kelley. Cordova took the Design Thinking model that has become popular among businesses, corporations, and some institutions (such as Stanford's d.School) and adapted the model for an educational setting, encouraging teachers to embrace the idea of "prototyping" learning experiences for students by considering the needs and wants of students, building prototypes of learning experiences, and then testing them out to further develop one's pedagogy.

This protocol uses both divergent and convergent thinking skills; students are asked to first brainstorm as many ideas as possible, focus on quantity rather than quality (divergent), and then narrow their focus as they construct prototypes (convergent). ResponsiveDesign, like the QFT, also involves student reflection on their learning.

Similarities Between the Two Protocols

While the two protocols are different from one another, particularly in terms of the end product that the students create, both protocols lead students through similar stages and thinking processes (see Figure 5). Both protocols begin with a teacher-generated prompt that gives the protocol a central focus. Both protocols also contain a multi-step process that has been defined and outlined, with guidelines to follow. For both protocols, students were asked to collaborate with peers while rapidly generating ideas during a divergent thinking phase, to prioritize their ideas during a convergent phase, to identify the skills that they had used during the protocol (metacognition), and to share their findings or products with an audience of peers. Both protocols end with a reflection

stage, where they were asked to consider what skills were used during the protocol and how those skills could transfer into other contexts (academic or otherwise).

	Question Formulation Technique	Responsive Design Challenges
Teacher-Generated Introduction	Q-Focus	Problem Statement
Structure/Guidelines	Review of Rules for Creating Questions	Student-Created Needs Statement
Divergent Thinking Phase	Brainstorm Questions	Rapid Ideation
Expanding/Building on Ideas	Improve Questions	Build on the Ideas of Others (Yes, And)
Convergent Thinking Phase	Prioritize Questions	Narrow the Ideas Down
Construction	Research Answers	Build a Low-Resolution Prototype
Share with Peers	Present Findings	Share Prototypes
Reflection	Reflect on QFT	Reflect on Responsive Design Challenge

Figure 5. Similarities between the QFT and ResponsiveDesign.

Chapter 4: Results

Demographic Data and Descriptive Statistics

The sample for this study included 49 ninth-grade students from a rural Midwestern public high school in southern Illinois. The students were enrolled in a ninth-grade English class during the fall and spring semester of the 2018-2019 school year. This was a mandatory class taken to fulfill the graduation requirements of the high school they attended. Participants ranged in age from 14 to 15, and each participant submitted both a signed parental consent form and an assent to participation form to indicate willingness to participate in the study. Out of the 53 students enrolled in the two class periods selected for this study, only two students opted out of the study. Two additional students were removed from the study because they transferred to another class that was not selected for this study.

Guilford's Alternative Uses Test Results

Data-analysis Procedures. For quantitative data analysis, students were coded by anonymous signifiers (for example, Group A Student 1) alongside scores from the Alternative Uses pre-test (ALTU1) and post-test (ALTU2) scores. Information was entered into a Microsoft Excel spreadsheet, which was used to create tables and charts of descriptive statistics. This spreadsheet was later imported into SAS University Edition to run t-tests to test for statistical significance between pre and post-tests.

Group A (Question Formulation Technique)

Group A included 27 ninth grade students ($n=27$) enrolled in one class period of English Language Arts. Students' divergent thinking skills were assessed using the Alternative Uses pre-test (ALTU1) to establish baseline abilities, as well as the Alternative Uses post-test (ALTU2) to assess growth after the Question Formulation Technique (QFT) protocol was enacted in the classroom. Scores on the Alternative Uses Test range from 0 to 36. Student scores prior to the QFT protocol ranged from 3 to 32 with a mean of 14.8 and a standard deviation of 5.4 ($M=14.8$, $sd=5.4$). After the QFT protocol, students' scores ranged from 9 to 36 with a mean of 22.8 and standard deviation of 8.6 ($M=22.8$, $sd=8.6$). Twenty-four out of 26 students (92.31%) showed an increase in divergent thinking skills while one student showed a decrease of 3 points and one student saw no change. The point increase (ALTU2-ALTU1) ranged from -3 to 21 points with a mean point increase of 7.76 points and a percentage increase in scores $[(\text{Difference}/\text{ALTU1}) \times 100]$ with a range of -25% to 171%.

Two outliers were initially included in the study, but later removed to keep from skewing the data. One outlier (Student 7) had a score increase of 700% and was removed

from the final data report to avoid skewing the data in favor of the QFT protocol. Student 7 was interviewed about his results, revealing that the student's initial score was a result of student error (not understanding the directions). Another student (Student 28) had a score decrease of 18 points (86.71%) due to student error on the post-test (not following the directions). This student's data was removed from the final data report to avoid skewing the data against the QFT protocol.

Table 1
Group A (QFT) Descriptive Statistics for Student Scores on ALTU1 and ALTU2

Student	ALTU1	ALTU2	Difference (in points)	Increase/Decrease (Percentage)
Student 1	7	19	12	171.43
Student 2	23	36	13	56.52
Student 3	18	24	6	33.33
Student 4	12	20	8	66.67
Student 5	17	32	15	88.24
Student 6	7	14	7	100
Student 8	20	35	15	75.00
Student 9	12	14	2	16.67
Student 10	13	18	5	38.46
Student 11	22	28	6	27.27
Student 12	14	29	15	107.14
Student 13	14	19	5	35.71
Student 14	7	13	6	85.71
Student 15	12	9	-3	-25.00
Student 16	11	13	2	18.18
Student 17	13	30	17	130.77
Student 18	32	36	4	12.50
Student 19	11	14	3	27.27
Student 20	17	29	12	70.59
Student 21	12	18	6	50.00
Student 22	16	26	10	62.50
Student 23	16	32	16	100.00
Student 24	12	17	5	41.67
Student 25	19	26	7	36.84
Student 26	19	19	0	0.00
Mean	15.04	22.8	7.76	51.60

Note: Student 7 was an outlier with a score increase of 700% and was removed from the study to avoid skewing the results.

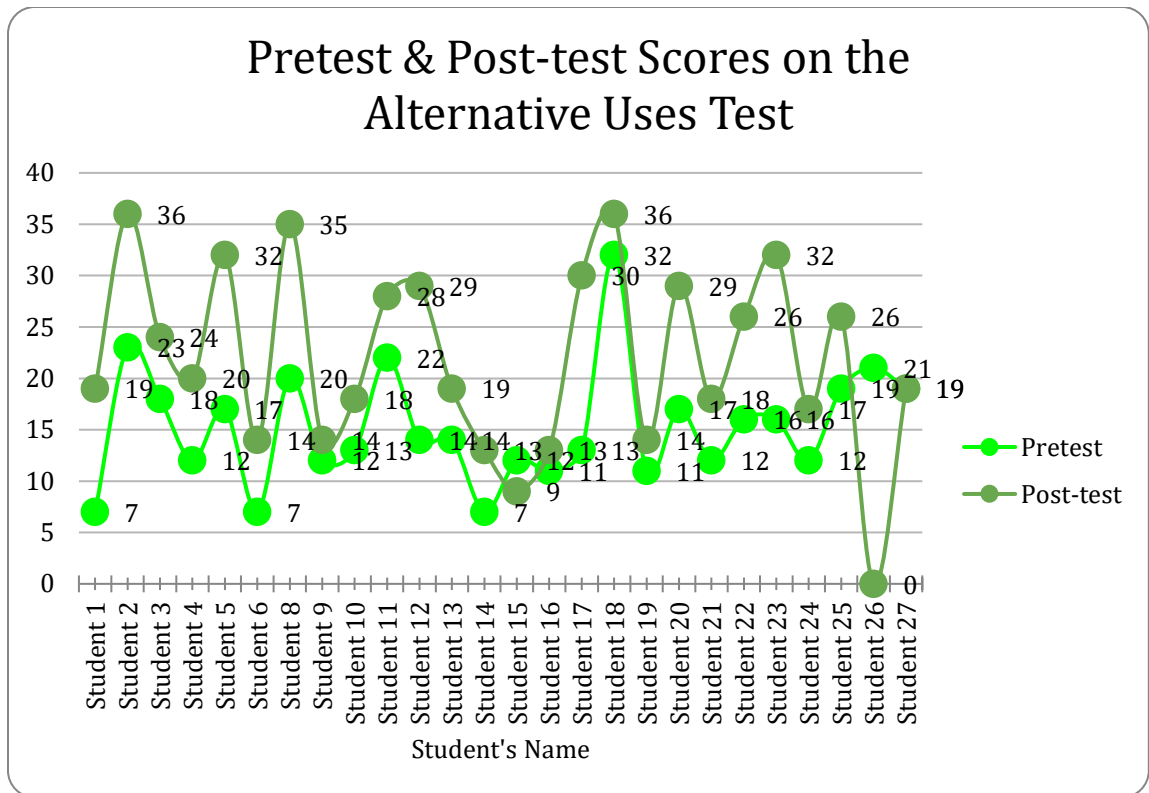


Figure 6. Group A (QFT) pre-test (ALTU1) and post-test (ALTU2) scores.

Table 2.
Group A (QFT) Results of a t-test and Descriptive Statistics for ALTU1-ALTU2 Scores.

N	Mean	SD	Std Err	Minimum	Maximum	DF	t	Pr> t
25	-7.7600	5.3796	1.0759	-17.0000	3.0000	24	-7.21	<.0001

A t-test (see Table 2) was used to determine if results were statistically significant. The results showed a p value of <.0001, indicating that there was a significant difference in the means between the pre-test and post test scores of Group A.

Group B (ResponsiveDesign)

Within Group B ($n=22$), measuring students' divergent thinking skills involved the Alternative Uses pre-test (ALTU1) to establish baseline abilities, as well as the Alternative Uses post-test (ALTU2) to assess growth after the ResponsiveDesign protocol was enacted in the classroom. Each had a possible score of 0 to 36. For the pre-test, student scores ranged from 5 to 32 with a mean score of 13.77 and standard deviation of 5.8 ($M=13.77, sd=5.8$). For the post-test, students' scores ranged from 11 to 34 with a mean score of 22.82 and standard deviation of 6.9 ($M=22.82, sd=6.9$). Out of 22 students, 21 students (95.45%) showed an increase in divergent thinking skills while one student showed no change. The point increase (ALTU2-ALTU1) ranged from 0 to 20 points with a mean point increase of 9.05 points, a percentage increase in scores $[(\text{Difference}/\text{ALUT1}) \times 100]$ with a range from 0% to 200%, and a mean percentage increase of 65.68%. This group did not contain any outliers whose results might positively or negatively influence the data.

Table 3
Group B (ResponsiveDesign) Descriptive Statistics for Student Scores on ALTU1 and ALTU2

Student	ALTU1	ALTU2	Difference (in points)	Increase/Decrease (Percentage)
Student 1	12	22	10	83.33
Student 2	15	20	5	33.33
Student 3	10	30	20	200.00
Student 4	32	34	2	6.25
Student 5	11	15	4	36.36
Student 6	5	21	16	320.00
Student 7	15	26	11	73.33
Student 8	11	19	8	72.73
Student 9	15	29	14	93.33
Student 10	9	11	2	22.22
Student 11	8	13	5	62.50
Student 12	17	32	15	88.24
Student 13	7	15	8	114.29
Student 14	23	33	10	43.48
Student 15	10	26	16	160.00
Student 16	13	25	12	92.31
Student 17	11	19	8	72.73
Student 18	14	26	12	85.71
Student 19	17	19	2	11.76
Student 20	20	34	14	70.00
Student 21	17	17	0	0.00
Student 22	11	16	5	65.58
Mean	13.77	22.82	9.05	65.68

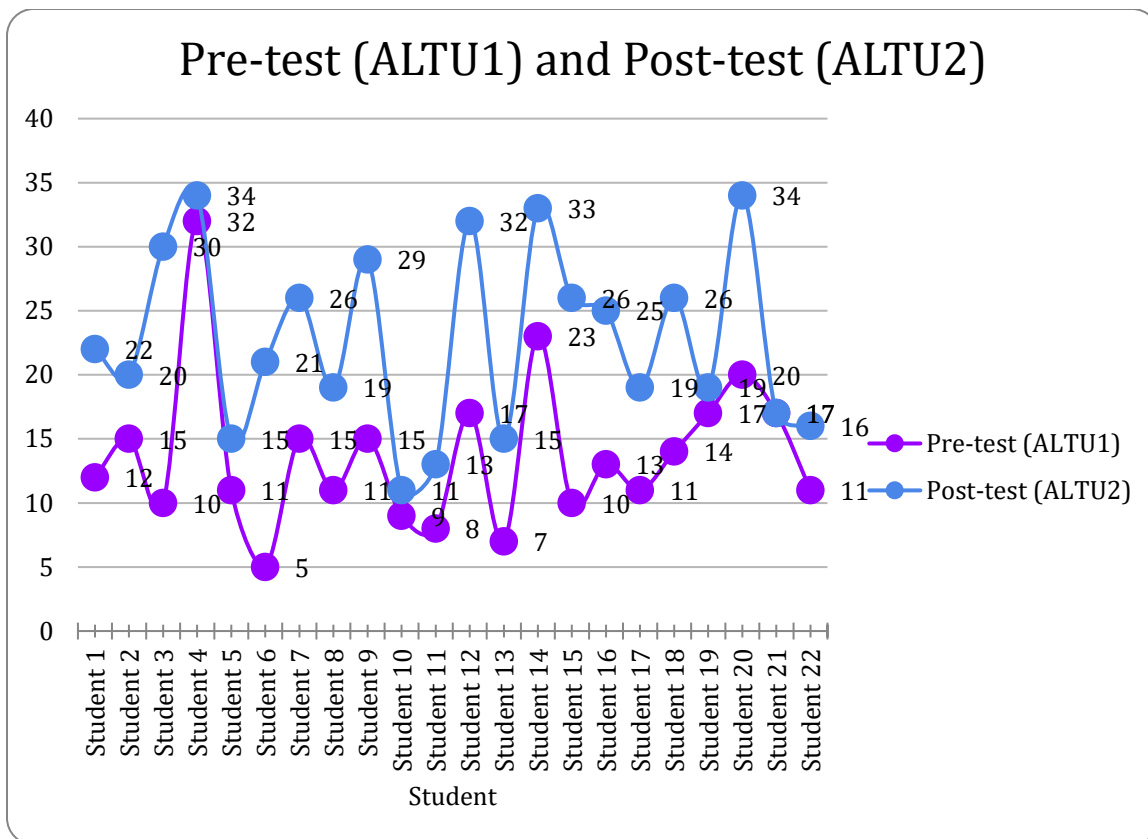


Figure 7. Group B (ResponsiveDesign) pre-test (ALTU1) and post-test (ALTU2) scores.

Table 4.

Group B (ResponsiveDesign) Results of a t-test and Descriptive Statistics for ALTU1-ALTU2 Scores.

N	Mean	SD	Std Err	Minimum	Maximum	DF	t	Pr> t
22	-9.0455	5.4901	1.1705	-20.0000	0	21	-7.73	<.0001

A t-test was used to determine if results were statistically significant. The t-test showed a p-value of <.0001, indicating a significant difference in means between the pre-test and post test scores of Group B.

Group A and Group B

Table 5
Group A (QFT) Descriptive Statistics

	Pre-test Scores	Post-test Scores	Percent Change
Mean	15.04	22.8	57.1
Median	14	20	50
Mode	12	14, 19	100, 27.27

Table 6
Group B (ResponsiveDesign) Descriptive Statistics

	Pre-test Scores	Post-test Scores	Percent Change
Mean	13.77	22.82	81.24
Median	12.5	21.5	72.73
Mode	11	26, 19	72.73

A t-test (see Table 7) was used to determine if there was a significant difference between the QFT and ResponsiveDesign protocols. The t-test revealed a p-value of 0.6923, meaning that there was no significant difference between the points gained in Group A and the points gained in Group B. The protocols of both groups were effective, but neither protocol was more effective than the other. The results indicate that the differences between the interventions were not large enough given the similarities between the two.

Table 7.
Results of a t-test and Descriptive Statistics for Group A and Group B Gain Scores.

N	Mean	SD	Std Err	Minimum	Maximum	DF	t	Pr> t
22	-7.7727	9.0340	1.9260	-14.0000	11.0000	21	-0.40	0.6923

One-on-One Interview Data Analysis

Qualitative data was gathered via semi-structured one-on-one interviews with ten students: five students from Group A and five students from Group B. From Group A, Student 1 and Student 17 were selected because they had the highest percentage score

increase. Student 15 and Student 27 were selected because they had the lowest percentage score increase. Student 21 was selected because she represented a median percentage score increase. From Group B, Student 3 and Student 6 were selected because they represented the highest percentage score increase. Student 21 was selected because she had the lowest percent score increase. Student 11 and Student 20 were selected because they represented the median percentage score increase.

The goal of the qualitative data collection was to further explain the results of the quantitative data. When individual's responses were analyzed, it became apparent that many of the responses could be translated into quantitative data by measuring frequency of specific responses. The following questions were used for interviews with students from both Group A and Group B. Questions 1 and 2 were given as "warm up" questions to get students to think in general terms about what constitutes creativity and to review the protocol that was used by each student before diving into deeper, protocol-specific questions.

Interview Questions:

1. In your own words, could you please define creativity?
2. Could you please describe, in your own words, the protocol which you have been using this school year (either the Question Formulation Technique or ResponsiveDesign Challenges)?
3. Using the inverted pyramid of Bloom's Taxonomy as a reference, what skills do you think that you used the most during this protocol?
4. Do you think that using this protocol affected your ability to think creatively?
Please explain.

5. Were there any external influences that may have impacted your scores on either the pre-test or post-test of divergent thinking skills? (For example, you didn't understand the directions on the pre-test or you were tired on the day of the post-test.)
6. Do you think that using this protocol will help you in other classes, or in other activities outside of school? Please explain.
7. Do you believe that the ability to think creatively is an important skill? Please explain.
8. Do you believe that your teachers think creativity is an important skill? If yes, approximately how many? Please explain.
9. If given the choice in the future, would you rather complete another (QFT or ResponsiveDesign) protocol or would you prefer to complete a more traditional assignment, such as a test, paper, or poster?
10. Is there anything else that you would like to add, but that I did not ask about?

Types of Thinking Involved in QFT and ResponsiveDesign

Students were given a copy of Bloom's Taxonomy, represented as an inverted pyramid (see Figure 8), and were asked to identify which of the skills on the chart they used the most during the QFT or ResponsiveDesign protocol. The higher-order thinking skills of Bloom's Taxonomy (Creating, Evaluating, and Analyzing) represent more complex modes of thinking among students; these levels of thinking involve the use of divergent thinking skills.

Students had prior experience using this visual (Figure 8) when writing their independent reflections during the final stages of either the QFT or ResponsiveDesign

protocols. Ten students (100%) identified higher-order thinking skills, including 7 who identified creating, 4 who identified evaluating, and 5 who identified analyzing. Six students (60%) identified lower-order thinking skills, including 4 students who identified applying and 4 students who identified understanding. No students identified remembering as an important skill used in either protocol.

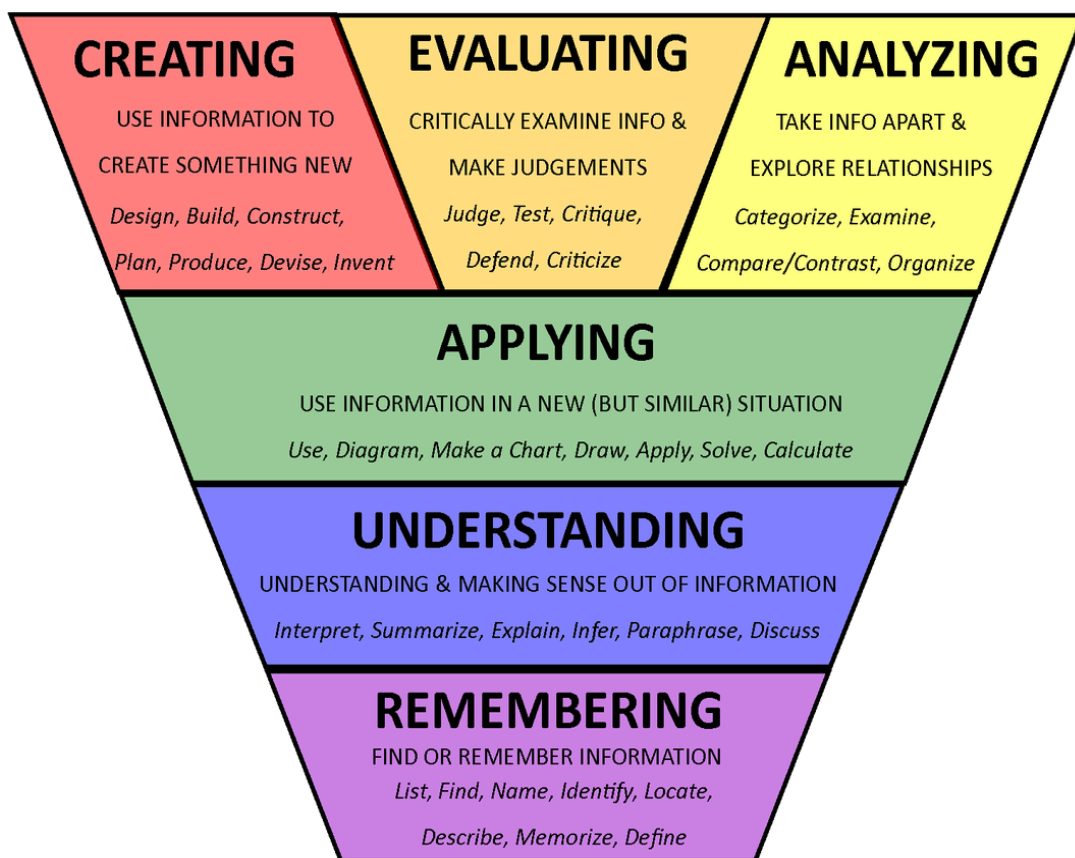


Figure 8. Bloom's Taxonomy inverted pyramid.

The responses did not vary much between the QFT and ResponsiveDesign, with the exception being that one more student in the ResponsiveDesign group than the QFT group identified “creating” as an important skill and one more student in Group A than Group B identified “analyzing” as an important skill (see Table 7 and Table 8).

	Creating	Evaluating	Analyzing	Applying	Understanding	Remembering
Student 1 (high increase)				X		
Student 17 (high increase)			X		X	
Student 21 (median increase)	X	X	X			
Student 27 (no change)	X	X	X	X	X	
Student 15 (slight decrease)	X					
Percent	60	20	30	20	20	0

Figure 9. Incidents of types of thinking in Group A (QFT).

	Creating	Evaluating	Analyzing	Applying	Understanding	Remembering
Student 3 (high increase)	X		X	X		
Student 6 (high increase)		X			X	
Student 20 (median increase)	X	X	X	X	X	
Student 11 (median increase)	X					
Student 21 (no increase)	X					
Percent	80	20	20	20	20	0

Figure 10. Incidents of types of thinking in Group B (ResponsiveDesign).

Self-Reported Impact on Creative Thinking Abilities

Nine out of ten (90%) of the students who were interviewed reported that they felt their ability to think creatively increased over the course of the protocol (see Figure 9). This included three students who saw the highest increases per group, two students whose scores represented a median increase, two students whose scores showed no change, and one student whose scores decreased. One student (10%) reported that he felt his ability to think creatively remained the same; this student's scores saw a high increase.

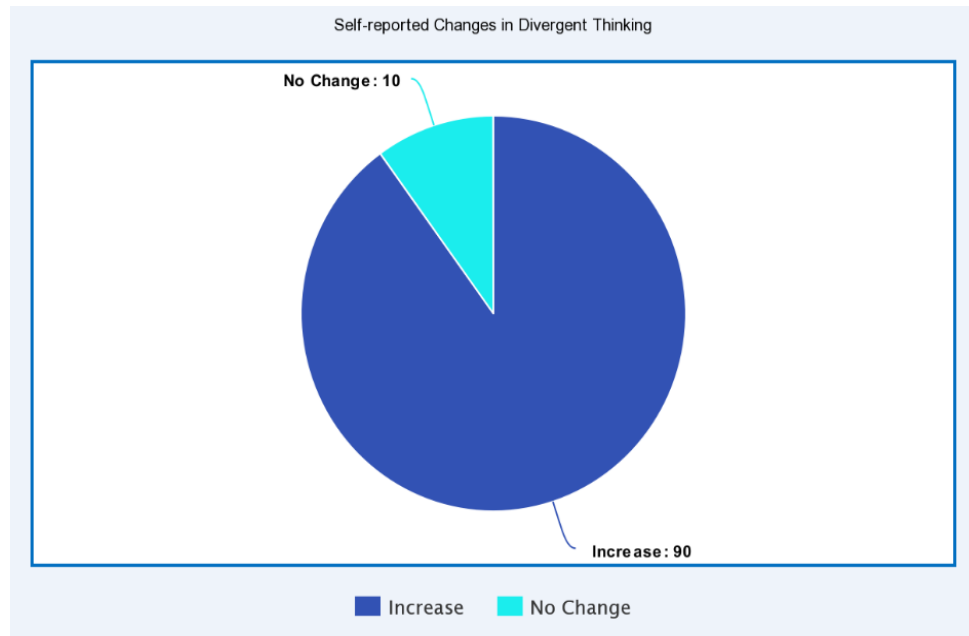


Figure 11. Self-reported impact on divergent thinking skills.

External Influences on Student Test Scores

One student (10%) reported that he was tired on the day of the pre-test, which may have resulted in a low pre-test score. This student is the same participant who reported that his creative thinking skills did not change over the course of the study, but his test scores saw a 171% increase. If a lack of sleep did cause a low pre-test score, then it would also cause an inflated representation of his divergent thinking skill growth. His interpretation of his creative thinking skills having not changed over the course of the study could potentially be correct, resulted in data skewed in favor of the QFT protocol.

Transferring Skills to Other Contexts

All students who were interviewed reported that the protocol they used (whether QFT or ResponsiveDesign) could help them in other contexts, either academic or outside of school. Group A Student 27 noted that using the QFT could potentially benefit him in other classes because "...it'll help you think more clearly and help you come up with

more ideas” (Group A Student 27, personal communication, February 22, 2019). Group A Student 1 also noted that “It can be helpful in many different situations” (Group A Student 1, personal communication, February 20, 2019). Student 15 made a connection between divergent thinking skills and his future career: “In a future career I’ll have to produce certain information that somebody wants” (Group A Student 15, personal communication, February 20, 2019). Student 17 mentioned college: “I think outside of school, if you go to college or you go to get a job and your job requires some of the skills that we’ve been learning in class, it’ll help” (Group A Student 17, personal communication, February 20, 2019).

Students in Group B agreed that a divergent thinking-rich protocol could benefit them outside of their English class. Group B Student 3 stated that ResponsiveDesign could help her performance in math class, particularly during collaborative work (Group B Student 3, personal communication, February 19, 2019). Student 6 mentioned that the skills he was using during this protocol had helped him in other classes: “It can help me with working on different projects and different classes to complete an assignment” (Group B Student 6, personal communication, February 19, 2019). Student 21 said that the skills used during the ResponsiveDesign protocol could help her when she babysits her cousin: “I could help them become more creative” (Group B Student 21, personal communication, February 19, 2019).

Overall, students from both Group A and Group B were able to make connections between the skills learned during the assigned divergent thinking protocol and other classes or contexts. They were able to point to specific areas in which divergent thinking

would benefit them in the future. The ability to see a skill as immediately beneficial and helpful to one's future is likely to increase motivation and engagement.

Importance of Creativity

All students (100%) who were interviewed reported that creativity is an important skill.

Teacher Modeling of Creativity

All students (100%) who were interviewed reported that “some” of their teachers valued creativity. Students were prompted to be more specific by providing an estimated number of teachers out of 7; each student participating in the interviews had seven teachers at the time of the study, including required classes in English, Math, Social Studies, Science, and Physical Education. Additionally, each student participating was also enrolled in two elective courses, such as: Spanish, Vocational Education, Art, Band, Business, or Family and Consumer Sciences. Group A's responses ranged from 2 to 5 with a mean response of 4 teachers (57%) (see Table 9). Group B's responses ranged from 2 to 3 with a mean response of 2.8 teachers (40%) (see Table 10).

Table 8

Group A (QFT) Number of Teachers Who Students Believe Value Creativity

Student	# of Teachers (out of 7)	Percentage of Teachers
Student 1 (high increase)	5	71
Student 17 (high increase)	5	71
Student 21 (median increase)	3	43
Student 27 (no increase)	2	29
Student 15 (slight decrease)	4	57
Mean	4	27

Table 9
Group B (ResponsiveDesign) Number of Teachers Who Students Believe Value Creativity

Student	# of Teachers (out of 7)	Percentage of Teachers
Student 3 (high increase)	3	43
Student 6 (high increase)	3	43
Student 11 (median increase)	3	43
Student 20 (median increase)	2	29
Student 21 (no increase)	3	43
Mean	2.8	40

Preference for Divergent Thinking Tasks

All students who were interviewed responded that, given the option, they would rather complete their assigned protocol (QFT or ResponsiveDesign) than complete a “traditional” assignment, such as a test, paper, or poster project, to demonstrate their understanding of a topic. When students from Group A (Question Formulation Technique) were asked which they would prefer, Group A Student 21 explained she preferred the QFT to traditional assignments because “...we get to work with groups and it’s just a lot more fun” (Group A Student 21, personal communication, February 25, 2019). Group A Student 1 felt that the QFT is “a lot simpler, a lot easier, to work with.” When students from Group B elaborated on their preference for ResponsiveDesign over traditional assignments, Student 3 described the protocol as “fun” and stated that it “makes me think...I’m actually thinking good” (Group B Student 3, personal communication, February 19, 2019). Group B Student 21 explained “it’s fun, and it helps you explore the ways of doing different assignment more than an original one.” Group B Student 21 stated: “I feel like it’s more fun to do than just a regular assignment” (Group B Student 21, personal communication, February 19, 2019).

Additional Comments

When prompted, none of the students provided additional comments to clarify or elaborate on their previous statements.

Chapter 5: Discussion of Results

An analysis of the Guilford's Alternative Uses Test scores showed that both the Question Formulation Technique and ResponsiveDesign significantly impacted students' divergent thinking skills. Both protocols raised scores as determined by comparing the pre-test (ALTU1) and post-test (ALTU2) scores of students on the Guilford's Alternative Uses Test. The implementation of either protocol could benefit students by increasing their divergent thinking skills. When the gain scores of the two groups were compared, the difference between the two means was not significant. Therefore, while both protocols resulted in gains in divergent thinking skills, neither protocol was necessarily more effective than the other.

An analysis of students' one-on-one interviews shows that the majority of students self-reported an increase in divergent thinking skills regardless of the results as measured by the Alternative Uses Test. Furthermore, the participants who self-reported an increase in divergent thinking aptitude were able to cite specific examples when prompted to engage in metacognitive reflection. This suggests that an increase in divergent thinking skills may be present even if it is not evident as based on test scores. Examining alternative assessments of divergent thinking skills and replacing or supplementing Guilford's Alternative Uses Test may give a more accurate representation of students' divergent thinking skills growth.

I anticipated that students who self-reported having higher numbers of teachers

that valued creativity would tend to have higher divergent thinking scores or greater growth in skills over the course of the study; however, this was not evident by the research gathered. Instead, the research showed no correlation between divergent thinking abilities and the number of a students' teachers who, according to students' perceptions, value creativity. Students who reported having fewer teachers who valued creativity did not necessarily have lower divergent thinking test scores or demonstrate less growth. This shows that modeling alone is not enough to boost students' divergent thinking; as shown in this study, modeling needs to be accompanied by having students actively engage in activities design to boost creative thinking. Additionally, reporting that they have a low number of teachers who value creativity does not mean that such students cannot successfully develop divergent thinking skills. As long as students have an opportunity to practice divergent thinking skills (through activities such as the QFT or ResponsiveDesign), they can develop these skills, even in the absence of modeling from multiple teachers.

Initially, I theorized that students with higher gains in divergent thinking skills would be more likely to identify the protocols as containing more higher-order thinking skills (divergent thinking skills), while students with no gains (or negative "gains") would tend to identify the protocols as consisting of predominantly lower-order thinking skills. Instead, all students that participated in the one-on-one interviews identified both higher-order and lower-order thinking skills as being used during both protocols. There was no correlation between incidents of thinking skills and students' divergent thinking skills growth. Rather, all students, regardless of their divergent thinking scores or growth, were able to identify the protocols as containing rigorous, challenging, and intellectual

tasks (such as creating, evaluating, and analyzing), as well as containing simpler cognitive tasks (such as applying and understanding information). Moreover, the highest incidents of thinking skills identified in both groups (the QFT group and the ResponsiveDesign group) was “creating,” the most rigorous of higher-order thinking skills; this was true of participants regardless of gain scores. None of the students chosen for the one-on-one interviews identified memorization or recall of information (the lowest level on Bloom’s Taxonomy) as being an important component of either protocol.

All of the students who participated in the one-on-one interviews ($n=10$) reported that, if given an option regarding how to demonstrate understanding, they would choose to use the assigned protocol (QFT or ResponsiveDesign) again rather than complete a more “traditional” assignment, such as a test, a written report, or a poster presentation. This result was unexpected; I anticipated that some students would prefer a traditional assessment due to the comfort level they have with these assignments. A survey of all students who participated in the protocols ($n=59$) would likely result in some students preferring traditional assessments; in this case, it would be interesting to select the students who favor these traditional assessments and ask them to participate in one-on-one interviews in order to understand which factors would make students opt for a traditional assignment over a divergent thinking-rich one (familiarity, rigor, etc.).

Conclusion

Both the Question Formulation Technique and ResponsiveDesign resulted in significant gains in students’ divergent thinking skills. It can be suggested that enacting either protocol in a classroom setting of ninth grade students in a similar rural, Midwestern high school would yield similar increases in students’ divergent thinking

skills as measured by Guilford's Alternative Uses Tests. Additionally, while both protocols were effective, neither protocol was more effective than the other. One protocol may be more effective than the other, depending on the student, the teacher, or the context in which it is implemented.

Summary

In this research study, I began with an interest in students' divergent thinking skills, and accordingly, how to make changes to my existing curriculum in order to increase those skills. I researched instruments for measuring divergent thinking skills and selected Guilford's Alternative Uses Test because it has been tested for validity and reliability among ninth grade students; additionally, it is easy to administer and to score, reducing the possibility of administrator error. I researched and adapted two protocols for use in my classroom: the Question Formulation Technique and Responsive Design. I incorporated both protocols into my existing curriculum. I collected and interpreted quantitative data (students' scores on the Alternative Uses Tests) to see if either protocol resulted in significant divergent thinking increases, as well as if either of the two protocols yielded more significant results than the other. Additionally, students' perceptions were probed through semi-structured one-on-one interviews to analyze potential influences on students' scores and attitudes regarding divergent thinking. Responses indicated that nine students (90%) felt that their divergent thinking scores had increased, even when their scores remained the same or decreased; moreover, the students who self-reported an increase in divergent thinking skills were able to provide anecdotal evidence to support their growth. Results also indicated that there was no correlation between students' divergent thinking skills and the number of teachers that

students perceived as valuing creativity, indicating that teacher modeling of divergent thinking does not necessarily result in increased student divergent thinking scores.

Implications for Future Research

This study focused on ways to increase divergent thinking skills in a rural, Midwestern public school in southern Illinois. Results may not necessarily translate to other populations in other settings at other educational sites. Additional research could be conducted to examine the effects of the Question Formulation Technique and ResponsiveDesign on students of various races, socioeconomic statuses, and learning ability levels (for example, students with learning disabilities). Factors such as race, gender, socioeconomic status, and learning ability level were intentionally left out of this study to avoid introducing extraneous variables. The majority of participants in this study were middle-class white students with no diagnosed learning disabilities. The number of students who represented groups outside of the “norm” was too small to make any assumptions regarding the larger population as a whole. For example, having one African American student in Group A was not enough to make generalizations about the effects of the QFT on all African American students. Instead, additional studies need to be conducted at more diverse sites to make claims on minority populations.

Because education is an ever-evolving area of study, different protocols may become en vogue and challenge the methods of the past. As the study of creativity and divergent thinking becomes more prominent, it is likely that additional protocols will be developed and refined as they are enacted in educational settings. As these new protocols arise, research will need to be conducted to compare the validity and reliability of these new protocols with existing ones, such as the QFT and ResponsiveDesign.

Limitations of the Study

The research was conducted at the researcher's place of employment, which could have introduced bias into the study. As the teacher, the power imbalance between the data collector and the participants could be magnified (Creswell, 2014). For example, during the semi-structured one-on-one interviews, students may have provided responses that they felt would please the interviewer, rather than providing genuine, uncensored feedback. Additionally, students may have felt increased pressure to perform well on the pre-test and/or post-test to please the teacher researcher.

Conducting interviews with all of the participants, rather than carefully selected representatives, could produce a more holistic view of students' attitudes towards divergent thinking skills. Five students were selected from Group A ($n=27$) and five students were selected from Group B ($n=22$). Although these students represent 19% of Group A and 23% of Group B, results would be more accurate if all of the students from both groups had been selected for one-on-one interviews.

Additional instruments could be used to increase the reliability of the data. For example, pre-test and post test scores on the 30 Circles Test could be used as an additional measurement of divergent thinking skill growth. Student growth on the 30 Circles Test could then be compared to the results of the Alternative Uses Test to see if the results are correlated. For this study, students' divergent thinking skills were measured by one instrument: Guilford's Alternative Uses Test. Adding an additional data source would add credibility to the results.

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Collective Impact

The potential impact of our explorations is far reaching. We envision being able to influence teachers and learners at the classroom, district, and community levels with our research findings. At the classroom and district level, we envision impacting curriculum changes to support and encourage analytical thinkers by supporting the inclusion of techniques such as specific research-based protocols like the Question Formulation Technique and the Responsive Design Protocol which can support divergent thinking. In addition, offering students choice in their learning through workshop model can bridge the literacy gap while promoting choice-based instructional practices. Curriculum modifications should also support students with academic and motivational challenges. Explicitly teaching mindset can have a direct impact on academic performance and motivation for students with disabilities. Mindset instruction supports the overall emotional well-being of students while offering students choice and allowing them to think critically about which path will lead them to success. Students begin to make emotional connections with their own learning styles and proficiency. By developing creativity and promoting empathy students are self-motivated to problem solve and grow as learners. Providing a nurturing environment where analytical thinking, choice, emotional health and overall growth is supported and fostered is essential to our collective impact.

The impact of our research at the community level is critical to our individual and collective design. Student efficacy is at the center of our research. Throughout our process the focus has been to teach students to believe in themselves and in their abilities in order face challenges head-on. Providing opportunities to demonstrate college and

career readiness skills (i.e. problem solving, critical thinking, etc.) ultimately results in more competent and productive citizens. Finally, our group also seeks to use the data collected to determine what future research may be done in our respective areas and through our collective impact.

Collective Conclusion

Together, it was our objective to discover how to positively impact student learning experiences in our respective educational settings. Our areas of interest began within our own classrooms through personal experiences and reflections. Some were inspired by their own memories of what it was like to be a student, while others as educators drew on observation of students and a strong desire to help the individual learners within our own classrooms. Our collective research spanned a variety of educational settings, including an urban, Catholic elementary school; a rural, public high school; an urban, public elementary school; and a suburban, public high school and therefore included a wide range of student backgrounds and abilities among research sites.

By developing specific research questions, followed by collecting and analyzing both quantitative and qualitative data, we examined what pedagogical approaches work, and why they work. The goal was to have a better understanding how to make deliberate decisions, informed by research, regarding our practices. The center of our research focused on engaging students through mindset, student choice, autonomy, creativity, and modeling behaviors, which encourages student efficacy along with a nurturing classroom environment. It is our hope that our findings lead to change at the local, organizational, and societal levels.

Our common theme of generative pedagogies, while allowing for a great deal of variety among our research topics and methods, brought our research together under the commonality of emancipating students by shifting power from the teachers to the learners. Zappia and Klein both focused on encouraging individuals by examining the attitudes of learners and teachers in terms of their mindsets. Klein found that, through explicit instruction focused on increasing growth mindset, a population of special education students composed of learners with a variety of disabilities, were able to successfully increase their grades and standardized test scores. Zappia found that, by modeling growth mindset, teachers were more likely to connect with their students. Together, the two studies suggested that it is beneficial not only for students to observe growth mindset modeled by teachers, but additionally student mindset can be further enforced by making the concept a part of the curriculum where students learn the concepts and theories behind it and how to implement those into their daily practice.

Other Generative Pedagogies researchers, while not explicitly teaching growth mindset, implicitly enforced the basic tenets of growth mindset. Students are encouraged to take ownership of their learning for the purpose of increasing scores on a variety of assessments. Pilgreen found that when students are taught the student-centered protocols of either the Question Formulation Technique or Responsive Design, there were notable increases among students' divergent thinking skills on Guilford's Alternative Uses Test. Becker found that using the reading workshop model resulted in significant gains in the Analytical Reading Level Inventory, particularly among students of color. Additionally, he discovered that the central tenets of self-determination theory--feelings of autonomy, connectedness, and competence--help to explain how workshop

model instruction improves attitudes toward reading. Jeffries-Evans discovered that using a choice-based arts curriculum with a focus on the eight Studio Habits of Mind led to student growth among students in grades 1-5 as determined by the C.A.P. divergent thinking test.

Connecting threads between our studies abound. For example, both Jeffries-Evans and Pilgreen studied methods for increasing students' creativity as measured by tests of divergent thinking skills: Pilgreen in an English Language Arts classroom and Jeffries-Evans in an elementary arts classroom. While these two contexts may seem very different, both educators implemented established protocols with clear guidelines and procedures that were grounded in student choice. Both studies also permitted student autonomy in terms of the artifacts that students created to demonstrate understanding of concepts. In both studies, students were given resources and prompts, but because the assignments were open-ended, the end products varied based on student interests and abilities. Becker also discovered the power of honoring students through increasing autonomy in the classroom. Klein's work overlaps with Becker's in that both found that helping students develop a feeling of competence and efficacy, either through the differentiation afforded by workshop model or through direct instruction in growth mindset, helps to improve attitudes and outcomes for learners. Finally, Zappia's work, in a sense, extends Klein's findings to include the importance of growth mindset in teachers as well as learners. This is just one example of how these connecting threads emerged as we progressed through our studies, and their abundance is tantalizing evidence that suggests a kind of synergy may exist between these coherent practices. When educators work to create environments that honor students as co-creators of knowledge, when we

build the curriculum around our students instead of vice-versa, our research suggests that wonderful things can happen.

Still, while our collective research is a valuable contribution to the study of student-centered instruction, we recognize the need for continued studies to test the validity and reliability of our findings. We would like to see our experiments conducted at other education sites to see if the results can be replicated. Additionally, it would be interesting to conduct the same experiments within our own educational settings to see if the results hold true for a new group of students within the same site.

The search for effective practices in education will always be ongoing; however, as a result of the insights we've gleaned in this research, we will go forward as change-makers in our respective contexts and beyond, working to influence and impact the other teachers and learners around us through informal interactions—the sorts of conversations educators have daily around our practices—and more formal dissemination of our research—through publication of our findings and leading professional development with our colleagues. Even the most powerful findings soon become inert if they land on the dusty, bottom shelves of the university library and remain there, moldering; therefore, as we continue to teach and learn, we will strive to practice what we preach, to enact and model the very ideas that have anchored these studies: the problem-solving power of creative thinking, the attitude-boosting drive produced by self-determination, and the future-building importance of growth mindset.