

INSTRUCTIONAL RELATIONSHIPS AND PREDICTORS FOR EIGHTH
GRADE STUDENT ACADEMIC ACHIEVEMENT AS MEASURED BY
THE NORTH CAROLINA END OF GRADE COMPREHENSIVE
READING SCORES TO THE NUMBER OF VISUAL ARTS
CLASSES COMPLETED DURING MIDDLE SCHOOL

by

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ABSTRACT

MICHELLE KAY NEWNAM. Instructional relationships among eighth grade student achievement as measured by the North Carolina end of grade comprehensive reading scores and the number of classes completed in the visual arts during middle school.
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The purpose of the researcher was to test for any significant relationships existing among the physical number of visual arts courses completed by 8th grade students during the middle school years to the actual academic performance as measured by the 2012-2013 North Carolina End of Grade (EOG) examination, specifically the Reading Comprehensive component. Scale scores from 125 students' unnamed, archival files from a school in a district in the southern Piedmont of North Carolina were selected for the study. Student files were chosen using systematic sampling from a middle school which was representative of the population in the school system. The researcher analyzed data using a hierarchical multiple regression model in which the researcher first entered gender, sex, and socioeconomic status into the regression model to control for any effects on the number of years of art courses completed. The researcher determined that the results of the hierarchical regression analysis were not supportive of the research hypothesis. Beta coefficients for the predictive number of visual art courses completed, $B = -.10$, $SE B = .65$, $\beta = -.01$, $t = -.16$, $p = .88$ lacked any predictive value to the core academic area of reading as had been believed by art and reading teachers for decades, at least as was discovered in this study. Some factors beyond the control of the researcher could cause some concern such as changing data systems and changing to a new version of the North Carolina End of Grade examination. Perhaps of most interest to all teachers is the need to check the whys in the justification of any one area as being so inclusive in

the overall implementation of the Common Core Standards. Ease of personalization that art courses can offer to all students is just one idea. Perhaps legislatures and school boards members should commission studies to find other advantages or disadvantages.

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DEDICATION

I dedicate my dissertation to Kenneth Newnam, my grandfather. As a chemist, he collected research for a doctorate, but chose to leave school to work, never defending his research manuscript, and was unable to complete the degree.

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CHAPTER 1: INTRODUCTION

The 21st Century Learning Skills movement is a “business supported educational reform that is strongly focused on creativity and innovation as key components of children’s schooling.” (Heilig, et al., 2010, p. 143) Designers of the 21st Century Skills emphasized the need for students to develop greater in-depth knowledge and advanced skills for a technologically focused workplace have become rapidly central to present school reform goals. Larson & Miller in 2011 emphasized mastered skills and how students can apply direct learning in the classroom to “real life” situations. As early as 2005, Zwirn and Graham had advanced the discussion of the evolving role of how teachers can become more innovative in using the visual arts to improve students’ understanding and perhaps better ways of representing knowledge from less simplistic approaches to more complex levels of integrated and exploratory contexts in the four large academic areas of middle school: science, English/Language Arts, mathematics, and the social studies, (2005, Zwirn and Graham)

Students use reasoning throughout the whole creative process by synthesizing, analyzing, and communicating. These are skills and processes critical to all academic areas and are central to the creative process, which involves generating ideas, planning and choosing the best solution, and creating a final piece of art. For instance, visual arts students synthesize, as part of planning, to create art by generating, analyzing and combining ideas from skills, techniques, and art movements during the process of

instructional involvement and active learning. Analyzing occurs when a student deconstructs or constructs a piece of their original art or the art of their classmates' using the elements of art (texture, line, shape, color, space, and value) and the principles of design (unity, balance, proportion, variety, repetition, and emphasis). Students learn to communicate through art by using drawings, pictures, symbols in addition to incorporating elements of art and principles of design, (Maryland State Board of Education, n.d.).

Tasks in the real world require skills by incorporating various academic domains. Learning can be enhanced by educators creating opportunities for students to make connections between art content and other core content in any State or district curriculum (MSBE, n.d.). Educators can prepare students to apply the same skills from the visual arts into different content areas such as analyzing a poem in literature or examining the steps used in the scientific process. More specifically, in an English/ Language Arts class, students are required to analyze a short story using literary elements including theme, conflict, characterization, symbolism, setting, style, tone, and figurative language. In visual arts classes, students analyze art using the elements of art and principles of design. Visual arts provide students with supportive transitions into unfamiliar or difficult core curriculum content, while simultaneously motivating them to explore content from a different perspective (Lynch, 2007). This provides ways of enriching and extending core content curricula.

According to the writers of the Common Core Standards (2011), being college and career ready in literacy is achieved when a student demonstrates independence, builds a strong content knowledge base, responds to varying demands of the audience;

plus the student must perform tasks with purpose and discipline. Additional skills are required of the student to demonstrate the abilities to comprehend and critique, value evidence, employ technology and digital media strategically and capably, and understands other perspectives and cultures (Common core state standards, 2011).

More directly stated by the designers:

This is accomplished when students can comprehend and evaluate complex texts across a range of types and disciplines without substantial scaffolding; read purposefully, listen attentively, and become proficient in new areas through research and study; are able to adapt their communication according to the audience, task, purpose, and discipline; can comprehend what the author or speaker is saying as well as evaluate their assumptions; is able to cite specific evidence when interpreting a text or to support their own work; uses technology to enhance their literacy; and appreciates that the classroom and workplace are places where people from diverse cultures with diverse experiences and perspectives come together. (CCSS, 2011, p. 7)

Students become literate in English/ Language Arts through written text of various complexities, while students show literacy in visual arts through utilizing fine art, personal art, and various symbols and images. The Common Core State Standards (2011) located in Appendix A, include a three-part model for measuring text complexity which include qualitative and quantitative dimensions. Qualitative dimensions require the reader to examine levels of meaning or purpose, structure, conventionality of language and clarity, and specific knowledge demands. Quantitative dimensions include text complexity which seen in word length or frequency, sentence length, and text cohesion, typically accomplished through well designed software or a particular computer program. Reader and task considerations focus on the readers' motivation, knowledge, and experiences and the purpose and complexity of a task and the questions posed. A teacher using professional judgment can design instructional material to

implement and assess these skills. Visual arts teachers can follow the same three part model as choosing art prints or pieces to examine in class. A more complex art piece may be abstract or non-objective, requiring the student to infer the meaning, while a photorealistic painting does not require the same amount of personal inference.

Statement of the Problem

With the implementation of Common Core State Standards, teachers in all content areas are expected to integrate the standards and develop the academic content into instructional methods with the intention of developing students' thinking so they can problem solve, collaborate, apply knowledge in new ways, communicate with a variety of audiences, and conduct simple research. Visual Arts has historically been viewed as an elective course, and this mindset has underutilized the power visual arts have for contributing to student academic achievement, especially in English/ Language Arts (Piro, 2002). Visual arts classes support and parallel the processes and content in English /Language Arts.

Researchers studying the arts cultivate the essential qualities students need to succeed in the 21st century in post-secondary education and workforce training: creativity, cooperation, communication, cultural understanding, and problem-solving (Charlotte Mecklenburg Schools, n.d.).

Through the study of visual arts, students gain powerful tools for understanding human experiences, historically and contemporary; collaborating and working in teams; making decisions and problem solving when no prescribed answers exist; adapting to and respecting others' diverse ways of thinking, working, and expressing themselves; analyzing nonverbal communication, and making informed judgments about products and issues; and communicate effectively. (North Carolina Essential Standards, n.d.)

Participating in visual arts creates opportunities for students to recognize and celebrate the intrinsic creativity and personal diversity (NCES, n.d.).

Need for the Study

Despite theoretical justifications for an association between participation in visual arts and students' English/ Language Arts test scores prior literature and research offers insights into how both of the content areas are similar and support similar types of skills.

An exploration of related literature examining academic achievement and student involvement in the visual arts revealed only a few researchers who have examined the effects of visual arts on English/ Language Arts academic achievement.

Whisman & Hixson, (2012) conducted a four year cohort study examining the relationship between the number of years students completed in arts education and the student scores on the WESTEST 2 and the ACT PLAN. Over a decade before, Vaughn & Winner (2000), examined the relationship of SAT scores and cumulative years of arts study from 1987-1998. Researches in both of these studies examined students in high school. Research studies in the middle schools related to any relationships or effects between visual arts and academic achievement in the English/ Language Arts are extremely limited. One related study conducted in 2006 revealed in a review of related research, that the integration of visual arts and the English/ Language Arts enhanced students' reading skills, interpretation of text, content writing and organization, attention, and detail in context (Appel, 2006). If this transfer of learning from visual arts to English/ Language Arts can be shown before students reach high school, changes can be made to instructional methodology so more students are reading and writing on grade level by high school which could have a positive effect on the graduation rate. The only arts

based test in middle school in the National Assessment of Educational Progress (NAEP), but this only examines student proficiency in art and does not assess the effects of arts on other domains of academic achievement. (US Department of Education, 2008).

Participation in visual arts helps students to develop visual literacy by promoting fluency in the various modes of visual communication (Robinson, 2011; Lynch, 2007). Furthermore, students develop metacognitive skills through evaluating instructional work and the instructional work of peers (Gardner, 2008). According to the writers of the North Carolina Essential Standards (2010), visual arts forms the foundation for further growth in metacognition that extends to all disciplines in school and life, such as creating interdisciplinary projects secondary and post-secondary schooling, innovative problem solving in school and the workplace, collaborating with co-workers, evaluating processes and procedures in life and the workplace (NCES, 2010; Robinson, 2011).

Visual arts education incorporates a variety of intelligences and learning styles and helps to build skills in students that businesses look for in their employees such as creativity, complex problem solving, and critical thinking (Eisner, 2002; Gardner, 2008; Seidel, Tishman, Winner, Hetland & Palmer, 2009; North Carolina essential, 2010; Charlotte Mecklenburg Schools, n.d.). Studying visual art improves communications skills, helps students learn the cooperation essential for today's workplace, teaches sensitivity to cultural differences, and develops a more positive self-concept (CMS, n.d.; Appel, 2006). Visual arts have an important role in to aid children to think critically, to find creative approaches in solving problems, and to stimulate learning across the curriculum (Eisner 2002 & Appel, 2006; Seidel et al, 2009). There is not one correct answer when solving a visual problem, and thus a student must problem solve from the

brainstorming and design stages all the way through project completion. As students work and reflect on creating the artwork, they continually reflect on their work making decisions on changes needed to improve the outcome of their work, which demonstrates learned metacognitive skills.

Visual arts education helps to develop focus and discipline, which will then be translated to related academic areas. Learning is reinforced when classroom teachers and visual art teachers collaborate to link different lessons and reinforce learning in both the art classroom and the regular classroom. Teachers access a greater pool of resources when they are able to collaborate across content areas. Visual arts experiences can increase motivation and engagement, which is important because these experiences help create brain connections that tend to have long term impact in the student's adult life (Gardner, 2008; Robinson, 2011; CMS, n.d.). Skills learned during collaboration and integration of art and other content areas are likely to be transferred when students join the work force.

Appel (2006, p.15) stated that research reveals “meaningful integration of the visual arts enhances reading skills and interpretation of text, improves content and organization of writing, develops mathematic and scientific reasoning abilities, improves attention to detail and detail in context, and attention to detail is useful in math and science because it aids in the ability to find outliers.”

Fluency in art requires the student to read an art object by using interpretative skills that can be extended from one style of art to another (Stephens & Walkup, 2000). Reading a classic Renaissance painting and a Post-Modern painting requires identifying, recognizing, and understanding the fundamental purpose for both. This approach is the

same when a student is reading a newspaper article, a poem, or a novel. Stephens & Walkup (2000) parallel reading a piece of literature to reading a piece of art. Students must make inferences and draw conclusions, discriminate between fact and opinion, and analyze the work based on implied or obvious information from the art and literature. Students may analyze art as a way to examine the artist's purpose, the mood and tone of the art work, and the elements of art and principles of design used in creating the art.

Comparisons can be made between how students are taught to deconstruct text they read in English/ Language Arts and how they deconstruct visual text they examine in visual art. English/ Language Arts classes typically learn to deconstruct text through the literary elements (point of view, characterization, setting, foreshadowing, flashback, irony, imagery, symbolism, allusion, conflict, plot, theme, tone, and mood). Visual art classes learn to deconstruct visual text using the elements of art (line, shape, form, color, value, space, and texture) and principles of design (unity, balance, rhythm/pattern, emphasis, movement, and contrast).

Writing can be enhanced through exploring art and artists. Students can develop and use descriptive language while visually recognizing topics, main ideas, searching for clues within the art, and relating ideas in written form. Mood, tone, analogies, puns, paraphrasing, and stories are all English/ Language Arts topics used in visual art (Stephens & Walkup, 2000).

To be prepared for the future, students need to discern the links in content areas and how skills can be transferred from one area to another (Hickman & Kiss, 2010). Students will come across tasks in the real world that requires skills that cross boundaries. Teaching the 21st Century Skills necessitates that educators cross

instructional content boundaries, revealing those connections to students. Hickman & Kiss (2010, p. 28) wrote, “If the aim of education is to fully activate the cognitive potential of the learner, ways have to be found to integrate knowledge from many subjects to achieve a fuller understanding than would be provided by content treated in isolation.”

Lynch (2007) implied that meaning is created, represented, and interpreted through the use of different sign systems that come naturally as a learner makes sense of the world. The different sign systems overlap each other and can work against each other if one sign system is focused on over others.

To privilege language over other ways of knowing and communicating not only marginalizes some students, it also fails to expand the abilities of whose cognitive language is biased. When we limit ourselves to language, we cut ourselves off from other ways of knowing. Art has the potential to enhance the making of meaning and expressing oneself. (Lynch, 2007, p. 34)

While English/Language Arts literacy pertains to the ability to read, to comprehend, and to write persuade or convey an idea; visual literacy is the ability to recognize and to understand ideas expressed as pictures. English/Language Arts uses words and text to communicate and visual arts uses images, color and designs to communicate. Both content areas describe, deconstruct, analyze, synthesis, judge, compare, contrast, critique, and create using their respective forms of text. In English/Language Arts text is words within a story, poem, non-fiction, or any other piece of literature that communicates ideas and/or feelings.

The parallel between visual art and English/ Language Arts concepts has motivated the researcher to examine if students' Reading End of Grade test scores can be predicted by number of years in a visual art class in middle school. The content in both areas teach communication through seeing, hearing, writing and speaking (Stephens & Walkup, 2000). English/ Language Arts uses written literature to read, write, and discuss various texts while visual art uses art work, pictures, and symbols to teach these skills (MBOE n.d., Stephens & Walkup, 2000). Both content areas teach the student to observe, analyze, interpret, and make judgments either through literature or art.

Research Question

Is the relationship of the actual number of visual arts courses completed by 8th grade students positively related to academic achievement as measured by the 2012-2013 Composite Reading scale scores of the North Carolina End of Grade (EOG) Examination?

Reading EOG scores from the 2007-2012 school years were used for this study. Only students who took the regular EOG were included. No students taking the EXTEND 1 or EXTEND 2 EOG were included in the research.

Limitations

1. Sample taken from one school in a median sized school system in the southeastern United States.
2. Sample did not include all 8th graders in the school system. It included only 125 students due to what school system would allow.

3. Researcher did not control for the instruction and delivery methods of the visual arts and English/ Language Arts teachers.
4. The 2012-2013 North Carolina Reading End of Grade test was new and being normed.

Delimitations

1. The researcher will not examine test scores of any students who take the EXTEND 1 or EXTEND 2 EOG.

Definitions

1. Visual Arts- Incorporates creating art, studying art history, aesthetics.
2. Academic Achievement- refers to students' scale score on the reading End-of-Grade test.
3. Common Core State Standards-The Common Core Standards is an initiative by states to have common standards throughout the country. These standards define what students are expected to learn in their K-12 education so they are able to succeed in post-secondary education and in the workforce. Forty-six of the states, including North Carolina and District of Columbia have adopted the common core. The standards are designed to be robust and relevant to the real world, reflecting knowledge and skills that our young people need for success in college and careers. With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy. (CCS, 2011)
4. 21st Century Skills- Focuses instruction on 21st century skills such as content knowledge and expertise. The skills help build understanding throughout the core

subjects which include English, reading or language arts, world languages, arts, mathematics, economics, science, geography, history, and government and civics.

The skills emphasize deeper understanding over shallow knowledge, engages students with the real world data, tools, and experts they will encounter in post-secondary education and the workplace (Partnership, 2011).

5. EOG- End of Grade examination for the state of North Carolina to measure student performance on the goals, and grade level competencies specified by North Carolina
6. NCEXTEND 1/NCEXTEND 2- Students identified with a qualifying disability to receive services from the exceptional children's program and are unable to access the general curriculum due to severe documented cognitive delays will take these test instead of the EOG.
7. WESTEST 2- “is a custom-designed assessment for West Virginia students. The individual content assessments measure a student’s levels of performance on clearly defined standards and objectives and skills. Student scores are based on test questions that have been developed and aligned to the West Virginia 21st Century CSOs (West Virginia Department of Education, n.d.).
8. ACT PLAN- “ACT Plan helps 10th graders build a solid foundation for future academic and career success and provides information needed to address school districts' high-priority issues. It is a comprehensive guidance resource that helps students measure their current academic development, explore career/training options, and make plans for the remaining years of high school and beyond.” (Act Plan, 2013).

9. Scholastic Aptitude Test (SAT)- Is a globally recognized admission test for colleges which test knowledge of reading, writing, and mathematics.

Summary

In this chapter, the researcher discussed how visual art supports the cultivation of 21st Century skills through teaching the skills of creativity, cooperation, communication, cultural understanding, and problem-solving. Visual arts integrate many skills used in English/ Language Arts and provide a platform for students to cross boundaries of content areas learned in school. This is relevant to skills necessary in the workforce.

Visual arts support and naturally parallel the Common Core State Standards in English/ Language Arts. Visual art uses text that has more symbols and pictures while English/ Language Arts uses text that is in the form of words. Each content area teaches the skills of deconstructing, analyzing, synthesizing, evaluating, and creating through their text. For students to begin to learn how to transfer knowledge in different areas in the workforce, teachers in visual art and English/ Language Arts need to integrate and draw the parallels between their content areas.

The researcher conducted a review of the literature found in Chapter 2 and stated the research procedures used in Chapter III. In Chapters 4 and 5 the researcher discusses the findings, conclusions and suggestions for further research.

CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction

The researcher has stated that visual arts education is an integral part of developing the whole student to be competitive in the 21st Century post-secondary education and the work force. Visual arts education helps to develop students' abilities to think critically, to find creative approaches in solving problems, and to stimulate learning across the curriculum. The researcher in the literature review examined the importance of visual arts education through examining trends in art education, the varying points of view in art education, creativity, nature of the problem, decreased arts education due to No Child Left Behind Act of 2001 (No Child Left Behind [NCLB], 2002), arts and the Common Core State Standards (CCSS, 2011), integration of the arts in the middle school setting, transfer of learning, arts and academic achievement, and parallels between English/ Language Arts and visual arts.

Trends in Art Education

Viktor Lowenfeld and Elliott Eisner were leaders in arts education pioneering research and advocacy in arts education. Lowenfeld and Eisner provided frameworks for arts teachers to understand their students' artistic development and advocated for the need for arts education in our schools. This work is still studied by university students majoring in art education and practicing arts teachers.

Viktor Lowenfeld wrote eight editions of *Creative and Mental Growth* beginning in 1947, with the last edition published in 1987. Lowenfeld discussed historical trends in

visual arts in the book which helps one understand why society believed visual arts was needed in the school curriculum (Lowenfeld & Brittain, 1982). It was believed that studying visual arts helped to improve industrial occupations, to teach youth about cultures of the world, to allow an outlet for self-expression for our youth, and to develop creative thinkers (Lowenfeld & Brittain, 1982).

In 1872 Walter Smith, a leader in adult art education, believed visual arts developed skilled workers in industrial occupations such as architecture, mechanical drawing, and landscape planning. Students who studied visual arts improved their knowledge, skills, and appreciation helped to bring great improvements to industry when they entered the workforce (Lowenfeld & Brittain, 1982). These improvements brought more efficiency to the industrial workplace.

The next trend in visual arts education began in part because educators and society believed the United States lacked culture (Lowenfeld & Brittain, 1982). This was solved by incorporating the study of European art, especially French art, to help elevate aesthetic tastes and art appreciation of students in school. Educators believed examining famous art pieces allowed students to see images that may or may not reflect their lives and allowed the students to examine the thoughts, feelings, hopes, and aspirations of some of the greatest artists in the world (Lowenfeld & Brittain, 1982).

In the 1940's, society began to see children's art as interesting and visual arts began to teach visual arts as a way of thinking and feeling and not about a beautiful finished product. Teachers began to embrace visual arts as a way for students to "release the natural expressiveness of young children." (Lowenfeld & Brittain, 1982, pg 57)

During the era of Sputnik when scientific discovery was important visual arts became a way to help develop creative thinkers (Lowenfeld & Brittain, 1982). This is

especially true in present day because companies are fighting to design the next greatest anything and need creative minds to envision new inventions. Sir Ken Robinson (2011) believed our society focuses too much on Science, Technology, Engineering, and Math (STEM) education. This focus on STEM will hurt our futures because not as many students will have creative thinking/problem solving abilities.

Historically, society and culture help drive what is taught in art classes. In the late 1800's art education was used for support of industry and a need for skilled workers; art education provided a cultural education when society felt it was needed; art education was used to help students learn how express themselves; and art education helped support the field of science by focusing on training creative thinkers/ problem solvers in the art curriculum (Lowenfeld & Brittain, 1982). Visual arts continues to flex their curriculum so they are able to support what society believes students need to succeed after they graduate and are in a post-secondary setting or the work-force.

Varying Points of View of Arts Education from the Experts

The Arts and the Creation of the Mind (Eisner, 2002) devotes time discussing the varying visions and versions of arts education. There is disciplined-based art education, art education as visual culture, art education as problem solving, art education as creative self-expression, art education as preparation for the world of work, the arts and cognitive development, arts education to promote academic performance, and integrated arts education.

Some believe discipline-based art education (DBAE) is the most comprehensive approach to teaching art because it addresses four areas. First, DBAE intends to teach students' higher order thinking and problem solving in order develop the imagination required for high quality art performance (Eisner, 2002). To accomplish this, students

need to think like an artist developing their senses, creativity, and technical skills. Secondly, DBAE intends for students to observe and see the details which will help them to look critically at art work. Developing an aesthetic perspective allows one to examine and analyze art work looking at its formal qualities as well as expressive qualities. Eisner (2002) writes that this can be attained through teaching. The third and fourth goals of DBAE are closely related. DBAE intends to help students understand the historical and cultural contexts in which art was created (Eisner, 2002). Eisner (2002, p. 27) writes “Historical and cultural understanding is believed to help students grasp the relationship between the social context in which the art was created and their content and form. Understanding this context can significantly influence the kind of meaning students are likely to derive from the work.”

Others believe art education should be used to develop visual literacy where students are able to decode the values and ideas seen in society. In the late 1990’s Flood & Lapp (1997, p. 343) wrote that “we need to broaden our conceptualization of literacy from a narrow focus on reading and writing skills to a definition that included all forms of communicative and visual arts from reading, writing, speaking, and listening to viewing and producing various modes of visual displays. The idea of being literate in a culture has moved from that narrow focus of only reading and writing competence to being connected to culture and contexts where students use reading and writing which can be seen in the implementation of the 21st Century Skills and the Common Core State Standards (Piro, 2002). Eisner’s (2002) vision of art education is that it “can and should be studied through a process of critical analysis designed to help students learn how people are influenced through the mass media. In this view any art form can be regarded as a kind of text. Texts need to be both read and interpreted for the messages they send

are often below the surface or between the lines” (Eisner, 2002, p. 28). The ability to read and understand texts helps students develop an understanding of what is happening in society because they are exposed to multiple forms of media every day in their life in magazines, billboard ads, commercials, newspapers, blogs, websites, photographs, symbols, etc.

Art education as creative problem solving is another view. Art as creative thinking/ problem solving is seen in the work of the German Bauhaus from 1919 to the early 1930's which includes the work of artists, architects, and designers. These artists sought to address social problems in technically and aesthetically sufficient ways (Eisner, 2002). The Bauhaus trained artists to conceptualize and analyze, to discover problems with existing assumptions, and to challenge tradition when a better way to solve a problem was discovered (Eisner, 2002). Bauhaus students were taught to work with practical problems and find practical and aesthetic solutions to the problem.

Presently, some perceive that strong arts programs in schools support the idea that creative approaches to problem solving are as important as mathematics, language arts, science, and history (Miller & Hopper, 2010). Miller et al. (2010, p. 3) write, “it is believed that these students develop better habits of learning through structured art programs, or a more flexible way of thinking through problems. Students tend to feel that they have ownership of what they have learned, and as a result, their perception of academic accomplishment is high.”

Developing creative self-expression is another vision of art education. Victor Lowenfeld and Sir Herbert Read were leaders of this vision of art education (Eisner, 2002). Both of these men were influenced by World War II in Austria and England where educational systems suppressed individuality. They both believed “the arts to be a

process that emancipated the spirit and provided an outlet for the creative process” (Eisner, 2002, p. 32). Lowenfeld also believed that once a child developed freedom and flexibility with self-expression they would be able to face new situations without difficulties (Eisner, 2002). The arts teach students a “disciplined form of inquiry and expression through which to organize feelings and ideas about experiences” (Robinson, 1982, p. 11). Lowenfeld and Read (Eisner, 2002) alleged that children and their art develop internally rather than outside in.

Similar to what Walter Smith believed in the 1870’s (Lowenfeld and Brittain, 1982), another vision of arts education is to develop the skills and attitudes needed for the work place. The skills are not just seen as technical skills as in the 1870’s but include cognitive skills needed to problem solve and think creatively. Experience in the arts develops “initiative and creativity, stimulated the imagination, fosters pride in craft, develops planning skills, and in some arts fields helps young learn how to work together” (Eisner, 2002, pg. 34). A survey on visual and performing arts conducted in Colorado indicated an arts based environment enhances creativity, independent thinking, cognitive development, and social skills (Miller & Hopper, 2010). These skills are 21st Century skills that students need to be successful in the workplace. Eisner (2002) quotes a chief executive officer of a large corporation why they believe arts education is important:

Today’s students need arts education now more than ever. Yes, they need the basics. But today there are two sets of basics. The first-reading, writing, and math-is simply the prerequisite for a second, more complex, equally vital collection of higher-level skills required to function well in today’s world.

These basics include the ability to allocate resources; to work successfully with others; to find, analyze, and communicate information; to operate increasingly complex systems of seemingly unrelated parts; and, finally to use technology. The arts provide an unparalleled opportunity to teach these higher-level basics that are increasingly critical, not only to tomorrow’s workforce, but also today’s. (Eisner, 2002, p. 34)

Another vision of arts education emphasizes cognitive development with the belief that the arts influence the development of complex and subtle forms of thinking. Eisner (2002) writes that the arts help students to develop observational skills in such a way that they are able to recognize subtleties in qualitative relationships and think of creative solutions. An art program that encourages flexibility, teaches students there are more than one solution to a visual problem, and encourages risk taking helps to develop a student's cognitive skills which will help them in other classes and when they enter the work force. Asking students to compare and contrast works of art and to look for connections in the design of the art, the content of the art, and the context the art was made are all ways art fosters cognitive development.

Closely related to arts education as a way to increase cognitive development is arts education used to increase academic achievement. It is believed that the more arts courses a student takes the better their academic achievement. Eisner (2002) disagrees to an extent discussing data from large scale surveys that reveal students who enroll in arts courses score in high school score significantly higher on the Scholastic Aptitude Test than the students who take no art courses. The study by Vaughn and Winner (2000) analyzed twelve years of SAT scores and posits that students who take arts courses have a higher SAT score than those who take no arts courses. Vaughn and Winner (2000) claim their results are purely correlational and do not provide causation while Eisner (2002) points out that more courses in any field are positively correlated with higher Scholastic Aptitude Test Scores.

Eisner's final vision of arts education in *The Arts and the Creation of Mind* (2002) supports the integration of arts curriculum with other arts and non-arts curriculum. According to Eisner (2002) arts integration is typically organized into four structures.

The first is when the arts are used to help students understand a historical period or culture. The second structure is integration within the arts to help students identify similarities and differences in content areas. A third structure is when integration is used to help identify themes, such as metamorphosis, that can be illustrated in arts and non-arts classes. The fourth structure of arts integration is for solving problems that can be addressed in a variety of content areas including the arts (Eisner, 2002).

The Challenge of Creativity

Merriam-Webster (2012) defines creativity as “marked by the ability or power to create; given to creating, having the quality of something created rather than imitated.” Innovation is defined by Merriam-Webster (2013) as “a new idea, device, or method; the act or process of introducing new ideas, devices, or methods.” Visual arts encourage students to be creative and innovative in the process of creating a piece of art. These higher order thinking skills support their academic work in school and skills when they enter the workforce (CMS, n.d.). Company executives suggest that economic success in the future will “likely depend on the interaction of creative and entrepreneurial thinking with mathematic and scientific intellect and literary prowess (Heilig, Cole & Aguilar, 2010, p. 142).

Mihaly Csikszentmihalyi is credited by Gardner (2008) for his insight about creativity. “According to Csikszentmihalyi, creativity occurs when-and only when-an individual or group product generated in a particular domain is recognized by the relevant field as innovated and, in turn, sooner or later, exerts a genuine, detectable influence on subsequent work in that domain” (Gardner, 2008, pg. 81). For work to be considered creative it needs to involve more than making or producing something, be a personal achievement of the person creating it, must be original, different, or distinctive than

anything else created in that area, and be the product of a deliberate activity not luck (Robinson, 2008). Sternberg, O'Hara, & Lubart (1997, p. 9) compares creative people to financial investors who "buy low and sell high." Buying low for a creative person means pursuing "ideas that are unknown or out of favor but with growth potential; selling high refers to the ability of the individual to sell their ideas to others" (Sternberg et al, 1997, p. 9; Sternberg, 2006, p. 88). According to Sternberg's (2006, p. 88) investment theory, creativity requires the union of intellectual abilities, knowledge, styles of thinking, personality, motivation, and environment. Individuals vary in level of strength within the six areas. Gardner (2008, p. 98) believes that the goal of a person who creates is "to extend knowledge, to ruffle the contours of the genre, to guide a set of practices along new unanticipated direction." Gardner (2008, p. 98) believes people are motivated by "uncertainty, surprise, continual challenge, and disequilibrium." According to Robinson (2011, pg. 4), "creativity is also about in a highly focused way on ideas and projects, crafting them into their best forms and making critical judgments along the way about which works best and why." Seidel and colleagues (2009, p. 18) write that "creativity involves generating ideas, digging deeper into ideas, encouraging openness to explore new ideas, and listening to your inner voice."

Creativity is not limited to only the visual arts, theater arts, and musicians but also includes and is not limited to scientists who create hypotheses, mathematicians who work out alternative ways to solve math problems, and historians who advance new interpretations of history (Robinson, 2008, 2011). Creativity involves many steps and not just the final product which could be a piece of art, a performance, and a piece of literature (Seidel et. al, 2009). Creativity is full of "starts, stops, and turns, and improvisations and leaps and bounds" (Seidel et. al, 2009, p. 18) "In every discipline,

creativity also draws on skill, knowledge and control. It's not about letting go, it's about holding on" (Robinson, 2011, pg.4). In present society, unfolding of the thinking processes has not been as important as mastering a skill and achieving academically (Gadsden, 2008).

Most five year old children enter school at the height of their creative powers where they are intrigued by experiences, topics, and questions and they continually explore. By the time adulthood is reached, creativity has been stifled since schools tend to encourage children to strengthen their memory and analytical ability (Gardner, 2008; Sternberg, 2006). Freud once said, "When I was young, ideas came to me; as I age, I must go halfway to meet them." (Gardner, 2008, p. 88) Robinson (2011) believes that the educational system is the reason why students' creative talents are not developed. School curriculum tends to work against the creative minded student through focus on uniform curriculum and standardized testing. The challenge for teachers is to help keep the creative mind of the child perceptive in a time where the United States is focused on test scores (Gardner, 2008). Teachers need to find the balance between the flexibility of creativity and the structure found in standardized curriculum (Robinson, 2008).

Visual arts provide the training where students find multiple solutions to a problem through thinking outside the box, being creative, and innovative in the way they solve problems (Eisner, 2002). Gardner (2008) believes when a person develops multiple solutions to a single problem they are stimulating creative questions which in turn produce creative solutions. Core content teachers can encourage this thinking by illustrating several ways a math or science problem could be solved or the different ways a literary passage could be solved (Gardner, 2008).

Little attention is given to creative thought in the core content classes even though inventive scholarship depends on creativity and innovation (Eisner, 2002; Sternberg, 2006). The benefits of creative initiative may not be as clear and measurable as core subject test scores, but we should not underestimate the value of arts education for youth” (Heilig, Cole & Aguilar, 2010, p. 142). Companies, such as 3M, General Electric, and Apple, support creative thought and innovators by rewarding those who come up with new ideas. Their executive staff is filled with creative thinkers and the leadership team works closely with the innovators to cultivate new ideas (Gardner, 2008). Many companies spend millions of dollars on creative training or creativity consultants in hopes of training employees to be more creative (Sternberg et al., 1997, p. 8). “Businesses and the workforce look for creative problem-solvers that can think outside of the box. The arts teach you how to do that” (Seidel et. al., 2009, p. 19)

Developing creativity and innovation are important for our economic future for three reasons according to Robinson (2011). Throughout the process of creativity, students are developing persistence, tolerance for ambiguity, reflection, and metaphorical thinking (Seidel et. al, 2009). First, it is important for workers to generate ideas for new products and services to maintain a competitive edge. Second, students and workers need to learn to be flexible and adaptable to be able to respond to changing markets. Finally, workers will need to adjust to a world where they may have multiple jobs and not one secure job their whole life (Robinson, 2011). It is believed by some that corporations who do not utilize innovation will end up being pushed out by corporations who embrace innovation (Gardner, 2008).

Nature of the Problem Revisited

With the implementation of Common Core State Standards all content areas are expected to integrate the standards into instruction in hope of developing a student who can problem solve, collaborate, apply knowledge in new ways, communicate with a variety of audiences, and research. Visual Arts has historically been viewed as an elective course where students have fun and this mindset has underutilized the power visual arts has to contribute to student academic achievement especially in English/ Language Arts. Visual arts classes support and parallel the processes and content in English/ Language Arts.

Research indicates that studying the arts cultivates essential qualities students need to succeed in the 21st century in post-secondary education and workforce training—creativity, cooperation, communication, cultural understanding, and problem-solving (CMS, n.d.; Zwirn& Graham, 2005; Seidel et.al., 2009). Participation in visual arts helps students to develop visual literacy by promoting fluency in the various modes of visual communication (North Carolina essential, 2010; Lynch, 2007; MBOE, n.d.). Furthermore, students develop their metacognitive skills through evaluating their work and the work of their peers. This forms the foundation for further growth in metacognition that extends to all disciplines in school and life, such as their core content classes, post-secondary education, and in the workforce where workers are expected to problem solve, collaborate, and communicate (Lynch, 2007; North Carolina essential, 2010; MBOE, n.d.).

Based on a review of literature in the field arts education and the learning environment, Appel (2006, p. 15) states that research reveals “meaningful integration of the visual arts enhances reading skills and interpretation of text, improves content

and organization of writing, develops mathematic and scientific reasoning abilities, improves attention to detail and detail in context, and is useful in math and science to through improving the ability to find outliers.”

Decreased Arts Education from No Child Left Behind

The arts were considered a core academic subject in No Child Left Behind Act of 2001 (NCLB, 2001) which requires schools to help students achieve in the arts reaping the full benefits of a comprehensive arts program (American Art Alliance, 2006; Ruppert, 2006). Society is calling for improvements in education so all students have access to a complete education and opportunities to succeed, but it is believed by the American Arts Alliance (2006) that these demands cannot be met without comprehensive arts education programs in the nation’s schools.

Empirical research has revealed the negative impact implementation of No Child Left Behind (NCLB, 2001) has made on arts education since its implementation (American Arts Alliance, 2006; Heilig et al., 2010). A survey of 349 public school districts, conducted by McMurrer (2008), uncovered that 58 percent of the districts had increased instructional time for reading and language arts and 45 percent increased instructional time for math, while arts education instructional time decreased by 16 percent since the implementation of No Child Left Behind. A large amount of time is devoted to test taking strategies, such as “drill and kill”, in lower performing schools where the population tends to be of low socioeconomic status and non-Caucasian students (Heilig et al., 2010). These students are not being exposed he the arts because they are not included in the standardized tests. Heilig et al. (2010) points out that students who lose art because of societies focus on high stakes testing are missing out on

the benefits of arts education which provide different ways to view realities of the world and expands the way students see the world.

Arts and the Common Core State Standards: A Balancing Tool?

Flood & Lapp (1997) had insight in their article in the late 1990's and recommend education integrate layering of information with forms of display so as adults they will have acquired the knowledge needed in society. A little over a decade later 21st Century skills were introduced and then the Common Core State Standards which are supposed to prepare our students to for post-secondary education and the workplace.

The mission statement of the Common Core Standards states that, “the standards provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to help them. The standards are designed to be robust and relevant to the real world, reflecting knowledge and skills that our young people need for success in college and careers. With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy.” (CCSS, 2011)

Kern (2011) speculates that the Common Core Standards may just be another shift of the pendulum towards education reform as it did after Sputnik in the 1950's and in the 1980's with A Nation at Risk. The pendulum swing is partially due to the desire for American students to be competitive in the global marketplace and for the United States to continue its place as a world leader. The American Federation of Teachers (AFT) believes the proposed Common Core Standards are in improvement on the state standards. For best success, follow-through on the curriculum in the states and professional development is crucial (Kern, 2011). The academic editor of Kappa Delta Pi suggests taking time to explore the reasons why it is believed we need to adopt the

Common Core Standards. The adoption and implementation by the states happened quickly (Kern, 2011).

The Literacy strand of the Common Core Standards provides cross disciplinary expectations for the students to be prepared for success in college and workforce training. The standards are written for each grade level kindergarten through eighth grade and in two year increments for ninth through twelfth grade.

The Common Core reading standards place an emphasis on comprehending complex texts. Research reveals that students who are able to comprehend complex texts are more likely to succeed after high school (Rothman, 2011). Complexity of texts in college and workplace materials has increased while the levels of text complexity have declined in High Schools (Rothman, 2011). Along with the easier texts, teachers are attempting to make comprehension easier by presenting materials through PowerPoint presentations and reading aloud (Rothman, 2011).

There are some challenges to increasing text complexity in the classroom. The first challenge is measuring and choosing texts that provide the necessary levels of complexity. The second challenge is providing students with the knowledge to handle more difficult reading (Varlas, 2012). Complex texts should offer new language, new knowledge, and new modes of thought (Hill, 2011). Hill (2011) further explains that complex texts are made up of relationships that are subtle, involved, deeply embedded, and can be found among ideas; possesses highly sophisticated information; structure is organized in an elaborate and sometimes unconventional way; style, tone, and use of language is intricate; vocabulary is demanding and highly contextually dependent; and the purpose of the text is unspoken and sometimes ambiguous.

In Visual Arts classes, student art work, art prints, and famous art work are considered text of varying complexities. The same definitions of written complex text provided by Hill (2011) should be applied to choosing art prints in Visual Arts Class. More complex art may be abstract and non-objective art which has implicit meanings while less complex art with explicit information would be photorealistic art. Tables 1 and 2 reveal the parallels between the Common Core State Standards and the North Carolina Essential Standards for Visual Arts.

The Art and Science of Integrating Visual Arts into Middle School Programs

Vega (2012) writes that “arts integration has been shown by several rigorous studies to increase student engagement and achievement among youth from both low and high socioeconomic background.” Research reveals meaningful integration of the visual arts enhances reading skills and interpretation of text; improves content and organization of writing; develops mathematic and scientific reasoning abilities; improves attention to detail and detail in context; and is useful in math and science to through improving the ability to find outliers (Appel, 2006).

Patricia Lynch (2007) explored arts integration at The Arts Academy, which is an urban, Title I, K-5 magnet school located in the southeastern United States. The study provided evidence that integrating arts with classroom content consistently supports all kinds of learners. A social studies unit used art integration to review historical figures. Students were asked to draw and create meaningful symbols that would help them remember the information best. “Drawing required the students to express their understanding of the facts they learned in personal way.” (Lynch, 2007, p. 36) Students had to learn the historical information, analyze the information, and synthesize the information before they started the creative process of generating ideas, brainstorm

solutions, and then produce their drawing. The process used in this integrated social studies unit embodies the heart of 21st Century Skills and Common Core State Standards.

The A+ schools were created in North Carolina in 1995 by arts educators with the Thomas Kenan Institute for the Arts in Winston-Salem, North Carolina. They were modeled after Ashley River Creative Arts Elementary School in Charleston, South Carolina. Ashley River was able to raise their attendance rates to 99.5% and raise their test scores to one of the highest in the system (Thomas & Arnold, 2011). Thomas & Arnold (2011) conducted a study of A+ Schools in North Carolina to examine if students in these schools had higher end-of-grade scores than students in the traditional school setting and if the students had a higher attendance record. It was found that the average reading proficiency rate was .3 points higher than the North Carolina State public school average of 83.6. The average mathematics score of the A+ students was 4.3 points higher than the than the North Carolina State public school Average of 62.12. This data illustrates the scores of the students in the A+ schools were comparable to the State average.

Thomas and Arnold (2011) acknowledged that the A+ School's curriculum may impact the affective domain. This impact may not be seen by standardized test scores and is seen as a limitation of the study. They suggest further studies examine how the arts impact the students' affective domain.

Marshall (2006) believes that true art integration has fundamental importance that explores and illuminates connections between areas on a conceptual and structural level. Creating images promotes understanding of concepts in other content areas. Integration can be on many levels from superficial levels where students are asked to illustrate content from another area to a deeper exploration where correlations between the content

areas are examined. In art similarities and differences in the content areas need to be explored, especially how ideas are researched, conceptualized, and communicated (Marshall, 2006).

Transfer of Learning: The Process in the Visual Arts

Transfer of learning happens when abilities learned in one context is used in a different context (Williams & Schell, <http://onramps.org/transfer-of-learning/>; Catterall, <http://www.gpo.gov/fdsys/pkg/ERIC-ED466413/pdf/ERIC-ED466413.pdf>) Few studies exist that examine out-of-domain or nonspecific transfer of learning which is when skills and tasks in one area can be transferred to another area that is not related (Eisner, 2002). Specifically, does what is learned in visual arts transfer to non-art tasks in another subject (Eisner, 2002)? Eisner (2002) deemed the studies to lack convincing evidence that the transfer occurs while other studies use non-randomly selected populations which raises questions about the reliability of the studies.

Catterall (www.gpo.gov/fdsys/pkg/ERIC-ED466413/pdf/ERIC-ED466413.pdf) compiled findings from multiple studies to examine the effects of learning in the arts on academic achievement to support the idea of transfer of learning. In Catterall's (<http://www.gpo.gov/fdsys/pkg/ERIC-ED466413/pdf/ERIC-ED466413.pdf>) compendium study, "all evidence showed of transfer in the sense that learning activities in the arts have various effects beyond the initial conditions of learning. For visual arts, Catterall (www.gpo.gov/fdsys/pkg/ERIC-ED466413/pdf/ERIC-ED466413.pdf) found in other studies that drawing transfers in content and organization of writing, visualization training transfers to sophisticated reading skills and interpretation of text, reasoning about art transfers to reasoning about scientific images, and instruction in visual arts transfers to reading readiness. Seidel and colleagues (2009, p. 19) wrote that "high quality arts

education fosters the disposition to make connections across diverse themes, topics and experiences.”

Reflecting on current research on transfer of learning in visual arts, Eisner (2002) offers design features for research that would produce evidence that would provide credible support for the claims about transfer of learning:

1. Determine the academic outcomes researcher is looking for.
2. What evidence is needed to support the claims?
3. How will the evidence be secured, measured and evaluated?
4. Randomly select a population of students assigning one as the experimental group and the other as the control group.
5. Eliminate differences by matching students on relevant variables.
6. Compare competencies of the teachers.
7. Assuming equally able teachers, acquire an art curriculum that from a theoretical framework was most likely to develop cognitive skills in the non- visual arts area.
8. Would need a theory of cognition that enabled researcher to identify the kinds of cognitive demands activities the visual arts curriculum imposed and the relationship to the cognitive activity imposed in the non-visual arts area.
9. Length of treatment would need to be decided and monitored so that the program intended was provided. Eisner (2002) suggest five months but preferred ten months.
10. What is the student performance level in art, what can they create, and what do they know?

A 1993 study by Richard Luftig, that included some of the research design features Eisner believed would be provide credible evidence, revealed mixed results on transfer of learning and the arts (Eisner, 2002). The study used an experimental and control group and examined the influence the arts had on numerous areas such as, self-esteem, locus of control, creative thinking, appreciation of the arts, and academic

achievement on reading scores, reading vocabulary, reading comprehension, mathematic scores, mathematic application, and mathematic comprehension (Eisner, 2002).

Designing curriculum activities that foster skills both content areas have in common increases the probability of finding a positive relationship between performance in the visual arts and the selected subject (Eisner, 2002). Common Core State Standards provides an avenue that integrates literacy and mathematic skills throughout every content area.

Arts and Academic Achievement

Sir Ken Robinson (2008) found when researching for *The Arts in Schools* six areas where the arts is vital to a student's education which are: involvement in the arts helps to develop the full spectrum of human intelligence, the ability for creative thought and action, the development of feeling and sensibility, the exploration of values, the understanding of culture change and differences, physical and perceptual skills, and resolving conflicts (Robinson, 2008; Posner, Rothbart, Sheese, & Kieras, 2008; Posner & Patoine, 2009; Winner & Hetland, 2000; Seidel et. al., 2009; Artful thinking, <http://www.pzartfulthinking.org/overview.php>).

Project Zero was created in 1967 to investigate learning in the arts. Since the beginning, Project Zero has conducted numerous research projects, published many books and articles, and collaborated with hundreds of schools, museums, and educators throughout the world (Perspectives on learning, 2012). Artful Thinking was created by Project Zero to “develop a research-based approach to developing learners' thinking dispositions through looking at art: (Perspectives on learning, 2012, p. 19; Tishman & Palmer, 2006). The program focuses on helping teachers make connections to art work and their curriculum and to encourage students develop the following thinking

dispositions: observing and describing, exploring viewpoints, questioning and investigation, comparing and connecting, and finding complexity (Perspectives on learning, 2012; Tishman & Palmer, 2006; Artful thinking, <http://www.pzartfulthinking.org/overview.php>). In the Artful Thinking final report, Tishman and Palmer (2006) posits,

Artful Thinking focuses on a set of six thinking dispositions that have special power for exploring works of art and other complex topics in the curriculum. They are: questioning & investigating, observing & describing, reasoning, exploring viewpoints, comparing and connecting, and finding complexity” (p. 9)

Tishman and Palmer (2006) chose those dispositions because they represent forms of thinking used in exploring and appreciating works of art and they are also forms of thinking that are “powerful in terms of building understanding in other disciplines” (Tishman & Palmer, 2006, p. 9). The dispositions are designed to create thinking routines “designed to deepen students’ thinking about the at hand, whether it is a painting, an historical event, or a mathematical operation” (Tishman & Palmer, 2006, p. 9).

Critical Evidence: How the Arts Benefit Student Achievement (Ruppert, 2006) lists some positive signs of the support for the arts in education. The arts were considered a core academic subject in No Child Left Behind Act of 2001. It was considered to contribute to academic achievement of student’s along with reading, math, and science. Visual arts standards have been developed in forty-nine states while forty-three of the states require districts to provide arts instruction (Ruppert, 2006). Another positive sign reported by Ruppert (2006) is the school’s that purposely integrated the arts within their curriculum reported positive changes in the school environment and student academic achievement.

Posner and colleagues (2009, p. 1) suggest “focused training in any the arts strengthens the brain’s attention system, which in turn can improve cognition more

generally. A study by Wandell, Doughert, Ben-Shacher, Deutsch, & Tsang (2008) found a relationship between early visual arts experience phonological awareness which is attention to patterns of speech. Students who train in the visual arts early in their youth had a higher degree of phonological awareness than those with little to no visual arts training.

There have been studies published in the last ten years examining the correlation between the arts and academic achievement. Most of the studies examined achievement of high school and elementary school students while a few examine middle school student. One study examined the relationship between high school students SAT scores and students who took art courses against those who did not take arts courses. Most recently is a four year study out of West Virginia that examined the correlation between high school students who took more than the required one credit of arts and achievement on the WESTEST 2 and ACT Plan tests and findings four longitudinal studies that examined the relationship between participation in the arts and academic and civic outcomes.

The study by Vaughn and Winner (2000) analyzed twelve years, 1987-1998, of SAT scores three times; once for composite scores, next for reading scores, and finally for mathematic scores. Statistical analysis revealed that students who took any kind of arts courses have higher SAT scores than those who do not take any arts course and students who took four years of arts courses had higher scores than those who took less than four (Vaughn and Winner, 2000). The researchers state that this is a purely correlational study and it does not allow for causal inferences. Possible reasons for the correlation between the arts and SAT scores, other than exposure to the arts lead to cognitive growth, given by Vaughn and Winner (2000) is high achieving students may

choose to study the arts, may come from families that value academic achievement and the arts, or may attend schools strong in core academic classes and the arts. Given these reasons this study will control for variables of gender, race, and socioeconomic status.

The West Virginia Department of Education studied a cohort of 14,653 high school students who stayed at grade level for four years (Whisman & Hixson, 2012). Researchers used binary logistic regression to examine whether participation in arts instruction, beyond the one required credit for graduation, correlated with academic proficiency on the WESTEST 2 and ACT PLAN (Whisman & Hixson, 2012). A student was considered proficient on the WESTEST 2 if they scored at mastery or above on the mathematics and reading/language arts and proficient on the ACT PLAN if they scored above the national average (Whisman & Hixson, 2012). Whisman and Hixson (2012) found that students who earned two or more arts credits in high school were 1.3 and 1.6 times more likely to score proficient on the WESTEST 2 and 1.5 times more likely to score at or above the national average on the ACT PLAN. The significant associations were the same for all subgroups of students in reading/ language arts scores but researchers observed significant associations in mathematic scores “only for students with neither low family income nor disabilities, and students with low family income” (Whisman & Hixson, 2012, p. iii). Most of the arts studies discussed in researchers’ review of literature were based on musical arts and no studies in visual arts were cited.

Catterall, Dumais, & Hampden-Thompson (2012) analyzed data from national data sets of four large longitudinal studies to examine if the level of participation in the arts in K-12 related to academic achievement and civic engagement in post-secondary years. The researchers found students with higher participation in the arts outperformed students with low arts participation on academic achievement. The relationship between

the arts participation was even greater for low socioeconomic teens (Catterall et al., 2012) Catterall et al. (2012) claimed the findings to be significant and suggested that arts high participation may be a way to close the achievement gap between low and high socioeconomic students.

Given the findings in the Vaughn and Winner (2000) study this study will control for variables of gender, race, and socioeconomic status during statistical analysis. The researcher has chosen to examine middle school students because there are limited studies examining this age student.

Parallels between English/ Language Arts and Visual Arts: A Perceptual Alignment

Piro (2002) identifies commonalities shared between visual arts and English/ Language Arts which are semantic and syntactic properties. These properties are found in each discipline. Creating a composition requires organization from the established rules set forth by each discipline. Elements of art and principles of design, such as color, texture, pattern, line, space, form, repetition, balance, unity, and variety conveys meaning in art while words, phrases, sentences, and literary elements are used to construct meaning with written text (Piro, 2002).

Lindström (2010) identifies research approaches that emphasize art as language or art as text. Art as language tends to focus on the media of expression where art is paralleled to writing. Art as text emphasizes reading a piece of art for knowledge and moral inspiration which emphasizes interpretation and context (Lindström, 2010).

In the 21st Century classroom it is important for teachers to understand that it is necessary for students to have the ability to read and understand the content of their studies. For this to be accomplished teachers in all content areas need to incorporate reading strategies into their instruction (Miller & Hopper, 2010). Concept Mapping,

journaling, summarizing, sustained silent reading, outside reading and research assignments, comparing works of art, writing, illustration a short story, using visual aids, on-line and virtual museum tours, and interactive CD-ROMs are all reading strategies that can be used in the art classroom to help increase comprehension (Miller & Hopper, 2010).

Visual arts encompass a wide range of areas from drama productions to television to presentations to movies and video games. Communicative arts include reading, writing, and speaking which exists independently and as elements embedded in the visual arts (Flood & Lapp, 1997). It has become more common for teachers to use the strategy of reading a picture or piece of art, breaking it down into small pieces using it as text to decode the meaning of what is represented in the picture or piece of art (Piro, 2002).

The definitions of visual literacy, contextual relevancy, and critical response are published on the North Carolina Department of Education, Arts Education website. They are written as follows:

Visual Literacy relates to the language of art, how it is organized, and how it is used to communicate as a language of its own. Being art literate includes understanding how the Elements of Art and Principles of Design are used to create art, use personal expression, and to communicate through art. Visual literacy also encompasses the application of critical and creative thinking skills to artistic expression and solving artistic problems, as well as using a variety of tools, media, and processes safely and appropriately while creating art. Contextual relevancy refers to applying knowledge of the visual arts in relation to history, culture, heritage, and other disciplines. Students understand the influence art has on society and that art may represent various social themes and issues. They recognize the differences in art from different regions and the effect that geography and culture has on art within a particular region. Students understand how art has evolved throughout history and in different parts of the world, including the United States. Students understand connections with skills and concepts learned in art, which can be applied to other disciplines. Students connect visual arts with human experiences and understand that personal responses to art are based on personal, cultural, and historical contexts.

Critical response refers to the use of critical analysis to react, either in writing, verbally, through art, or through other modalities or combination of modalities to art. Critical response requires the use of skills such as, observing, describing, analyzing, interpreting, critiquing, judging, and evaluating personal art and art of others. Students' responses may be personal and/or use an objective process.

As students become familiar with the Elements of Art and Principles of Design, they begin to understand how art can/cannot be aesthetically pleasing. Students use appropriate art vocabulary to describe their feelings about art, and they evaluate their own art in terms of its weaknesses and strengths. They are critical of their work and of the media and processes they are using. Students use teacher-established criteria, they develop criteria to judge specific works of art, whether it is their own or art created by others. Students use self-critiquing to improve the quality of their art. Students make judgments about art and defend their judgments based on knowledge and reflective inquiry (North Carolina essential, 2010).

While English/ Language Arts literacy pertains to the ability to read to comprehend and write persuade or convey an idea; visual literacy is the ability to recognize and understand ideas expressed as pictures. English/ Language Arts uses words and text to communicate and visual arts uses images, color and designs to communicate. Both content areas describe, deconstruct, analyze, synthesis, judge, compare, contrast, critique, and create using their respective forms of text. In English/ Language Arts text is words within a story, poem, non-fiction, or any other piece of literature that communicates ideas and/or feelings. In Visual Arts, text includes words, symbols, drawings, and any other visual representations that communicate ideas and/ or feelings.

Comparisons can be made between how students are taught to deconstruct text they read in English/ Language Arts and how they deconstruct visual text they examine in visual arts. English/ Language Arts classes typically learn to deconstruct text through the literary elements (point of view, characterization, setting, foreshadowing, flashback, irony, imagery, symbolism, allusion, conflict, plot, theme, tone, and mood). Visual arts

classes learn to deconstruct visual text using the elements of art (line, shape, form, color, value, space, and texture) and principles of design (unity, balance, rhythm/pattern, emphasis, movement, and contrast).

Creating art or writing involves generating ideas, planning for the best solution, and producing the final product. Similarities are seen in the ways final products are produced in English/ Language Arts and in Visuals Arts.

Conclusion

The researcher states that visual arts education is an integral part of developing the whole student so they are competitive in the in the 21st Century post-secondary education and work force. Visual arts education helps to develop students' ability to think critically, to find creative approaches to solving problems, and to stimulate learning across the curriculum.

In chapter 2, the researcher examined the importance of visual arts education through examining trends in art education, the varying points of view in art education, creativity, nature of the problem, decreased arts education due to No Child Left Behind Act of 2001 (NCLB, 2002), arts and the Common Core State Standards (CCSS, 2011), integration of the arts in the middle school setting, transfer of learning, arts and academic achievement, and parallels between English/ Language Arts and visual arts. The chapter ended with a review large scale studies that examined arts and academic achievement.

The study conducted by Vaughn and Winner (2000) found a correlation between more art courses taken in high school the higher the SAT score. However, the researchers stated possible reasons for the correlation could be that higher achieving students who study the arts may come from families who value academic achievement

and the arts. For this reason this study will control for variables of gender, race, and socioeconomic status during statistical analysis.

The study conducted by the West Virginia Department of Education (Whisman & Hixson, 2012) found significant associations for all subgroups of high school students in reading/ language arts scores.

CHAPTER 3: METHODOLOGY

Review of the Study

In chapter 1 the researcher presented the need for the proposed study. A detailed literature review was provided to the reader to demonstrate previous studies conducted related to the topic. The research question presented for study was, is the relationship of the actual number of visual arts courses completed by 8th grade students positively related to academic achievement as measured by the 2012-2013 Composite Reading standard scores of the North Carolina End of Grade (EOG) Examination?

Research Design

This research was a non-experimental study based on archival provided to the researcher by a medium urban school district in the southeastern United States.

The dependent variable of the study was Language Arts achievement of eighth grade students as measured by the scale scores of the North Carolina End of Grade Reading scale scores. The independent variables were years of art completed in middle school which was zero, one, two, three, four, or five years. The control variables were gender, race, and socioeconomic status as determined by free and reduced lunch status.

Research Question

Is the relationship of the actual number of visual arts courses completed by 8th grade students positively related to academic achievement as measured by the 2012-2013 Composite Reading scale scores of the North Carolina End of Grade (EOG) Examination?

Hypothesis

There is a statistically significant relationship among 8th grade Reading EOG Scores and the actual number of visual arts courses completed by 8th grade students at the alpha level of $p < .05$ after controlling for gender, race, and socioeconomic status.

Null Hypotheses

There is no statistically significant relationship among 8th grade Reading EOG Scores and the actual number of visual arts courses completed by 8th grade students at the alpha level of $p \leq .05$ after controlling for gender, race, and socioeconomic status.

Statistical Controls

Researcher analyzed data using hierarchical multiple regression. Hierarchical multiple regression “can be set up to accommodate control variables the researcher wishes to control, and it can (as predictor variables) one or more interactions between independent variables.” (Huck, 2012, p. 379) Researcher Controlled for gender, race, and socioeconomic status were entered into the regression model first to control for their effect on 8th grade Reading EOG test scores.

Data Collection Procedures

The researcher examined historical data of eighth grade students from school year 2012-2013 North Carolina EOG Reading test scores and student transcripts for number of courses of art completed in middle school.

Population

There are 9 regular middle schools with 3,000 students in the medium urban school district in the southeastern United States. The sample was 125 eighth grade students from one middle school that is representative of the population from the medium

urban school district it belongs to. This sample was taken from the 2012-2013 school year.

Sampling Procedures and Sample

Data from 125 eighth grade students in the middle school from the medium urban school district in the southeastern United States was used for this study. Field (2005) suggests a minimum sample size of $104 + k$ (where k represents the number of variables). An employee approved by a Superintendent in the school district used systematic sampling to choose the participants. The school system would only approve for researcher to use 125 participants for the study to be approved by the school system. Patten (2007) states that systematic sampling is essentially equivalent to simple random sampling where every member of a population has equal opportunity of being chosen. Every third participant was chosen from an alphabetical list of all eighth grade participants from the middle school. An alphabetical list of participants is preferred for systematic sampling to ensure the population is arranged in a fair order (Patten, 2007).

Of the 125 participants, eight were omitted due to no score on the Reading EOG Test. Five outliers were omitted because their scores on the Reading EOG Test which skewed the results (Coladarci, Cobb, Minium, & Clarke, 2008). The demographics of the remaining 112 participants are as follows: 52 (46.4%) female, 60 (53.6%) male, 4 (3.6%) Asian, 12 (10.7%) African American, 12 (10.7%) Hispanic, 1 (.9%) Biracial, 83 (74.61%) White, 37 (33.0%) free/reduced lunch, and 4 (3.6%) no free/reduced lunch data. Number of years of art were 14 (12.5%) 0 years, 27 (24.1%) 1 year, 27 (24.1%) 2 years, 27 (24.1%) 3 years, 15 (13.4%) 4 years, and 2 (1.8%) 5 years. The mean 8th grade Reading EOG scale score was 462.62, the median was 464, the minimum score was 436.00, and the maximum score was 480.00.

Instrumentation

The North Carolina EOG test scores were used for the participant scores. The validity of the North Carolina Reading EOG Test was determined using multiple measures (North Carolina State Board of Education, 2009). The North Carolina Department of Public Instruction's evidence of validity is provided through content relevance, response processes, relationship of test scores to other external variables, and maintaining consistency in the testing environment. See Appendix A to view technical manual for North Carolina Reading EOG scores (NCSBOE, 2009).

Participants in visual arts classes in the school district receive instruction following the objectives set forth in the North Carolina Essential Standards for visual arts. (See Appendix B) Teachers incorporate Common Core State Standards as required by the school system and stay up to date on latest educational research in visual arts education through attending district level training.

The North Carolina Essential Standards (2010) were written in a spiral structure where each year of study goes back to the same standard but delves deeper each year. The Essential Standards for visual arts consists of three strands which are categorizing components that together with the goals and objectives under them lead to a comprehensive education in visual arts (North Carolina essential, 2010). The three strands are visual literacy, contextual relevancy, and critical response.

The visual literacy strand is aimed at teaching students to be art literate. Students learn how art is organized based on the elements of art and principles of design, is used to communicate ideas and personal expressions, applies critical and creative thinking skills to solve (North Carolina essential, 2010). There are three essential standards for the

visual literacy strand. “The first essential standard requires students in 6-8 to better understand the elements of art and principles of design. The second essential standard requires students to generate and evaluate their solutions to artistic problems. The third essential standard requires students in grades 6-8 to use new and more complex tools, media, and techniques, and they envision new ideas based on those media and techniques.” (North Carolina essential, 2010, p.10).

Contextual relevancy relates students understanding the influence art has on society, culture, heritage, other content areas, and that art may represent different social themes and issues (North Carolina essential, 2010). There are two essential standards for the contextual relevancy strand. The first essential standard involves students understanding the development of the visual arts throughout history and the second involves students in to make connections to art as a vocation or an avocation (North Carolina essential, 2010).

Critical response relates to students using critical analysis to react to art using multiple modalities (North Carolina essential, 2010). Observing, describing, analyzing, interpreting, critiquing, judging, and evaluating personal art and art of others are parts of critical analysis. There is one essential standard for the critical response strand. “This essential standard requires students in grades 6-8 to use various resources to evaluate works of art, including personal preferences and prior knowledge, incorporating personal and formal criteria.” (North Carolina essential, 2010, p. 31).

The Common Core Standards is an initiative by states to have common standards throughout the country. Researchers have found that many states’ standards were set too low and that the standards vary widely from state to state (Rothman, 2011). These standards define what students are expected to learn in their K-12 education so they are

able to succeed in post-secondary education and in the workforce. Reading is part of English/ Language Arts classes which is a required year-long class which meets every day in grades sixth, seventh, and eighth.

Validity and Reliability

Table 3 compares State, School District, and Middle School student demographics and Reading EOG Scores from the school year 2012-2013 which helped researcher determine generalizability of the study. The School District and Middle School have higher test scores than the state but student demographics are similar with school district and school having a higher white population and lower African American population than the state.

This study can be generalized to the School District but researcher cautiously generalizes the findings to the State. The study should not be generalized to all eighth grade students in the United States due to different tests eighth graders take, different English/ Language Arts curriculum, and different visual arts curriculum.

External validity would have been stronger if all students in the medium urban school district were used.

Researcher considered common threats to internal validity when designing the study. These threats are selection, maturation, history, regression to mean, instrumentation, testing, and mortality. Participants were chosen using systematic sampling of every third student from an alphabetical list of eighth grade students from the middle school. Researcher used systematic sampling since it was not possible to use a random sample of students in the School District. Patten (2007) States that systematic sampling is the next best method to random sampling. Researcher controlled for variables of gender, race, and socioeconomic status by analyzing data using hierarchical

multiple regression which increased internal validity. When examining the test scores of students, researcher omitted ten students who had no score and 4 students whose scores were outliers. Historical scores were used so researcher was not concerned about maturation, history, and mortality. Regression to the mean was not a concern since researcher used one test score given at end of the school year.

Data Analysis Procedures

Hierarchical multiple regression was used for data analysis. The criterion will be North Carolina EOG Reading Test scores, with years of art completed being the predictor variable. Hierarchical multiple regression “can be set up to accommodate control variables the researcher wishes to control, and it can (as predictor variables) one or more interactions between independent variables.” (Huck, 2012, p. 379) Hierarchical multiple regression analysis was conducted to evaluate if number of years of art completed significantly predicts scores on North Carolina EOG Reading test scores after controlling for gender, race, and socioeconomic status.

Summary

The purpose of this chapter was to describe the methodology of this study, explain the sample selection, describe the instrument used, collecting the data, and to explain the statistical procedures used to analyze the data.

CHAPTER 4: FINDINGS

Review of Researcher's Purpose of the Study

The purpose of this study was to explore what significant relationships exist among the number of visual arts courses completed by 8th grade students upon their academic achievement as measured by the 2012-2013 Reading scale scores of the North Caroling End of Grade (EOG) after controlling for gender, race, and socioeconomic status.

Research Question

Is the relationship of the actual number of visual arts courses completed by 8th grade students positively related to academic achievement as measured by the 2012-2013 Composite Reading scale scores of the North Carolina End of Grade (EOG) Examination after controlling for gender, race, and socioeconomic status?

Review of Research Design, Data Collection, and Data Analysis

This research was a non-experimental study based on archival data provided to the researcher by a medium urban school district in the southeastern United States.

The dependent variable of the study was English/ Language Arts achievement of eighth grade students as measured by the scale scores of the Reading EOG scale scores. The independent variables were years of art completed in middle school which was zero, one, two, three, four, or five years. The control variables were gender, race, and socioeconomic status as determined by free and reduced lunch status.

The researcher examined historical data of eighth grade students from school year 2012-2013 North Carolina EOG Reading test scores and student transcripts for number of years of art completed in middle school.

Description of Sample

Table 1: Eog reading scale score by variable

	N	Mean	Median	Range	SD
Female	52	463.17	464.00	34	8.797
Male	60	462.15	463.00	44	9.434
African American	12	452.75	454.00	23	5.879
Asian	4	461.5	465.00	34	14.548
Hispanic	12	455.50	456.00	28	8.597
Multiracial	1	470.00	470.00	.00	.00
White	83	465.04	465.00	44	7.866
Economically Disadvantaged	37	458.81	458.00	44	10.243
Not Economically Disadvantaged	71	464.87	456.00	39	7.940
0 Art Courses	14	458.28	459.00	35	11.964
1 Art Courses	27	464.81	459.50	42	9.165
2 Art Courses	27	463.22	464.00	27	7.627
3 Art Courses	27	461.14	461.00	34	8.443
4 Art Courses	15	464.53	463.00	29	9.612
5 Art Courses	2	461.00	461.00	2	1.414

Table 1 provides descriptive statistics for the North Carolina End of Grade Reading scale score by variable. A total of 112 eighth grade students' 2012-2013 Reading EOG scale scores were used for this study. Students had from zero years of art to five years of art. Fourteen students (12.5%) had 0 years or art; twenty-seven students (24.1%) had 1 year of art, twenty-seven students (24.1%) had 2 years of art; twenty-seven students (24.1%) had 3 years of art; fifteen students (13.4%) had 4 years of art; and two students (1.8%) had 5 years of art. The mean 8th grade Reading EOG scale score was

462.62, the median was 464, the minimum score was 436.00, and the maximum score was 480.00.

A hierarchical multiple regression was conducted to analyze the relationship of years of art courses completed to Reading EOG scale scores. Years of art courses completed as the independent variable; gender, races, and socioeconomic status as control variables; and Reading EOG scale scores as the dependent variable. The demographic control variables of gender, race, and socioeconomic status were entered simultaneously in the first step of the multiple regression.

Checking Assumptions

The data was screened for the assumptions required for hierarchical regression.

1. Variable Types- all variables were quantitative
2. Normality of variables- An analysis of skewness or kurtosis of North Carolina End of Grade Reading scale scores revealed they are within the normal range of -1.0 to +1.0 (skewness = -.402; kurtosis = .453).
3. Non-Zero Variance- the predictors have variance in value
4. Tests for multicollinearity indicated a low levels of multicollinearity were present (VIF = 1.060 for number of courses of art completed, 1.176 for race, 1.048 for gender, and 1.137 for socioeconomic status). The average of the VIF values are well below 10 at 1.105 and the tolerance statistics are well above .2 at .943. Each predictor has its variance loading on a different dimension. Ethnicity has 39% of the variance in dimension 2, years art has 52% of the variance in dimension 3, gender has 64% of the variance in dimension 4, and race and socioeconomic status have 38% of the variance in dimension 5.
5. Homoscedasticity-the residuals at each level have the same variances.

Figure 1 shows that the points are randomly and evenly distributed around the scatterplot.

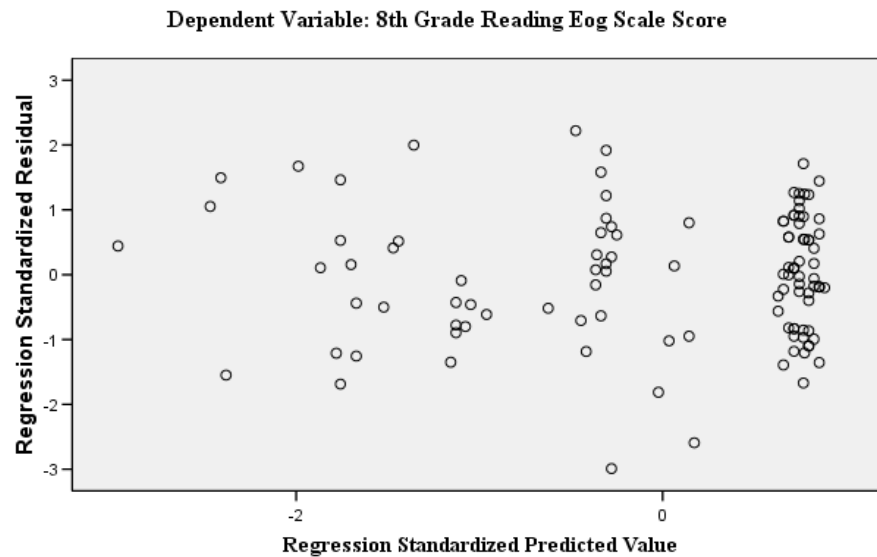


Figure 1: Plots of *Zresid against *Zpred

6. Independent Errors- independent errors were tested using Durbin-Watson statistic with a value of 1.806 which means the residual terms were independent of each other.
7. Normally Distributed Errors -residuals in the model are random, normally distributed variables with a mean of zero (Figure 1). In figure 2 the Normal p-p plot of Regression Standardized Residual displays normal distribution of a straight line.

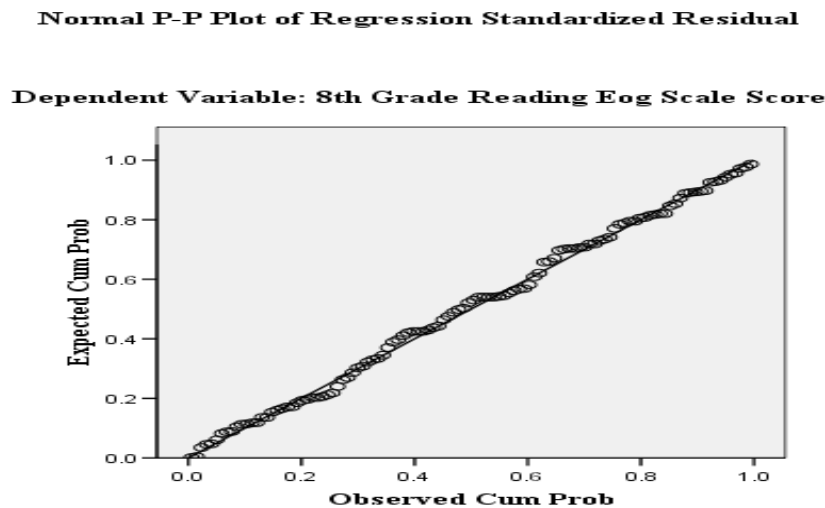


Figure 2: Normality of plot residuals

8. Linearity- There was a linear relationship between predicted dependent variable scores and errors of perdition (Figure 1).

Results of Hierarchical Regressions

To test the hypothesis that a statistically significant relationship existed among 8th grade North Carolina End of Grade Reading scale scores and students who completed additional classes in the visual arts, a hierarchical multiple regression analysis was performed. Tests for multicollinearity indicated a low levels of multicollinearity were present (VIF = 1.060 for number of courses of art completed, 1.176 for race, 1.048 for gender, and 1.137 for socioeconomic status). Race, gender, and socioeconomic status were entered together and number of courses of art completed entered in the second step. Results of the regression analysis do not support research hypothesis. In table 2, the best fitting model for predicting North Carolina End of Grade reading scale scores revealed number of art courses completed in middle school did not significantly improve prediction ($R = .384$, $R^2\text{change}=.00$, $p = .876$). In table 3 Model 2, beta coefficients for the predictor number of art courses completed revealed number of art courses completed

in middle school did not significantly relate to reading scores ($B = -.10$, $SE B = .65$, $\beta = -.01$, $t = -.16$, $p = .88$). The beta coefficients for two of the control variables revealed ethnicity and socioeconomic status did significantly relate to reading scores (Ethnicity, $B = -2.49$, $SE B = 1.02$, $\beta = -.24$, $t = -2.45$, $p = .02$; Socioeconomic Status, $B = 3.92$, $SE B = 1.55$, $\beta = .24$, $t = 2.57$, $p = .01$).

Table 2: Model summary of hierarchical regression analysis for variables predicting reading Eog scale score (N=113)

Model	<i>R</i>	<i>R</i> ² change	<i>F</i>	<i>p</i>
1	.38*	.15	6.23	.001
2	.38**	.00	.02	.876

*Predictors: (Constant), Free/reduced lunch, gender, race

**Predictors: (Constant), Free/reduced lunch, gender, race, number of courses art

Table 3: Summary of hierarchical regression analysis for beta coefficients predicting reading Eog scale score (N=113)

Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>p</i>
<u>Model 1</u>					
Constant	460.36	3.91		117.70	.00
Ethnicity	-2.45	.99	-.23	-2.49	.01
Gender	-.37	1.65	-.02	-.22	.83
Socioeconomic Status	3.97	1.54	.24	2.58	.01
<u>Model 2</u>					
Constant	460.65	4.35		105.98	.00
Ethnicity	-2.49	1.02	-.24	-2.45	.02
Gender	-.38	1.66	-.02	-.23	.82
Socioeconomic Status	3.92	1.55	.24	2.57	.01
Art Courses Completed	-.10	.65	-.01	-.16	.88

Researcher fails to reject null hypothesis' and assumes there is no significant relationship between number of art courses completed in middle school and 8th grade North Carolina End of Grade Reading scale scores after controlling for gender, race, and socioeconomic status.

Summary

In this chapter, researcher reviewed the purpose of the study, the research design, data collection, data analysis, and the research question. After testing the null hypothesis using hierarchical multiple regression, researcher failed to reject the null hypothesis' assuming there is no statistical significance in number of art courses completed in middle school and North Carolina End of Grade Reading standard scale score.

CHAPTER 5: CONCLUSIONS, SUMMARY AND FUTURE RESEARCH

Review of the Researcher' Purpose in the Study

The purpose of this study was to explore what significant relationships exist among the number of visual arts courses completed by 8th grade students upon their academic achievement as measured by the 2012-2013 Reading scale scores of the North Caroling End of Grade (EOG) examination.

Review of Related Literature

Researcher reviewed studies in Chapter 2: Review of Related Literature. And saw a trend of more studies examining academic achievement and visuals arts in the past decade. There are numerous studies reviewing academic achievement and the arts (drama, dance, music, and visual arts) as a whole, while many other studies examine academic achievement and *music*. There are not as many studies examining only visual arts and academic achievement.

A study of A+ Schools in North Carolina to examine if students in these schools had higher end-of-grade scores than students in the traditional school setting and if the students had a higher attendance record (Thomas &Arnold, 2011). It was found that the average reading proficiency rate was .3 points higher than the North Carolina State public school average of 83.6. The average mathematics score of the A+ students was 4.3 points higher than the than the North Carolina State public school Average of 62.12.

Catterall (<http://www.gpo.gov/fdsys/pkg/ERIC-ED466413/pdf/ERIC-ED466413.pdf>) compiled findings from multiple studies to examine the effects of

learning in the arts on academic achievement that support the idea of transfer of learning. For visual arts, Catterall (<http://www.gpo.gov/fdsys/pkg/ERIC-ED466413/pdf/ERIC-ED466413.pdf>) found in his compendium study found the following transfer of learning from visual arts to English/ Language Arts: drawing transfers to content and organization of writing, visualization training transfers to sophisticated reading skills and interpretation of text, reasoning about art transfers to reasoning about scientific images, and instruction in visual arts transfers to reading readiness.

Posner et al. (2009, p. 1) suggest “focused training in any the arts strengthens the brain’s attention system, which in turn can improve cognition more generally. A study by Wandell, Doughert, Ben-Shacher, Deutsch, &Tsang (2008) found a relationship between early visual arts experience phonological awareness which is attention to patterns of speech. Students who train in the visual arts ir early in their youth had a higher degree of phonological awareness than those with little to no visual arts training.

The study by Vaughn and Winner (2000) analyzed twelve years, 1987-1998, of SAT scores three times; once for composite scores, next for reading scores, and finally for mathematic scores. Statistical analysis revealed that students who took any kind of arts courses have higher SAT scores than those who do not take any arts course and students who took four years of arts courses had higher scores than those who took less than four (Vaughn & Winner, 2000). Possible reasons for the correlation between the arts and SAT scores, other than exposure to the arts lead to cognitive growth, given by Vaughn and Winner (2000) is high achieving students may choose to study the arts, may come from families that value academic achievement and the arts, or may attend schools strong in core academic classes and the arts.

The West Virginia Department of Education studied a cohort of 14,653 high school students who stayed at grade level for four years (Whisman & Hixson, 2012). Researchers used binary logistic regression to examine whether participation in arts instruction, beyond the one required credit for graduation, correlated with academic proficiency on the WESTEST 2 and ACT PLAN (Whisman & Hixson, 2012). Whisman and Hixson (2012) found that students who earned two or more arts credits in high school were 1.3 and 1.6 times more likely to score proficient on the WESTEST 2 and 1.5 times more likely to score at or above the national average on the ACT PLAN. The significant associations were the same for all subgroups of students in reading/ language arts scores but researchers observed significant associations in mathematic scores “only for students with neither low family income nor disabilities, and students with low family income.” (Whisman & Hixson, 2012, p. iii).

Catterall, Dumais, and Hampden-Thompson (2012) analyzed data from national data sets of four large longitudinal studies to examine if the level of participation in the arts in K-12 related to academic achievement and civic engagement in post-secondary years. The researchers found students with higher participation in the arts outperformed students with low arts participation on academic achievement. The relationship between the arts participation was even greater for low socioeconomic teens (Catterall et al., 2012) Catterall et al. (2012) claimed the findings to be significant and suggested that arts high participation may be a way to close the achievement gap between low and high socioeconomic students.

Research Procedures Used

This research was a non-experimental study based on archival data provided to the researcher by a medium urban school district in the southeastern United States. 2012-

2013 Composite Reading scale scores of the North Carolina End of Grade (EOG) examination were used from one middle school in the system that is representative of the population demographics of the system.

The dependent variable of the study was English/ Language Arts achievement of eighth grade students as measured by the Reading scale scores of the North Carolina End of Grade examination. The independent variables were years of art completed in middle school which was zero, one, two, three, four, or five years. The control variables were gender, race, and socioeconomic status as determined by free and reduced lunch status.

Research Question

Is the relationship of the actual number of visual arts courses completed by 8th grade students positively related to academic achievement as measured by the 2012-2013 Composite Reading scale scores of the North Carolina End of Grade (EOG) Examination?

Summary of the Findings

Results of the regression analysis do not support research hypothesis. Researcher fails to reject the null hypothesis; there is no significant relationship between number of art courses completed in middle school and 8th grade Reading End of Grade scale scores. The best fitting model for predicting North Carolina End of Grade reading scale scores revealed number of art courses completed in middle school did not significantly relate to the reading scores after controlling for gender, ethnicity, and socioeconomic status. ($R = .38$, $R^2\ change = .00$, $F = .02$, $p = .88$).

Researchers Major Conclusion

Although results revealed no significance in number of art courses completed in middle school as a predictor for North Carolina End of Grade Reading scale scores,

researcher concludes there are three reasons for finding no significance: Timeframe of implementation of the Common Core State Standards and a new North Carolina End of Grade Reading examination, the fidelity of the visual arts teacher's instruction, and sample size of the study.

Researcher reasons that the North Carolina End of Grade Reading scale scores may not have been a true picture of student knowledge for the 2012-2013 school year because this was a new version of the North Carolina End of Grade Reading examination given after their first year of implementation of the Common Core State Standards. Student scores across the state and district were lower.

The Common Core State Standards represent a set of smarter standards created to help students develop critical thinking skills. Teachers were expected to move to a more student centered instruction using collaboration and reflection (Karp, 2014). Full implementation of Common Core State Standards began statewide in North Carolina with the 2012-2013 school year. Core class teachers and technical subjects, which include visual arts, drama, dance, music, band, CTE, physical education, and orchestra, were all expected to unpack and implement the Common Core State Standards. States and districts had the flexibility to how it would be implemented. During the summer before the 2012-2013 school year North Carolina began training employees in Common Core State Standards. Many school used the train the trainer model. Researcher questions if all training was equal and if the technical subjects received training equal as their core class peers.

Researcher questions if the visual arts teacher(s) had adequate training in the Common Core State Standards and if they adhered to the standards in their instruction.

The Common Core State Standards for Reading and Writing are written in a way that all content areas within a school shares the responsibility of student literacy development. It is important for non-English/ Language Arts classes to incorporate more informational reading since English/ Language Arts must focus on all literature which includes stories, drama, poetry, plays, and literary non-fiction ("Common core state," 2011). Hill (2011) states, "the push is for teachers to use more complex texts in their classroom because complex texts are made up of relationships that are subtle, involved, deeply embedded, and can be found among ideas; possesses highly sophisticated information; structure is organized in an elaborate and sometimes unconventional way; style, tone, and use of language is intricate; vocabulary is demanding and highly contextually dependent; and the purpose of the text is unspoken and sometimes ambiguous." Visual arts teachers should include more complex pieces of art so students can analyze them as they would complex text. Appendix A and Appendix B shows the parallel between the Common Core State Standards and the North Carolina Visual Arts Essential Standards.

Did the visual arts teachers use visual arts as informational text and? Did they understand their role in implementing the Common Core State Standards in their curriculum and how visual arts fit naturally into the Common Core State Standards? .

A final reason the researcher finds fault in the results was the small size of the sample population. The medium urban school district in the southeastern United States only allowed the researcher data from 125 8th grade students from one middle school. To begin with, researcher asked for data from all 3,000 8th grade students from the district. When that was denied, researcher asked for data from all students from one middle school that was representative of the demographics of the school district. That was

denied and researcher began looking at the small sample size allowed to conduct hierarchical regressions. Field (2005) suggests a minimum sample size of $104 + k$ (where k represents the number of variables). Researcher believes if a larger sample was used the mean North Carolina End of Grade Reading scale scores would have varied more between the groups who completed no art courses up to completing 5 art courses and there may have significance in number of completed art courses as a predictor of North Carolina End of Grade Reading scale scores.

Suggestions for Further Research

Although results revealed no significance in number of art courses completed in middle school as a predictor for North Carolina End of Grade Reading scale scores, researcher believes it is a topic to continue researching.

It is important that future research examines the quality of visual arts instruction, length of study, and sample population. Investigating the quality of visual arts instruction and the fidelity of practice of the Common Core State Standards within the visual arts class is important to include when designing a future study. Researcher believes some visual arts teachers parallel reading of the text to how an English/ Language Arts teacher instructs their students to read texts while others do not due to different philosophies of visual arts education. Students in the visual arts classes where the teacher parallels visual arts to English/ Language Arts will have increased North Carolina End of Grade Reading scale scores. Future research will need to control for the quality of instruction.

Examining the relationship of the actual number of visual arts courses completed by 8th grade students during middle school and academic achievement as measured by the North Carolina End of Grade Reading scores would be a stronger study if it was a longitudinal study with a larger sample size. Researcher suggests further research

include three or more years of 8th grade test data to look for trends and to compare groups between years. For future research, it is suggested to use the entire population of the school system of take a random sample from the entire system.

This topic warrants further study because the researcher believes visual arts naturally parallels English/ Language Arts and is an untapped resource to support students' academics. Piro (2002) identifies commonalities shared between visual arts and English/ Language Arts. Semantic and syntactic properties are found in each discipline; creating a composition requires organization from the established rules set forth by each discipline; elements of art and principles of design, such as color, texture, pattern, line, space, form, repetition, balance, unity, and variety conveys meaning in art while words, phrases, sentences, and literary elements are used to construct meaning with written text (Piro, 2002). In Visual Arts text includes words, symbols, drawings, and any other visual representations that communicate ideas and/ or feelings. If transfer of learning from visual arts to English/ Language Arts can be shown before students reach high school, changes can be made to instructional methodology so more students are reading and writing on grade level by high school which could have a positive effect on the graduation rate.

Lindström (2010) identifies research approaches that emphasize art as language or art as text. Art as language tends to focus on the media of expression where art is paralleled to writing. Art as text emphasizes reading a piece of art for knowledge and moral inspiration which emphasizes interpretation and context (Lindström, 2010). Understanding these phenomena will provide educators with instructional ideas and resources to help their students be college and career ready by the time they graduate.

Summary

The purpose of this study was to explore what significant relationships exist among the number of visual arts courses completed by 8th grade students upon their academic achievement as measured by the 2012-2013 Reading scale scores of the North Caroling End of Grade (EOG) examination after controlling for gender, race, and socioeconomic status. Archival data was used for the study and 125 students were chosen through systematic sampling from a middle school in a medium urban school district in the southeastern United States. The middle school chosen was representative of the population in the school system. Researcher analyzed data using hierarchical multiple regression. Results of the hierarchical regression analysis do not support research hypothesis. The best fitting model for predicting North Carolina End of Grade reading scale scores revealed number of art courses completed in middle school did not significantly relate to the reading scores after controlling for gender, ethnicity, and socioeconomic status. ($R = .38$, $R^2\text{change}=.00$, $F = .02$, $p = .88$). Researcher suggests further studies in number of art courses completed in middle school and North Carolina Reading End of Grade scale scores for the following reasons: Researcher only had access to the 2012-2013 school year Reading End of Grade scale scores and no scores before that year due to changing data systems from NCWise to PowerSchool. A new version of the North Carolina End of Grade examination was administered the 2012-2013 school year and was being normed.

REFERENCES

- Act plan.* (2013). Retrieved from <http://www.act.org/products/k-12-act-plan/>
- Appel, M. (2006). Arts integration across the curriculum. *Leadership*, (November/December), 14-17.
- Artful thinking. (n.d.). Retrieved May 11, 2014, from www.pzartfulthinking.org/overview.php
- Catterall, J. (n.d.). The arts and transfer of learning. Retrieved May 11, 2014, from www.gpo.gov/fdsys/pkg/ERIC-ED466413/pdf/ERIC-ED466413.pdf
- Catterall, Dumais, & Hampden-Thompson (2012). The arts and achievement in at-risk youth: Findings from four longitudinal studies. Washington, DC: National Endowment for the Arts. Retrieved from <http://arts.gov/sites/default/files/Arts-At-Risk-Youth.pdf>
- Charlotte Mecklenburg Schools; arts education. (n.d.). Retrieved from www.cms.k12.nc.us/cmsdepartments/ci/arts-ed/Pages/default.aspx
- Coladarci, T., Cobb, C., Minium, E., & Clarke, R. (2008). *Fundamentals of statistical reasoning in education*. (Second ed.). Hoboken: John Wiley & Sons, Inc.
- Common core state standards initiative. (2011). Retrieved from www.corestandards.org/
- Creative. (2013). In *Merriam-Webster Online Dictionary*. Retrieved September 21, 2013, from www.merriam-webster.com/dictionary/creative
- Department of Public Instruction, Accountability Services Division. (n.d.). *North Carolina end-of-grade tests at grades 3-8 and 10*. Retrieved from North Carolina Department of Public Instruction website: www.ncpublicschools.org/accountability/testing/eog/
- Eisner, E. W. (2002). *The arts and the creation of mind*. New Haven and London: Yale Univ Pr.
- Field, A. P. (2005). *Discovering statistics using SPSS: (and sex, drugs and rock 'n' roll)* (2nd ed.). London: Sage Publications.
- Flood, J., & Lapp, D. (1997). Broadening conceptualizations of literacy: the visual and communicative arts. *Visual Literacy*, 51(4), 342-344.
- Gadsden, V. (2008). The arts and education: Knowledge generation, pedagogy, and the discourse of learning. *Review of Research in Education*. 32 (29), 29-61.
- Gardner, H. (2008). *5 minds for the future*. Boston, Ma.: Harvard Business Press.

- Heilig, J., Cole, H., & Aguilar, (2010). From dewey to no child left behind: The evolution and devolution of public arts education. *Arts Education Policy Review*, (111), 136-145. doi: 10:1080/10632913.2010.490776
- Hickman, R., & Kiss, L. (2010). Cross-curricular gallery learning: a phenomenological case study. *Jade*, 29(1), 27-36.
- Hill, R. (2011). Common core curriculum and complex texts. *Teacher Librarian*, 38(3), 42-46.
- Huck, S. (2012). *Reading statistics and research*. (6th ed.). Boston, Ma.: Pearson Education, Inc.
- innovation. (2013). In *Merriam-Webster Online Dictionary*. Retrieved September 21, 2013, from www.merriam-webster.com/dictionary/innovation
- Keiper, S., Sandene, B., Persky, H., & Kuang, M. U.S. Department of Education, Institute of Education Sciences. (2009). *The nation's report card: arts 2008 music & visual arts* (NCES 2009-488). Washington, D.C.: National Center for Education Statistics.
- Larson, L., & Miller, T. (2011). 21st century skills: prepare students for the future. *Kappa Delta Pi Record*, (Spring), 121-123.
- Lowenfeld, V., & Brittain, W. L. (1987). *Creative and mental growth*. (8th ed.). New York, NY: Macmillan.
- Lynch, P. (2007). Making meaning many ways: an exploratory look at integrating the arts with classroom curriculum. *Art Education*, (July), 33-38.
- Karp, S. (2014). The problems with common core. . Retrieved July 1, 2014, from www.rethinkingschools.org/archive/28_02/28_02_karp.shtml
- McMurrer, J. (2008). *Instructional time in elementary school subjects: A closer look at changes for specific subjects*. Washington, DC: Center on Educational Policy.
- Maryland fine arts instructional tool kit. (n.d.). Maryland State Board of Education. Retrieved from http://mfaa.msde.state.md.us/source/MDFA_index.asp
- Miller, S., & Hopper, P. (2010). Supporting reading goals through visual arts. *Reading Improvement*, 47(1), 3-6.
- No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002).

- North Carolina State Board of Education.(n.d.). Licensure. Retrieved from North Carolina Department of Public Instruction website:
www.dpistate.nc.us/licensure/faq/
- North Carolina State Board of Education.(n.d.). North carolina essential standards. Retrieved from North Carolina Department of Public Instruction website:
www.ncpublicschools.org/acre/standards/new-standards/
- North Carolina State Board of Education, (2009).*North carolina reading comprehension tests*. Retrieved from North Carolina Department of Public Instruction. Website:
www.ncpublicschools.org/docs/accountability/testing/reports/eogreadingtechman3.pdf
- North Carolina State Board of Education.(n.d.).*North carolina report cards glossary of terms*. Retrieved from North Carolina Department of Public Instruction website:
www.ncschoolreportcard.org/src/Glossary.pdf
- North Carolina State Board of Education.(n.d.).*School report cards*. Retrieved from North Carolina Department of Public Instruction website:
<http://www.ncreportcards.org/src/search.jsp?pYear=2011-2012&pList=1&pListVal=600%3ACharlotte-Mecklenburg+Schools&GO2=GO>
- Patten, M. (2007).*Understanding research methods*. (6th ed.). Glendale: Pyczak Publishing.
- Partnership for 21st century skills*. (2011). Retrieved from www.p21.org
- Perspectives on learning. (2012).. Retrieved May 11, 2014, from
[projectzero.gse.harvard.edu/assets/Final_Revised%20PZ_Brochure\(1\).pdf](http://projectzero.gse.harvard.edu/assets/Final_Revised%20PZ_Brochure(1).pdf)
- Piro, J. (2002). The picture of reading: Deriving meaning in literacy through image. *The Reading Teacher*, 56(2), 126-134.
- Posner, M., & Patoine, B. (2009). How arts training improves attention and cognition. . Retrieved May 25, 2014, from
www.dana.org/Cerebrum/2009/How_Arts_Training_Improves_Attention_and_Cognition/
- Posner, M., Rothbart, M., Sheese, B., & Kieras, J. (2008). Arts and cognition monograph: How arts training influences cognition. . Retrieved May 5, 2014, from
www.dana.org/Publications/ReportDetails.aspx?id=44253
- Porter, A., McMaken, J., Hwang, J., & Yang, R. (2011). Common core standards: the new u.s. intended curriculum. *Educational Researcher*, 40(3), 103-116. doi: 10.3102/0013189X11405038

- Reports of disaggregated state, school system (lea) and school performance data for 2010 - 2013.* (n.d.). Retrieved from <http://accrpt.ncpublicschools.org/app/2013/disag/>
- Robinson, K. (2011). *Out of our minds.* (2 ed.). South Gate: Capstone.
- Robinson, K. (2008). *The arts in schools: Principles, practice and provision.* London: Calouste Gulbenkian Foundation.
- Rothman, R. (2011). Five myths about the common core state standards. *Harvard Education Letter.* 27(5). Retrieved, April 11, 2012 from www.hepg.org/hel/printarticle/513
- Ruppert, S. (2006). *Critical evidence: How the arts benefit student achievement.* Washington: National Assembly of State Arts Agencies.
- Seidel, S., Tishman, S., Winner, E., Hetland, L., & Palmer, P. (2009). *The qualities of quality understanding excellence in the arts.* Cambridge, Ma: Project Zero Harvard Graduate School.
- Stephens, P., & Walkup, N. (2000). *Bridging the curriculum through art interdisciplinary connections.* Glenview: Crystal Productions.
- Sternberg, R. The nature of creativity. *Creativity Research Journal,* 18, 87-98. Retrieved April 5, 2014, from http://people.uncw.edu/caropresoe/GiftedFoundations/SocialEmotional/Creativity-articles/Sternberg_Nature-of-creativity.pdf
- Tishman, S. & Palmer, P. (2006). *Artful thinking stronger thinking and learning through the power of art.* Cambridge, Ma: Project Zero Harvard Graduate School of Education.
- U.S. Department of Education, National Assessment Governing Board. (2008). *Naep arts education framework project.* Washington: U.S. Government Printing. ("Naep arts education," 2008)
- Vaughn, K., & Winner, E. (2000). Sat scores of students who study the arts: What we can and cannot conclude about the association. *Journal of Aesthetic Education,* 4(3/4), 77-89. Retrieved from <http://www.jstor.org/stable/3333638>
- Vega, V. (2012). A research-based approach to arts integration. *Edutopia,* Retrieved from www.edutopia.org/stw-arts-integration-research

- Wandell, B., Dougherty, R., Ben-Shachar, M., Deutsch, G., & Tsang, J. (2008.). Arts and cognition monograph: Training in the arts, reading and brain imaging. Retrieved May 2, 2014, from www.dana.org/Publications/ReportDetails.aspx?id=44246
- West Virginia Department of Education. (n.d.). *WESTEST 2*. Retrieved from West Virginia Department of Education Website:
http://wvde.state.wv.us/oaa/westest_index.html
- Whisman, A., & Hixson, N. Division of Curriculum and Instructional Services, Office of Research.(2012). *A cohort study of arts participation and academic performance*. Retrieved from West Virginia Department of Education website:
<http://wvde.state.wv.us/>
- Williamson, Z., & Schell, J. (n.d.). OnRamps. . Retrieved June 14, 2014, from <http://onramps.org/transfer-of-learning/>
- Winner, E., & Hetland, L. The arts in education: Evaluating the evidence for a causal link. *Journal of Aesthetic Education*, 34, 3-10. Retrieved May 6, 2014, from www.jstor.org/stable/3333636
- Zwirn, S., & Graham, M. (2005). Crossing borders the arts engage academics and inspire children. *Childhood Education*, 81(5), 267-273.

**APPENDIX A: PARALLELS BETWEEN NORTH CAROLINA VISUAL ARTS
ESSENTIAL STANDARDS AND THE COMMON CORE READING STANDARDS
FOR INFORMATIONAL TEXT, GRADE 8**

COMMON CORE READING STANDARDS FOR INFORMATIONAL TEXT GRADE 8	NORTH CAROLINA VISUAL ARTS ESSENTIAL STANDARDS GRADE 8
1. Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.	8.V.1 Use the language of visual arts to communicate effectively 8.CR.1.1 Use convincing and logical arguments to respond to art
2. Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.	8.V.1.4 Analyze the relationship between the elements of art and principles of design in art
3. Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).	8.V.1.3 Identify how the elements of art and principles of design differentiate movements, contemporary styles, and themes in art 8.CX.1.2 Analyze art from various historical periods in terms of style, subject matter, and movements.
4. Determine the meaning of words and phrases as they are used in text, including figurative, connotative and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.	8.V.1.4 Analyze the relationship between the elements of art and principles of design in art 8.CR.1 Use critical analysis to generate responses to a variety of prompts 8.CR.1.1 Use convincing and logical arguments to respond to art
5. Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.	8.V.1.4 Analyze the relationship between the elements of art and principles of design in art
6. Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.	8.V.2 Apply creative and critical thinking skills to artistic expression. 8.V.2.3 Create original art that conveys one or more ideas or feelings
7. Evaluate the Advantages and disadvantages of using different mediums (print or digital text, video, or multimedia) to present a particular idea or topic.	8.V.3 Create art using a variety of tools, media, and processes, safely and appropriately 8.V.3.3 Evaluate techniques and processes to select appropriate methods to create art 8.CX.2.4 Exemplify the use of visual images from media sources and technological products to communicate an artistic context.
8. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.	8.V.1.4 Analyze the relationship between the elements of art and principles of design in art 8.CR.1.1 Use convincing and logical arguments to respond to art 8.CR.1.2 Critique personal art based on identified criteria
9. Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.	8.V.1.3 Identify how the elements of art and principles of design differentiate movements, contemporary styles, and themes in art 8.CX.1.2 Analyze art from various historical periods in terms of style, subject matter, and movements.
10. By the end of the year, read and comprehend literacy non-fiction at the high end of the grades 6-8 text complexity band independently and proficiently.	8.V.1.3 Identify how the elements of art and principles of design differentiate movements, contemporary styles, and themes in art

(North carolina essential, 2010; CCSS, 2011)

**APPENDIX B: CORRELATION OF NORTH CAROLINA VISUAL ARTS
ESSENTIAL STANDARDS AND THE COMMON CORE READING STANDARDS
FOR WRITING, GRADE 8**

COMON CORE WRITING STANDARDS GRADE 8	NORTH CAROLINA VISUAL ARTS ESSENTIAL STANDARDS GRADE 8
1. Write arguments to support claims with clear reasons and relevant evidence.	8.CR.1.1 Use convincing and logical arguments to respond to art
2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.	8.V.1.1 Use art vocabulary to evaluate art 8.V.2 Apply creative and critical thinking skills to artistic expression. 8.V.3.3 Evaluate techniques and processes to select appropriate methods to create art
3. Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.	8.V.1.2 Apply the elements of art can aid in the planning and creation of personal art 8.V.2.2 Apply observation skills and personal experiences to create original art.
4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	8.V.1.3 Identify how the elements of art and principles of design differentiate movements, contemporary styles, and themes in art 8.V.2.2Apply observation skills and personal experiences to create original art.
5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.	8.V.1.2 Apply the elements of art can aid in the planning and creation of personal art 8.V.2.2Apply observation skills and personal experiences to create original art.
6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.	8.V.2.2Apply observation skills and personal experiences to create original art. 8.V.3 Create art using a variety of tools, media, and processes, safely and appropriately. 8.V.3.2Use a variety of media to create art
7. Conduct short research projects to answer a question sources and generating additional related, focused questions that allow for(including a self-generated question),drawing on several multiple avenues of exploration.	8.CR.1.1 Use convincing and logical arguments to respond to art 8.CX.2.3 Use collaboration to arrive at effective solutions to identified problems
8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	8.CR.1.2 Critique personal art based on identified criteria 8.V.2 Apply creative and critical thinking skills to artistic expression. 8.V.3 Create art using a variety of tools, media, and processes, safely and appropriately. 8.CX.2.4 Exemplify the use of visual images from media sources and technological products to communicate an artistic context.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.	8.CR.1.1 Use convincing and logical arguments to respond to art
10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences	8.CR.1.1 Use convincing and logical arguments to respond to art 8.CR.1.2 Critique personal art based on identified criteria

(North carolina essential, 2010; Common core state, 2011)

APPENDIX C: NORTH CAROLINA READING END OF GRADE TEST TECHNICAL MANUAL

The North Carolina Department of Education technical manual on Reading End-of-Grade tests states”:

“Evidence of content validity begins with an explicit statement of the constructs or concepts being measured by the proposed test. Interpretation of test scores refers to constructs or concepts the test is proposed to measure. All items developed for the End-Of-Grade are done so to measure the goals and objectives as specified in the North Carolina Standard Course of Study with particular focus on assessing students’ ability to process information and engage in higher order thinking.

Content validity is further evidenced through the item development process. The items are written by North Carolina teachers familiar with the content standards. Items are also reviewed by additional teachers to ensure alignment to the content standards. Additionally, items are also approved by internal staff, including content test development staff and curriculum representatives, prior to placement on a test. The tests are further reviewed by both teachers and internal consultants for content coverage, to ensure that the tests are reflective not just of the curriculum but are also reflective of what is taught in the classroom.

As a part of the test development process, the North Carolina Department of Public Instruction routinely administers questionnaires to teachers in order to evaluate the validity and appropriateness of the North Carolina End-Of-Grade Reading Comprehension Tests. At the form review level, teachers are asked to respond to the following questions. In addition to the specific questions below, they are also asked to provide any 61 additional comments they feel are necessary. These comments are reviewed and evaluated during the test development process to ensure the appropriateness of the assembled operational forms. Overall, the comments were positive across grades; however, in instances where concerns were raised, additional scrutiny by Test Development staff was given to ensure appropriateness. The process for reviewing comments involves Test Development content staff and psychometricians wherein every comment is reviewed and every item for which a comment has been made is reviewed.

- (1) If the content of these forms DOES NOT reflect the goals and objectives of the curriculum as outlined on the list of objectives, please explain.
- (2) If the content of these forms DOES NOT reflect the goals and objectives of the curriculum as it is taught in your school or school system, please explain.
- (3) If the content of these forms IS NOT balanced in relation to ethnicity, race, sex,

APPENDIX C: (CONTINUED)

socioeconomic status, or limited English proficiency, please explain.

Analysis of the relationship between test scores and variables external to the test provide another important source of validity evidence. External variables may include measures of some criteria that the test is expected to predict, as well as relationships to other tests hypothesized to measure the same constructs. Criterion-related validity of a test indicates the effectiveness of a test in predicting an individual's behavior in a specific situation. The criterion for evaluating the performance of a test can be measured at the same time (concurrent validity) or at some later time (predictive validity). For the North Carolina End-Of-Grade Reading Comprehension Tests, teachers' judgments of student achievement, expected grade, and test score all serve as sources of evidence of concurrent validity. The Pearson correlation coefficient is used to provide a measure of association between the scale score and those variables listed above. The correlation coefficients for the North Carolina End-Of-Grade Reading Comprehension Tests range from 0.50 to 0.69, indicating a moderate to strong correlation between scale scores and external variables.

The North Carolina Department of Public Instruction found moderate to strong correlations between scores in reading and variables such as teachers' judgment of student achievement and expected grade. The North Carolina Department of Public Instruction also found generally low correlations among these scores and variables external to the test such as gender, limited English proficiency, and disability for grades 3 through 8. The correlations between scores and gender or limited English proficient were less extreme than ± 0.10 , and most of the correlations between scores and disability status were less extreme than ± 0.30 . None of these relationships approached the levels recorded for the selected measures of concurrent validity. These generalizations held across the full range of forms administered by the North Carolina Department of Public Instruction for all the grades and subject areas." ("North Carolina reading," 2009)

APPENDIX D: 8TH GRADE NORTH CAROLINA VISUAL ARTS ESSENTIAL
STANDARDS

VISUAL LITERACY

8.V.1 Use the language of visual arts to communicate effectively.

8.V.1.1 Use art vocabulary to evaluate art.

8.V.1.2 Apply the elements of art in the planning and creation of personal art

8.V.1.3 Identify how the elements of art and principles of design differentiate movements, contemporary styles, and themes in art

8.V.1.4 Analyze the relationship between the elements of art and principles of design in art

8.V.2 Apply creative and critical thinking skills to artistic expression.

8.V.2.1 Create art that uses the best solutions to identified problems.

8.V.2.2 Apply observation skills and personal experiences to create original art.

8.V.2.3 Create original art that conveys one or more ideas or feelings

8.V.3 Create art using a variety of tools, media, and processes, safely and appropriately.

8.V.3.1 Apply knowledge of safety and media to maintain and take care of work space and art

8.V.3.2 Use a variety of media to create art.

8.V.3.3 Evaluate techniques and processes to select appropriate methods to create art

CONTEXTUAL RELEVANCY

8.CX.1 Understand the global, historical, societal, and cultural contexts of the visual arts.

8.CX.1.1 Understand the visual arts in North Carolina and the United States in relation to history and geography.

8.CX.1.2 Analyze art from various historical periods in terms of style, subject matter, and movements.

8.CX.1.3 Analyze the effect of geographic location and physical environment on the media and subject matter of art from North Carolina and the United States

8.CX.2 Understand the interdisciplinary connections and life applications of the visual arts.

8.CX.2.1 Compare personal interests and abilities to those needed to succeed in a variety of art careers

APPENDIX D: (CONTINUED)

8.CX.2.2 Analyze skills and information needed from visual arts to solve problems in art and other disciplines

8.CX.2.3 Use collaboration to arrive at effective solutions to identified problems

8.CX.2.4 Exemplify the use of visual images from media sources and technological products to communicate an artistic context.

CRITICAL RESPONSE

8.CR.1 Use critical analysis to generate responses to a variety of prompts.

8.CR.1.1 Use convincing and logical arguments to respond to art

8.CR.1.2 Critique personal art based on identified criteria

(“North Carolina essential,”)

APPENDIX E: 8TH GRADE NUMBER OF STUDENTS PARTICIPATING, NUMBER
PROFICIENT, PERCENT PROFICIENT AND AVERAGE SCALE SCORE ON
NORTH CAROLINA READING END-OF-GRADE TEST FOR SCHOOL YEAR 2012-
2013

	North Carolina	School District	Middle School
#Students Tested	108,855	3012	432
# and % Proficient	46,273/42.5%	1803/59.9%	265/61.3%
Average Scale Score	458.7	463.2	463.1
# Female and %	54,279/ 49.9%	1453/ 48.2%	220/ 50.9%
# and % Proficient	25,022/ 46.1%	934/ 64.3%	138/ 62.7%
Average Scale Score	459.8	464.2	464.0
# Male and %	54,576/ 50.1%	1559/ 51.8%	212/ 49.1%
# and % Proficient	21,251/ 38.9%	869/ 55.7%	127/ 59.9%
Average Scale Score	457.5	462.3	462.3
# American Indian and %	1535/ 1.4%	5/ 0.1%	No students
# and % Proficient	423/ 27.6%	2/ 40.0%	
Average Scale Score	454.7	454.8	
# Asian and %	2733/ 2.5%	46/ 1.5%	12/ 2.8%
# and % Proficient	1597/ 58.4%	34/ 73.9%	9/ 75%
Average Scale Score	462.3	466.8	465.3
# Black and %	28,658/ 26.3%	367/ 12.2%	44/ 10.1%
# and % Proficient	7066/ 24.7%	126/ 34.3%	20/ 45.5%
Average Scale Score	454.4	457.7	459.3
# Hispanic and %	13,410/ 12.3%	389/ 12.9%	46/ 10.6%
# and % Proficient	4111/ 30.7%	145/ 37.3%	20/ 43.5%
Average Scale Score	455.9	457.7	459.3
# Two or more races and %	3800/ 3.5%	59/ 1.9%	6/ 3.4%
# and % Proficient	1674/ 44.1%	32/ 54.2%	3/ 50%
Average Scale Score	458.9	462.0	462.5
# Pacific Islander and %	111/ 0.1%	No Students	No students
# and % Proficient	47/ 42.3%		
Average Scale Score	458.6		
# White and %	58,608/ 53.8%	2145/ 71.2%	323/ 74.8%
# and % Proficient	31,355/ 53.5%	1464/ 68.3%	213/ 65.9%
Average Scale Score	461.3	465.1	464.2
# ED* and %	55,989/ 51.5%	905/ 30.0%	112/ 25.9%
# and % Proficient	15,135/ 27.0%	316/ 34.9%	51/ 45.5%
Average Scale Score	454.9	457.6	460.0
# Not ED** and %	52,866/ 48.5%	2107/ 70.0%	320/ 74.1%
# and % Proficient	31,138/ 58.9%	1487/ 70.6%	214/ 80.4%
Average Scale Score	462.7	465.6	464.2

* Non-Economically Disadvantaged **Economically Disadvantaged
<http://accrpt.ncpublicschools.org/app/2013/disag/>