THE ARTS AND ELEMENTARY EDUCATION: EFFECTS ON STUDENT

LEARNING, MOTIVATION, AND SELF-EFFICACY

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ABSTRACT

In a climate of high-stakes testing where arts programs are considered

expendable because they are not included on mandated state tests, it is

important to assess the effects of arts education to determine the possible impact

of a narrowing curriculum on student learning. Therefore this paper provided a

critique of 30 peer-reviewed research articles and found evidence to support the

claim that arts education has a positive effect on student learning in many areas,

including retaining academic content, creativity, and reading comprehension, as

well as the dimensions of student motivation and self-efficacy. These findings

suggest that teachers should integrate arts education into their elementary

classrooms to foster student learning and self-reflective practices that support

metacognitive goals. Further quantifiable research is suggested pertaining to the

effect of arts education on learning, motivation and self-efficacy to provide

additional evidence in the current data-driven political climate.

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CHAPTER ONE: INTRODUCTION

Introduction

Man will begin to recover the moment he takes art as seriously as physics,

chemistry or money.

~Ernst Levy

One of the hallmarks of civilization is artistic expression; throughout

human history people have responded to cultural values, beliefs, and milestones

by producing works of art from a variety of perspectives in a multitude of

mediums, resulting in artifacts that have enriched the tapestry of human

experience. In recent years the American public school system has increasingly

abandoned arts education in schools, reflecting the data-driven model of the No

Child Left Behind Act of 2001 (2001, PL 107-110), a view of education that

places an emphasis on mastery of core content and basic skills, with mandated

annual state testing to determine whether or not schools are making adequate

yearly progress (AYP). As a result of the push for school and teacher

accountability under this legislation, many schools, particularly those at risk of not

making annual yearly progress, elect to focus on the core content included in the

high stakes standardized tests, a move that often serves to narrow the curriculum

(Ravitch, 2010); in many cases arts programs are the first casualties of such

curriculum restructuring. At the middle and high school levels, fine arts classes

are considered electives, reflecting the prevailing view that arts programs are a

non-essential part of the curriculum.

While few would argue that the arts have no inherent value, the fact that these subjects are not included in the federally mandated tests encourages the perception that these disciplines do not contribute directly to academic achievement, supporting the argument that with limited funds available to public schools, the curriculum should focus on core content that prepares students for an increasingly competitive global marketplace. Critics of this perspective argued that the arts were an integral part of a well-rounded curriculum, pointing to the findings of a growing body of research that support positive connections between arts programs and student achievement. This paper examines the validity of both claims, analyzing recent research on the effect of fine arts education on student learning, motivation, and self-efficacy at the elementary level.

Rationale

The No Child Left Behind legislation of 2001 (2001, PL 107-110) was crafted as a response to the growing disparity between the academic achievement of students in different socioeconomic brackets. Because the American public school system is a reflection of our national democratic principles, "our public education system is a fundamental element of our democratic society" (Ravitch, 2010, p. 241), this legislation was designed to help address the growing achievement gap by emphasizing school accountability and standards-based achievement. While well intentioned, this data-driven pedagogical model has resulted in unexpected emergent properties, including a narrowing of the curriculum that often reduces or eliminates arts programs in

favor of classes that focus on the subject matter featured on standardized tests.

The elimination of these programs can alienate students whose strengths are under-represented on the tests, such as the arts: "it is important to note that this narrowing is likely to be greatest in schools serving at-risk and disadvantaged students, where there is the most pressure to improve test scores" (Volante, 2004, p. 34), suggesting that the educational environment created by the NCLB legislation may in fact be alienating the very students it hoped to serve. This paper will analyze recent research on the effects of arts education on student learning, motivation, and self-efficacy at the elementary level to determine whether or not the elimination of arts programs is supported by the literature.

History of Arts Education in America

Colonial Era

In the 17th century, the Puritans first priority was spiritual wellbeing: "education was a means to that end. Therefore, they believed that the education of their children in religion was their premier duty" (Herring, 2003, p. 1). The principle goal was to teach reading and writing so that children could understand the laws of God. The fine arts were considered to be an unnecessary luxury that belonged to the world of aristocrats.

The Common School Era

By the mid 1800s, most Americans identified their culture as a nation of white people of European ancestry. While this was hardly a true reflection of reality, other voices were drowned out by the dominant culture, whose values and worldview were reflected in the common schools, an institution popularized

by Horace Mann, the father of American Education (School: The Story, 2001). While Mann sought to equalize educational opportunities for children, the common schools were designed to bring discipline and order to the working class, whose numbers were rapidly increasing through immigration. The common schools emphasized standardization, drills, obedience and moral training (School: The Story, 2001). Mann was the first to introduce drawing into the school curriculum, recognizing it as an important skill for an industrialized workforce.

Early 20th Century

By the turn of the century, new theories about child development were emerging that placed children at the center of the educational process; psychologists such as Pestalozzi emphasized an active learning approach to education that encouraged a hands-on approach (Hobs, and Rush, 1997). The introduction of the first kindergarten by Froebel expanded on Pestalozzi's ideas, emphasizing the importance of play in child development, and encouraging students to be expressive and creative (Hobs, and Rush, 1997). This coincided with a new method of art instruction called "Picture Study", popularized by Oscar W. Neale, whose *Picture Study in the Grades* (1927) attempted to make visual art accessible to the masses.

Progressive Education

One of the most influential proponents of progressive education was Dewey, who believed that children constructed knowledge from a variety of connected experiences (Dewey, 1934). In order to demonstrate his ideas on

education reform, in 1896 Dewey established the Laboratory School, which encouraged teachers to serve as mentors and guides who facilitated learning through social interaction. In 1934 Dewy published *Art as Experience*, which promoted the benefits of active learning, including the use of art as an integral part of the curriculum: Dewey believed that art is best understood when a child is actively involved in transforming experiences into personal creations that display newly constructed knowledge (Dewey, 1934).

Late 20th Century

Prior to the publication of *Frames of Mind: The Theory of Multiple Intelligences* (Gardner, 1985), the arts were considered an extra-curricular activity, instead of a unique avenue of learning. Gardner's theory supported the view that the arts are acts of intelligence that should be considered equal to other subjects. This theory helped to elevate the arts to a new level of importance in the classroom, with the result that many teachers began to adjust their teaching methods to incorporate the arts into the classroom.

Definitions

For the purpose of this paper, arts education is defined as "education in separate and distinct artistic disciplines, such as: dance, music, drama, folk arts, media arts and visual arts" (Davis, 2008). The term student learning refers to cognitive abilities that are assessed by grades, rubrics, and/or projects and portfolios, as well as overall academic success (Ward, Stoker, Murray-Ward, 1996). Motivation is defined as a student's own desire and enthusiasm to accomplish something they consider to be worthwhile (Collins English Dictionary,

2012).

Limitations

In an attempt to make this work relevant to elementary educators, the research presented on the effects of the arts on student learning and motivation has been limited to samples of elementary-age students and some middle school students. Data points in the literature that do not directly pertain to the research question have been omitted, for purposes of brevity and focus. The research presented in this paper is weighted toward that which has been done in the past decade in order to focus the analysis on the most current findings, but in some cases prior studies with rigorous research methodology and important findings have been included to support a more complete understanding of the effects of arts education on academic achievement and motivation at the elementary level. While many important research studies have focused on arts education at the secondary level, particularly as it pertains to motivation and dropout rates, this research is not as relevant to elementary students and has been omitted from the literature review.

Statement of Purpose

The No Child Left Behind Act of 2001(2001, PL 107-110) has created a public school culture where test scores increasingly determine the fate of a school, resulting in a climate of institutionalized test anxiety that has caused many schools to redistribute their instructional hours to better prepare students for the core subject matter that is featured on federally mandated high stakes tests. Because state tests do not emphasize arts subject matter, many arts

programs have been reduced or eliminated, reflecting an attitude that such coursework is nonessential and makes a lesser contribution to education. This paper examines the effects of arts education on student learning and motivation at the elementary level, to determine whether the current status of arts education is supported by the literature.

Summary

Chapter One established the rationale of the research question, and provided an overview of the history of fine arts education in American public schools. The chapter also examined the purpose and requirements of the NCLB legislation, with a particular focus on federally mandated high stakes tests and how the pressure to achieve annual yearly progress has resulted in a narrowing of the curriculum in many schools, often resulting in the reduction or elimination of arts programs. The question of arts education and its effects on student achievement and motivation was introduced, along with different perspectives on the importance of arts education in schools. An overview of the history of arts education was offered, along with the rationale for exploring the effects of arts education on learning, motivation, and self-efficacy at the elementary level and the relevance of the literature analysis to the educational community and myself as a future elementary educator. The terms to be used in the research project were defined, along with a discussion of the parameters and limitations of the literature analysis.

Chapter Two offers an integrated analysis of the literature, exploring the links between the arts and learning, motivation, and self-efficacy at the

elementary level. The final chapter summarizes the research, provides classroom

implications and suggestions for further research, and offers a conclusion about

the effects of arts education on elementary students.

CHAPTER TWO: CRITICAL REVIEW OF THE LITERATURE

Introduction

Chapter One introduced the No Child Left Behind Act of 2001 and its effect on arts programs in public schools; under pressure to make annual yearly progress, schools have narrowed their curriculum to focus on mastery of core content and basic skills. Because arts content is not featured on the high stakes standardized tests, it is perceived as unimportant and these programs are often eliminated. In addition to the controversies surrounding the fluctuating public perception of art education, Chapter One discussed the growing body of research that has found positive effects on learning, engagement and self-efficacy when students are involved in arts programs, suggesting that the NCLB legislation may be eliminating a valuable education resource. Chapter One also provided a rationale for the purpose of this research paper, as well as discussing the definitions and limitations of the paper.

Chapter Two provides a critical examination of the research on arts education and the effects on elementary school students in the dimensions of learning, motivation and self-efficacy. The arts education literature explored in the chapter is divided into three sections: positive effects on student learning, positive effects on student motivation, and positive effects on student self-efficacy. The sections are organized according to the type of development that occurred due to participation in programs that implemented various arts

disciplines. Each study in Chapter Two is summarized and analyzed according to the quality standards for the research methodology; the findings are then examined to determine the effects of arts education on students at the elementary level.

<div align="center">**Positive Effects on Learning**</div>

Retaining Academic Content

The first four studies in this section examined the potential of arts education to help students learn and retain academic content. Nelson, Martin, and Baldwin (1998) explored the evidence for a link between artistic development and the development of other cognitive skills; Edens and Potter (2001) also investigated integrating art with science, exploring the role of art in the learning process and the possible transfer of art learning to other school subjects. Moore and Caldwell (1993) investigated the effects of thought-organizing activities involving drama and drawing on the quality of students' narrative writing, while the final study in this section, conducted by Mardirosian, Belson, and Lewis (2009) investigated whether arts education could be a means to empower teachers to help students comprehend abstract concepts in content areas.

In a correlational case study, Nelson, Martin, and Baldwin (1998) investigated the evidence for a link between artistic development and the development of other cognitive skills. The study was built on a theoretical framework that supports the idea that art provides an inherent conduit for learning across disciplines, arguing for an integrated approach to learning. A growing body of research was cited to support this claim; the study is explicitly

based on prior research studies that support the idea that art is intertwined with education and that the two disciplines should not be separated.

The subjects of the study were 91 children between the age of 4 and 8 years old from local preschool programs and one public elementary school. The subjects were predominantly Caucasian, with a mean age of 5.32 years; 42 of the subjects were boys, and 49 were girls. Participants in the study were enrolled in three Head Start centers, a university laboratory nursery school, an ecumenical nursery program, and kindergarten to grade two of a public elementary school.

The research design employed multiple scoring systems to categorize data from student drawings. Subjects were asked to draw a picture with no time limitations, which was subsequently scored on the aesthetic quality of the work as well as the developmental level of the child's drawing skills, based on an adapted version of the Gestalt Holistic Assessment tool. A panel of art teachers from three public schools rated the drawings; each judge participated in a training session prior to participating in the study, which included training on how to account for discrepancies in scoring if only a 2-point difference existed in the rating of a work.

Judges were also asked to evaluate the developmental level of the drawings based on Likert rating scale designed by the authors. Mark-making, the lowest developmental level, received a score of 1, followed by design-making, which received a score of 2; discernible symbols such as suns and spirals received a score of 3, and Developed Schemas received a mark of 4.

Many of the drawings included elements of more than one developmental level; in these cases the highest level was designated as the developmental score for the child. The aesthetic and developmental scores were combined to give each child a total drawing score.

Students were tested individually to determine their ability to recognize objects of wood, metal, plastic and glass, a task that was based on the work of Dickenson (1982). Children were individually presented with four arrays of items and asked to identify the predominant material in each group. For instance, the children were presented with a wooden fork, a white plastic fork, a toy wooden bat, a metal juice lid, a wooden ball, and a wooden bead and instructed to identify which items were made of wood. Students used classification and evaluation skills to perform the scientific process of identification, and the correct responses were tallied and recorded as a science score.

A simple linear regression procedure revealed a significant linear trend when the total drawing scores and the science scores were compared ($r = .32$, $p = .001$), supporting a connection between drawing skills and the ability to perform a cognitive task. When the total drawing scores and science scores were compared, the findings revealed a significant linear trend for the developmental drawing score ($r = .32$), but not the aesthetic drawing score ($r = .18$). Age was also found to be a factor in the materials identification score ($r = .34$, p. $< .001$), the total drawing score ($r = .32$, p. $< .001$), and the developmental drawing score ($r = .51$, $p < .001$). Age was not significantly related to the aesthetic drawing score. The positive correlation of the total drawing score and the materials

identification score indicated that children who scored higher on the drawing task also had a greater cognitive ability to determine the material properties of objects.

One strength of the study is that it identifies the limitations of drawing conclusions based on a single drawing task and a single materials identification task; the researchers stressed that no child should be placed into competence categories on such a limited basis. The careful design of the instruments and the training of scorers to enable them to use the instruments added to the internal validity of the study.

A weakness of the study was the lack of multiple assessment tasks, which would have strengthened the validity and potential transferability of the research findings. Further research should be conducted to determine whether the results of the study can be replicated with a larger array of drawing and materials identification tasks, as well as with a larger pool of subjects.

Edens and Potter (2001) explored the role of art in the learning process and the possible transfer of art learning to other school subjects. In order to create an empirically designed study, the researchers conducted a systematic review of published and unpublished studies on the links between study in the arts and other outcomes. Their meta-analysis of the literature revealed a positive relationship between studying the arts and student learning, but found no definitive causal links; the results of the meta-analysis informed the research design.

Building on a foundation of prior arts education research paired with the

cognitive model of learning -- an instructional approach that considers the learner's cognitive processes and how they inform learning -- the researchers employed an experimental design to examine student-generated pictorial representation and how it might promote understanding of scientific concepts and explanations, with a goal of isolating and investigating the effects of drawing on science learning.

Study participants were 184 fourth- and fifth-grade students, 89 male, 95 female, including 100 African Americans, 78 European Americans, and 5 Asian Americans in an elementary school in the southeastern United States. The research was conducted during their regularly schedule art class. Students were randomly assigned to one of three methods of recording data in a science log: explanatory text with written log, explanatory text with copied illustrations, explanatory text with student-generated drawings. Students then studied science concepts related to the law of conservation of energy, presented in the context of a roller coaster.

A pre- and post-test design were administered; the post-test consisting of 10 reordered and modified pretest items measuring factual recall of science concepts, as well as conceptual understanding that required students to synthesize their knowledge about the concepts. A second test, reordered and slightly modified, was administered two weeks later, to measure delayed factual recall and conceptual understanding.

A one-way multivariate analysis of variance (MANOVA) was performed to determine the effect of the three different science journal tasks. While the post

test analysis of factual information was not significant, the synthesis scores demonstrated a statistically significant difference between written journal entries, and journal entries that combined writing with student-generated drawings: F (2, 145) = 7.09, p < .001, n2 = .09. After testing to determine that differences in groups did not vary as a function of the pretest, a one way analysis of covariance (ANCOVA) was conducted, with results indicating that the self-generated drawing group outperformed the writing group: F (2, 137) = 6.03, p < .003, n2 = .08.

Interrater reliability for coded scores of drawing or writing ability was .73 and .86 for accuracy. There was 100% agreement between raters for the number of concept units. Correlation coefficients were computed among number and accuracy of concept units present in drawings or in writing log, ratings of drawing or writing, and post-test and delay test scores.

Descriptive case summaries of students who substantially increased their post-test score were complied and examined to determine if other factors such as art ability, art effort, gender, honor roll, and race contributed to their high performance. A Pearson Chi-square computed for frequency of these variables indicated that while art ability, art effort, and race did not significantly contribute to high performance, gender and honor roll were significant factors. Gender resulted in a significant Pearson Chi-Square, x2 (1) = 4.71, p = .03; 63%, indicating that those who scored high on the delay test were females, compared to 37% males; 59% of the students who improved on the post-test had been on the honor roll one or more times, resulting in a Pearson Chi-Square x2(1) = 5.16, p = .02.

The findings of the study reveal that student-generated drawing provides a viable way for students to learn scientific concepts, including higher level thinking skills such as synthesis. The authors of the study point out that new state standardized tests have incorporated a visual and/or performance dimension that should be considered in light of the findings of the study.

The careful research design of the study, based on a meta- analysis of previous research, as well as the data gathering, coding, and analysis tools add to the internal validity of the findings. The random assignment of students to different methods of recording data in science journals supports the reliability of the findings, as does the use of a delayed test to measure science concept retention.

Further research should be conducted to determine whether pictorial representation techniques could transfer to learning in other content areas, and whether the findings can be replicated in students younger than 4th and 5th grade. Additional research should also investigate the use of pictorial representation over time as a learning and thinking tool.

In a quasi-experimental research study of 63 randomly chosen second and third-grade students from a single school in a rural area of the United States, Moore and Caldwell (1993) investigated the effects of thought-organizing activities involving drama and drawing on the quality of students' narrative writing and found that the quality of narrative writing significantly improved compared with traditional pre-writing planning activities.

The subjects of the study were 63 randomly chosen second- and third-

grade students from a single school in a rural area with a predominantly Caucasian population. Students were divided into one control group (discussion) and two experimental groups (drama and drawing), in which gender and grade levels were mixed. Teachers rotated among the groups to ensure that teacher differences would not unevenly influence the quality of the writing. At the start of the study each of the three groups were given an identical pretest. The pretest began with a 15-minute discussion directed by the teacher followed by a 30-minute written composition.

Data was gathered through weekly narrative writing exercises; a one-way analysis of variance (ANOVA) was performed to compute and compare the pretest scores. Pretest scores were used to measure initial group equivalence; no significant difference in the writing ability among the three groups was found. The researchers developed a Narrative Writing Scale (NWS) to evaluate the writing quality of the students and utilized three sources to rate the writing samples. The NRS scale was also pretested by two experienced raters who used samples of second- and third-grade students narrative writing, and was later revised based on data gathered from the raters.

All raters received training; afterwards, they independently scored a set of 30 papers chosen at random. The overall interrater reliability was .97 on the analytic categories, and .96 over all other areas. The researchers also designed an Attitude Scale to be given at the end of the study to determine if changes in student attitudes toward the planning activities and the writing process activities could have affected the quality of their writing.

Each treatment session began with a 15-minute discussion focusing on narrative writing aspects such as plot, characterization, and setting, illustrated by examples from children's literature, followed by a warm-up activity that extended the theme of the discussion.   Following the warm-up activities, students in all three groups engaged in 30 minutes of writing the first draft of a narrative composition. The drafts were collected weekly and analyzed. The repeated measures analysis enabled weekly comparisons of the three treatments over time, as well as comparison of the overall effects for the three treatments averaged across the entire study.

The findings of the study revealed a significant difference between the overall mean scores of the control group (2.34) and the overall mean scores of both experimental groups (Drama 4.53; Drawing 4.30; $p = .007$), providing support for the claim that the use of drama and drawing in the classroom had a positive impact on the quality of elementary students' narrative writing.

The design and methodology of the study controlled many potential factors that might have threatened the internal validity of the study, adding to the reliability of the study findings. Additional strengths of the study were the detailed description of the research methodology and implementation, as well as the careful instrumentation of the research design. The rater training added to the internal validity of the study, as rotating the teachers among the three treatment groups controlled for experimenter bias.   Because approximately 1200 writing samples were collected and rated by only three raters, additional raters might have strengthened the consistency of the writing sample ratings.

Additional research should be conducted to determine whether other forms of arts education might also enhance student writing quality, and what methods could be used for training teachers to integrate drawing and drama into the teaching of writing and the writing process. Further research should also examine whether the findings of this study hold true with other age groups. The findings also suggest that future research should examine how curriculum developers and textbook manufacturers might include drama and drawing activities in language arts textbooks.

In an action research study of 45 K-12 teachers who participated in three intensive, arts-based professional development summer courses over a period of three years, Mardirosian, Belson, and Lewis (2009) investigated whether arts education could be a means to empower teachers to implement a more progressive and democratic educational pedagogy. Using a philosophical framework of social justice education based on the work of Friere (1993), the authors designed a research study that would explore the idea of shared knowledge creation based on the idea that "a teacher can both create opportunities for expression and also use expression as modes of understanding" (Mardirosian, Belson, and Lewis**,** 2009, p. 4).

Forty-five K-12 teachers from Washington, D.C. participated in the three-year study; teachers in all subject areas participated, including special education. In the summer of 2005, 2006, and 2007, the subjects participated in three intensive, arts-based, six-week professional development summer courses that employed Imagination Quest (IQ), and arts-integrated teaching and learning

model. In IQ, the arts are used as a pathway to understanding and as tools for

learning, with the dual goal of realizing the potential of each student and

eradicating deficit thinking. The classes aimed to manifest a democratic

pedagogy through an experiential approach based on a sequence of activities.

      The data collection in the study focused on gaining in-depth information

through document analysis of participant writings. Teachers' writings before and

after participation were transcribed and then imported into *Hyperresearch*

software, a qualitative research analysis program. Theories were constructed by

examining themes that emerged from the analysis. The data were coded

according to predetermined categories as well as emerging subcategories

related to social justice. Emerging subcategories were identified, discussed, and

defined during the coding process, with a focus on phrases that rationalized the

teachers' decision-making process.

      Several findings emerged from the studies: teachers gained a broader

understanding and appreciation of students' talents and skills, as well as their

own talents and skills, teachers developed a common belief that children who

might otherwise be unsuccessful in the classroom may be better able to

comprehend abstract content elements through the arts, and teachers developed

a commitment to diverse instructional approaches across classroom sessions.

      The careful document analysis and coding, as well as the inclusion of

excerpts from class participants that demonstrated their thinking about what they

had learned from participating in IQ added to the credibility of the study. The

longevity of the study, and the description of emergent subcategories over time

added to the dependability of the research findings.

No comparison was made between the data gathered in different years, which may detract from the credibility of the study findings. Additionally, the only demographic information given about the subjects was the city in which they taught. Further research should be conducted to determine whether the teachers involved in the study were able to implement the techniques they learned in the professional development workshops, and what effect arts integration had on the classroom environment and student learning outcomes.

The studies analyzed in this section presented findings relevant to the rationale of this paper, providing examples of the positive effects arts education has on students' ability to retain academic content. Nelson, Martin, and Baldwin (1998) explored integrating art with science concepts and found that there was a strong link between artistic complexity and science object identification. Edens and Potter (2001) also investigated integrating art with science and found that descriptive drawing can be used to understand and retain science concepts. This is a significant finding related to this paper, as elementary students often struggle with science concepts. Moore and Caldwell (1993) studied the effects of thought-organizing activities involving drama and drawing on narrative writing and found that drama and drawing improved the quality of narrative writing. The final study in this section, conducted by Mardirosian, Belson, and Lewis (2009) investigated whether arts education could be a means to empower teachers, and found that teachers can use arts education to help students comprehend abstract content elements. The findings of this study are particularly significant to this

paper as they have implications for classroom pedagogy.

Spatial-Temporal Reasoning

This section features two studies that examined the effects of arts education on spatial-temporal reasoning; the first study, conducted by Graziano, Peterson, and Shaw (1999), investigated the effect of piano keyboard training on math reasoning. In the second study, Rauscher, Shaw, Levine, Wright, Dennis, and Newcomb (1997) combined piano training with group vocal instruction to determine the effect on students' spatial-temporal reasoning skills.

Graziano, Peterson, and Shaw (1999) investigated whether students' spatial-temporal math reasoning would be enhanced by piano keyboard training when combined with nonverbal spatial-temporal math video game software designed to teach fractions and proportional math. Grounding their study in previous research that supported a link between arts education and spatial-temporal reasoning, the authors employed a quasi-experimental design for their research.

Utilizing a pre-test post-test design, 136 second-grade students ranging in age from six years eight months to eight years five months from two Orange County inner-city schools were pre-tested with three tasks from the Wechsler Intelligence Scale for Children (WISC-III). The test was chosen because administration of the WISC-III requires trained and skilled testers who work one-on-one with each child. Treatment was one hour twice a week, for a total of 61 sessions. The post-test was created from the researcher-designed Spatial-Temporal Math Video Game Evaluation program.

Students were divided into three groups; the first group (n=20) received a combination of video game training and piano keyboard training, while the second group (n=20) received a combination of video game training and English language training on a computer. The third group (n=63) served as a control, and received no training.

Study findings revealed that students in the group who engaged in the Spatial-Temporal Math Video Game Evaluation program video game combined with piano scored higher on measures of proportional math (p <.001) than the group that received a combination of video game and English instruction. The math/piano group mean score was 16.89 compared with a math/English group mean score of 12.45. In addition to the quantitative results, interviews conducted with homeroom teachers showed qualitative improvement in several relevant academic areas, including better attention and concentration in almost all the piano students.

The careful design of the research instrument and the length of the study contributed to the internal validity, as well as the authors' discussion of potential variables that might threaten external validity, such as using English language training as a control when knowledge of the English language is a factor in the WISC-III. Because this variable could have affected the outcome of the study, further research should be conducted to determine if the results of the study could be replicated when the research controls for this variable. A research design that employs random assignment to the various groups would also strengthen the research findings. The findings of the study also suggest that

future research should explore the effects of interventions that involve varied approaches to teaching music, including those that include movement.

Grounded in prior theoretical and empirical research suggesting a relationship between musical and spatial reasoning abilities, Rauscher, Shaw, Levine, Wright, Dennis, and Newcomb (1997) investigated the effects of music instruction on spatial/temporal reasoning. Employing a quasi-experimental design methodology, the researchers studied 78 children of normal intelligence from inner-city public schools over a period of two years. Participants were randomly assigned to a group that featured private piano keyboard lessons and group singing sessions, or one of three other groups that featured singing lessons, computer lessons, or no lessons. Piano lessons were chosen for the treatment group because the researchers felt that the keyboard gave a visual linear representation of the spiral relationship between pitches and that pairing visual information with aural information might assist the neural pattern development connected with spatial-temporal operations.

A pre-test of spatial reasoning was administered, consisting of four tasks from the Weschsler Preschool and Primary scale of Intelligence-Revised (WPPSI-R). Children were tested individually on four tasks that measured spatial recognition: Object Assembly, Geometric Design, Block Design, and Animal Pegs. Scaled scores were calculated for the students at three-month age intervals. Rauscher performed the testing during the first year of the study; subsequent testing was performed by research assistants blind to both the hypothesis of the experiment and to group assignment. All tasks were

independently scored by two researchers blind to condition assignment. Interrater reliability ranged from r = .0995 to r = 1.0.

Analysis of the data revealed that music training for the keyboard group resulted in a dramatic overall increase in Object Assembly scores, providing evidence for a link between music training and spatial-temporal reasoning. Comparison of the pre-training mean of 9.79 with the post-training mean of 13.41 indicated a significant increase, while none of the other training groups demonstrated an appreciable change. A One-Way ANOVA was performed on the change scores of the four training groups as treatments; the analysis produced highly significant differences between the four groups: F (3,74) = 3.87 p < 0.0001. The careful construction of the research design, including blind testing and independent scoring of test data added to the internal validity of the study.

The findings suggest that further research is warranted to discover the possible longevity of spatial-temporal reasoning as a result of the treatment. Research should also be conduced to determine if the results of this study arereplicable with a larger sample size and different age groups. The findings also suggested that it would be useful to explore the underlying neural mechanisms that connect music training and spatial-temporal reasoning.

Both studies in this section examined the effects of arts education on spatial-temporal reasoning; Graziano, Peterson, and Shaw (1999), investigated the effect of piano keyboard training on math reasoning and found an increase in spatial-temporal reasoning as a result of the training. Piano keyboard training

was also a feature of the study conducted by Rauscher, Shaw, Levine, Wright, Dennis, and Newcomb (1997) where a combination of piano training and group vocal instruction was found to have a positive effect on students' spatial-temporal reasoning skills. Evidence of a link between music training and spatial-temporal reasoning has important implications for the rationale of this paper, as it provides evidence to support the use of arts education in schools.

Language Acquisition and Cognition

The three studies in this section explored the effects of arts programs on language acquisition and cognition and found a positive connection between arts education and higher cognitive thinking. Spina (2006), and Anderson (2004), investigated the positive effects of arts-based curriculum on the development of academic language, and found that incorporating arts curriculum has a significant positive impact on student cognition, while Strand (2006), investigated successful arts partnerships and found that arts programs contribute to higher level cognitive thinking in students.

In a quasi-experimental study of fifth grade ELL students, Spina (2006) investigated whether an authentic arts-based program can contribute to the development of English language skills without sacrificing proficiency in the first language. The researcher used a Vygotskian framework that emphasized the interplay between higher order thinking and the social environment, combined with an established arts-based instructional program.

The participants in the study were two fifth-grade classes from an urban area Chapter One school whose student population was predominantly low-

income. Sixty-three Latino/a children were involved, all of whom were learning English as a second language. Most of the students were immigrants from Puerto Rico, the Dominican Republic, and Mexico. One of the two intact classrooms was designated the control classroom (N=30), and used traditional ELL methods, while the intervention classroom (N=28) used an arts-based curriculum. Each classroom had an equal representation of gender, language spoken at home, place of birth, and student age.

Before conducting the study, the author obtained demographic information and test scores from previously administered tests to account for the participants' prior academic and language proficiency from national achievement test data from 1997 and 1998. Tests included Spanish and English language batteries, and English Reading, which provided pre- and post-test information. The pre-test Spanish scores for both groups were very close (arts group *M* = 43.22; comparison group *M* = 42.86), while pretest scores in English and reading were higher in the arts group (English *M* = 30.87; reading *M* = 25.17) than in the comparison group (English *M* = 23.35; reading *M* = 19.71).

To control for the unbalanced design and group differences on pre-test scores in English and reading, the researchers performed between-group analyses of covariance to examine the relationship between participation in the arts program and language skills in English and Spanish: results demonstrated that the interactions between the covariates and participation in the arts program were not statistically significant. Five students were removed from the sample because of missing data (3 from the arts program and 2 from the comparison

group), reducing the original sample from 63 to 58.

The study used several methods of data collection, including 12 hours of on-site observations that were audio-recorded and transcribed, as well as teacher questionnaires, and interviews to provide descriptive data and verification of researcher observations.

The post-test results revealed that students in the arts-based classroom performed better than students in the control classroom on all three measures. Spanish post-tests for the arts group $F(1, 44) = 4.56$, p = .0383), demonstrated an average gain of 2.9 points ($M = 46.14$), while students in the control classroom lost an average of 9 points. ($M = 33.42$). The results also demonstrate a strong relationship between arts-based instruction and ability in English and Spanish. After adjusting for pre-test differences, English skills improved an average of 7.7 percentile points over the comparison group, while reading skills improved an average of 12.47 percentile points. Based on prior research of the psychological and cognitive advantages of bilingualism, the author suggests that this finding should be an area of further research.

The careful research design employed by the author, combined with the multiple types of data collection, and the detailed information provided about the classroom demographics add to the internal validity of the study, as well as the between-group analyses of covariance that were employed to assess the abilities of students in intact classrooms, however, including multiple classrooms in the research design would have strengthened the study findings. Further research should be conducted with a larger sample size at a variety of grade levels to

determine whether the results of the study can be replicated with other student populations, as well as determining if the findings hold true for ELL students who speak languages other than Spanish.

In a grounded theory case study of third and fourth grade students from an urban elementary school, Strand (2006) investigated whether successful arts partnerships contribute to higher-level cognitive thinking in students. The study was designed to build on prior research that explored the benefits of collaborative arts instruction in schools, with a goal of extending the work of researchers who have examined and categorized arts-integrated curricula.

Data was collected to discover patterns in the interactions between organizations, teachers, students and instructional content, with a goal of finding out the elements of successful arts collaborations that lead to positive learning experiences for students. Collection methods included interviews with teachers, administrators and students, field notes from planning meetings and observed lessons, transcriptions of lessons, correspondence with participants, and student work. The author also kept a journal with her personal impressions in order to separate them from pure observation. Along with the field notes she kept analytical memos and diagrams of evolving patterns.

The participants in the study were third- and fourth-grade students from a well-funded math and science magnet elementary school in an urban neighborhood; students varied in terms of motivation, maturity and achievement. Topical queries were employed to shape the initial interviews and data collection, including questions about the choices of partners and the program participants,

the participants beliefs about what should be learned and how, the stakes of the participants and organizations, developing relationships, teaching strategies used in the classroom, and student responses to the experience.

Data was analyzed using open coding, followed by organizing codes into categories; the categories were then connected to developing themes. Themes were then used to develop a model for successful arts integrated curricula. An independent coder was used to support or refute the author's categories and analyses. Results from the program indicated that arts programs that focused on process rather than performance led to higher level cognitive thinking, because they challenged children to think in ways they weren't accustomed to or comfortable with. Additional positive elements included a focus on play, activities that included improvisation, and developing a learning community that encouraged student inquiry and reflection.

A conceptual analysis of the program revealed that the philosophical mission of the individual organization was a strong component of success; that student and teacher learning goal characteristics contributed to program success, and that successful programs depended on an administration that supported teachers and protected the curricula.

The multiple data sources used to create a chain of evidence, as well as the use of an independent coder added to the credibility of the research, as well as the transparency of the author with regard to her previous involvement as a teacher in the program.

One possible threat to the credibility of the findings is that little information

is provided about the students in the program other than their ages, where they live, and the type of school they attend. Another weakness is that there is no evidence to indicate that the results of the study were reviewed by the key informants before it appeared in print. Because the findings were specific to a well-funded urban magnet school for math and science, future research should be conducted to determine whether the findings hold true for different age groups and student populations with different economic and geographic conditions.

Building on a body of prior research linking drama education techniques with metacognition in classroom learning situations, Anderson (2004) investigated the effects of working within an "as-if" dramatic world on cognitive goals. The author defined classroom drama as separate from scripted dialogue in front of an audience; classroom drama involves the whole class in improvised roles within an imagined context where the learner is both participant and observer, playing a role while interacting with others who are also playing roles. The teacher is the facilitator, building on the actions and reactions of students to create a sequence of dramatic actions; the emphasis in classroom drama is process, not product.

The author grounded the study in prior metacognitive research by Kuhn, Garcia-Mila, Zohar, and Anderson (1995), who claimed that placing thinking within a role encourages the learner to examine cognition as an external object, an important stage in the development of metacognitive control. Cognitive research was another theoretical underpinning of the study, particularly the academic benefits of situated learning within authentic contexts, including

acquiring implicit knowledge, grounding theoretical knowledge, learning in everyday rather than academic contexts, facilitating transfer across domains, changing motivation, and acquiring habits of mind (Brown, Collins, and Duguid, 1989). The author claimed that habits of mind are often difficult to teach out of context, but by placing learners within an authentic context, they are using habits of mind, instead of just learning about them.

Participants in the study consisted of two intact classes of second grade students in a suburban public school in the United States. The two classes engaged in a scientific investigation of snails and prepared a "snail care" manual at the end of a multi-lesson science curriculum unit. Employing a comparative research design, one classroom served as a control group, using traditional science inquiry methods, while the treatment group took on the role of expert zoologists, preparing instructions for a local zoo.

Other than a brief introduction to position the students as experts, the science lessons were identical in both groups, except for maintaining the "mantle of the expert" (Anderson, 2004) context in the treatment group. In both classes, students had the option of working individually or in small groups to design and carry out investigations. For the summative assessment, students in the control group prepared a traditional summative report, while the treatment group prepared instructions for a local zoo.

Findings of the study indicated that the treatment group performed significantly better on several measures of science learning than the control group, including the quality of writing, and the accuracy of the snail anatomy in

diagrams. A strength of the study is that the research is grounded in theory, and the limitations of are mentioned, providing transparency that lends credibility to the study, however, because the study was performed with intact classrooms, it was difficult to determine precisely what aspect of the drama accounted for the higher performance of the treatment group.

The careful research design employed by the author, combined with the multiple types of data collection, and the detailed information provided about the classroom demographics add to the internal validity of the study, as well as the between-group analyses of covariance that were employed to assess the abilities of students in intact classrooms. Including multiple classrooms in the research design could have strengthened the study findings.

Additional research should be conducted with a larger pool of students and a variety of ages to determine whether the study findings can be replicated in other classrooms. Further research about cognitive processes should address the specific elements of authentic contexts that allow situated learning to occur, and how thinking in role differs from thinking outside of a role.

The three studies in this section explored the effects of arts programs on language acquisition and cognition and found a positive connection between arts education and higher cognitive thinking. Spina (2006), and Anderson (2004), investigated the positive effects of arts-based curriculum on the development of academic language, and found that incorporating arts curriculum has a significant positive impact on student cognition, while Strand (2006), investigated successful arts partnerships and found that arts programs contribute to higher level cognitive

thinking in students. The findings of these studies have significant import for the rationale of this paper, as they provide evidence that arts education can lead to gains in student cognition.

Creativity

The three studies in this section examined the positive association between arts education and creativity. The first study, conducted by Burton, Horowitz, and Ables (2000) investigated whether cognitive skills developed through the arts have an effect on learning and thinking in general. In the second study, Heid, Estabrook, and Nostrant (2009) investigated whether an inquiry-based art classroom would support and extend creativity and imagination; the final study, conducted by Rufo (2011), investigated how students respond when they do not have to follow culturally sanctioned rituals and approaches to doing art in the classroom.

In a correlational study of 4th, 5th, 7th, and 8th grade students in public schools, Burton, Horowitz, and Ables (2000) examined whether cognitive skills developed through the arts have an effect on learning and thinking in general. Their research design incorporated a broad spectrum of arts learning, examining a diverse sample of arts programs and practices across a range of twelve different types of schools involving over 2,406 students in grades 4, 5, 7 and 8.

The study consisted of five overlapping phases: during phase one, the research team developed a preliminary taxonomy of learning in the arts to be the framework for their study. In phase two, twelve elementary and middle schools were purposefully selected: each school selected provided a mix of arts

disciplines and approaches within those disciplines, were co-taught by their teacher as well as outside specialists, and integrated arts into the general curriculum. Phase three involved a variety of interviews with teachers.

Phase four was the beginning of the quantitative investigation; the researchers employed several standardized testing measures as well as developing several of their own. Students took two tests, the *Torrance Test of Creative Thinking* (TTCT-Figural) and a self-concept test, the *Self-Descriptive Questionnaire-I* (SDQ-I) In addition to the tests, each student completed a questionnaire describing their arts experiences (SAB). Classroom teachers also participated, responding to two questionnaires and to a rating scale developed by the researchers: the *Teacher Perception Scale* (reliability for the TPS scale was .94). This research instrument examined the teachers' perceptions of students' imagination, risk-taking, expression and cooperative learning skills. Principals and arts specialists were also interviewed during this phase.

Overall, TTCT scores and individual scores were higher for the high-arts group than the low-arts group when compared to the number of years students had participated in In-School arts activities: Creativity 37.01:11.84; Fluency 30.88:16.70; Originality 30.88:14.8; Elaboration: 41.31:11.21; Abstractness of Titles 31.90:15.86; Resistance to Closure 34.97: 15.64). These results held true when scores were compared to the number of years students had taken arts lessons: Creativity 27.31:9.28; Fluency 26.47:12.24; Originality 24.37:10.76; Elaboration 29.62:6.86; Abstractness of Titles 24.58:10.02; Resistance to Closure 16.89: 11.32. In both measures, the gap in performance between the

high-arts and low arts groups was widest in elaboration scores, which was consistent with correlation results from the exploratory data analysis.

Phase five was the start of the qualitative investigation. Of the 12 schools involved, five were selected to participate in the qualitative dimension of the study. Data collection consisted of interviews with teachers, administrators and students, as well as observations and examination of children's artwork, performances, and writing. Lead researchers working within each school met weekly to compare data with the overall research team, which led to preliminary qualitative conclusions. Researchers employed qualitative analysis software to assist them in numerically coding the interview transcripts and observational reports.

Content analysis of field study data revealed four dimensions of learning for further investigation: expression, imagination/creativity, risk-taking, and cooperative learning. Four scale items were developed from field study data to represent each of these dimensions. Classroom teachers were asked to respond to one Teacher Perception Scale (TPS) for every child in their class. When scores of the TPs were compared to the number of years students had participated in in-school arts, the high-arts group consistently scored higher than the low-arts group: Expression 36.61:10.15; Risk-Taking 36.61:9.30; Imagination-Creativity 40.70:13.74; Cooperative Learning 35.79:14.59. Scores compared to the number of years of arts lessons had similar results: Expression 23.32:7.05; Risk-Taking 26.26:9.28; Imagination-Creativity 28.29;10.02; Cooperative Learning 24.37:10.76. Differences in scores between the high and low arts

groups were greater in the expression, risk-taking, and creativity-imagination dimensions, and lower in the cooperative learning dimension. This was consistent with factor analysis and correlation results from the exploratory data analysis.

The Self-Description Questionnaire (SDQ-I) revealed generally weak and nonsignificant associations between non-academic self-concept scores and arts teaching variables, and significant but weak correlations between academic self-concept (S-C) scores and arts teaching variables in scores compared to the number of years of in-school arts instruction: Total Academic Self-Concept 41.10 (High Arts):17.76 (Low-Arts), and scores compared to the number of years of arts lessons: Total Academic Self-Concept: 34.66 (High-Arts):17.07 (Low-Arts). Quartile analysis showed clear differences between high-arts and low-arts groups on several of the scales, such as reading self-concept (In-school arts 40.49:20.08; Years of arts lessons 47.69:15.58), math self-concept (In-school arts 29.86:15.43; Years of arts lessons 25.84:17.81), general school self-concept (In-school arts 35,79:18.60; Years of arts lessons 32.56:15.77), and total academic self concept (In-school arts 41,10:17.76; Years of arts lessons 34.66:17.07).

The Teacher Perception Scale revealed that overall, the students who participated in schools that were considered "arts-rich" had higher levels of cognitive capacities, such as elaborative and creative thinking, originality, and focused perception; these higher order competencies were accompanied by other dispositions such as risk-taking, persistence in a task, and ownership of

learning. While quantitative measures did not reveal statistically significant findings, the combined quantitative and qualitative data and analysis provided a rich picture of teaching and learning.

The qualitative design elements of the study were not experimental, and were based on the researchers' own theoretical views of how public schools and teachers function, which is a possible source of researcher bias, despite the claim that their views were based on a theoretical foundation stemming from pre-existing literature. Only five of the 12 schools participating in the quantitative stage of the study were invited to participate in the qualitative portion of the study, which may have skewed the results, particularly as the researchers did not discuss which schools were selected for this stage of the study and the rationale behind their inclusion.

The quantitative elements of the study revealed no statistically significant findings, but the large sample size contributed to the external validity of the study. The researchers made no mention of employing an outside party to analyze the data, which may compromise the internal validity of the study. The clear explanations of the research methodology, design of the study, and the analysis of data added to the overall reliability of the findings.

Future research should be conducted to determine how factors such as parent and cultural attitudes, the financial resources of home and school, and the cultural differences pertaining to the dimensions of risk-taking, persistence, and ownership of learning affect the research findings. An outside party should be employed to analyze data to strengthen the findings of future research.

In a case study grounded in prior research supporting the positive effects of arts education on creativity, Heid, Estabrook and Nostrant (2009) investigated whether an inquiry-based art classroom would support and extend creativity and imagination.

The study participants were two multi-age classrooms of kindergarten and 3rd grade students in an inquiry-based charter school. Students had one art class per week for 9 weeks where teachers took on the role of facilitators, allowing students to guide the lesson. Teachers utilized multicultural music selections to encourage students to express their emotions through art, and encouraged a positive learning environment with constructive feedback on student artwork.   Students helped plan their own lessons, created their own problems, and expressed their answers through a final performance at the end of the session.

Using a case study research design, the authors gathered data through multiple sources, including video, still photography, audio recordings, transcriptions, and researcher journal writings. The credibility of the findings was measured by triangulation of multiple data sources and consensual validation through agreement among competent others. An analysis of the data revealed that student engagement and creativity increased substantially as a result of participation in democratic, inquiry-based lessons.

The multiple data sources, data triangulation, and employing competent others to confirm analysis of the data added to the credibility of the study. Detailed author field notes also contributed to the dependability of the study

findings. A possible threat to the credibility of the study was that while the measurements of reliability to be used in the study were discussed in the description of the research design, there was no discussion or evidence of these measurements in the analysis of either the research or the findings.

Further research should be conducted with larger populations and a variety of age groups to see if the findings can be reproduced in other classrooms. Future studies should also include evidence and analysis of reliability measurements in the research design.

In an action research case study involving the researcher's fourth-grade class, Rufo (2011) investigated how students responded when they did not have to follow culturally sanctioned rituals and approaches to doing art in the classroom. The framework for the study was created as a response to the Western art tradition in art education, where a distinction is traditionally made between fine art as opposed to craftwork. The author's research design implemented a non-traditional approach to art by creating an activity called Open Studio, where students were encouraged to explore different art mediums twice a week for one hour. Found objects and non-traditional items such as tape and rubber bands were valued as much as traditional art mediums.

The author conducted the study from January to the end of the school year, keeping a field journal of experiences during Open Studio. The findings from the research study revealed that when the author gave up arbitrary control over creativity in the classroom, students responded by taking ownership of their own creativity.

Many students were concerned with wasting art supplies, which initially was an impediment to creativity. Because the focus was on process, not product, students felt free to abandon a project and start another one if they became bored, instead of being forced to complete a project that no longer held meaning for them. During Open Studio students created many non-traditional sculptures and other art projects that held significant meaning for them.

The credibility of the study is supported by many concrete examples of how students interacted with art during Open Studio sessions. Transcripts of conversations and email exchanges with students are provided, as well as the author's observations about his own beliefs regarding art and the tension that existed between the dual roles of an unbiased researcher who does not have an expectation regarding student product, and the role of a teacher who feels that time spent in preparation is wasted unless a final product has been produced. These observations and analyses added the richness of the study.

A weakness of the study is that the researcher did not provide demographic information on the students, the school or the surrounding community. Another flaw in the research design that could detract from the credibility of the study is that data collection was limited to the author's field journal and was not evaluated by an independent source.

Further research should be conducted with a larger population and a variety of ages to determine whether the findings of the study could transfer to other classrooms. Additional research should include demographic information on the students, school, and surrounding community, as well as multiple data

sources with independent coders to evaluate the findings of the study and control for possible researcher bias.

The three studies in this section explored the positive association between arts education and creativity. The first study, conducted by Burton, Horowitz, and Ables (2000) investigated whether cognitive skills developed through the arts have an effect on learning and thinking in general and found that students who participated in schools that were considered "arts-rich" had higher levels of cognitive capacities, such as elaborative and creative thinking, originality, and focused perception. In the second study, Heid, Estabrook, and Nostrant (2009) investigated whether an inquiry-based art classroom would support and extend creativity and imagination and found that student engagement and creativity increased substantially as a result of participation in democratic, inquiry-based lessons; the final study, conducted by Rufo (2011), investigated how students respond when they do not have to follow culturally sanctioned rituals and approaches to doing art in the classroom, and found that when the author gave up arbitrary control over creativity in the classroom, students responded by taking ownership of their own creativity. The findings of these studies have implications for the rationale of this paper, as they demonstrate a positive association between arts education and creativity.

Reading Comprehension

The next section features six studies that examined and found evidence for a positive correlation between arts education and reading comprehension. In the first study, Fislar (2003) investigated the value of puppetry as a pedagogical

tool to facilitate reading; the second study, conducted by Pellegrini (1982), explored the effects of thematic fantasy-play on story comprehension and recall; the third study, conducted by Young and Rasinski (2009), examined the effects of readers' theater on fluency and overall reading achievement among primary grade students; the fourth study, conducted by Adomat (2009), investigated whether drama can provide ways for struggling readers to engage with text from the beginning of their school literary experience; the final study, conducted by Williamson and Silvern (1992), investigated whether behaviors within fantasy play activities involving roles and scenes in stories contributed to story comprehension skills.

Fisler (2003) investigated the value of puppetry as a pedagogical tool, employing a case study research methodology grounded in a conceptual framework of creative interaction between experiential evidence and statistical data. Participants consisted of two classes of second-grade public school students in Greenbelt, Maryland: the control group used a traditional tutoring program featuring re-reading, while the treatment group rehearsed a play using puppets. An analytical framework from a traditional tutoring program was adapted for the study. Tutoring techniques of re-reading and rehearsing were analyzed to assure a direct correlation existed between methods; students were tested directly after each workshop to minimize interference by external factors, and teachers supplied post-project analysis of student performance. The researchers compensated for teacher perception of student ability in their analysis by factoring in a large margin of error, sometimes as large as 20%.

Students in both groups participated in 60-minute sessions on five consecutive days. The treatment group adhered to the following schedule:

- Day 1: students were placed in groups of 5 or 6, and given 1 of 4 books. After reading their book, groups created a story outline, looking for the basic plot, characters, and major events that would require special puppet techniques. (Based on the outline, the researchers turned the stories into scripts in preparation for the 4th day of the project).

- Day 2 & 3: Student groups created simple stick, string, or sock puppets for each character in their story.

- Day 4: Students were provided with scripts, and rehearsed with script in hand while finding specific movement of their puppets that would emphasize the meaning of the lines. The focus was on reading quickly and smoothly, rather than memorization).

- Day 5: Each group presented their scene to the other groups in the class.

After each rehearsal teachers conducted informal reading assessments of students as they practiced reading new materials. A post-project analysis supplied by the teachers confirmed that all students increased their reading time during rehearsals; assessment data provided in the teacher analysis showed that on average, 70% of the students who participated in the puppetry workshop were able to read new materials twice as quickly after participating in the workshop. On the performance days, all 12 teachers confirmed that students had made improvement, particularly those identified as struggling readers. A large margin of error (approximately 20%) was assumed by the author since the figure

depended on teacher's perception of each student's ability, but the author

indicated that the progress was notable in spite of data problems because such a

large number of students demonstrated improvement in reading.

Additionally, positive feedback from teachers and students provided

evidence of excitement and interest in reading as a creative act; students also

demonstrated a solid grasp of the purpose of the project, and readily discussed

what they were learning. The conceptual framework, the analysis of tutoring

techniques to provide an equivalent teaching experience, the transparent

discussion of the limitations of the findings, and the methods used to compensate

for potential teacher bias add to the credibility of the study. Another strength is

that the researchers openly discussed procedural and behavior problems,

offering possible remedies for future projects.

One weakness of the study is the lack of detailed data from the research.

Teachers' analysis of student reading assessments were not provided, which

weakens the findings pertaining to gains in student reading rates. In addition, no

demographic or academic information was provided about students, which would

have added to the richness of the study findings. Because the study was of short

duration, it is impossible to determine if the findings were sustained over time. In

order to determine if the study findings can be transferred to other student

populations, further research should be conducted over a longer time period, with

a larger pool of students and a more rigorous research design that provides

detailed assessment information to inform the study findings, as well as

confirmation of findings by an independent outside party.

In an empirical study to determine the effects of three modes of story reconstruction training, Pellegrini (1982) explored the effect of dramatic play on the ability to generate cohesive text to discover whether students' ability to comprehend written text was improved due to their participation in dramatic play sessions.

Study participants included 108 children, 54 boys and 54 girls that attended a public elementary school in rural northeast Georgia. Students were randomly selected from grades K – 2; the mean age in months for children in grades K, 1, and 2 were 71.472 (SD = 3.613); 87.361 (SD = 4.911); 96.611 (SD = 2.588), respectively. Within each grade, nine groups of four children were formed by random assignment; each group consisted of two boys and two girls from the same grade. The groups within each grade were assigned randomly to one of three treatment conditions: thematic fantasy play, discussion, or drawing.

The study design was a 3 (grades: K, 1 and 2) x 3 (conditions: play, discussion, and drawing) x 2 (sex) factorial design. The dependent measures were performance on a criterion-referenced test (CRT) for the last story read and the total number and sequence of events recalled for the story. The CRT consisted of 10 multiple-choice questions: each question had one correct answer and three distractors. The 10 questions were composed of two items for each of five of Bloom's (1956) cognitive taxonomy areas: knowledge, comprehension, application, analysis, and evaluation. Factor analyses of all the items yielded two factors: story-based (knowledge through analysis) intelligence, and judgmental (evaluation) intelligence.

In the recall task, individual children retold the story to an experimenter. Recall was measured by first breaking down the story into nine main elements: the setting, seven episodes, and the conclusion. Retellings were scored as including an element if the general idea of that constituent was mentioned, irrespective of order. Retellings were also scored for sequence: elements recalled in their immediate temporal order were scored as sequential using an $n-1$ base. For example, a retelling consisting of constituents 2, 4, 5, 7, 8, 9 would have a score of 3; a score of 1 for the 4, 5 sequence; and a score of 2 for the 7, 8, 9 sequence. Interrater reliability for the coding of student's retellings was established by having two coders independently score all recall transcripts for events and sequence recalled; there was a 96 percent agreement between raters.

Students participated in three 30-minute sessions: two training sessions and a third criterion session. Male and female experimenters were randomly assigned to groups of four children of the same grade and same condition to a playroom in their school; during each of the two training sessions the experimenter read the group a story and exposed them to the appropriate training conditions: thematic-fantasy play, discussion, or drawing. Students were then given the CRT, with the experimenter reading each question aloud and the four choices twice. After the two training sessions were completed, the criterion phase of the study began. In the criterion phase, each group was taken to the same playroom by an experimenter who read aloud the traditional folk tale *Little Red Cap*. After the story was read, the children were placed in one of the three

treatment groups and given the CRT for the story. On completion of the CRT, individual children were asked to retell the story to an experimenter who audiotaped the responses. Children in the thematic-fantasy play condition were assigned a role from the story. After being read each book, children in the discussion treatment were asked evaluative and clarification questions by the experimenter about the books; all discussions were audiotaped. Students in the drawing treatment group were given crayons and blank paper and instructed to draw as much of the story as they could.

The study analyzed the effects of sex, condition, and grade on children's story comprehension as measured by a CRT and a recall task. The CRT items, based on two items for each of five of Bloom's (1956) cognitive categories, were factor analyzed using a principal axis method with varimax rotation. Two factors were specified: story-related intelligence and judgmental intelligence. The factor analysis was terminated when eigenvalues fell below one. These two factors accounted for 44.1 percent of the CRT variance. Separate 3 x 3 x 2 ANOVAs, with zero, one, weights were calculated on dependent variables. Duncan's multiple range test (Winer, 1971), set at .05, was used for post hoc comparisons of significant main effects. Simple effects analysis (Winer, 1971) was used to analyze significant interactions post hoc. The ANOVA on factor 1 (story-related intelligence) revealed significant main effects for condition, $F(2) = 28.93$, $p < .0001$, and grade, $F(2) = 54$, $p < .0001$, and a significant, but disordinal, condition x grade interaction, $F(4) = 4.90$, $p < .001$. The sex x condition x grade model accounted for .688 of the variance in factor 1.

The main effects for grade and condition were examined in light of their interaction with each other. The simple effect of condition was examined at each grade level. For kindergarten, there was a significant effect for condition, F(2) = 17.59, p < .0001, with the play group (x = 4.916) scoring significantly higher than both discussion (x = 3.416) and drawing (x = 1.583) groups. The discussion group scored significantly higher than the drawing group. At grade one there was also a significant main effect for condition, F(2) = 14.16, p < .0001, with the play group (x = 6.083) scoring higher than both discussion (x = 4.583) and drawing (x = 3.166) groups; discussion was significantly higher than drawing. There were no significant differences among conditions for second graders.

The ANOVA on factor 2 (judgmental intelligence) revealed significant main effects for condition, F(2) = 4.48, p < .01, and grade, F(2) = 7.03, p < .001. The sex x condition x age model accounted for 25.9 percent of the variance in factor 2. There were no significant differences between play (x = 1.111) and discussion (x = .944) groups or between discussion and drawing (x = .611) groups, however, the play group scored significantly higher than the drawing group. Grades 1 (x = .916) and 2 (x = 1.194) scored significantly higher than kindergarteners (x = .555). There was no significant difference between grades 1 and 2.

Two aspects of children's story retellings were analyzed: total number of events recalled, and sequence of events recalled. Separate 3(condition) x 3(grade) x 2(sex) ANOVAs were calculated on total recall and on sequence. The ANOVA on total recall revealed significant main effects for condition, F(2) = 8.88, p < .0003, and grade, F(2) = 4.67, p < .01. The model accounted for 31.0 percent

of the variance in total recall. A post hoc analysis on condition indicated that the play group (x = 5.805) recalled significantly more events than both discussion (x = 4.361) and drawing (x = 3.777) groups. The post hoc analysis on grade showed that second graders (x = 5.500) recalled significantly more events than both first graders(x = 4.444) and kindergarteners(x = 4.000). The ANOVA on sequence also revealed significant main effects for condition, $F(2) = 4.78$, $p < .01$, and grade, $F(2) = 3.58$, $p < .03$. The model accounted for 28.6 percent of the total variance in sequence. The post hoc analysis on condition showed that the sequence for players (x = 3.472) was significantly better than for children in both discussion (x = 1.972) and drawing (x = 2.111) conditions.

The post hoc analysis on grade indicated that the sequence of second graders (x = 3.333) was significantly better than both first graders' (x = 2.250) and kindergarteners' (x = 1.972) sequences. To examine the extent to which different roles affected total recall and sequence recall, separate one-way ANOVAs were calculated for the effect of play on total recall and sequence recall at each grade level. Only at the kindergarten level did the specific role played have an effect on total recall.

The effect of play on total recall was approaching significance, $F(3.3) = 3.45$, $p < .071$, accounting for .56 of the variance in recall. The mean number of events recalled by kindergarteners in each of the play roles were: Red Cap, 6.500; Wolf, 6.333; Hunter, 3.500; Grandmother, 2.666. The one-way ANOVA for kindergartener's play on sequence was not significant, $F(3.3) = 2.05$, $p < .185$, but the model accounted for .434 of the variance in sequence. The mean

sequence score for kindergarteners in each role was: Red Cap, 3.5; Wolf, 2.6; Hunter, .666; Grandmother, .250.

For kindergarteners and first graders, engaging in fantasy play most effectively facilitated story-related comprehension. Fantasy play helped children to use narrative language (Sachs, 1980), and use language to transform roles, props, and the setting so they corresponded to the original story. Engaging in discussion was less effective than play but more effective than drawing. In both the discussion and play groups, children were trained to encode verbally aspects of the story, however, comprehension was most effectively facilitated when children's concepts of stories were accommodated to peers' story concepts through fantasy play.

The second aspect of story comprehension examined was the CRT items measuring judgmental intelligence; for these questions children had to judge the appropriateness of characters' actions in the story in relation to a standard criterion not mentioned in the story (Bloom, 1956). First and second graders made significantly more correct judgments than kindergarteners in the retellings. Children in the fantasy play condition recalled most total story events and most sequences of events. The extent to which players actively engaged in this process seemed to affect directly their ability to retell the story; children playing roles requiring more active involvement had better total recall and sequential recall scores. The mean number of events recalled and the mean sequence scores for players in each of these roles declined in the same order.

The findings of the study revealed that participation in thematic-fantasy

play led to higher comprehension scores for kindergarten and first grade students than participation in drawing or discussion. Thematic-fantasy play students recalled more events and the sequence of events better than other students, and were better able to answer judgment questions about the story and its characters than students in other treatment groups. The findings also demonstrated that students that played more major roles in had better story recall. At the first grade level, the dramatic play treatment produced significantly more text references than either the discussion or drawing treatment. (Dramatic play mean = 28.166; Drawing mean = 8.416; Discussion mean = 6.083;). The findings also indicated that dramatic play was an effective strategy in aiding student recall and cohesion of a written text. Through verbal communication, social interaction and symbolic dramatic-play students served as more capable peers, providing assistance when other students required help recalling a text; such interactions engaged students in language explicitly connected to the text. The findings suggest the possibility of dramatic play as a way to support emerging literacy.

One flaw in the research was that the children's ability to express meaning in the drama group could have been the result of social interaction with their peers. Social interaction was not an option in the drawing or discussion treatments, which calls into question whether or not the positive findings were solely from the use of dramatic play, or as a result of the students' ability to communicate with each other about the text. Another weakness of the study was the lack of clarity in several areas: it was not clear if the stories being read were completely new to all of the subjects; there was no discussion of how student

reading ability might interact with the conditions, or that the students'
understanding of the stories might have affected the roles they played when
acting out the stories.

Further research should examine whether acting out a central character
during thematic-fantasy play consistently leads to better story recall for students,
and whether student reading ability impacts the effect of thematic-fantasy play on
story comprehension and understanding. Further research should also
determine the role of social interaction in the findings of this study.

Building on the foundation of their previous authentic research that
demonstrated improvements in fluency that transfer to new texts when students
engage in assisted reading and repeated readings of text, Young and Rasinski
(2009) used action research methodology to explore the effects of Readers
Theater on fluency and overall reading achievement among primary grade
students. The "method" section of the article was written by Young, as a tool to
guide teachers through the process and implementation of the research.

The subjects of the study were 29 monolingual second-grade students in a
Title I school in a northern suburb of Dallas. The class consisted of eight girls
and 21 boys in a general education classroom, and included nine ELL students.
At the beginning of the study the levels of reading achievement in the class
ranged from early kindergarten to midyear third grade; the approximate mean
reading achievement was the end of first grade.

The researchers employed Readers Theatre as an addition to a balanced
literacy program that included reading demonstration, shared reading, guided

reading, independent reading, and word study. All of the students participated in a Readers Theatre program that was first implemented on the first week of school, and was consistently practiced until the last week of the academic year. A unique feature of the study is that Readers Theater was part of the daily routine instead of a sporadic occurrence. Each Monday a new script was introduced, that the students would read and rehearse every day, followed by a performance for other students and school community members on Friday.

The Readers theater scripts were adapted from trade books, and were used in conjunction with humorous poetry that was translated into script for by adding the desired number or narrators. Groups consisted of three to six students of mixed reading levels who chose the scripts they wished to practice and perform. To learn the scripts, students used the neurological-impress method, where a more proficient reader takes the lead in a choral reading, setting the pace and emphasizing prosodic elements in the text.

Quantitative data was collected through district and state assessments to determine reading growth. At both the beginning and the end of the school year the classroom teacher administered The Developmental Reading Assessment (DRA), which measured students' independent reading level based on word recognition accuracy and comprehension. In the fall, students were given the Texas Primary Reading Inventory (TRPI), which measured students' automaticity and prosody (reading with expression) skills on a grade-level passage; students were scored based on three dimensions of prosody on a one to four scale.

The test results at the end of the school year revealed that students had

made significant gains in automaticity and prosody and less significant gains in word recognition accuracy. Students began the school year with an average of 62.7 Rate/Automaticity (WCPM), which placed Young's students between the 50th and 75th percentiles for second grade; they finished the year with an average Rate/Automaticity (WCPM) of 127.6, a gain of 64.9 words per minute, a substantially higher score than the expected annual gain of 36-38 words per minute. Prosody scores were 2.2% in the Fall, and rose to 3.0% in the spring, a .8% gain in prosody. Word recognition accuracy rose .3%, from 98.9 in the Fall to 99.3% in the Spring.

The study also revealed that Readers Theater had the ability to engage struggling readers, including ELL students, leading to an increased interest in reading; students felt that Readers Theater " required 'more reading', but it was 'fun reading'"(p. 11).

One of the strengths of the study is that it builds on a body of prior research regarding the positive effects of repeatedly engaging with the same text to improve reading automaticity. The transparency of the authors about the methodological limitations of the study added to the dependability of the study. The authenticity and contextual integrity of the observations of a classroom teacher working with his own students study was a strength of the study, however this can also be considered a weakness, as research conducted by a teacher in an intact classroom can suffer from personal bias.

The lack of detailed field notes and multiple data sources, as well as no provision for the expression of student voice or self-assessment is a threat to the

credibility of the study findings. Further research should be conducted with a larger sample size at a variety of grade levels to determine whether the results of the study can be replicated with other student populations. Additionally, student reading comprehension was not measured in this study, despite the authors' intent to measure overall reaching achievement, so this element should be added to further research studies to determine if students understand what they are reading.

Adomat (2009) investigated whether drama provided ways for struggling readers to engage with text from the beginning of their school literary experience, utilizing a case study research design based on a body of existing research that supported positive links between student participation in drama and gains in reading. Study participants were two first-grade boys in a reading support program in a rural-suburban area in the northeastern United States. Ninety-six percent of the district population was white, 3% African American, and less than 1% Asian American and Hispanic.

Students met with a reading specialist every day for one hour; over the course of an academic year, the reading specialist used the issues, themes, characters, mood, and conflict in stories as a springboard for dramatic exploration in whole groups, small groups, or with partners. Dramatic work was shaped both by the text, as well as by the teacher and student interactions. By the end of the year, both students tested out of the reading support group.

The researcher observed and participated (teacher-in-role) with the children in their classrooms, collecting data from a variety of sources, including audio-

and videotapes of student discussions before, during and after drama activities, interviews with teachers and parents, and extensive field notes. Audio and video recordings were transcribed, analyzed, and coded; results were then collapsed into categories based on the ways children comprehended or built literary understanding of stories through drama.

The findings of the study indicated that students developed rich literary understandings of and engagement with literature through drama; drama also provided a unique opportunity for students to engage deeply with stories, to explore and construct meaning, and to transform what they already know. The findings also supported a link between drama and story comprehension, indicating that students who participate in drama develop both deductive and inductive strategies to support reading.

The variety of data collection methods, the analysis and coding of the data into categories, and the length of the study were factors that added to the dependability of the study. A weakness of the study is that no independent coders were used to verify the researcher's interpretation of data, which may threaten the confirmability of the study findings. Further research should be conducted with a larger pool of students and a variety of ages to determine if the findings could transfer to other populations with different demographics. Future research should also include analysis of the findings from a qualified outside party to eliminate potential researcher bias.

Building on Piaget's theoretical perspective of cognitive and social growth (Piaget, 1962), as well as Gardner's work on the construct of language

production competence (Gardner, 1983), Williamson and Silvern employed a quasi-experimental design methodology to investigate whether metacognitive behaviors within fantasy play activities involving roles and scenes in stories contributed to story comprehension skills in kindergarten students.

Research participants consisted of 120 kindergarten students from six classrooms in a rural school district in Southern Alabama, which served a lower-middle-income community. The students included in the study were selected to provide an equal number of boys (n=60) and girls (n=60); ages of the children ranged from 67 to 87 months, with a mean age of 73.03 months and a standard deviation of 4.63 months. Children were randomly assigned to five play groups per classroom, with two boys and two girls in each play group. In order to ensure that children were familiar with the students in their group, random assignment was restricted to the population within intact classrooms. The six classrooms provided a total of 30 play groups.

Each child in each play group participated in five play sessions over the course of three days in a sequential order: two play sessions, one play/test session, one story/test session, and one delayed test session. Students were taken in their play groups by an experimenter to a play area separate from their classroom for all five sessions.

On days one and two, each group of students heard, discussed, and re-enacted familiar tales; on day three, they heard, discussed, reenacted an unfamiliar tale, and were tested. On the fourth day, the students heard, but did not reenact, an unfamiliar tale and were given the same tests as on the third day.

Six days following the final story, students were tested again for story recall, story sequencing, and the use of productive language for the stories on days three and four.

The study utilized a variety of data gathering methods, including videotapes of play sessions, interviews, and coded transcripts of both play and metaplay sessions. Multiple regression analyses were conducted to determine the relative contributions of play, metaplay, and language production on story comprehension. Male and female experimenters were used in the study, randomly assigned to groups and to delayed test conditions.

Student comprehension of the 2 stories was tested using a criterion-referenced test for each story, with varying levels of questions from the first five levels of Bloom's Taxonomy; a retelling task for each story; and a sequencing task for each story. Test order was counterbalanced for each child. Two raters coded the stories, achieving 98% agreement.

The study found that students who engage in metaplay during story re-enactment made substantial gains in story comprehension and recall (m= 27.36; r=.50; p.<.001) as compared with students who engaged in play alone (m=21.00; r= .26). The results of the study provide evidence for a link between metacognitive behaviors within fantasy play activities and story comprehension skills.

The careful research design, independent coding of data, and transparency of the limitations of the design based on intact classrooms, contributed to the validity of the findings. The study could be strengthened by

more demographic information about the students involved in the study. Some analysis of student interaction within groups was provided, but a more detailed analysis would provide more information about whether metaplay is beneficial for all students who participate, or only for those students who direct the action of the play. Because the study is correlational in design, it demonstrates a relationship between metaplay and story comprehension, but does not provide empirical proof of causality. It is also plausible that students who better understand a story are more likely to direct their peers when re-enacting the story.

Further research should be conducted to determine if the study findings can be replicated in an experimental design that controls for variables such as student interaction, with a larger pool of students from a variety of demographics. Additional research should also examine the possible causative relationships between student engagement, metacognition and oral comprehension.

The six studies analyzed in this section examined the evidence for a positive correlation between arts education and reading comprehension. The first study found that an average of 70% of the students who participated in the puppetry workshop were able to read new materials twice as quickly as they were able to before participating (Fisler, 2003); the second study found that dramatic play was an effective strategy in aiding student recall and cohesion of a written text (Pellegrini, 1982); the third study found that students had made significant gains in automaticity and prosody at the end of the school year (Young and Rasinski, 2009); the fourth study found that students developed rich literary

understandings of and engagement with literature through drama (Adomat, 2009); the final study in this section found that students who engage in metaplay during story re-enactment made substantial gains in story comprehension and recall (Williamson and Silvern, 1992).

Positive Effects on Motivation

Engagement

The four studies in this section examined and found evidence for a reliable positive association between arts education and student engagement. The first study, conducted by Wolfe (1999), investigated what types of learning take place when elementary students write, produce, and perform an original opera; the second study, researched by Levine (2009), explored whether the instructional use of art problems can elicit engagement in middle school students; the third study, conducted by Rosler, (2008), investigated what happened when a fifth grade class developed and participated in process drama in a social studies class; in the final study in this section, Clark, Morrison, and Wilcox (2009) explored whether participating in readers' theater had an impact on student engagement.

In a longitudinal case study of four 3rd grade classes involved in an in-school arts program, Wolfe (1999) investigated what types of learning take place when elementary students write, produce, and perform an original opera. The longitudinal case study was built on the theoretical foundation of Francis M. Parker, who believed that deep learning was expressive in nature (Wolf, 1999, p. 107), and John Dewey's philosophy that the arts should play a central roll in

general education (p. 107) , along with a number of research studies that support the claim that arts education can offer substantial benefits for students.

The focus of the multi-year study was on "Creating Original Opera (COO)", an in-school arts program in which elementary students form a company to write and produce an original opera. Four classes of elementary students were studied; data was gathered through a variety of sources, including observation, analysis of videotapes and transcripts of student work, and one-on-one interviews with teachers.   Moments of shared problem-solving were selected from the data, and compared with similar episodes from non-opera settings, such as when small groups solve open-ended math problems or prepare an oral presentation in a social studies class. The researchers studied and coded a sub-sample of data and developed a set of features that distinguished the interactions in the opera episodes from other instances of problem solving.

The data from the opera setting suggested that students engaged in group interaction in more substantive ways that the students in other settings, as well as suggesting that students in the opera setting demonstrated more cohesive ways of connecting what they say to previous statements by themselves and others in the group, including issues that have a long history with the group.

The data measured collaborative interactions across opera and non-opera contexts in a variety of dimensions: student participation (50:30), students taking substantive turns (26:20), student turns with questions (12:11), students turns with links back to previous comments (38:18), student turns with constructive critique of others (32:9), student turns with revisions of a students' own earlier

ideas or proposals (26:9), and student turns with links back to a long-term theme or issue for the group (20:7). Results were similar in the dimension of student turns with questions, but in all other dimensions data from students in the opera group was significantly higher than students in non-opera learning contexts.

Data on longitudinal changes in collaborative interactions revealed increases in all seven dimensions from the beginning to the end of the academic year in three of the four classes. One of the classes did not make significant gains, which the researchers attributed to a different instructional climate; the first three classrooms were student-centered, with the teacher functioning as a facilitator, while the third classroom was teacher-centered, with the students performing according to her instructions.

The findings suggest that students who participated in making an opera were more engaged and more likely to participate actively and collaboratively than students in regular classroom situations. The researchers suggest further study of the findings to discover whether the results of the research can be applied more broadly; the suggested next steps were to explore whether the students who engaged in opera work had become better non-literal readers, and whether they had developed an understanding of artistic communication.

The variety of data collection and the careful design of the study, along with the longitudinal nature of the research design, all add to the dependability of the study. The lack of demographic information about the research participants, other than their grade level, may detract from the credibility of the study findings.

Future research should be conducted to determine whether the findings

can be replicated in other student populations in an experimental design, and should include detailed demographic information that was not provided in Wolf's research; additional research should also determine if the collaborative skills developed through creating an opera can transfer to other academic disciplines and content areas, and whether collaboration is important to other student outcomes.

Levine (2009) investigated the question of engagement by examining whether the instructional use of art problems elicits middle school students' engagement in artmaking. An "art problem" was defined as an open-ended question or statement focused on elements of an artmaking process that challenged students to make choices and generate original ideas to craft a product that had personal meaning. Using a case study research design, Levine observed one class of sixteen 8th grade students between the ages of 13 and 14 from a suburban middle school on the East coast. The school demographic was 45% African American, 43% Caucasian, 7% Hispanic, and 5% Asian; student socioeconomic background ranged from low- to middle-class.

The research study was conducted over an instructional unit consisting of 10 class periods; students met every other day for nine weeks for 96 minutes. During the class period students transformed an old hardback book into a metaphor of self, the cover reflecting who they were on the outside, with the interior pages reflecting who they were on the inside.

The primary source of data for the study was a questionnaire that all students filled out and returned; the author also recorded observational data

regarding student engagement in her field notes. Three students were chosen

for interviews based on good rapport with the teacher, reliable response to the

questionnaires, and the ability to self-reflect through verbal discussion and

written description. Two semi-structured interviews were conducted: one after

the first class, and another following the second to last class of the unit.

Based on the responses from student questionnaires and interviews, the

data indicated that two conditions had a very strong impact on student

engagement: artwork that has a personal meaning to students as well as an

opportunity for creative exploration, and open-ended art problems based on

personal themes.

A strength of the study is that the art project successfully engaged the

students in exploring self-identity; excerpts from transcripts of student work

added to the richness of the study. Other elements that added to the credibility

of the study included the transcripts from field notes that supported the study

findings, and the conceptual framework of the study, which was thoroughly

grounded in prior research on student engagement.

Threats to the dependability of the study include the small size of the class

and the selection of only three students for interviews; the selection criteria of

these students could create biased results that do not accurately reflect the

majority of students. Another weakness of the study is the limited amount of data

analysis provided. Future research should be conducted with a larger student

population from a variety of demographics to determine whether the study

findings could transfer to other classrooms. The research design should include

detailed analysis of the data and an independent review of the research findings to eliminate potential researcher bias.

In a response to research findings that suggest content area textbooks often assume an unrealistic level of student background knowledge, Rosler (2008) created an action research study that investigated what happens when a fifth grade social studies class develops and participates in process drama as a pre-reading strategy. The study was grounded in a social constructivist, Vygotskyian, framework combined with theoretical underpinnings from Friere's (1993) approach to social action research.

Participants in the study were the researcher's public school fifth-grade class from a disadvantaged neighborhood with a high transience rate; 85% of the school population qualifies for free lunch.

Multiple data sources were used in the study, including audiotapes of process drama sessions, videotaped process drama sessions, lesson plans, field notes, written reflections based on field notes, and personal interviews with different students. Data results were coded and reviewed by two peer raters, who agreed with the four categories identified by the researcher: Intertextuality (interpreting one text by means of a previously composed text), student engagement, student leadership, and collaboration.

Throughout the school year students used process drama as a pre reading strategy to develop context for social studies textbook content. Process drama allowed students to build on existing strengths such as oral communication skills and imaginative play; improvised scenes acted out by

students became the background knowledge that students needed to comprehend and connect with difficult content area textbook passages.

As a result of using process drama in the classroom, students made gains in the four dimensions of intertextuality, student engagement, student leadership, and collaboration, leading the author to claim that process drama can support multicultural learning within the classroom.

The research design, variety of data sources, and the use of two peer raters strengthen the confirmability of the study. The researcher's assertions about the findings of the study are supported with excerpts from student interviews that add to the credibility of the findings. While the researcher holds a positive view of process drama, she does not tout it as a panacea to solve all classroom problems, adding to the strength of the study.

A threat to the dependability of the study is that while the researcher claimed that students became "better readers of expository text as a result of process drama", the term 'better' is undefined. Learning gains were not assessed, which weakens the significance of the study findings. While increased student engagement is important, a connection between engagement and increased learning would have greater pedagogical import.

Future research should be conducted with a larger pool of subjects at a variety of age levels to determine whether the research findings are transferable to other student populations. The research design should incorporate instruments that measure the effect of process drama on student learning gains, and should be analyzed by an outside party to improve the dependability of the

findings.

Building on a body of prior research supporting the efficacy of readers' theater as a tool to engage students of all reading abilities Clark, Morrison, and Wilcox (2009) employed case study methodology to investigate whether participating in readers' theater had an impact on student engagement.

The authors selected three Caucasian, male, fourth-grade students for the study; all three students attended a middle-class suburban elementary school in a school district in the Intermountain West. Student #1 was reading at the second-grade level and exhibited lack of motivation and poor comprehension skills due to lack of automatic word identification skills and lack of attention during class; Student #2 was reading at grade level, but struggled with reading in content areas; Student #3 was reading at grade level, but became frustrated when he did not read perfectly or encountered an unfamiliar word.

The case study design employed The Qualitative Reading Inventory (QRI) and the Multidimensional Fluency Scale (MFS) to assess students' reading ability. Data sources included observational data, transcribed interviews, and self-report transcribed data. Each type of data was collapsed into general categories that were then charted; a summary was then created for each student using all three data sources.

Subjects participated in an 8-week daily reading intervention in the form of a reader's workshop, including readers' theater, mini-lessons, independent reading, discussion groups, leveled-book guided reading groups, and class sharing. Students read weekly passages from the QRI to measure accuracy or

oral reading; expressive reading was assessed every week using the MFS. All scores were graphed each week during intervention. Each week, students completed a self-report after their readers' theater performance. The authors conducted three semi-structured individual interviews with the subjects at the beginning, middle, and end of the intervention. During the interview, students listened to recordings of themselves and their group practicing and performing readers' theater, and were asked to talk about the recordings and what they noticed about their oral reading fluency.

The findings of the individual case studies demonstrated increased engagement, confidence and motivation after eight weeks of participation in readers' theater. Analysis of data from observations and interviews in the first case study found that the student demonstrated gains in oral fluency through improved expression, volume, and phrasing during readers' theater practices and performances. His confidence and motivation as a reader also appeared to have increased through the use of readers theater, for example, during the seventh week of the intervention, the student volunteered to read aloud for the class during a mini lesson, demonstrating a significant gain in confidence.

The subject of the second case study demonstrated the ability to include expression and volume in his oral reading, while reading at a smooth, consistent pace. His engagement and participation in class increased, as well as his confidence and motivation. Prior to the intervention he did not participate in class discussions, but after several weeks of readers' theater he began to participate in mini lessons by raising his hand to answer questions, to offer answers and

comments, and volunteering to read in front of the class and to model elements of reading that he had struggled with at the beginning of the intervention.

The subject of the third case study demonstrated increased pace and volume as he practiced and performed readers' theater scripts over the eight-week intervention. Readers' theater also allowed him to demonstrate leadership skills as he helped his readers' theater group by modeling fluent reading and by offering constructive feedback.

In addition to student engagement, the data also revealed that because of the broad range of reading levels within the scripts, the lower, struggling readers were able to participate in a group with some of the most proficient readers in the class, allowing students to be grouped by interest, instead of reading level.

Strengths of the study include the multiple sources of data gathered weekly, and the careful analysis of data, followed by categorizing and graphing. Weaknesses of the study include the small sample size and the lack of reference to specific scripts used in the reader's workshop. Another weakness of the study is that students participated in a variety of activities in the reader's workshop, making it difficult to isolate the effects of readers' theater. Future research should be conducted changing some of the variables in this study, including sample size, grade level, duration, and time spent with scripts, as well as examining the relationship of reading rate and prosody.

The four studies in this section found evidence for a reliable positive association between arts education and student engagement. The first study, conducted by Wolfe (1999), found that students who participate in making an

opera are more engaged and more likely to participate actively and collaboratively than students in regular classroom situations; the second study, conducted by Levine (2009), found that artwork that has a personal meaning to students as well as an opportunity for creative exploration had a very strong impact on student engagement; the third study, conducted by Rosler, (2008), found that process drama can support multicultural learning within the classroom; the final study, by Clark, Morrison, and Wilcox (2009) found that students demonstrated increased engagement, confidence and motivation after eight weeks of participation in readers' theater. The findings of these studies are of great import to the rationale of this paper, because engagement with content area material is a critical factor in student learning.

Emotional Problems

The two studies in this section examined and found evidence for a reliable positive association between arts education and a decrease in student emotional problems. The first study, conducted by Wright, Ellenbogen, Offard, Duku, and Rowe (2006), investigated whether youth from low income communities benefit from structured art programs; in the second study, Kariuki and Honeycutt (1998) investigated whether listening to music had an effect on emotionally disturbed students writing skills.

Employing a longitudinal examination study guided by a conceptual framework of positive youth development., Wright, Ellenbogen, Offard, Duku, and Rowe (2006) investigated whether arts programs have an impact on the participants psychosocial functioning. Participants in the study were Canadian

youth ages nine to 15 from five different low-income communities across Canada; 118 girls and 65 boys participated in the study (N=183). At the beginning of the study 49 youths were 9-10 years old, 110 were 11-12 years old, 19 were 13-14 years old and 5 were 15 years old. The population was 59% White, 26% Aboriginal, 11% Black, 6% Asian, 5% Latino and 4% other.

Data for the study was taken from the National Arts and Youth Demonstration Project (NAYDP), a three-year longitudinal study that employed a quasi-experimental research design in which groups were matched rather than randomly assigned. The NAYDP program was implemented in five low-income communities across Canada. Each site agreed to develop, implement and monitor arts activities as prescribed in research protocol manuals. The program was free and lasted for 37 weeks, meeting biweekly for ninety minutes a session.

The control group, NLSCY, was an established ongoing household survey used to monitor the well-being of a sample group of Canadian children. The control group was chosen using propensity score matching. To perform the propensity score matching, the authors combined the NAYDP sample with a selected sample of NLSCY youths aged 9 to 15 years who had at least three measurement points. To obtain more precise matches, they calculated age in months, and performed a logistic regression analysis, with an outcome variable defined as 1 = intervention group (NAYDP) and 0 = control group (NLSCY). The covariates entered as predictors in the logistic model were the baseline scores of child-rated conduct problems, emotional problems, hyperactivity/attention deficit, self-esteem and prosocial behavior, as well as the child's gender, PMK

education, PMK marital status, household income, and family functioning.

The logistic regression model collapsed the specified covariates into a single propensity score for each child that reflected the predicted probability of being in the intervention group. Each NAYDP participant was matched with the NLSCY respondent with the closest propensity score at baseline. Mean scores of the NAYDP and NLSCY subjects were compared for all covariates using independent t-tests and odds ratios. The two groups were very similar on all covariates: odd ratios ranged from 0.97 to 1.04 and significance levels for the t-tests exceeded 0.25.The following measures were used for both groups: joyful participation in activities; social skills development; art skill development; task completion.

Students filled out a self-report questionnaire measuring five self-report behavioral outcome measures: Conduct problems were measured on a seven-item scale: bullying, getting into fights, and vandalism, with questions such as, "I get into many fights." Emotional problems measured unhappiness, depression and anxiety on an eight-item scale, with questions such as, "I am not as happy as other people my age." Self-esteem was measured on a five- item scale, with questions such as, "In general, I like the way I am." Prosocial behavior, measuring empathic and helpful behavior towards other children, was measured on a ten-item scale, with questions such as, "I will try to help someone who has been hurt." Hyperactivity/attention deficit measured the ability to concentrate, restlessness, and fidgeting on an eight-item scale with questions such as, "I can't concentrate, and I can't pay attention for long." All were measured on a three-

point response category (never or not true, sometimes or somewhat true, often or very true) except for self-esteem, which had a five-point response category (false, mostly false, sometimes false/sometimes true, mostly true, true). Except for Hyperactivity/attention deficit, the alphas were consistently high across times of measurement, ranging from .86 to .91 for Conduct, .76 to .89 for Emotional problems, .85 to .92 for self-esteem, and .83 to .92 for Prosocial behavior. The internal consistency for Hyperactivity/attention deficit ranged from 0.10 to 0.87. The hyperactivity measure was not included in the analyses due to a low Cronbach's alpha.

Instructors used six measures twice a week to assess success in the program. Based on observation notes taken during every class, research assistants rated participants twice per term for a total of six assessments. The following measures were used: Joyful participation in activities – three items measuring enjoyment of and engagement in activities, with questions such as "This child/youth fully participates in activities." Social skills development – 12 items measuring self-control, communication, respect, cooperation, and problem solving, with questions such as "This child/youth demonstrates cooperative play with other youth." Art skills development – two items measuring whether youth met goals and showed improvement, with questions such as "This child/youth shows improvement in his/her art skills." Task completion – seven items measuring listening skills and work habits, with questions such as "Completes work on time."

All four scales had a five-point response category (never, rarely,

sometimes, often, always). The authors assessed the internal consistencies of the scales using Cronbach's Alpha with 0.7 as an acceptable reliability coefficient. The alphas for the observational scales were consistently high across times of measurement, ranging from .89 to .92 for Joyful participation in activities; .95 to .97 for Social skills development; .90 to .96 for Art skills development; and .95 to .97 for Task completion. The SPSS statistical package was used for analyses of demographic information and internal consistencies of the scales. The authors addressed the amount and direction of changes in the observational and behavioral outcomes with a multi-level growth curve analysis using hierarchical linear modeling software. Students and instructors met biweekly for ninety-minute sessions; the NAYDP program focused on exploring in the arts, free expression, building group dynamics and having fun. Many arts disciplines and media were used in the program including improvisation, mask making, music, painting, filming and script writing.

The modeling to compare the NAYDP and NLSCY participants used age as the independent variable, because the NAYDP and NLSCY children were not assessed for the same number of occasions or at similar intervals; for the behavioral outcomes, age was centered at 12. With the exception of emotional problems (NLSCY -.006; NAYDP -.023 = p<.01), average growth scores were similar for conduct (NLSCY -.02 = .004; NAYDP -.02 = .004), self-esteem (NLSCY -.02 = .004; NAYDP -.02 = .004), and prosocial behavior (NLSCY -.018 = .003; NAYDP -.018 = .003).

The careful research and statistical analysis of the data contributed to the

internal validity of the study, as well as the extensive demographic information about student participants; researchers considered a variety of variables when developing the study and analyzing the data, which informed the selection of the instruments, as well as the analysis of the data. The focus of the study on low-income youth was an additional strength of the study because it showed that additional involvement with arts curriculum has a positive effect on this specific population, however, the findings of the study that pertained to behavioral outcomes were not statistically significant with the exception of emotional problems, which detract from the strength of the study.

Because the study was conducted in Canada, it is unclear whether the findings could transfer to students in the United States. Further research should be conducted with different populations and age groups to determine the transferability of the research findings to students in the United States. The findings with respect to students with emotional problems suggest that further research should be conducted with a focus on that particular student population.

In a case study grounded in a cognitive framework that supports the use of music listening as a resource for writing skill development, Kariuki and Honeycutt (1998) investigated the effects of listening to music on emotionally disturbed students writing skills to determine whether listing to music had an effect on student writing motivation and writing skills.

The case study subjects were two fourth-grade boys in a special education class of students classified as emotionally disturbed. The study was divided into four time segments, each segment lasting about four weeks. In the

first and third time segments, the students completed weekly writing assignments without listening to music. During the second and fourth time segments, the students completed weekly writing assignments while listening to music through headphones in a wide range of music styles. Data collection methods included researcher observations, field notes, one-on-one student interviews, and a student questionnaire.

The writing assignments in the music time segments were related to the type of music the student was hearing. Student writing assignments were scored for technical skills, creativity, and length.

The researchers found that by the end of study both students had improved their writing skill by two letter grades. Research data revealed that students wrote more words when listening to music: one student increased his word count from 5 to 40, while the other student increased his word count from 9 to 92. The response to both one-on-one interviews and questionnaires revealed that both students felt more positive about writing when listening to music, and were observed by researchers to be more focused when writing to music than when writing without music. Students reported that the music made the writing exciting and helped them stay focused; these results were also confirmed by the classroom teacher.

Strengths of the study include a research design that may be employed in further study of effects of music listening in the context of language arts activities. The use of music listening as an effective tool for improving students' attitudes toward writing suggests that music may help students focus on tasks, instead of

serving as a distraction. Multiple sources of data were used, adding to the richness and credibility of the study, however, the study also contained several weaknesses that affected the dependability of the findings. It was unclear who scored the students' writing, so researcher bias may have affected the study results.

Another possible threat to the dependability of the study is that when writing to music, students were asked to write in reaction to the music, but when writing in silence the students had no outside stimulus to react to, which may indicate that the improved writing during music listening was due to response to a writing prompt, rather than simply a result of listening to music. The study does not include important details that would support the significance of the findings; acceptable evidence of "more creative" writing was not explained, and examples of the qualitative differences in student writing samples were not provided.

Further research should include studies that examine the interconnections among music and writing, and the effect they have on motivation and self-efficacy in students. Additional research with larger sample sizes and the use of controlled methods should also be conducted to determine whether the findings of the research could be replicated.

The two studies in this section demonstrated evidence for a reliable positive association between arts education and a decrease in student emotional problems. The first study, conducted by Wright, Ellenbogen, Offard, Duku, and Rowe (2006), found that psychosocial behaviors improved in students who participated in a structured art program; in the second study, Kariuki and

Honeycutt (1988) found that that two emotionally disturbed students felt more positive about writing and produced more writing when they listened to music.

Positive Effects on Self Efficacy

The three studies in this section examined and found evidence for a reliable positive association between arts education and self-efficacy in students. The first study (Caine, 2010) investigated whether visual arts can be used to help students with learning or development deficits understand school as community; the second study (Catterall and Peppler, 2007) explored the effects of rich, sustained visual arts instruction on young children's self-efficacy beliefs; the final study (Smithrim, 2005) investigated the effects on student attitudes of a school-wide, arts education approach.

Building on a theoretical framework that supports the interrelationship between action research and narrative inquiry, Caine (2010) investigated whether visual art can be used to help students understand school as community; the author worked alongside students in a learning strategies classroom for the duration of an academic year.

The author employed a narrative inquiry research design that involved an interactive role with students; the author's approach to engaging students was informed by Maxine Greene's work of the imagination (Greene, 1995). Data was gathered from multiple sources, including interviews with students, teachers, and staff; daily interaction with students; casual and formal interviews, including taped interviews with students, and extensive field notes.

Participants in the study were 14 male students from diverse cultural

backgrounds in a grade two/three learning strategies classroom that served students with learning or development difficulties in Alberta, Canada.

The researcher spent the entire academic year with students in the learning strategies classroom, helping them to explore self-identity and identity within communities through photography that was incorporated into an alphabet book that reflected their ideas of community. Students explored their marginal place within the school community and the labels they had been given because of learning or developmental issues.

To produce the alphabet book, students used an iterative process of taking photographs, followed by talking or writing about them to explore multiple ways to understand and experience community. The alphabet books were then displayed at a school function where the community could view students' work.

The author found that as students engaged in the reflective process they became increasingly more assertive and expressive, leading to increased feelings of self-efficacy. As the work evolved over the school year the children also realized that their understandings of community were not static, but a continuous work in progress. They were able to recompose, restructure, retell, and relive their understanding as ever evolving possibilities. Student relationships were strengthened as a result of building a classroom community throughout the year that was strongly influenced by the collaborative nature of the project they had undertaken. The activity made them feel important and valued. It also gave parents, siblings, and others an opportunity to become part of the children's exploration of community -- for example, the children took

cameras home, shared family photographs, and displayed their photographs at the yearly school-end event. These feelings were further increased when the community responded to the alphabet book by reviewing their policies regarding students with developmental and learning issues, subsequently changing the policy to one of inclusion instead of special classrooms for different learning needs.

The research design employed by Caine (2010) was grounded in theoretical underpinnings supported by a body of prior research, which adds credibility to both the methodology and the findings of the research. The length of time and the transparency of the methodology are additional strengths of the study; no transcripts are included in the research article, but the author created a reasonable and believable account of events based on multiple interviews and data from field notes.

Further research should be conducted to determine whether the findings could be replicated with other student populations and demographics; because the study featured male students exclusively, further research should involve both girls and boys to determine whether the findings apply equally to both genders. Because the study was conducted in Canada, further research should be conducted to determine whether the findings could transfer to student populations in the United States.

Building on theoretical underpinnings of constructivist learning theory, including knowledge acquisition, metacognition and self-efficacy beliefs, Catterall and Peppler (2007) investigated the effects of rich, sustained visual arts

instruction children's self-efficacy beliefs, or worldview.

Participants in the study were 179 9- and 10-year-old students from third grade public school classrooms in Los Angeles, California and St. Louis, Missouri. Ninety-seven percent of the students in the three Los Angeles classrooms were of Hispanic origin; 97% qualified for free lunch. One hundred percent of the students in the three St. Lois classrooms were African American; 99% qualified for free lunch; The schools and surroundings in both cities were affected by poverty, crime, drug-traffic, and economic hardship.

The researchers employed a treatment-comparison group design, gathering data through structured observations of students in intact arts and non-arts classrooms over a period of five months. Pre- and post-treatment surveys were administered prior to the beginning of programs and within two weeks of the program end date, and were completed by all subjects. Because the subjects were in third grade with below-average achievement levels, the survey instrument used appropriate age-level language, adapted from the Torrance Test of Creativity. Randomization of program participation was not possible, but survey-based pre-measures demonstrated that comparison and treatment students had similar profiles. Learning measures for arts-instruction participants were compared with those of the comparison group students.

The survey instrument was administered with a research assistant and the principal investigator reading the questions in front of the classroom while students followed along with rulers to focus their attention on the questions. Survey items were designed to establish multi-item scales for self-concept, self-

efficacy beliefs, and distinguishing internal and external attributes for success. The global self-concept scale contained 13 items and included statements such as "I am able to do things as well as most people"; the self-efficacy scale contained seven items, including statements such as "When I make plans, I think I can make them work"; the attribution scale contained two items such as "Good luck is more important than hard work". Children responded using four-point Likert scales to indicate levels of agreement or disagreement with each survey statement.

The survey also examined student perceptions of creativity using the same four-point scale; questions in this section were adapted for elementary age students from the Torrance Test of Creativity (Myers & Torrance, 1964), measuring the dimension of originality with items such as "How good would you be at creating new toys for kids?"), the dimension of fluency with items such as "How well do you express your ideas?", flexibility with items such as "What kind of job or work would interest you?", and elaboration with items such as "When you look at a piece of artwork like a painting or statue, do you think about what the artist is trying to say?"

The authors assessed the percentage of students in each group making meaningful gains on each scale, with significance at $p < .05$ using the combined standard deviation of scores for each scale, followed by tests of significant differences of proportions (Chi-square) to indicate whether or not ICA and COCA student gains were significantly higher than the observed changes in the comparison group.

The results of the survey scale analysis found a high proportion of students in both groups and at both sites made gains on the general self-concept scale. The ICA (N=103) and COCA (N=76) students show no comparative advantage on this measure, with combined standard deviation scores of 80.4 and 84.4, respectively, however, on the dimension of self-efficacy the ICA students scored significantly higher than COCA students, with scores of 53.9 and 35.6, respectively. Internal attributions for success were not significantly different, with 31.5 for ICA students compared with COCA students scoring 31.4. Measures of creativity showed that scores for both treatment and comparison groups were similar on the dimensions of elaboration (38.2 ICA; 34.2 COCA), flexibility (54.9 ICA; 60.3 COCA), and fluency (42.2 ICA; 45.2 COCA), however the dimension of originality showed a statistically significant gain for ICA students, who scored 54.9 compared with a score of 32.9 for COCA students.

The primary finding of the study was evidence for a positive relationship between participation in a sustained visual arts program and growth in the dimensions of students' general self-efficacy and creativity. An analysis of survey data revealed a strong connection between arts programs and improved student self-efficacy. More than half of the arts students made significant gains in their self-efficacy beliefs, while just over one third of comparison students made similar gains.

Theoretical underpinnings of constructivist learning theory informed the research, and the survey instrument was carefully designed, administered, and analyzed, all of which added to the internal validity of the research and the

findings. The longevity of the study is another strength, as five months is a

longer duration than many arts studies programs. One threat to external validity

is the inability to randomize students selected for the study due to the use of

intact classrooms; while the researchers claimed that student profiles were

similar, there is no description of the dimensions measured, how similarities are

determined, or what range of variation fell within the acceptable range for

similarity in student profiles.

Further research should be conducted to determine which art forms and

arts learning experiences best foster student creativity and self-efficacy.

Additionally, a longitudinal research study could reveal the benefits of sustained

arts learning for low socio-economic students over time.

Smithrim and Upitis (2005) investigated the effects on self-efficacy of a

school-wide, arts education approach implemented through Canada's Learning

Through the Arts (LTTA) schools. The authors employed a research design that

used both grounded theory qualitative measures and quasi-experimental

quantitative measures, consisting of a random participant sample with a pre- and

post-test design. They found strong evidence for a reliable positive association

between arts involvement and student engagement, learning, and self-efficacy in

school.

The study lasted a total of three years in conjunction with the Learning

Through the Arts Program (LTTA). Schools were accepted for the study if they

were willing to make a three year commitment to the program and to the

research; if they agreed that all students and their teachers from grades one

through six would be involved by the end of the three years; and if the teachers were provided with release time equivalent to two-and-a-half days per year for professional development. Six sites were selected, with multiple schools at each site. Participants in each of the LTTA schools were randomly selected from a pool of approximately 3,900 students in grades 1-6. By the end of the study, there were 4,063 students sampled from 55 LTTA schools.   Students and teachers in grades 1 and 4 received LTTA programming in the first year; grades 2 and 5 were added in the second year, and grades 3 and 6 were added the final year. The testing and survey schedule was designed to correspond to the structure of the LTTA program.

Researchers also selected 35 control schools as a comparison, and attempted to demographically match the LTTA schools with their selections based on size, urban or rural location, and socioeconomic status. The control schools ranged from having no school-wide initiatives relating to the arts, to having initiatives focused on technology, to having no special initiatives in place. Once all schools and participants were in place, each student was provided with an identification code that assured confidentiality.

The researchers gathered qualitative data through school observations, one-on-one interviews, focus groups and open-ended survey questions. Survey instruments for grades one through six were designed to determine students' attitudes towards school and learning in general terms, and towards the arts and other subjects in particular. The surveys were also used to gather information regarding students' interests and activities outside school. In years two and

three, researchers conducted focus group interviews for selected students in grades five and six at most of the sites. The data was then collected and all student information was coded and later analyzed through principle component analysis.

The quantitative tools included standardized achievement tests, holistically scored writing samples, and surveys regarding attitudes and practices. Several instruments were used as indicators of achievement. For students in grades one and two, the researchers used two problem-solving, criterion- referenced, constructed response tasks for mathematics from the Canadian Achievement Tests. Students in grade one performed tasks that involved manipulating mathematical figures, money concepts and attention to detail. Second grade students completed tasks that involved interpreting graphs, and patterning problems. Students in grades three through six completed the appropriate levels of the Canadian Achievement Tests (CAT-3) for their grade. The reading tests measured abilities in comprehension, story sequencing, vocabulary, and grammar. The math tests measured abilities in geometry, application of mathematical concepts, computation, and estimation. Students in all grades wrote letters of appreciation according to a standardized prompt. These letters were used as writing samples, and were criterion-referenced and scored centrally.

Quantitative data was analyzed with SPSS software (Norusis, 1993), and double data entry was conducted for 10% of the data to ensure accuracy and consistency in data entry. Based on the double entry, the authors estimate a 97

percent accuracy rate on the data. Group comparisons were made between students in the LTTA program and students in the control schools. In addition, factor analyses were conducted for students in grades one through six, to help characterize views and experiences with the arts both within and outside school settings. Student focus-group interviews were used to identify underlying reasons for differences in students' attitudes, interests, and achievement levels. The focus group field notes and audiotapes were transcribed and analyzed focus using ATLAS.ti software, designed to parallel traditional methods of theory building based on a grounded theory approach to qualitative analysis (Glaser, 1978; Muhr,1997). Several researchers in the research project coded the data from the focus group interviews with at least two members of the research team analyzing the data.

The research findings revealed that differences in group means in pre-and post-test Canadian Achievement Test scores for mathematics and language and writing samples revealed no statistically significant differences in the dimensions of Reading Comprehension: LTTA (n=431) mean 22.30; Non-LTTA (n=300) mean 22.03; Vocabulary LTTA (n=429) mean 19.47; Non-LTTA (n=300) mean 18.98; Writing LTTA (n=311) mean 3.50; Non-LTTA (n=253) mean 3.43; or Geometry LTTA (n=432) mean 21.25; Non-LTTA (n=291) mean 20.24.

A statistically significant difference ($p<.001$) was found in the dimension of Mathematical Computation and Estimation, with a LTTA (n=429) mean score of 12.80 compared with a Non-LTTA (n=286) mean 11.84.

Qualitative measures analysis provided strong indications that

involvement in the arts went hand-in-hand with engagement in learning at school. In interviews and on surveys, LTTA students, teachers, parents, and administrators talked about how the arts engaged children in learning, referring to the cognitive, physical, emotional, and social benefits of learning in and through the arts: "The dramatics -- being able to act out the life cycles of the frog and butterfly -- the children really learned those lessons -- experiencing it physically made the difference." (Smithrim, and Upitis**,** 2005, p. 120). In some cases, effects of the LTTA program went beyond the perceived limits of physical, cognitive, social, and emotional experience: "an elective mute student chose to speak for the first time in the school year when the drama artist was in the class doing a drama unit on traditions." (p. 121).   These findings provide evidence for increased engagement in students who participate in arts education programs.

The longevity of the researchers observations, along with carefully designed research instruments added to the reliability of the research findings. Due to the length of this study, history and maturation may not have been controlled, creating a potential threat to the study's internal validity, however, the researchers did apply regression analysis to the results to compensate for these factors. Because the participants and schools selected for the study included students from a relatively wide age range and a variety of socio-economic backgrounds, it strengthens the potential generalizability of the findings to other settings and populations, however, because the research took place in Canada, the findings may not directly translate to similar populations in other countries.

Further research should be conducted to determine whether the modest

gains in mathematics achievement will continue over time, and whether academic achievement gains could be explained by engagement in arts education. Additional research should also be conducted to determine whether the research findings could be replicated with student populations in the United States.

The three studies in this section examined the evidence for a reliable positive association between arts education and self-efficacy in students. The first study, conducted by Caine (2010), found that as students engaged in the reflective process they became increasingly more assertive and expressive, leading to increased feelings of self-efficacy; in the second study, Catterall and Peppler (2007) found evidence for a positive relationship between participation in a sustained visual arts program and growth in the indicators of general self-efficacy; the final study, conducted by Smithrim and Upitis (2005), found strong indications that involvement in the arts was connected to engagement in learning at school.

Exploring Personal Beliefs

The final section of this chapter features articles that examined research and found evidence for a reliable positive association of arts education with the exploration of personal beliefs. The four studies in this section explored the opportunities for personal reflection through the arts. The first study, conducted by Albers (1999), investigated whether art literacy can be used to initiate conversations that help students transform stereotypical cultural beliefs; the second study, conducted by Chanda, and Basinger (2000), investigated whether

children could construct culturally relevant understandings of the purpose and significance of African Ndop statues if they are provided guided instruction using art historical constructivist inquiry methods; in the third study Ivashkevich (2009) investigated whether children could use collaborative drawing as a means to construct meaning and respond to sociocultural factors; the final study in this section, conducted by Hutzel (2007), investigated the effects of the implementation of an asset-based community art curriculum.

In a two-year ethnographic study of a sixth grade art classroom, Albers (1999) investigated whether art literacy can be used to initiate conversations about beliefs and self-identity by examining the processes through which students become literate in art and the underpinning socio-political beliefs they bring to their artwork.

The study was grounded in a body of research that provided a sociocultural framework for arts education, maintaining that visual art could reveal students' beliefs about themselves, creating an opportunity for students to examine cultural ideology in a visual context. Study participants were one class of sixth-grade art students in a public school located in a rural community that had a history of racism and intolerance for nonwhites and gays.

Multiple data sources informed the study, including observation of teacher/student interactions, reading student reflections about their art experiences, and interviews with both teachers and students. Student attitudes toward art were identified at the beginning of the school year and compared with their attitudes at the end of the school year. Through careful questioning by the

classroom teacher, students engaged in conversations that helped them explore their ideas about art and artists, challenging students to think more deeply about cultural stereotypes.

The findings indicated an overall shift of attitude in nearly all of the students, as well as increased art skills and an improvement in their ability to express their beliefs about gender, race, and sexual orientation. Prior experiences with art left the students with a negative disposition toward art and art education, but in their final journal entry at the end of the school year, nearly all the students stated that they had become better at art, were better able to express meaning, and that they liked art.

The researcher found that when images were visible and problematic, students were able to share their beliefs through conversation, creating opportunities to bring to light and interrogate misconceptions expressed by students, and that these conversations pointed the way to social change. Findings also indicated that students who engaged in discussions about visual art improved in their ability to verbally express their beliefs about gender, race, and sexual orientation, and that they were better able to interrogate their ideas about art and artists, and in some cases, dismantle entrenched and often stereotypical beliefs about certain groups.

The longevity of the study and the phenomenological approach to the classroom culture, as well as the author's ability to provide a sociopolitical framework for the research contributed to the dependability of the study methodology and findings, however, the study could have been strengthened if

the research had been reviewed by an outside party to eliminate the possibility of researcher bias. A weakness of the study is that the demographic information about the study participants was limited to their grade level and a nonspecific description of the town culture; given the importance of this information to the classroom culture, the credibility of the study would have been strengthened if the authors had included this information.

Further research should be conducted with a larger population and a variety of age groups to determine whether these effects can be replicated in other classrooms. Any additional research should include demographic information about the study participants and the cultural attitudes of the surrounding area, as well as independent review of the findings to eliminate researcher bias.

Chanda, and Basinger (2000) employed a case study design experiment with ethnographic description to investigate whether children could construct culturally relevant understandings of the purpose and significance of African Ndop statues if they are provided guided instruction applying constructivist inquiry methods to art history.

One third-grade class of mixed ethnicity and gender from Kenwood elementary school in Columbus, Ohio participated in the study. There were 19 students in all, 11 females and eight males, ranging in age from eight to nine years. Kenwood is a French immersion public school; the student population consisted of 200 students from the surrounding area. The socioeconomic level of students ranged from the low- to the upper-middle income bracket.

The five-week study utilized ethnographic methods of data collection, including participant observation and interviews; additional data was collected from photographic documentation, note taking, and audio recordings of the students' and instructors' responses, questions and remarks. Multiple people collected the data, including the principal investigator, a graduate student, and the classroom teacher. The core of the data analysis was derived from the final interviews; the data was transcribed and initially coded using the research questions as the coding base, then a content analysis approach was used in order to note patterns, themes, and emerging tendencies that allowed for data interpretation.

Contextual understanding was assessed using Perkins's theory of cognitive understanding, which maintains that understanding is achieved when a person is able to describe the structure of a concept, identify other examples of that concept, comprehend its use and utility, and apprehend its significance. Questions were framed to elicit answers about how people from a particular culture and time would understand the purpose and significance of a series of works of art, as well as to elicit an empathetic understanding of other cultures.

Interview questions paralleled four of the areas of understanding prescribed in Perkins' theory: description of the statue, "Can you describe a Ndop statue?"; differences, "Do all the Ndop statues look the same?"; use and utility, "How do you think the Ndop statue was used or worked?"; and significance to the culture, "Why do you think the Ndop statue was made?"

The data was collected in two phases: a full class inquiry followed by

individual interviews. Students conducted an iconographic study that required them to make comparative and contextual analyses involving inductive and deductive reasoning, constructing their understanding through questioning, listening, and visual exploration. The teacher selected ten students for the final interview session; students were interviewed individually in a room set off from the classroom, by the principal investigator and the graduate student.

The findings revealed that the majority of the students interviewed demonstrated an ability to construct culturally relevant understandings of the purpose and significance of Ndop statues by constructing analogies from the examples and evidence of contextual meaning they have found hidden in the attributes related to the statue; most students were able to explain that the statues represent a king, using examples and evidence drawn from attributes related to the statue. Several students made connections between African and American cultures: "the statues are for remembering kings. Like we have Mount Rushmore where we put the best Presidents on". The findings offered convincing evidence to indicate that art education can help students move beyond stereotypes into culturally relevant inferences about the purpose and significance of the Ndop statues that can help students understand other cultures.

The limitations of the study were clearly outlined, adding to the dependability of the study, and multiple transcript excerpts were included in the text, adding to the authenticity of the data collection methods. The credibility of the study was further enhanced by the clear description of the research design,

explicating the methods employed and how they were in alignment with the chosen research methodology.

A possible threat to the credibility of the study is that only 10 out of 19 students were selected by the teacher for final interviews, which may have prejudiced the study results in favor of the outcomes sought by the authors. Another factor that weakens the study is that the procedures were not strictly controlled and that the study was conducted in two languages, a variable that may have skewed the research findings.

Because the case study focused on one class with only 19 students, further research with a larger student population should be conducted to determine whether the results of the study are transferable. An experimental research design with controlled procedures would add reliability to the research findings, particularly a design that controls for language variables, as the research study was conducted in both English and French.

In a hermeneutically-oriented ethnography of two ten-year-old girls from a small Midwestern town, Ivashkevich (2009) investigated whether children could use collaborative drawing as a means to both construct meaning and respond to sociocultural factors. Building on a foundation of previous inquiry regarding the contextual complexities of drawing practice as a lived social and cultural experience, Ivashkevich engaged in a 9 month ethnographic investigation of two 10-year-old girls from a small Midwestern town; the girls had known each other for many years, and were previously acquainted with the author.

Data collection consisted of both formal and informal interviews and

observation in a number of daily practices, including school recess, summer camp, and the girls' homes. Detailed observations were made of the subjects, as well as interactions with them as they created images, clarifying the intentions of the subjects to gain a better understanding of the sociocultural underpinnings of their artwork.

The findings of the study indicated that the images the girls produced were rarely self-explanatory; rather, they played a supplemental role in the girls' daily encounters and dialogues. Therefore, the images could easily be misread if taken at face value without considering the girls' verbal communication and behavior. Taken in context, the girls used the images as a way to negotiate their female identities and actively rework the gender messages implicit in the culture imagery that imposes limits on their identity based on arbitrary choices such as clothes, makeup and hairstyle. For example, when one of the girls drew an image of a girl wearing a "belly shirt", short skirt, and jewelry to demonstrate what kind of girl boys liked, the other girl responded by drawing a girl wearing motorcycle boots and a leather jacket, standing next to her own motorcycle, an image intended to convey female power. The self-initiated images produced by the girls provided an opportunity for them to challenge social norms and subvert the traditional gender expectations that require girls to suppress aggressive feelings and be "nice". Their drawings gave each of them an opportunity to respond to the cultural ideal of femininity and reshape it to fit their emerging self-identity.

The author grounded the study within a detailed framework of prior

ethnographic research that added to the strength of the study. The detailed transcripts and accompanying artwork supported the findings of the study; additionally, as the study progressed the author revised the research process both epistemologically and methodologically to find the contextual understanding of the girls' drawing practice, adding to the dependability of the study.

A weakness of the study is that while the author disclosed her prior relationship with the research subjects and their families, she did not discuss any potential bias that may have resulted from her prior knowledge, expectations, and assumptions about the research subjects. Further research should be conducted to determine whether the research findings could transfer to other student populations. The research design should include an independent review of the findings to control for researcher bias.

In a case study featuring a participatory action research design, Hutzel (2007) investigated the effects of engaging in an asset-based community art project on student identity and beliefs. The author grounded the research in a socially conscious philosophical foundation based on the teachings of Friere (1993) and hooks (1994), where a privileged voice is deconstructed through collective critical practice that emphasizes the role of social networks and group learning within the context of community. Research findings were based on observations, interviews, group discussions and an analysis of participant drawings.

The focus of the study was on service learning, with the goal of encouraging social reconstruction through action by giving students an

opportunity to design two murals for the local community. The research design

implemented the following action research principles: it was practitioner based;

responsive to social situations; had a focus on learning with the potential for

personal and social improvement; was intentionally political; and had a focus on

change with the self as the locus of change.

Study participants were eight to ten youth between the ages of 10 to 16

from the local Arts Consortium, and eight to fifteen youth ages 10 to 14 from the

west end of Cincinnati, an urban, African-American community. A number of

adults also participated, including members of the city council, an art teacher

from public school, two residents from the neighborhood, and two adults from the

Arts Consortium.

The four components of service learning -- preparation, action, reflection,

and recognition -- framed the process of engaging the participants in the

community art project. The preparation component involved an asset-based

mapping exercise and process of conceptual development for the murals. The

action component involved the creation of two murals to be added to the

community. Drawing and writing exercises provided an opportunity for students

to reflect on their work, and the students were recognized when the murals were

presented to the community.

Student participants engaged in two curricular activities to generate

important data about their understanding of crucial issues, including a drawing

activity followed by an interview exploring perceptions of community, and an

asset-based mapping activity to locate good things already existing in the

neighborhood. Interviews with the participants revealed that the drawings expressed optimistic visions of their community. The mapping exercise helped to identify the location of the murals they were planning to create to build on the existing strengths of the community. Both murals were based on student drawings.

The researcher found that while many of the students were initially hesitant to express themselves through art at the beginning of the project, they eventually produced art that expressed dreams of contributing to their community and becoming successful. One student drew himself on a swing, flying off as Superman and into a burning building to save people from a fire, while two other students collaborated to create an image of a boy kicking a football that turned into a spaceship; another student drew a West End child running for the Olympics. These positive images were incorporated into the final mural design, as well as the youths' interests in kids, safety, and greenery. Interviews with the students after completion of the mural revealed an increased sense of pride at their accomplishment, both because their ideas were incorporated into the murals and because they had made a positive addition to their community.

The researcher's conscious effort to consider the research participants as equal contributors to the work demonstrated her commitment to the ethical issues of trust and responsibility within the framework of participatory action research methodology, adding credibility to the study. The author's transparency about her role of outsider within the community and her involvement with other persons in the study, added further dependability to the study.

A possible threat to the credibility of the study is that there is no indication that the research was reviewed by the key informants before appearing in print; the length of the study is also problematic because the time spans consisted of a single summer; a longer study would lend additional strength to the findings. Further research should be conducted to determine the relationship between collective learning styles and art education; a research design that incorporates longevity should also be conducted to determine whether the findings of the research hold true over time. Additional research should include different student demographics and geographic locations to determine whether the findings transfer to other student populations.

The final section of this chapter featured research that examined the evidence for a reliable positive association of arts education with the exploration of personal beliefs. The four studies in this section explored the opportunities for personal reflection through the arts; the first study, conducted by Albers (1999), found that when images are visible and problematic beliefs are shared through conversation, opportunities are created to bring to light and interrogate misconceptions expressed by students; the second study, conducted by Chanda, and Basinger (2000), found convincing evidence to indicate that art education can help students move beyond stereotypes into culturally relevant inferences; in the third study Ivashkevich (2009) found that such drawings gave students an opportunity to respond to cultural images of femininity and reshape them to reflect their emerging sense of self-identity; the final study in this section, conducted by Hutzel (2007), found that students had an increased sense of pride

in themselves because of their artistic accomplishments and the positive addition they had made to their community.

Summary

Chapter Two provided a critique and analysis of 30 peer-reviewed articles related to the effect of elementary arts education on student learning, motivation and self-efficacy. The first section featured articles that examined evidence for a reliable positive association between arts education and student learning, and found evidence that arts integration led to student gains in spatial-temporal reasoning, language acquisition, cognition, creativity, reading comprehension, and retention of academic content. Section two examined the evidence for a positive link between arts education and student motivation, and found that students who participated in arts programs were more likely to participate actively and collaboratively than students in regular classroom situations, as well as demonstrating increased engagement, motivation and confidence in academic content areas and in reading. This section also found evidence for a reliable positive association between arts education and decreases in student emotional problems. Section three featured studies that examined the evidence for a positive link between arts education and self-efficacy and found that as students engaged in the reflective process of creating artwork they became increasingly more assertive and expressive, leading to increased feelings of self-efficacy. The final finding of this section demonstrated that students who participated in sustained visual arts programs showed gains in self-efficacy leading to increased engagement in learning at school.

Chapter Three provides a summary of the findings of each section in Chapter Two, draws conclusions from the research, and discusses the implications of the findings, including recommendations that will inform pedagogical practice, and suggested areas for further research.

CHAPTER THREE: CONCLUSION

Introduction

Chapter One of this literature review introduced the question of the effect of arts education on the dimensions of student learning, motivation and self efficacy, providing an overview of the history of fine arts education in American public schools. This chapter also examined the purpose and requirements of the NCLB legislation of 2001, with a particular focus on federally mandated high stakes tests and how the pressure to achieve Annual Yearly Progress (AYP) led to a narrowing of the curriculum in many schools, resulting in the reduction or elimination of arts programs, a decision that frequently alienated students whose strengths lay in other areas, such as the arts. Chapter One also offered definitions of the terminology used throughout the paper and disclosed the limitations of this review. The historical context provided in Chapter One clearly demonstrated that arts education was traditionally perceived as a non-essential part of the curriculum, an attitude that still prevails, given the absence of arts curriculum on state-mandated tests. The primary purpose of this paper was to examine recent research on the effects of arts education on student learning, motivation, and self-efficacy at the elementary level to determine whether the elimination of arts programs is supported by the literature.

Chapter Two provided a critique and analysis of literature related to the research question, as well as a discussion of how the findings presented in each study related to the purpose of this paper. This chapter was divided into three sections; the first section examined the evidence for a positive link between arts

education and student learning and found that incorporating the arts in content area subjects led to student gains in retaining academic content, spatial temporal reasoning skills, and creativity (Burton, Horowitz, and Ables, 2000; Edens and Potter, 2001; Graziano, Peterson, and Shaw, 1999; Heid, Estabrook, and Nostrant, 2009; Mardirosian, Belson, and Lewis, 2009; Moore and Caldwell, 1993; Nelson, Martin, and Baldwin, 1998; Rauscher, Shaw, Levine, Wright, Dennis, and Newcomb, 1997; and Rufo, 2011). Another finding of this section was that student language acquisition, reading comprehension, and higher-level cognition improved as a result of incorporating arts programs and arts-based partnerships in the classroom (Adomat, 2009; Anderson, 2004; Fisler, 2003; Pellegrini, 1982; Spina, 2006; and Strand, 2006; Williamson and Silvern,1992; and Young and Rasinski, 2009).

The second section of Chapter Two investigated the evidence for a positive association between arts education and student motivation and found that students who participated in arts programs that featured opera creation and process drama were more engaged, as well as more likely to participate actively and collaboratively than students in regular classroom situations (Rosler, 2008; and Wolfe, 1999). This section also found that when students created artwork that held a personal meaning and offered an opportunity for creative exploration, they demonstrated increased engagement, confidence, and motivation (Clark, Morrison, and Wilcox, 2009; and Levine, 2009), as well as decreased emotional problems (Kariuki and Honeycutt, 1988; and Wright, Ellenbogen, Offard, Duku, and Rowe, 2006).

The final section of Chapter Two examined the evidence for a positive link between arts education and students' feelings of self efficacy. The first part of this section demonstrated that students who participated in the reflective process of producing artwork became increasingly more assertive and expressive, leading to greater feelings of self-efficacy (Caine, 2010; and Catterall and Peppler, 2007). Other studies in this section indicated that students who participated in arts programs at school demonstrated increased engagement, leading to greater feelings of self-efficacy (Smithrim and Upitis, 2005). Additionally, this section provided evidence that arts education could foster students' exploration of personal beliefs, as well as creating opportunities for students to respond to sociocultural influences and reflect on issues of self-identity (Albers, 1999; Chanda and Basinger, 2000; Hutzel, 2007; and Ivashkevich, 2009).

Chapter Three concludes this paper, offering a summary of the findings from the literature review, an evaluation of the findings in relation to the quality of the research methodology, implications for elementary classrooms, and suggestions for further research.

Summary of the Findings

Chaper Two investigated the effect of arts education in elementary classrooms on the dimensions of student learning, motivation, and self efficacy. The following synopsis offers the relevant findings from each section of Chapter Two.

Positive Effects on Learning

The studies analyzed in this section provided evidence of a positive link between arts education in elementary classrooms and gains in several dimensions of student learning, including retaining academic content, spatial-temporal reasoning, language acquisition and cognition, creativity, and reading comprehension. A strong experimental-design study by Edens and Potter (2001) contributed to this section by demonstrating that students who participated in self-created drawing showed improvement in understanding and retaining content area concepts. Other strong studies indicated that students who participated in arts education demonstrated an increased understanding of abstract content area elements and engaged in higher level cognitive thinking (Mardirosian, Belson, and Lewis, 2009; Moore and Caldwell, 1993; and Strand, 2006). Additionally, studies by Graziano, Peterson, and Shaw (1999) and Rauscher, Shaw, Levine, Wright, Dennis, and Newcomb (1997) contributed to this section by providing evidence that students who engaged in piano keyboard training showed improvement in spatial-temporal and mathematics reasoning skills. Another finding of this section was that students who participated in arts programs and arts-based partnerships in the classroom demonstrated improved language acquisition and higher-level thinking skills (Anderson, 2004; and Spina, 2006). Other studies in this section provided evidence that students who participated in arts programs demonstrated measurable improvement in dimensions of creativity and original thinking (Burton, Horowitz, and Ables, 2000; Heid, Estabrook, and Nostrant, 2009; and Rufo, 2011). The final finding of the first section was that elementary students who engaged in various forms of

drama showed significant gains in automaticity, prosody, recall, and rich literary understandings, resulting in greater reading comprehension (Adomat, 2009; Pellegrini, 1982; Williamson and Silvern, 1992; and Young and Rasinski, 2009). Four other studies in this section found that students who participated in arts programs demonstrated improvement in the dimensions of creativity and original thinking (Burton, Horowitz, and Ables, 2000; Heid, Estabrook, and Nostrant, 2009; and Rufo, 2011).

The research evaluated in this section was evenly balanced between qualitative and quantitative methodologies. Of the 30 articles evaluated in the literature review, 17 were featured in this section; of that number, eight of the studies featured quantitative research methodology, while nine featured a qualitative research design. The balance of design methodology provided both verifiable data as well as descriptive analysis. Of the seventeen studies, one featured students from an urban charter school, while the remaining studies focused on elementary students in public schools. The majority of studies focused on urban and suburban schools; only one study featured students living in rural areas.

Positive Effects on Motivation

The studies analyzed in this section found evidence for a reliable positive association between arts integration and student engagement, and demonstrated that emotional problems decreased when students engaged in arts programs. Strong studies by Wolfe (1999) and Levine (2009) found that students who participated in arts programs were more engaged and more likely to participate

actively and collaboratively than students in regular classroom situations, and

that artwork that held a personal meaning for students as well as an opportunity

for creative exploration had a very strong impact on student engagement.

Studies by Clark, Morrison, and Wilcox (2009) and Rosler (2008) provided

evidence that students who engaged in process drama and readers theater

demonstrated increased engagement, confidence and motivation, as well as

gains in leadership and collaboration skills. Strong studies by Kariuki and

Honeycutt (1988) and Wright, Ellenbogen, Offard, Duku, and Rowe (2006)

contributed to this section by demonstrating that students who participated in arts

programs experienced a decrease in emotional problems.

The studies reviewed in this section were comprised of three case studies,

one action research study, and two longitudinal studies. The case studies and

the action research study provided rich descriptive information, while the

longitudinal studies provided verifiable data. It should be noted that one of the

longitudinal studies took place in Canada, which may affect the transferability of

the results to student populations in the United States.

Positive Effects on Self Efficacy

The final section of this chapter featured studies that examined the

evidence for a reliable positive association between arts education and self-

efficacy in students. A strong study by Caine (2010) contributed to this section

by demonstrating that as students engaged in the reflective process of creating

artwork they became increasingly more assertive and expressive, leading to

stronger feelings of self-efficacy. Additionally, two strong studies by Catterall and

Peppler (2007) and Smithrim and Upitis (2005) contributed to this section by indicating that students who engaged in sustained arts activities at school experienced greater feelings of general self-efficacy and increased engagement in learning. This section also analyzed research examining the evidence for a reliable positive association between arts education and the exploration of personal beliefs, and the opportunities for personal reflection through the arts. A strong study by Albers (1999), contributed to this section by demonstrating that visual arts education could be a vehicle for student exploration of personal beliefs, self-reflection, and the expression of self-identity in relation to others, encouraging students to explore misconceptions and transform stereotypical cultural beliefs. This section also found that students who participated in art education and collaborative drawing could move beyond stereotypes into culturally relevant inferences that reflected an emerging sense of self-identity (Chanda, and Basinger, 2000; and Ivashkevich, 2009).

The seven studies evaluated in this section employed research methodologies of both qualitative and quantitative design; the two studies that featured empirical design consisted of treatment/comparison groups and quasi-experimental methodology, respectively, both of which yielded verifiable data. The remaining four studies gathered rich descriptive data by employing ethographic, narrative inquiry, and action research designs.

Classroom Implications

An analysis of the literature related to the effect of arts education on student learning, motivation, and self-efficacy at the elementary level yielded

generally positive findings across a variety of classroom contexts, arts applications, and student populations. Because much of the research was qualitative in nature, no verifiable conclusions could be made about the transferability of the individual findings, however, based on the overall body of research, certain conclusions could be reached about the positive effect of arts education on students and how those findings might be used to inform pedagogical choices in the elementary classroom.

Chapter One discussed the NCLB legislation of 2001 and how the resulting focus on federally mandated high stakes tests created a narrowing of the curriculum that frequently eliminated arts programs, often alienating students whose strengths lay in other areas, such as the arts. Many of the studies reviewed in this paper provided evidence of a positive link between arts education and gains in student learning. Nelson, Martin, and Baldwin (1998); and Edens and Potter (2001) explored the role of art in the learning process and found evidence that supported a connection between arts education and the development of other cognitive skills; other studies in this review provided support for these findings by demonstrating measurable gains in student understanding of abstract content area elements, as well as higher levels of cognitive thinking when students participated in arts programs (Mardirosian, Belson, and Lewis, 2009; Moore and Caldwell, 1993; and Strand, 2006). Additional studies in this literature review provided evidence that arts integration in content area subjects led to student gains in retaining academic content, spatial temporal reasoning skills, and creativity (Burton, Horowitz, and Ables,

2000; Graziano, Peterson, and Shaw, 1999; Heid, Estabrook, and Nostrant, 2009; Rauscher, Shaw, Levine, Wright, Dennis, and Newcomb, 1997; and Rufo, 2011).

Another finding of pedagogical import in the literature review was evidence of improved student language acquisition and reading comprehension as a result of incorporating arts programs and arts-based partnerships in the classroom (Adomat, 2009; Anderson, 2004; Fisler, 2003; Pellegrini, 1982; Spina, 2006; Williamson and Silvern, 1992; and Young and Rasinski, 2009). Demonstrated gains in reading comprehension were particularly significant for educators as this subject is prominently featured on federally mandated state tests, providing a rationale for including arts education in the classroom.

Other studies in the literature review indicated a positive association between arts education and student motivation, providing evidence that students who participated in arts programs engaged more actively and collaboratively than students in regular classroom situations (Rosler, 2008; and Wolfe, 1999); additionally, students who found personal meaning in artwork demonstrated increased engagement, confidence, and motivation (Clark, Morrison, and Wilcox, 2009; and Levine, 2009), as well as decreased emotional problems (Kariuki and Honeycutt, 1988; and Wright, Ellenbogen, Offard, Duku, and Rowe, 2006).

Additional studies in the literature review provided evidence that students who engaged in arts programs demonstrated increased feelings of self efficacy (Caine, 2010; Catterall and Peppler, 2007; and Smithrim and Upitis, 2005), indicating that when students engaged in the reflective process of producing

artwork they demonstrated increased engagement, assertiveness and expression, resulting in greater self-efficacy. Other studies of import to educators demonstrated that arts education facilitated students' exploration of personal beliefs and created opportunities for students to respond to sociocultural influences and issues of self-identity (Albers, 1999; Chanda and Basinger, 2000; Hutzel, 2007l and Ivashkevich, 2009).

One finding that emerged from the research is of significant import to teachers: the potential for arts education to foster equity pedagogy in the elementary classroom. Four of the studies in this literature review found that arts education provided ways for teachers to implement more progressive and democratic educational pedagogy; these studies demonstrated that arts programs facilitated student understanding of abstract content elements, and provided a catalyst for conversations that helped students transform stereotypical cultural beliefs, construct culturally relevant understandings, and respond to sociocultural factors (Albers, 1999; Chanda and Basinger, 2000; Ivashkevich, 2009; and Mardirosian, Belson, and Lewis, 2009).

Overall, the findings of the literature review demonstrated evidence of a link between arts education and gains in student learning, motivation, and self efficacy at the elementary level, providing a research-based rationale for teachers who wish to incorporate arts curriculum in their classrooms.

Suggestions for Further Research

While the overall findings of the literature reviewed in this paper supported a positive relationship between arts education and the dimensions of student

learning, motivation and self-efficacy, the preponderance of evidence was provided by research with a qualitative design. Many of the studies examined in this paper suggested further research with controlled methods, larger student populations, and a variety of grade levels to determine whether the study findings could be replicated in other classrooms. Additional quantitative studies would add to the growing body of evidence supporting arts education. Suggestions for further research identified in the literature review are detailed below.

Studies by Moore and Caldwell (1993), and Mardirosian, Belson, and Lewis (2009) identified teacher training and professional development classes that helped teachers implement arts education effectively, however the methods of teacher training and the effectiveness of implementing the training were not fully documented in the literature. Future research should be conducted to demonstrate both teacher training and implementation in the classroom, with independent reviews of the findings to control for potential researcher bias. Lack of control for researcher bias was an identified design weakness in several of the studies evaluated in this paper, including research by Adomat (2009), Albers (1999), Burton, Horowitz, and Ables (2000), Fislar (2003), Heid, Estabrook, and Nostrant (2009), Ivashkevich (2009), Levine (2009), Rosler (2008), and Rufo (2011). Additional research should be conducted to determine whether the study findings can be replicated when independent coding and analysis is included in the research design.

Methodological design flaws were evident in several studies, suggesting further research to eliminate identified weaknesses. Research by Graziano,

Peterson, and Shaw (1999) could be strengthened by randomization of subject assignment groups, while findings by Heid, Estabrook, and Nostrant (2009) would be strengthened by evidence and analysis of reliability measurements in the research design. Research conducted by Rufo (2011) could be improved by including multiple data sources with findings evaluated by independent coders. Findings by Fislar (2003) would have been strengthened by a more rigorous design that provided detailed assessment information to inform the research findings, as well as confirmation of the findings by an outside party.

Three of the studies in the literature review featured research from Canada (Caine, 2010; Smithrim and Upitis, 2005; and Wright, Ellenbogen, Offard, Duku, and Rowe, 2006), raising the issue of transfer. Future research should be conducted to determine whether the study findings can be replicated with student populations and demographics specific to the United States.

As previously stated, many of the studies examined in this paper were limited both in sample size and the age range of the subjects (Anderson, 2004; Edens and Potter, 2001; Heid, Estabrook, and Nostrant, 2009; Hutzel, 2007; Moore and Caldwell,1993; Rauscher, Shaw, Levine, Wright, Dennis, and Newcomb 1997; Spina, 2006; Strand, 2006; and Williamson and Silvern,1992). In several studies the sample size was limited to only one classroom and one grade level (Adomat, 2009; Albers, 1999; Caine, 2010; Chanda, and Basinger, 2000; Fislar, 2003; Ivashkevich, 2009; Kariuki and Honeycutt, 1988; Levine, 2009; and Rufo, 2011). The findings of these studies should be confirmed by additional research with larger sample sizes and a variety of grade levels to see if the

results can be replicated with larger populations and wider age ranges.

Another identified weakness in several research studies was the limited nature of the demographics represented by the sample population (Burton, Horowitz, and Ables, 2000; Levine, 2009; Spina, 2006; Strand, 2006; Williamson and Silvern,1992; Wolfe, 1999; and Wright, Ellenbogen, Offard, Duku, and Rowe, 2006). Because the research often focused on intact classrooms, it is unclear whether the findings would transfer to other student populations, suggesting additional research to determine transferability across a variety of demographics. Other studies evaluated in the literature review were of short duration, calling into question the durability of measurable student gains (Fislar, 2003; Hutzel, 2007; Rauscher, Shaw, Levine, Wright, Dennis, and Newcomb, 1997; and Smithrim and Upitis, 2005). These findings would be strengthened by research employing longitudinal methodology to determine whether student gains in a variety of dimensions persisted over time.

Clark, Morrison, and Wilcox (2009), Heid, Estabrook, and Nostrant (2009), Rosler (2008), and Wolfe (1999) conducted research that indicated students who participated in arts education programs demonstrated increased collaboration skills. Further research is suggested to investigate collaboration skills developed in arts programs, and whether these skills could transfer to other academic disciplines and content areas; collaboration skills should also be examined to determine possible connections with other student outcomes.

Four of the studies in the literature review demonstrated that arts education provided ways for teachers to implement equity pedagogy by

facilitating student understanding of abstract content elements, providing a catalyst for conversations that helped students transform stereotypical cultural beliefs, and by creating opportunities for students to construct culturally relevant understandings and respond to sociocultural factors (Albers, 1999; Chanda and Basinger, 2000; Ivashkevich, 2009; and Mardirosian, Belson, and Lewis, 2009). Further research is suggested to determine how arts education can be employed to foster more progressive and democratic educational pedagogy.

Overall, the research examined in this paper found a positive link between arts education and students gains in the dimensions of learning, motivation, and self-efficacy, however, further research is indicated to determine whether other forms of art, such as dance, can be employed to similar effect. Additional research should be conducted to expand on the parameters of the studies featured in this literature review, for example, research that featured music (Graziano, Peterson, and Shaw, 1999; Kariuki and Honeycutt, 1988; Rauscher, Shaw, Levine, Wright, Dennis, and Newcomb, 1997; and Wolfe, 1999) could be broadened in scope, incorporating a variety of instruments, music styles, and classroom situations in the research design. Studies that employed drawing (Edens and Potter, 2001; Heid, Estabrook, and Nostrant, 2009; Moore and Caldwell, 1993; Nelson, Martin, and Baldwin, 1998; and Rufo, 2011) could feature a wider array of drawing materials and a variety of content area applications.

Conclusion

The purpose of this paper was to examine the effects of arts education on

the dimensions of student learning, motivation, and self-efficacy through a critical review of the literature. Chapter One established the rationale of the research question, providing an overview of the history of fine arts education in American public schools, as well as examining the purpose and requirements of the NCLB legislation, with a particular focus on federally mandated high stakes tests and how the pressure to achieve annual yearly progress has led to a narrowing of the curriculum in many schools, often resulting in the reduction or elimination of arts programs. The question of the effect of arts education on the dimensions of student learning, motivation, and self-efficacy was introduced, along with different perspectives on the importance of arts education in schools, and the rationale for exploring the effects of arts education at the elementary level.

Chapter Two provided a critical review of literature related to the research question and evaluated how the findings presented in each study related to the purpose of this paper; the chapter was divided into three sections: the first section examined the evidence for a reliable positive association between arts education and learning, the second section explored the evidence for a reliable positive association between arts education and motivation, while the final section of Chapter Two analyzed evidence for a reliable positive association between arts education and self-efficacy.

Chapter Three provided an overview of the findings from each section of the literature review, drew conclusions from the research, and discussed the implications of the findings, including recommendations for how the research could inform pedagogical practice. The chapter concluded with suggested areas

of further research.

The literature examined in this paper provided compelling evidence for the integration of arts education in schools. The research findings demonstrated many positive effects of arts education on the dimensions of learning, motivation, and self efficacy, including retention of academic content, spatial temporal reasoning, language acquisition and cognition, creativity, and reading comprehension. Arts education was also found to have a positive effect on student motivation in the dimensions of student engagement, emotional problems, and self-efficacy, creating opportunities for students to explore personal beliefs, engage in self reflection, and respond to sociocultural influences.

While the research evaluated in this paper suggested many valuable avenues for future research, the most significant was the promise that arts education holds for equity pedagogy. As a teacher, this finding was the most inspiring; I plan to incorporate arts education in my classroom with the goal of creating a more equitable education that fosters learning, engagement, and self efficacy for all students.

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