EFFECTS OF DRAMA ON STUDENT ACHIEVEMENT AND ATTITUDE

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ABSTRACT

This purpose of this literature review is to analyze current research in order to examine the effects of drama on student achievement and attitude. The review first introduces the purpose for this project and then briefly introduces the history of drama in education, which has not been uncontroversial. Chapter two examines thirty studies that researched the effects of drama when integrated into the general education classroom, as well as the effects of drama as an extra-curricular activity. Findings include increased student achievement in many school subjects, including reading, writing, math, and science. This achievement was measured in a variety of ways, including national standardized tests, researcher-created tests, observations, and interviews. Drama is also shown to promote effective student attitudes, such as motivation, self-efficacy, and self-concept. Chapter three describes the implications that this research has for the classroom, and suggests avenues for future research.

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CHAPTER ONE: INTRODUCTION

Introduction

This paper will focus on the question: What effects does drama have on student attitudes and achievement? Arts integration advocates claim that integrating drama into the curriculum improves student motivation for learning by creating an exciting and engaging classroom experience. It gets students out of their chairs and encourages them to be active participants in their learning experience. The result of this motivation and active participation is a kinesthetic experience on which to build further learning. By incorporating drama across curriculum, teachers give their students the opportunity to participate in a concrete learning experience and to explore that experience from a variety of viewpoints. Furthermore, participation in drama activities outside of the classroom has the potential to increase student self-concept and problem-solving skills. Drama can provide the impetus for action, experimentation, hypothesis, and reflection. Enacting these steps can give students a sense of true accomplishment. However, the current state of education in this country calls for measurable results in the form of standardized tests and yearly improvement in test scores. This high-stakes atmosphere has led to a decrease in the time spent in dramatic endeavors. In order to inspire drama integration into the classroom, it must be shown to improve academic achievement and student attitudes towards learning in a measurable way.

Rationale

In the age of accountability, the arts have become a low priority. Policy makers want quantifiable results and, as such, test scores have become the only determinant of the quality of public schools. Furthermore, schools must make progress on these tests each year in order to receive funding. Ingram (2003) lamented the "single-minded focus on using test scores as indicators of student success in school" (p. 50). No Child Left Behind (2001) included the arts in its legal definition of "core academic subjects," though students are not tested in the arts, and success in the arts does not determine school funding. As a result, the U.S Department of Education's National Education Center for Educational Statistics (Parsad and Spiegelman, 2012) found that specific drama instruction in the nation's elementary schools has fallen from 20% in the 1999-2000 school year to only 4% in the 2009-2010 school year (p. 5). It then falls to the classroom teacher to incorporate drama into the general education curriculum. In a survey of teachers in 2004, 100% of the respondents concurred that integrating the arts into other core subjects improves the teacher's ability to meet students' multiple learning styles. However teachers reported that they did not have adequate planning time, materials, or training to implement arts-integration. Furthermore, teachers complained that integration adds to their already overloaded curriculum and to their apprehension about meeting curriculum requirements (Purnell, 2004).

Advocates of drama-in-education point to a number of important educational benefits. The National Council of Teachers of English (2005) outlined eight of the most beneficial outcomes of classroom drama:

- Develop improved skills in reading, listening, speaking, and writing;
- Develop skill in thinking analytically, in acting decisively and responsibly;
- Increase an sustain the ability to concentrate and follow directions;
- Strengthen self-concept by cooperative interaction with others;
- Learn to make commitments and fulfill them;
- Learn to deal effectively with interracial, intercultural, and multiethnic situations;
- Increase motivation to learn;
- Develop individual and group creativity (cited in Maples, 2007, p. 273).

Furthermore, Caterall (2002a) argued, “experiences in the arts create capabilities or motivations that show up in non-arts capabilities” (p. 152). In other words, art for its own sake also promotes student success. The arts have been found to engage students both intellectually and emotionally, to encourage holistic thinking, and to promote socially relevant democratic education (Parsons, 2004).

Despite these claims, it is rare that struggling students have the opportunity to approach difficult subjects through drama; instead they are given

more of the same: extra classes in math, science, or reading. Perhaps this is because it has been claimed that there is a lack of empirical evidence that links drama to achievement (Brewer, 2002). However, Brewer did not provide specific evidence to support his claim. The reason may instead be, as Bresler (2003) commented, that research studies linking the arts to achievement have not received much critical attention. In order to incorporate drama into the classroom, it seems, advocates must "provide evidence of its broader value" (Ingram & Riedel, 2003, p. 50).

Historical Background

Classroom drama has been a controversial issue since the early twentieth century. Traditional education at the time approached teaching and learning as the transmission of knowledge from teacher to student. In the early twentieth century, an emphasis on the uniqueness of the individual began to take hold and, with it, a more child-centered education. The New Education Movement—pioneers of drama in schools—was founded in 1911. John Dewey furthered the claims of the New Education Movement with his theories of learning by doing, because, of course, drama is a form of doing. His book, *Art as Experience*, was published in 1934. However, critics at the time pointed to the fact that drama could not be "examined critically" as a reason to view drama with suspicion (Bolton, 1979, p. 9).

The mid-twentieth century saw the rise of drama in education through the work of prominent British educators Brian Way and Dorothy Heathcote. Brian Way contributed to drama in education through his work promoting differentiated

instruction, or “individualization,” and through his work to expand the “activities to be embraced by drama” (Bolton, 1979, p. 45). Dorothy Heathcote contributed to the field of drama in education by her insistence that, “it is not enough to be able to translate a topic into themes: [a teacher must] see a them in turn translated back into action” (Bolton, 1979, p. 68). In other words, in order to provide a concrete learning experience for students, teachers must allow the opportunity for action and exploration of concepts through drama. Social constructivist theories saw the value in this kind of dramatic education because it “gives students an authentic experience on which they can reflect, before, during, and afterward, to deepen learning” (Donahue & Stuart, 2010, p. 9). In the United States, President John F. Kennedy advocated for the arts, saying, “I see little of more importance to the future of our country and our civilization than full recognition of the place of artists” (cited in Purnell, 2004, p. 7).

For a time, the pendulum seemed to swing toward a more child-centered approach to education. Gardner’s theory of multiple intelligences, for example, proposes that people possess a wide range of intellectual abilities that can be described in eight categories:

- Linguistic (words and language)
- Logical-mathematical (numbers and reasoning)
- Spatial (pictures)
- Bodily-kinesthetic (the body)
- Musical (notes and rhythm)

- Interpersonal (people)
- Intrapersonal (the self)
- Naturalist (nature)

Gardner “argued the arts are integral to the education of the whole child” (Gullatt, 2007, p. 217). However, declining SAT scores in the last decades of the twentieth century caused critics to call for the standardization of schools and curriculum. In 1983, *A Nation at Risk* cried, “the educational foundations of our society are presently being eroded by a rising tide of mediocrity” (Ravitch, 2010, p. 24). In response, President Bush’s goals for education in 1989 did not even mention the arts (Berube, 1999, p. 3).

Almost twenty years after *A Nation at Risk*, the No Child Left Behind Act of 2001 is yet another attempt to raise educational standards. It focuses on “academic fundamentals and on closing the achievement gap” (Gullatt, 2007, p. 211). No Child Left Behind did identify art as a core academic subject, but its narrow focus on raising test scores in core content areas—reading, math, and science—has resulted in an elimination of art curriculum from classrooms and schools. In fact, the Council of Chief State School Officers referred to the arts as “the lost curriculum” (Chapman, 2005, p. 118). This state of affairs can be traced back to No Child Left Behind, surely, but it is also true that public support for arts integration is weak. In fact, “if you ask for a ranking of the importance of various school subjects, the arts are at or near the bottom of the list” (Marzano, Kendall, & Gaddy, 1999). In the current educational climate, the arts must be considered

relevant to student and school achievement in order to find their way back into the curriculum.

Definitions

This paper will refer to *drama in education* as opposed to theater in education. There are many studies that focus on the integration of drama in education, referring to such activities as "improvisational drama activities in the classroom, [or] fantasy play." Less prevalent are studies that link theater in education—i.e. "school productions, [or] visiting theater groups"—to academic achievement (Ingram & Riedel, 2003, p. 52).

Furthermore, this paper will explore a variety of formats of drama in education. Catterall (2002a, 2002b) defined the wide range of drama terminology in the way this paper will use as a standard. He defined *classroom drama* as "the use of drama in the school classroom…typically directed by the classroom teacher or by students themselves." *Creative drama* is "improvisational activities in which the participants invent fictional situations and characters of their own choosing." *Fantasy play* involves "very young children (e.g., 5-year-olds) who tend to bring a great deal of inventiveness to the portrayal of even the most tried and true children's stories and characters" (Catterall, 2002b, p. 59). *Reader's theater* refers to short scripts that are read aloud and improvised within a class. Reader's theater does not require memorization or production. This paper will also explore a variety of drama activities outside of the classroom, including acting in, directing, or working on the production team of a

play or other dramatic event.

Academic achievement is a broad term and is defined in many ways depending on the context. In this paper, academic achievement will refer both to an increase or improvement of test scores and to an observable increase of critical academic skills, such as creative thinking, inquiry, experimentation, and self-motivation. These critical academic skills should be included in any definition of academic achievement because schools that are "more inquiry-oriented, more project-based, more demanding of high standards," such as schools that have serious arts programs, "often report a rise in test scores" (Winner & Hetland, 2000).

Student attitude, too, can be defined in many ways. In this paper, student attitude will refer to students' self-concept, or self-esteem. It will also refer to motivation to participate, engage, and exchange ideas, both in school and out. Studies have shown that participation in drama positively correlates with student attitude.

Limitations

This paper will be limited to the study of participation in drama as it effects students' attitude or academic achievement. Although drama and theater have value in themselves, this paper will not focus on merely watching theater, primarily because "there is very little research about the effects of dramatic

presentations to audiences generally, or about impacts on either the performers or the audiences in the case of school productions" (Catterall, 2002b, p. 59).

Most of the individual studies used in this critical review are bound by similar limitations. Most were short in duration, ranging in length from a few days or weeks to a school year. Also, most of the studies are not true experimental designs, which are difficult to enact in a school setting, because experimentation requires students to be randomly assigned to either an experimental group or a control group. For the most part, though a relationship between drama integration and academic achievement can be presumed, a definite cause and effect cannot be unequivocally determined. Similarly, although participation in drama activities outside of school have shown to positively affect students' self-concept and motivation—necessary factors for student success—causation of academic success cannot be assumed.

Statement of Purpose

It is important for teachers to use effective and proven methods within their classroom. Traditionally, drama has been at the whim of the political climate, whether embraced for its constructivist qualities or shunned in favor of more traditional methods. However, policy and practice should be based on the findings of reputable research. Therefore, the purpose of this paper is to explore the existing literature in order to determine whether or not drama is an effective tool for inspiring academic achievement. Some experts claim that the use of

drama within the curriculum is beneficial for student learning within a specific subject. Others claim that drama, in and of itself, can inspire important academic skills, such as self-motivation, creative thinking, or positive self-image. This paper will seek to discover whether empirical research can prove these claims.

Should this be the case, this paper will also use the research to inspire curriculum development. Methods that have proven valid should be adapted into the classroom. It is important that a teacher bases her practice on solid research and practices that are proven to have a positive effect on student learning. This allows a teacher to provide the best possible education for her students, regardless of the ever-changing tides of educational policy.

The final purpose of this paper is to closely examine the available research in order to suggest further avenues of study. Certainly, some aspects of drama within education have been more closely studied than others. However, if drama can be an important tool for learning, it is important that all possible circumstances be researched and reported.

Summary

Drama has an important role to play in motivating students and in increasing academic achievement. Drama allows for a kinesthetic construction of knowledge, upon which students can reflect, predict, and build further learning. It addresses multiple intelligences and allows for multiple entry points into learning.

Furthermore, drama advocates have claimed that participating in drama improves student self-esteem, which is beneficial both inside and outside the classroom. The history of drama in education has varied as educational theories have shifted from traditional, behaviorist views on learning to progressive, child-centered views on learning, and recently to an atmosphere of high-stakes testing and teacher accountability. In an age of accountability, drama in education must prove to be a viable tool for positively affecting student attitudes towards learning as well as their academic achievement in order to be taken seriously in the current United States schooling system. This literature review will seek the answer to that question: What effect does drama have on student attitude and achievement?

CHAPTER 2: CRITICAL REVIEW OF THE LITERATURE

Introduction

Chapter one discussed the idea of drama as a motivating factor for students, both inside the classroom and out. Drama allows students to actively participate in learning and problem solving, providing concrete experiences on which to build knowledge. It discussed the demise of arts in the classroom as an outcome of the back-to-basics approach to schooling. Opponents of arts integration argue that classroom time is better spent focused on reading, writing, and mathematics. Chapter one also explored the history of drama in education, which can be traced back to the early twentieth century to John Dewey and the New Education Movement, who believed in learning by doing. It examined the work of prominent drama educators Brian Way and Dorothy Heathcote and their arguments for drama in education. Finally, it examined Gardner's theory of multiple intelligences and his argument for the arts as an integral part of educating the whole child. Chapter two will review the research about drama as a tool for academic success, both inside and outside the classroom. The research in this chapter is organized into two sections: the effects of drama integration within another content area, and the effects of drama participation for its own sake. Each of these sections examines how the use of drama affected the attitude and achievement of students.

The Effect of Drama Within the Content Areas: Positive Trends in Student Achievement and Attitude

The first half of this analysis will concentrate on the effects of integrating drama into the curriculum. Overall, drama was found to positively affect a variety of student success factors: not only academic achievement, but also attitudes, motivation, and creative thinking. These factors can be seen across a range of content areas, from language arts to math and science. This section of the analysis ends with a study that asked students to shed light on their own perceptions of the benefits of drama integration.

Drama and Reading

This analysis will begin with the review of many studies that examined the link between classroom drama and reading ability. This section is further broken down into two subsections based on the researchers means of collecting data. The first subsection will focus on the use of classroom drama and its effects on reading ability, as measured by national standardized tests. In today's educational climate, proving a correlation between drama integration and increased scores on standardized tests is a powerful incentive for new reading curriculum development. The first set of studies provides evidence of the reliability of drama's effects on student achievement. The second subsection will focus on the use of classroom drama and its effects on reading ability, as measured by either researcher-created testing means, or by more qualitative

means, such as student interviews or observational data. The second set of studies provides a picture of the specific effects of drama integration in the reading curriculum.

Drama and reading: effects measured by national standardized tests. This analysis will begin by examining three large-scale studies conducted in urban areas that studied the correlation between drama and reading performance, as measured by standardized testing. The first, by Catterall and Waldorf (1999), is a large-scale study conducted over a period of five years in Chicago public schools. Any improvements in reading performance were measured by the Iowa Test of Basic Skills. This is followed by another large-scale study conducted in Chicago public schools, this time by Rose, Parks, Androes, & McMahon (2000). Its results expand upon Catterall's findings of a link between arts education and academic achievement, again based on results of the Iowa Test of Basic Skills. Ingram and Riedel (2003) conducted another large-scale study in an urban area—this time in Minneapolis. This study used the district's standardized testing program, the Northwest Achievement Levels Test, to collect their data.

These three studies are followed by two smaller-scale studies conducted in suburban or rural Title 1 schools that also show positive correlations between drama—specifically reader's theater—and reading achievement, as measured by standardized tests. These smaller studies paint an even richer picture of the possibilties within the classroom for both curriculum development and for

drama's educational impact on individual students. The first, by Griffith and Rasinski (2004), gives a case study of one teacher's forth-grade reader's theater curriculum. Gains were found in students' reading rate and comprehension, as measured by the Qualitative Reading Inventory. Rasinski teamed up with another teacher, Young, to conduct another case study on the effects of reader's theater on reading achievement in 2009. Again, positive results were found on standardized reading measures, this time measured by both the Developmental Reading Assessment and the Texas Primary Reading Inventory.

Another three studies explored not only the area of reading achievement on standardized tests, but took it a step further to measure any change in student attitudes, such as self-concept and creative thinking. The first is a small study conducted by Gourgey in 1984, which looked at the effects of drama on attitude and achievement specifically in black and Hispanic students. Attitude pretests and posttests were given, and the Comprehensive Test of Basic Skills served as the standardized measure of achievement. Next, a large-scale study conducted by Luftig (2000) examined the effects of the arts on students in multiple elementary grade levels. Five variables were measured, including self-esteem, locus of control, creative thinking, and art appreciation, as well as academic achievement on the Iowa Test of Basic Skills and the Stanford Achievement Test. Finally, a study conducted in the United Kingdom by Fleming, Merrell, and Tymms (2004) also measured the effects of drama on reading, math, and student attitude. Fleming, et. al. used assessments developed by the Performance

Indicators in Primary School project, which are widely used by schools across England.

The analysis begins with a study led by James Catterall and Lynn Waldorf, examining the impact of the Chicago Arts Partnerships in Education (CAPE) on 37 schools in the Chicago area. Catterall, leader of the Imagination Project at University of California Los Angeles, is a prominent researcher in field of arts education and its ties to academic achievement. This particular study followed schools from 1992-1998 and compared schools participating in CAPE with other Chicago public schools. The study found that sixth-grade students participating in CAPE's integrated drama instruction program made a substantially greater improvement in sixth-grade reading scores on the Iowa Test of Basic Skills (ITBS) when compared with other Chicago public schools. The study also found substantially greater ninth-grade reading scores on the Test of Achievement and Proficiency (TAP) when compared to other Chicago public schools.

In the 1992-1993 school year, CAPE schools averaged 40 percent of sixth-graders performing at or above grade level on the ITBS reading test, while comparable Chicago public schools averaged 28 percent. By the end of the 1997-1998 school year, more than 60 percent of sixth-graders at CAPE schools were performing at or above grade level, while comparable Chicago public schools averaged 40 percent. The CAPE schools' reading performance scores grew from 12 percent greater to 20 percent greater than comparison schools from 1992-1998. Similary, the study found that over the years from 1992-1998

CAPE school ninth-graders' reading performance grew to be full year ahead of their non-CAPE school counterparts (reading at a 9.5 level compared to an 8.5 level).

The North Central Regional Laboratory (NCREL) was contracted directly by the CAPE project to assess the impact of the program throughout its implementation. The Imagination Project was also brought in at the end of the study period as an objective assessor of the impact of the CAPE project in order the triangulate the findings of NCREL. The parallel findings of both the Imagination Project and NCREL increase the validity of the impact of arts integration on student academic achievement. Furthermore, the longevity of this study, as well as its examination of 37 separate schools, serve to increase the study's external validity.

A quantitative study by Rose et al. (2000), with a randomized pretest/posttest control-group design, again looked at Chicago-area elementary schools and measured the impact of drama-based instruction on students' test scores on the reading comprehension portion of the Iowa Test of Basic Skills. Rose, et. al. were inspired by Catterall's claim that "a growing body of literature suggests an empirical link between arts education and basic academic achievement" (as cited in Rose, et. al., 2000, p. 5). They found that the scores of the students in the experimental group increased significantly more than did the control group's scores.

A non-profit arts group in Chicago created the Reading Comprehension Through Drama program, and two fourth-grade classrooms from each of four different Chicago public schools were randomly selected to participate in the study. The classrooms were then randomly assigned to control or experimental groups. In all, 94 students participated in experimental groups, and 85 in control groups. Reading comprehension lessons were designed to teach story elements, sequence elements, perception elements, and evaluation elements. The experimental group was taught using drama-based methods by an artist-in-residence for one hour twice each week for ten weeks, and the control group was taught for the same amount of time using traditional text-based methods, including reading and completing workbook activities.

The grade equivalence scores on the reading section of the Iowa Test of Basic Skills for students in both groups were compared from the end of their third grade year (before the program) to the end of their fourth grade year (after the program). Before the program, overall reading scores of the experimental and the control schools were slightly different (Experimental pretest mean: 2.96; Control pre-test mean: 2.61). ANCOVA was used at the end of the study to account for the preexisting differences, $F(1,154) = 7.87$, $p = .006$. Nevertheless, the Reading Comprehension Through Drama students' ITBS scores increased significantly more (corrected mean=1.21) than did the control groups' scores (CM=.91). In other words, students that participated in the Reading Comprehension Through

Drama program increased their reading scores by an average of 3 months more than those students who did not participate.

Rose et al. (2000) created a controlled experimental design, including random selection of participants. This, as well as the standardized measure used to determine student progress and the use of ANCOVA to correct for difference, increases this study's internal and external validity.

Building on the notion that "non-arts instruction is strengthened by integrating the arts," Ingram and Riedel (2003) designed a quantitative study that examined the relationship between arts-integrated instruction and student achievement in third- to fifth-grade students (p. 1). The researchers found that an increase in arts integration directly correlated to an increase in reading and math scores.

Thirty-three elementary schools in the Minneapolis area and a total of 1535 students in Grades 3-5 were studied. Seventeen schools served as treatment schools and the remaining 16 served as control schools. The research team used a 12-point scale to evaluate the teachers' use of arts integration; the team used test scores from the Northwest Achievement Levels Tests in reading and mathematics to evaluate student achievement. In reading, third grade students who received a lot of arts integration gained an average of 3.06 reading scale-score points more than their peers who received no arts integration ($p < .01$). Furthermore, for every level of increase in arts integration, third grade

students' scores increased by 1.02 scale-score points. In forth and fifth grade, students' gain scores increased by .80 for every unit increase in the level of art integration by their reading teacher.

This study used regression analysis to estimate the effects of arts integration on the whole group of students as well as on certain subgroups of students identified by gender, race/ethnicity, socioeconomic status, special education, and English-language learners. Findings were extremely positive, indicating increased scale-score points in each of these sub-groups as well. Regression analysis controlled for selection and increased the internal validity of the study. The large and diverse number of study participants once again increases the external validity of this study.

Next, two smaller-scale studies also evaluated the effects of integrating drama into the general reading curriculum. Each of these studies specifically noted the effect of reader's theater on student reading achievement in fluency and comprehension. First, Griffith and Rasinski (2004) conducted a case study to evaluate the effect of a year-long reader's theater program on a class of fourth-grade students in a Title I school in North Carolina. The researchers found that the average reading rate of the students grew from 62.4 correct words per minute at the beginning of the year to 109.8 correct words per minute at the end of the year. Additionally, the researchers found that the students' silent reading comprehension grew from an average second-grade level to a fifth-grade level by

the end of the year. The researchers also observed in the students a deepened interest in reading, as well as an increased expressiveness while reading.

This case study, with Griffith serving as both teacher and researcher, provides insights into the process of implementing reader's theater within the classroom, including non-ability grouping and independent practice time. She also notes that while initially effective to have all students work on the same script, a wider variety of scripts can be offered as students progress (p. 129). Finally, students can begin to be challenged with writing and arranging their own scripts, serving to increase student understanding of "point of view" (p. 133). These insights increase the possibility of transferability. However, the researchers' close relationship to both the students and the material does not account for possible bias. Furthermore, although the results in both reading rate and comprehension were found through standardized measures, Griffith's reader's theater program was combined with other measures, so it remains unclear whether reader's theater is the cause of the student's success. The next study, again co-authored by Rasinski (2009), builds on this study's findings by looking specifically at reader's theater and its effects on reading performance.

Young and Rasinski (2009) designed another quantitative study with a pretest/posttest design. They found drama—specifically reader's theater—to be an effective way to improve fluency and reading achievement on both the Developmental Reading Assessment and the Texas Primary Reading Inventory. Participants in the study were 29 students in a second-grade classroom in a Title

1 school in a suburb of Dallas, Texas. Nine of the students were ELL. Students received a weekly reader's theater curriculum that carried on throughout the year. Students were tested with two quantitative measures at both the beginning and the end of the year.

The Developmental Reading Inventory was administered to test word recognition accuracy, reading rate, and prosody (expression and phrasing) in both fall and spring. Significant gains were found in each measure on the DRI by the end of the year. In the fall, students averaged a score of 19.4, which represents an end-of-first-grade reading level. The goal for second-grade students is to end the year at 28. The students' spring scores averages at 31.2, well above the end-of-the-year expectations for second-grade students. The Texas Primary Reading Inventory was also administered in both the fall and the spring to measure words correct per minute. The year before, the students had gained an average of 29.1 words correct per minute from the beginning of the year to the end. In their second-grade year, students gained an average of 64.9 words correct per minute, a substantial difference.

Although this study contained no control group, researchers did note that "gains were greater than in other classrooms where fluency and Readers Theatre were less emphasized" and that "2006-2007 [previous year] gains [in fluency] were much less substantial" (p. 11). The substantive gains certainly seem to indicate the effectiveness of reader's theater. However, the lack of true

experimental design weakens the study's internal validity, as correlation cannot be confirmed.

The next three studies build on the previous five by exploring not only the area of reading achievement, but also any change in student attitudes that contribute to achievement, such as self-concept and creative thinking. An early study, conducted by Gourgey in 1984, looked at the impact of an improvisational dramatics program and used quantitative means to measure student achievement, as well as students' attitude towards school. The study included 141 fourth-, fifth-, and sixth-grade Black and Hispanic students in two economically disadvantaged neighborhoods of Newark, New Jersey. Results showed significant improvement both in reading achievement and in student attitudes.

Reading achievement was measured in this study by using the Metropolitan Achievement Test as a pretest and the Comprehensive Test of Basic Skills as a posttest. After adjustment for initial differences in reading level, participation in the program had a significant effect on reading achievement (R^2 change=.035*, F* (1,138) = 8.63, $p < .001$). This effect was positive and accounted for 3.5 percent of the variance in reading achievement after treatment. The study also used an attitude scale that included the dimensions of self-expression, trust, acceptance of others, self-acceptance and empowerment, as both a pre- and post-test. Significant beneficial effects were found in self-expression, trust, and acceptance of others, R^2 change = .024*, F* (1,155) = 6.19, $p < .001$), accounting

for 3.2% of the variance in the dimension of self-expression, 1.8% of the variance in the dimension of trust, and 5.5% of the variance in acceptance of others after participation in the program. No significant effects were found in self-acceptance or empowerment.

The introduction of the Improvisation Dramatics Program as an independent variable, using pretests as covariates and posttests as the dependent variable, all increase the internal validity of the study. The study also controlled for reliability by using Cronbach's Alpha to examine the testing measures. The large number of study participants, across multiple locations, increases the external validity of the study. However, the study would benefit from having a number of students to serve as a comparison group in order to further increase the validity of this study. The next two studies implement a comparison group in their research.

A quasi-experimental study with a pretest/posttest design examined the effects of an extensive arts program on 615 students in Grades 2, 4, and 5 (Luftig, 2000). These students scored significantly higher on the Torrence Test of Creative Thinking scale and Appreciation of the Arts scale. Results in measures of academic achievement depended on the standardized measure used.

The SPECTRA+ program collaborated with schools in two school districts in Ohio and provided specialized arts instruction in drama (one hour each week),

artists-in-residence for each school, and professional development opportunities. The participant schools were compared with both modified-control and full-control schools with similar demographics within their district.

Tested measures included student achievement on standardized tests, as well as other tests that measured student creativity, critical thinking skills, arts appreciation, and affective development. ANOVA analysis was conducted on each measure. On the Torrence Test of Creative Thinking, SPECTRA+ schools scored significantly higher than either modified- or full-control schools (Mean score: 15.54 versus 4.23 and 3.24 respectively). Appreciation of the arts was tested on the Appreciation of the Arts test, and SPECTRA+ schools scored significantly higher than either modified- or full-control schools (Mean score 5.96 versus 3.15 and 4.18 respectively). Self-esteem was measured using the Culture-Free Self-Esteem Inventory and locus of control was measured using the Bialer-Cromwell Locus of Control Scale. Significant differences were not found between schools on either test.

Finally, academic achievement between schools was measured using the Iowa Test of Basic Skills for the first school district (school district A) and the Stanford Achievement Tests for the other (school district B). In school district A, no significant differences were found between schools in measures of reading achievement. However, in school district B, large advantages were found for SPECTRA+ students in measures of total reading (df 1,176, F = 5.46, p<.02),

reading comprehension (*df,* 1,176, $F = 7.95$*,* $p<.005$), and reading vocabulary (df, 1,176, $F = 11.34$, $p<.001$).

This study used an experimental design as well as ANOVA analysis to compare findings. This increases the internal validity of the study. The large study size indicates increased external validity, as well; however, the use of two different standardized measures for testing academic achievement weakens the study's findings.

Next, Fleming et al. (2004) continued to establish a correlation between the arts and student achievement and attitude. They conducted a quasi-experimental quantitative study that researched the impact of the Transformation drama project on third- and fourth-grade students' language and attitude and found that drama significantly improved both standardized test achievement and attitude. The subjects of the study were from four different primary schools in the same area of the East End of London, and were from similar home backgrounds. Many of the subjects were learning English as an additional language, so a focus of the dramatic work was to improve speaking and listening skills.

The Transformation project took place over the course of two school years. Students in two schools participated in the Transformation project, while students from two other schools served as control groups. All participating students were assessed in reading, picture vocabulary, non-verbal ability, and school attitude prior to the commencement of the project in order to serve as a

baseline for later comparison. The Transformation schools and the Control schools were found to have similar achievement in reading prior to treatment. However, the non-verbal ability of the Transformation group was found to be significantly lower than the Control group ($p = 0.04$).

Regression, or value-added, analysis was used to compare the progress of the students in the two groups over a two-year period. The Transformation group scored significantly higher than the control group on reading assessments (Effect Size = 0.40, $p = 0.05$). Students' self-concept was also analyzed using ANOVA, and students in the Transformation group were found to have significantly more positive self-concept than the students in the control group (Effect Size = 0.62, $p = 0.001$).

The researchers controlled for selection by studying four schools with students from the same area of London and the same socioeconomic background. They controlled for history by studying the growth of the two groups over the same time period of two years. They controlled for testing by analyzing the standardized tests given for third-graders at the beginning and by using regression analysis to predict the groups' natural academic maturation over time before analyzing their fourth-grade standardized test scores. All of these controls serve to increase confidence in the internal validity of the research. However, because of the small sample size, correlation can be confirmed but causation cannot. The research would benefit from a larger sample size and multiple testings.

As a group, the previous eight studies provide evidence that integrating drama into the reading curriculum improves students' standardized test scores. These eight studies encompass a range ages, as well as a range of cultural and socioeconomic communities and point to a positive correlation between classroom drama and student achievement. However, evaluating standardized test scores does not provide a rich picture of the effects of drama on specific aspects of reading achievement. The next section does just that.

Reading and drama: effects measured by researcher-created means. The reading achievement section concludes with seven studies that evaluated the effects of drama within the literature classroom using measures other than nationally recognized standardized tests. These methods included researcher-developed criterion- based tests and coded audio and video analysis, as well as the use of qualitative measures, such as interviews and student surveys. The studies' more focused measures of data provide more specific effects that drama can have on student achievement. A study by Henderson and Shanker (1978) looked at the use of interpretive dramatics to develop story recognition, sequencing, and recall in second grade students. Results were measured on teacher-made tests. A study by Pelligrini & Galda (1982) further researched the effects of drama on story comprehension, particularly the story-retelling ability of kindergarten and first grade students. Galda followed his 1982 study with a 1983 study that focused on both story retelling and evaluative language of second grade students, after being involved in dramatic play. In both cases, researcher-

created Criterion Referenced Tests served as data. Levy (1986) focused her research particularly on the use of dramatic play in language acquisition of kindergarten age children. Data was again analyzed through researcher-created instruments.

Three studies used more holistic means of data collection, such as interaction, observations, and subject interviews. These studies found drama to affect not only reading and language development, but also more positive attitude towards self and school. Rosen and Kozoil (1990) sought to build upon Henderson and Shanker's work, as well as Galda's work, in order to "clarify the values of using theatre and dramatic activities" in school (p. 7). Their research with ninth grade students also found linguistic benefits, including increased communication skills. Furthermore, their work concluded that dramatic activities resulted in increased student confidence. Finally, two more recent studies focused on students' meaning-making abilities when exposed to classroom drama. Wolf (1998) observed the change in reading instruction and attitudes towards reading when classroom drama was introduced to a group of third and fourth grade students. Gamwell (2005) studied the effects of classroom drama on eighth grade students' engagement, memory, and social construction of meaning.

A quantitative study conducted by Henderson and Shanker (1978) compared the use of interpretive dramatics activities to basal-reader workbooks for developing reading comprehension skills, such as recognition and recall of

details, sequencing, and generalizing the main idea. The researchers found that, after receiving the interpretive dramatics treatment, students' mean scores on a teacher-made reading comprehension test were significantly higher than after receiving the basal-reader and workbook treatment.

The subjects of this study were 28 second-grade pupils, all African American and all from low socioeconomic backgrounds. The students were randomly assigned to one of three groups and the study took place in two phases. During phase one, groups A and C were exposed to the basal reader and interpretive dramatics treatment, while group B was taught by the traditional basal reader and workbook method. After each story and treatment, students were given a teacher-made comprehension test. When eight stories had been completed, phase two began, in which the groups' treatments were reversed.

At the end of each story, each group was given a multiple-choice test that asked about details, sequencing, and main idea. A total of forty-eight tests were given. The mean of scores of the total sample on total comprehension found a difference of 14.75 ($t = 55.74$; $p < .001$) between the interpretive dramatics treatment (mean: 34.97; SD: 2.10) and the workbook treatment (mean: 19.92; SD: 4.63). Significantly greater gains in comprehension were made during the interpretive drama sessions.

The fact that each of the student groups had an opportunity to participate in each treatment verifies the internal validity of the study. The use of multiple-

choice tests to measure story comprehension increases the study's objectivity. However, the researchers did not indicate whether any reliability measures were used to measure the tests' accuracy. This—as well as the study's small sample size—means that, taken on its own, the study cannot necessarily be generalized to other settings.

Pelligrini and Galda's 1982 study, however, helps to strengthen the case for a correlation between drama and story comprehension. Their quantitative, experimental study in Georgia found that kindergarten and first-grade students who were exposed to a story and allowed to act it out scored significantly higher in tests that measured their comprehension and understanding than their counterparts who simply discussed the story.

Pellegrini and Galda randomly assigned 108 students to one of three treatment condition groups within each grade: thematic-fantasy play, discussion, and drawing. Each group received two training sessions with an experimenter and one final, criterion session. During the sessions, the subjects were read a story and then exposed to their treatment relating to the story: either discussing the story, drawing about the story, or acting it out. In the final session, this experience was repeated, then students were given a criterion-referenced test and a recall task to measure comprehension. The final tests were analyzed for sex, condition, and grade, using ANOVA. For kindergarteners, a significant effect was found for condition, $F(2) = 17.59$, $p < .0001$. At grade one, there was again a significant effect for condition, $F(2) = 14.16$, $p < .0001$. The researchers found

that “story-related comprehension was most effectively facilitated by engaging in fantasy play” (p. 449).

This study controlled for selection by randomly assigning students to one of the three groups. However, the lack of pretest in the design may detract from the internal reliability of the findings. The researchers did control for objectivity both by creating a standardized comprehension test and by audiotaping and coding the children’s retellings of the story.

Galda (1983) followed this study with another of his own examining the effect of dramatic play not only on narrative competence, i.e. comprehension and retelling, but more specifically on evaluative clauses. The subjects were 36 second-grade children in rural Georgia. However, after treatment, no significant results were found that indicated that dramatic play helped to increase students’ memory or comprehension of the story.

Students for this study were randomly selected from all of the second-grade students in one elementary school, then placed into nine groups of four children each—two girls and two boys. Groups received two weeks of training in one of three conditions—thematic fantasy play, discussion, or drawing—and then were asked to re-tell the story of *Little Red Cap*. Their retellings were coded by the number of evaluative clauses (e.g. “What big teeth you have”) used.

This study used 90% inter-rater agreement and analyzed the data using a three-way MANCOVA to increase the objectivity and reliability of the findings.

However, the small sample size of the study decreases its external validity. No significant results were obtained to point to an effect for condition, and the study points to three possible reasons. First, the analysis of the data may have been inappropriate to the situation. Second, the students may have used less evaluative language because they were retelling the story to a naïve listener. Finally, the students may simply have been too young to use evaluative devices.

A study conducted by Levy (1986) also examined language development in young children. Levy questioned whether exposing kindergarten children to planned sociodramatic play increased their levels of language performance, hypothesizing that if "language is acquired in a social context," then facilitated dramatic play would "provide an effective vehicle for language practice and development" (p.1). Levy found that sociodramatic play did in fact increase the students' language ability.

This study used a multiple-baseline design, matching three subjects by age, I.Q., and ethnic background. Six additional children served as playmates for baseline and treatment activities. Language samples were first collected for eight days before treatment, as the subjects participated in unstructured play. During treatment, the subjects and their playmates were exposed to sociodramatic play involving theme-related activities (grocery store, restaurant), props, or play facilitation by the experimenter.

After treatment, the children were found to have improved in three areas: length of interaction with the theme; increased vocabulary surrounding the theme; and increased use of language in general, including concepts of color, shape, number, quantity, space, and time. From this evidence, the researcher concluded that a functional relationship exists between socio-dramatic play and language.

The researcher collected forty-eight fifteen-minute audio samples of the subjects' language both before and during treatment. The tapes were transcribed and analyzed by both the researcher and a reliability observer to obtain interrater reliability of at least 90%. This, plus the study's design—which allowed the researcher to rule out factors other than treatment as possible causes of change—increase the internal validity of the study. However, this was a small study, consisting of only three treatment students. Therefore, the external validity of this study is questionable.

Further research into the correlation between drama and language performance was conducted by Rosen and Kozoil (1990). The researchers pointed to previous work by Henderson and Shanker (1978) and Galda (1983) as inspiring their efforts (p.7). Their study examined the effects on achievement and attitude of older students—ninth graders—who participated in combined sets of creative dramatics and theater performance over a nine-week period and found increased expressiveness and self-esteem in the students in that time. Four

groups of ninth-graders from a large suburban high school (105 total) were studied.

Rosen served as teacher-researcher and led each group of ninth-graders in the study of the play, *Lewis Carroll's Alice in Wonderland* by Anne Coulter Martins, including oral reading, pantomime, and improvisation. Data was collected through an oral expressiveness test (both pre and post), and an attitude toward self inventory. Journals kept by students were also examined, as well as instructor reaction notes. Finally, interviews with students were conducted.

Communication skill and attitude data was analyzed using a two-way repeated measures analysis of data. Students were found to have improved oral communication skills, including composure and expressiveness (mean difference between 15.26 and 21.75, $p < .001$). Students' self-esteem improved significantly as well, from an average pretest mean of 107.38 to an average posttest mean of 119.26 ($p < .01$). In their response journals and interviews, students indentified the dramatic activities as most influential in increasing their feelings of confidence in themselves.

This study's use of pre- and posttest measures, as well as the use of an outside observer/evaluator from the University of Pittsburgh, increase its objectivity. However, the study did not control for selection nor detail the diversity of its students, which decreases its internal validity; nor can its results, based on a small group of students, be necessarily generalized to other settings.

A qualitative study conducted by Shelby Wolf (1998) also found a correlation between classroom drama and improved reading ability and self-confidence. In a classroom of third- and fourth-graders, Wolf found that 10 classroom theatre sessions improved students' reading expression, characterization, and interpretation. She also observed greater self-confidence, and a greater engagement with the text.

The 17 subjects of the study were not only ethnically diverse, but many spoke a language other than English at home. Furthermore, 11 students had been retained at some point in their school career and eight had been tested for the Resource Specialist Program. Though the students were third- and fourth-graders, most read at a second-grade level. Wolf described the students as "dispirited, struggling readers" (p. 385).

Data collection began in the fall, before the implementation of classroom theater instruction. In December, a teaching-artist began once-a-week theater lessons with the subject, beginning with work with excerpts from the basal reader and moving towards student creation of their own scripts. Data was collected for this study through observations two times each week throughout the academic year. Further data was collected with audio- and video-tapes, school records, and interviews with the study participants. Wolf conducted final interviews with each study participant regarding their interpretations of character and scene prior to their final performance. After the final performance, Wolf reviewed the videotapes of the performance with the students and asked them to analyze their interpretive decisions.

From this rich collection, Wolf noted a shift in student achievement and attitude. Prior to introducing reader's theater into the classroom, the literacy program consisted mostly of a round-robin approach, with each student reading one page of a story and answering comprehension questions. Shelby Wolf found that the children's attitudes about reading were very poor, and she observed disengagement and low self-esteem surrounding reading. Few of the children read with comprehension or fluency. In contrast, Wolf noted that with the introduction of classroom theater, reading instruction shifted towards interpretation of the text and character analysis. The students responded by offering up their own expertise and by experimenting with greater expression. Furthermore, repeated rehearsals increased the students' fluency and conversations about text and character, and increased comprehension. Finally, student attitudes towards reading had shifted at the end of their 10-week experience. Fourteen out of the 17 children expressed positive feelings about themselves as readers.

Wolf acknowledges the tendency towards selectivity and bias in a qualitative study such as this. To reduce the possibility of bias, video and audio recordings were carefully transcribed and checked by assistants. From there, categories of analysis, such as students' attitude toward reading, could be determined. Furthermore, final writing and interviews by the students served to confirm the study's findings.

Finally, an action research study focused on 26 eighth grade-students in a language and literature class sought to gain an understanding of meaning-making in adolescent students as they explored literature through a series of dramatic experiences (Gamwell, 2005). Once again, a correlation was found between the use of drama in the classroom and improved student performance and attitude. The study found that integrating drama into curriculum increased student engagement and attention, increased contextual memory, and allowed for a social construction of meaning, personal choice, and control.

In this study, the classroom teacher served as both teacher and researcher. In this way, the teacher was able to perform an on-going formative assessment of the program and his students. Two main types of learning activities occurred throughout the study: structured activities and student art projects, encompassing both class performances of literature as well as a self-directed final project. Data was collected using student journals, video and audio recordings, artifacts, and observation. Five major findings were found in relation to the research question. First, most students reported a feeling of engagement and focused attention when actively participating in their learning. Second, students reported an emotional engagement with their learning, saying that acting out the literature helped them to better understand the characters in the story. Furthermore, personal student projects allowed students to share intensely personal feelings and emotions with their classmates. Third, many students commented on an increased ability to remember learning material that

they had experienced through arts activities. Fourth, the teacher-researcher noted increased collaboration between students and an increased appreciation of each other's strengths and weaknesses. Students also made comments of this nature in their journals. Finally, through interviews and journal-writing, students shared the positive influence of being provided choice and control in their learning. They described feeling involved in their learning and an increased feeling of personal responsibility.

A key strength of this study is that the qualitative nature of the study sought the opinions of the students and their learning experiences as a central factor. However, the findings of this study reflect the experience of just one group of students in one school, meaning that the transferability of the findings is limited.

Taken together, these seven studies are able to provide an in-depth examination of the specific results of drama in the reading curriculum. For example, the researchers were able to pinpoint specific aspects of language development, including story retelling for younger students (Henderson & Shanker, 1978; Pelligrini & Galda, 1982) and increased oral expressiveness and interpersonal communication for older students (Gamwell, 2005; Rosen & Kosoil, 1990). These findings provide important evidence to support the use of drama in reading. Clearly, drama is a useful tool in developing important academic skills for students of all ages.

Drama and Writing

This analysis will also address an equally important facet of language arts—writing—by examining two studies. The first, by Moore and Caldwell (1993), studied the relationship between narrative drama exercises and students' organization and creativity in writing. The second was an in-depth case study of process drama and its effect on writing achievement (Cremin, Goouch, Blakemore, Goff, & Macdonald, 2006).

A quasi-experimental quantitative study by Moore and Caldwell (1993) examined 63 second and third graders—primarily lower middle-class Caucasians—in a rural area of Colorado. The researchers found that students who received narrative drama exercises prior to writing exercises showed significant gains in organization, ideas, style and context in their writing in 15 weeks.

The students were randomly assigned to one of three groups: drawing, drama, or control (discussion). A repeated-measures control-group design was used, along with a pretest to measure difference in writing ability among the three groups. The pretest indicated no significant difference $F(2) = 1.32$, $p < .05$, between groups prior to treatment.

During the 15-week study, over 1200 writing samples were collected and analyzed using a narrative writing scale developed for the study, which combined holistic and analytic scoring. A comparison between the overall mean scores of the drama group and the overall mean scores of the control group found the

drama group's scores to be significantly higher (p = .028). Furthermore, the comparison effect size found the z score to be 1.97, indicating that the scores between the two groups were nearly two standard deviations apart.

Several factors confirm the internal validity and reliability of this study. Researchers controlled for selection and for the Hawthorne Effect. Furthermore, writing samples were typed and coded using the same format, rated independently and blindly by three scorers, and interrater reliability was .96 over all areas. Although the use of one school limits the potential to generalize the study, the experimental nature of the study and the avoidance of the teacher variable have strengthened the study's validity and interpretability.

A qualitative case study conducted by Cremin et al. (2006) also looked at the support that drama can offer children as writers by examining the work of three boys and three girls each at three levels of writing achievement: high, medium, and low. After students participated in eight process-drama sessions in the classroom, researchers found improved writing across the board in the areas of presence of tension, emotional engagement, and a strong sense of stance and purpose.

The participants in the study were chosen from the outset based on their writing ability as analyzed using both the English Assessment Criteria (which focuses on text structure and organization, composition and effect, and sentence structure and punctuation) and D'Arcy's interpretive frame (which focuses on content and meaning of the communication and highlights processes of reader

engagement and appreciation). Teachers served as researchers and participant-observers. Data was collected using video stimulated recall (VSR), observation of the children's involvement, analysis of the students' writing, and focus-group interviews. Through these tools of observation and analysis, researchers concluded that collaborative drama had a profound effect on the subjects' writing. The sense of tension and increased engagement produced by the drama lessons, as well as the time given for development of writing, led to a strong sense of stance and purpose in the subjects' writing. When students were given time to write directly after participating in a dramatic activity, writing seemed to flow more easily from the students. Furthermore, it was observed that the children were more dedicated to writing inspired by a dramatic enactment and chose to return to it in their free time.

At the end of the study, the subjects participated in focus-group discussions as a means of member-checking the findings. This process lends confirmability to the study. However, the small sample size and the fact that the first language of each of the subjects was English limits the transferability of the findings.

Although research is limited, the findings of these two studies point to promising benefits in the writing classroom. Participation in drama can inspire students to write, as well as teach them important organizational tools for writing. The outcomes of these studies indicate that drama can be important as an

overall tool for the language arts teacher, however, further research would strengthen the validity of that argument.

Drama and Math

There is less research into the effects of drama when used within the math or science classroom, as it is less common for educators to perceive the link between the subjects. However, what research there is indicates that drama can be just as valuable here as in the language arts curriculum. This analysis first presents five studies that examine the effects of integrated classroom drama on math achievement and attitudes, before reviewing the effects in the science classroom in the next section. Again, the researchers means of collecting data varied, with some using standardized tests and others using tests specifically developed for their research. Four quantitative studies examined the relationship between the integration of drama and math achievement, specifically looking at standardized test scores. Catterall and Waldorf (1999) used the Iowa Test of Basic Skills scores of Chicago-area sixth grade students to determine if drama integration in the math classroom had any effects on math achievement. They found that a greater exposure to the arts indeed correlated with higher test scores. Similarly, Ingram and Riedel (2003) examined the Northwest Achievement Levels Test scores of over 1000 Minneapolis-area students, grades three, four and five. They found a significant increase in third and fifth grade math scores that correlated with an increase in integrated classroom drama. Similar results have also been found in other countries. A smaller study conducted in

England by Fleming, et. al. (2004) compared the math scores of four schools: two schools that participated in the Transformation Project—a series of classroom drama workshops—and two schools that did not. Students in the Transformation schools were found to have significantly higher scores on national math tests. In Canada, Smitherim & Upitis (2005) compared over 6000 student test scores on the Canadian Achievement Tests. They found that students grades three through six that participated in the Learning Through the Arts program scored an average of 11 percentile points higher on the computation and estimation portion of the test. Finally, a quantitative study conducted by Duatepe-Paksu and Ubuz (2009), examined the relationship between drama-based instruction and students' geometric skills in the seventh grade students of one school in Turkey. Multiple tests were administered to examine the students' geometric ability, as well as their attitude toward the subject. Although this study is small in scale, the specificity of both treatment and testing make a strong case for drama in the math classroom.

The CAPE study, led by James Catterall and Lynn Waldorf (1999), was also reviewed above for its effects in the area of reading. It examined the impact of the Chicago Arts Partnerships in Education (CAPE) on 37 schools in the Chicago area, from the years 1992-1998. Catterall and Waldorf found that sixth-grade students participating in CAPE's integrated arts instruction program made a substantially greater improvement in sixth-grade math scores on the Iowa Test

of Basic Skills (ITBS) when compared with students in other Chicago public schools.

CAPE was introduced into Chicago schools by using teacher-artist collaboration in the classroom, as well as professional development workshops for classroom teachers. Final data was collected in 1998, comparing 17 CAPE schools to 17 demographically similar non-CAPE schools. Catterall and Waldorf argue that a strong case can be made for the program's effects on math scores at the third grade, sixth grade, and high school level. However, the only specific data provided is in the area of sixth grade math scores. From 1992-1998, the CAPE schools' math performance scores on the ITBS grew from 8% greater to 14% greater than comparison schools during the same time period.

As mentioned earlier in this review, Catterall and Waldorf's study contracted two separate organizations to assess their data, thereby strengthening the objectivity and reliability of any findings. However, this study's external validity could be strengthened by further explanation of both implementation and results.

Ingram and Riedel's (2003) quantitative study—also previously reviewed in the reading section—was quite similar to the CAPE study, in that it examined the relationship between arts-integrated instruction and student achievement on national standardized tests in a large urban area. Ingram and Riedel also found

similarly positive results when comparing the math achievement of third grade students.

The researchers evaluated the teachers' use of arts integration with students' test scores on the Northwest Achievement Levels Test. They found that arts-integrated instruction in third-grade math led to an average gain of 3.24 math scale-score points more than third-grade peers who received very little arts integration ($p < .001$). For every level increase in integration, students' test scores increased by an average of 1.08 scale score points.

Again, this study could be strengthened with further explanation of implementation and results, however, taken in conjunction with the CAPE study, it provides a strong case for the external validity of such research.

A smaller study conducted by Fleming, et. al. (2004) was known as the Transformation project. Again, its findings in the area of reading can be found earlier in this review. The Transformation project also found a correlation between learning math through drama and increased scores on national math assessments.

The subjects of the study were from four different primary schools in the same area of the East End of London, and were matched by demographics. The project took place over the course of two school years. Students were tested and compared at the beginning and end of the project. No significant differences were found between schools in the area of math at the beginning of the study. Data

collected at the end of the study showed that, among third and fourth graders, students who learned math through drama—the Transformation group—scored significantly higher than the control group on math assessments (Effect size = 0.83, $p = 0.000$).

The internal validity of this study is strengthened by the researchers' control of selection, history, and testing. The small size of the study limits its external validity, however, taken in conjunction with the previous two studies, a strong case can be made for the effect of drama on math achievement.

Smitherim and Upitis (2005) conducted a quantitative and qualitative study that examined the effects of Learning Through the Arts (LTTA) on student achievement and on students' attitudes towards art and schooling. The researcher's quantitative findings showed higher achievement for LTTA students in the computation and estimation portion of the Canadian Achievement Test ($t = 3.619$; $p < .05$), regardless of socioeconomic status. The researcher's qualitative findings indicated that involvement in the arts went hand-in-hand with learning in school, including a greater physical and emotional engagement. Quantitative evidence also pointed to a greater engagement in school, with surveys indicating that LTTA girls were happier to come to school than their peers in other schools ($p < .05$).

The subjects of this study were 4053 students in Learning Through the Arts schools across Canada, grades one to six. The study also looked at 2602

students in control schools, which were matched as closely as possible with the LTTA schools for size, location, and socioeconomic status. At the beginning and again at the end of a three-year time period, researchers collected quantitative data, such as standardized test scores, as well as holistically scored writing samples and surveys regarding attitude. The researchers also collected qualitative data, including open-ended survey questions and interviews.

This study controlled for selection of its subjects by finding schools that were equivalent in size, location, and socioeconomic status, as well as by conducting baseline testing for differences between schools. No significant baseline differences were found. Double-data entry was used for the quantitative data, and at least two researchers coded and analyzed the qualitative data. All of these measures increase the internal validity of the study. However, the researchers did little to account for the natural maturation, over a three-year period, of their subjects. The large number of study participants increases the external validity and transferability of this study.

In a quasi-experimental quantitative study to determine if there was a relationship between drama-based instruction and students' geometric skills, Duatepe-Paksu and Ubuz (2009) investigated three classes of seventh graders, and found that drama had a significant impact. The subjects of this study, totaling 102 students altogether, attended a public elementary school in a middle-class neighborhood of Ankara, Turkey. The classes were randomly assigned to either the one control group or one of the two experimental groups. All the subjects in

this study received geometry instruction at the same pace as in their regular classrooms, participating in four 40-minute math classes each week. Each group had the same learning objectives. The students in the experimental groups participated in role-play activities focused on geometric concepts. Students were encouraged to communicate their ideas and to overcome obstacles in the make-believe plays. The students in the control group received instruction based on the seventh-grade geometry textbook.

Five different tests were used to determine the students' achievement in geometry, their geometric thinking, and their attitudes towards both math and geometry. Prior to treatment, the differences between the two groups were not significant. However, significant results were found between groups after the treatment. The experimental group scored extremely higher than the control group on the Geometry Attitude Scale, $F(1, 95) = 15.473$, $p = 0.000$; the Angles and Polygons Achievement Test, $F(1, 95) = 76.008$, $p = 0.000$; and the Circle and Cylinder Achievement Test, $F(1,95) = 91.381$, $p = 0.000$). Results also included slightly better performance by the experimental group on the Van Hiele Geometry Thinking Level Test, $F(1, 95) = 6.599$, $p = 0.012$, and the Math Attitude Scale, $F(1,95) = 5.663$, $p = 0.019$. The findings confirmed that drama-based instruction has a statistically significant effect on students' achievement in and attitudes towards geometry. The researchers found that drama-integrated lessons improved attitudes toward math and geometry through increased engagement and internal motivation. The study showed that the difference in

achievement is attributable to the ability of drama to allow students to contextualize geometric concepts to real-world situations, and to provide opportunities for visualization of abstract concepts. The study also concluded that retention of achievement favored the experimental group for these same reasons and because contextualization provided meaningful learning experiences.

The fact that this study controlled for selection and history gave the study external validity. Groups were selected by randomly assigning one class to the control group. The experimental groups and the control group were found to be statistically equivalent in their pretreatment attitude and achievement tests. Also, the treatment covered the same material over the same amount of time in both groups. However, the sample students were socioeconomically and racially homogeneous, meaning that the conclusions may not be able to be generalized to other socioeconomic or racial classes. The study controlled for reliability by determining covariates and using MANCOVA to analyze the data. However, the fact that two different instructors taught the two groups does not control for extraneous variables, such as the teacher's experience or methodology. But the fact that the control group was taught by their classroom teacher does control for implementation bias.

These large-scale studies point to a definite correlation between participation in drama activities in the math classroom and math achievement. However, the reasons for this correlation have not been flushed out, beyond the assumption that drama has the ability to motivate and engage students

(Smitherim & Upitis, 2005). These general findings are enhanced by the research of Duatepe-Paksu and Ubuz (2009), who found specific positive results in the geometry classroom, including geometric thinking and attitudes towards math. Their findings suggest that future research needs to go beyond simply looking at general math achievement to study the implications of using drama to teach specific content in the math classroom.

Drama and Science

Research has also looked into the effects of integrated drama and achievement in science. Two studies have found correlations between using drama as a tool to learn science and student science achievement. The first is a small study, conducted by Metcalfe, Abbott, Bray, Exley, & Wisnia in 1984. It compared two elementary school science classes, one that participated in a drama lesson in science class and one that did not. More recently, Dorion (2009) conducted a larger qualitative study that observed five secondary schools in England to determine the effect of drama in the science classroom. Each of these studies found, most notably, increased participation, discussion, and critical thinking in science classrooms that integrated drama.

First, a quantitative study conducted by Metcalfe et al. (1984) compared two science classes of 10- and 11-year-old students, one that participated in a drama lesson in science class, and one that participated in the same lesson without the use of drama. Researchers found that the factual recall of the

students in the drama group was slightly less, but their explanation and interpretation of the information was significantly more, leading the researchers to conclude that drama can be a vehicle for developing deep cognitive understanding in science.

The two sample classes were chosen for their statistically similar scores on NFER (National Foundation for Educational Research) in math, English, and verbal reasoning. Exactly the same amount of time was allotted to each class (300 minutes) for teaching the lesson on the topic: molecules and their change of state. Class A received the science lesson from an experienced classroom teacher. Class B's lesson consisted of working in a group to act out molecules and their changes of state. Two weeks after the lesson, each class was given the same test about gases, liquids, and solids comprising questions of factual recall, explanation, and interpretation. Results of the test indicated that there was no significant difference between the groups on measure of factual recall. However, the experimental group performed significantly better ($p<.001$) than the control group on measures of explanation and interpretation. Students were able to express ideas in their own words and even go beyond information given to them to interpret new information. In other words, students in the experimental group had a deeper cognitive understanding of the information.

The researchers controlled the selection process by choosing classes with matching ability levels. The researchers also controlled for the Hawthorne effect by having the teachers who taught Class B work also with Class A. Their

findings, therefore, are credible. The small subject size does limit the transferability of the study, however the next study increases the dependability of the findings.

A larger qualitative study conducted in England also found that for students aged 12-16, using drama in the science classroom enables academic achievement (Dorion, 2009). Dorion found that using drama activities enhanced dialogue, attention, and relevance. He also found that students were better able to visualize and/or embody scientific concepts.

This ethnographic study was conducted in five secondary schools in three English counties. Multiple lessons were observed in each school, totaling 23 distinct learning experiences. Subjects were observed in their classrooms, with their classroom teachers, involved in role play activities surrounding either abstract physical phenomena or the affective contexts of social, cultural, and intellectual discourse which occur within science contexts. For example, the researcher observed a class of 15-16 year olds involved in a miming demonstration of wavelengths. In another classroom, 13-14 year old students participated in a conference on medical ethics. In a physics classroom, students used a drama model to act out a car crash. The predominant use of drama in the classroom consisted of physical simulations of science concepts. The researcher used these observations and others, interviews of both teachers and students, and show cards, and coded the results using NVivo to determine findings. Five main themes emerged in the drama-based science classroom: an interactive

dialogue in the planning process, a metacognitive use of discussion, an increased engagement of the students, physical simulations which students were able to translate into more abstract concepts, and ongoing formative assessments by the teacher. Teachers agreed that drama enhanced student attention, and students agreed that drama made science easier or more fun.

The multi-modality of this study, as well as the triangulation between student interviews, teacher interviews, and researcher observations, contributed to the confirmability of the study. Furthermore, in order to reduce bias, none of the participants were told the agenda for the study. A more descriptive explanation of the study participants would help to increase credibility. However, taken in combination with the other study in this section, the potential of drama to produce positive benefits science classroom seems to be transferable. Certainly, more research in this area would strengthen the corroboration.

Although there is limited research in the area of drama and science, what research is available points to the positive impact of drama in the science classroom. Furthermore, the study by Dorion (2009) gives examples of the myriad types of drama lessons available to the science teacher. These lessons include using drama to create a model, machine, or analogy, and recreating a historical event or ethics debate (p. 2258). Clearly drama can be an important, and informative, part of the science curriculum.

Drama Integration and Student Engagement

Many of the studies reviewed above indicate that student engagement through drama activities in the classroom played a large role in student success. The last study of this section examined what special qualities or processes of arts education might support students' growth (DeMoss and Morris, 2002). DeMoss and Morris were inspired by the academic successes found in the CAPE schools by Catterall and Waldorf (1999; reviewed above) to more deeply examine how the arts facilitate student achievement. Three clear, almost universal themes were discovered: improved learning environments, engaging content, and learning communities that extended beyond the traditional classroom.

The participants in this study all came from a variety of elementary and middle schools in Chicago that had established arts partnerships (CAPE). Ten students from each of three academic ranges (high, medium, and low) were chosen to be interviewed about their learning and to write responses to questions about the topics they were studying. Researchers also observed the arts-integrated units and culminating events. After students participated in an arts-integrated unit, students' writing showed growth in affective connections, when compared to the writing of students who participated in a non-arts unit. Interviews revealed that students assessed their learning in arts-integrated units as deep understanding, as opposed to simply remembering information for tests. They also viewed the arts-integrated academic content as a challenge, rather

than as an unpleasant difficulty. Finally, students viewed the potential boundaries for learning to extend beyond the traditional classroom.

The design of this quantitative study increases its credibility. First, the researchers controlled for selection by having the subjects serve as their own control group, participating in both arts and non-arts units and providing feedback on each. Second, the researchers conducted both pre- and post-interviews and subjects responded to writing prompts based on Newmann's work analyzing the relationship between high-quality classroom work and achievement. Newmann's research found that high levels of achievement are associated with learning experiences that afford a deep knowledge of a subject, require analytic assessments about it, and provide students personal connections with the subject (DeMoss & Morris, 2002, p. 4). Thus, students in this study were asked questions such as: What do you know about the topic? Why do you think it was important? How did it make you feel? Each of the students' responses was coded and scored by two readers before being used to draw conclusions. The transferability of this study is fairly strong, because of the use of eight different schools and the wide variety of socioeconomic backgrounds, ages, and achievement backgrounds. However, the small sample size also diminishes the study's transferability.

The first half of this chapter gave an indication of the universal applicability of drama within the curriculum. Several large-scale studies were able to find a link between drama activities and general academic achievement. In addition,

several studies indicated specific areas in which drama improved student achievement. Moreover, drama within the classroom has an effect not only on student academic achievement, but also on student attitudes that influence achievement, such as engagement, motivation, self-esteem, and communication. The second half of this chapter will focus more on student attitudes, for although drama can be used to teach content, participation in drama outside of the general education classroom has shown to have positive effects on factors that support student academic growth, as well.

The Intrinsic Value of Drama: Student Attitudinal Benefits

The second half of this chapter will address the research conducted on the effects of drama participation on the developing child. The following six studies analyzed student participation in arts activities and the implications of that involvement. The first four studies are large, multi-year endeavors. First, Catterall, Hapleau, and Iwanaga (1999) compared 25,000 high-school students, first ranking their participation in extra-curricular arts participation as either “high” or “low,” then comparing their academic success. Burton, Horowitz, and Abeles (1999) conducted a very similar study with elementary school students. In each case, researchers found that drama participation helped develop student attributes that positively affected their education. Next, Heath and Roach surveyed various youth organizations and found that drama groups developed students’ skills in oral communication and problem solving, two important factors to academic success. Wilkins (2003) studied 547 elementary schools and

compared the amount of time spent in art classes with school success on standardized tests. The last two are smaller case studies that nonetheless uncovered remarkable implications of drama involvement. For example, Oreck, Baum, and McCartney (1999) conducted a multi-year study following 23 children and young adults that were intensively involved in the arts and found that those children developed an artistic identity and were highly motivated to continue their education, even in the face of adversity. Wolf's (1999) study of a class involved in creating an original opera found that drama participation allowed for far greater levels of social interaction amongst students. Each of these studies are able to give specific examples of the impact that arts participation can have in the individual.

First, in a study that analyzed a multi-year survey of more than 25,000 students in Grades 8-12, students considered "High Arts" were more likely to be earning A's and B's in English, more likely to score in the top two quartiles on standardized tests, less likely to drop out of school, and less likely to be bored in school (Catterall, J., Hapleau, R., & Iwanaga, J., 1999). The sample of subjects was chosen as a representation of the nation's population of secondary students. However, when comparing students from low socioeconomic backgrounds, the differences between the "High Arts" and "Low Arts" groups were even greater. Specifically, low SES students involved in theatre arts were found to read with more proficiency and have a higher self-concept and motivation.

Students were surveyed about their involvement in the arts and, more specifically, which arts they were involved in. Students were identified as intensively involved in theater if they attended a drama class once a week or more as of eighth grade, if they participated in a drama club as of eighth grade, if they took drama coursework, or if they participated in a school play or musical in high school. Within this overall group, 285 low-SES students were identified as being intensively involved in theater. The researchers compared all students as well as particularly focusing on students from low socioeconomic backgrounds.

When comparing all eighth grade students' standardized test scores, 67.3% of *high-arts* students fell into the top two quartiles compared to 49.6% of *low-arts* students. In tenth grade, 65.7% of *high-arts* students were in the top two quartiles on standardized tests, versus 47.5% of l*ow-arts* students. In twelfth grade, 57.4% of *high-arts* students performed in the top two quartiles on standardized test, compared to *39.3%* of low-arts students. More specifically, when comparing reading proficiency data of low-SES students according to their involvement in theater, those students that were intensively involved in theater were found to be 9% more likely to be reading with high proficiency by Grade 8, and 20% more likely by Grade 12. Furthermore, a comparison of these students' self-concept with that of non-involved low-SES students showed a slight difference in Grade 8 which grew to a significant difference in Grade 12 ($p <$ .058). Finally, low-SES students that were intensively involved in the arts reduced their likelihood of dropping out of school from 6.5% to 3.5%.

This survey cannot empirically prove causation: that involvement in the arts will necessarily lead to higher academic achievement and self-concept. However, this research does indicate strong correlations. One reason is that the researchers chose to restrict their groups by socioeconomic status, thus eliminating potential achievement differences related to family background. Another reason is that the long-term nature of the study was effective in observing changes in students over time.

Another qualitative study, conducted by Burton, Horowitz, and Abeles (1999), also compared *high-arts* and *low-arts* students. They found that students in *high-arts* groups consistently outscored *low-arts* students in measures of creative thinking, expression, risk-taking, and academic self-concept. The subjects of this study were over 2000 pupils in grades four, five, seven, and eight in New York, Connecticut, Virginia and South Carolina.

Several measures were used by the researchers to determine the amount of arts involvement of the students and to measure the effects of arts involvement on students. Students were considered high-arts if they had at least three continuous years of more than one subject of arts instruction, including at least one year of drama. Students were considered low-arts if they had one year or less of arts instruction. Qualitative measures, such as interviews, observations, and questionnaires, were completed throughout the two-year study. Students also took the Torrence Test of Creative Thinking. Results showed that high-arts students were 15-30% more likely to employ measures of

creative thinking, such as fluency, originality, elaboration, and resistance to closure. High-arts students were also viewed by their teachers as more competent in their expression (37% compared to 9% of low arts students), their academic risk taking (37%; 11%), and their imagination (41%; 14%). Furthermore, high-arts students were far more likely than their low-arts counterparts to think of themselves as competent in academics (41%; 18%).

Although this study did not focus solely on the effects of drama, its long-term, broad-based nature provides a framework through which to view the implications of arts instruction. Multiple methods of qualitative data collection increase the study's credibility. The large number of participants and multitude of schools from states around the country confirm the study's transferability.

Similarly, in decade-long qualitative study, Heath and Roach (1999) analyzed the impact of 124 youth-based organizations in economically disadvantaged communities across the country. They found that participation in the arts emerged as of special interest because it provides students with fertile contexts for cognitive and linguistic development, including planning for the future, developing ideas for execution, and assessing next steps. Furthermore, when compared with English and social studies classrooms, an arts program afforded students six times as many opportunities to speak more than one sentence.

After-school youth organizations were chosen in three categories: athletic-academic focused, community-service focused, and arts focused. Organizations from Massachusetts to Hawaii were chosen. Data was collected over ten years by anthropologists who spent time immersed in each site: observing, taking notes, interviewing, and audio-recording. Researchers found that arts organizations provide fertile contexts for cognitive, linguistic, and social development not available elsewhere for most adolescents. This is because young people, working with more experienced adults, gained practice in talking through future plans, developing ideas for executing plans, and assessing next steps from a current situation. By contrast, youth not involved in youth-based organizations only engaged in 15-20 minutes of sustained conversation with adults per week. The youths on the after-school organizations also had nine times as many opportunities to write original material as their classroom counterparts had.

The influence of this kind of participation in the arts resulted in a “dramatic increase in syntactic complexity, hypothetical reasoning, and questioning approaches” of the students involved (p.27). For example, researchers noted a five-fold increase in hypothesizing if-then statements. Moreover, they noted a doubling in the amount of mental state verbs and modal verbs. These findings indicate that students were working hard to plan and collaborate.

The long-term nature of this study, and the fact that it studied organizations from across the country, increases both its credibility and

transferability. Furthermore, the data collection methods of observational notes and audiotapes allow their findings to be triangulated and confirmed.

A quantitative study undertaken in the 1999-2000 school year by Wilkins, et al. (2003) looked at the relationship between time spent in arts classes and school-level success on Standards of Learning tests in 547 elementary schools in Virginia. No evidence was found that suggests either a positive or a negative correlation between time spent in art and test scores.

Principals were asked to respond to a survey and indicate the number of minutes a week allotted to arts classes. They were also asked to indicate whether time spent in these classes had increased or decreased over the last year, since the implementation of more high-stakes, standardized testing. Forty-nine percent of schools in Virginia were found to allocate no more than one hour each week to arts classes. Test scores for each school were then obtained for the 1999-2000 school year, then standardized ($M = 50$, $SD = 10$) and averaged to show an overall measure of school success. No meaningful ($p < .05$) relationship was found between the amount of time spent with an arts specialist and school achievement. That is, increased time spent in arts classes did not contribute significantly to increased standardized test scores, nor did less time spent in arts classes correlate to a decrease of test scores. The researchers do point out that the statistical trend was found to be positive, suggesting that schools that have arts specialists may do better on standardized tests, however the findings were not significant.

One reason that the findings may not have been significant is because of the method of data collection. The researchers note that the survey responses were estimates by administration and may not have been entirely accurate. Furthermore, the study uses standardized test scores as its only measure of success, and the researchers point out that participation in the arts has its own intrinsic value, not measured by this study.

Two smaller studies found interesting correlations between drama participation and specific student attitudes that contribute to academic success. A study conducted by Oreck, Baum, and McCartney (1999) followed 23 children and young adults who were extensively involved in the arts and found personal qualities that were common across age groups, including resilience, self-regulation, and identity, which contributed to success in school. This study followed the current and former students of Young Talent, a performing arts program in the New York City public schools. Many of the students came from economically disadvantaged backgrounds (19 of the 23 qualified for free lunch), and one half of them had been labeled at-risk for school failure due to poor grades, absences, or behavioral or family issues. These subjects were chosen in order to examine the impact that intense involvement in the performing arts can have on diverse, economically disadvantaged, urban populations.

Through extended interviews and self-concept surveys, observations, and academic data, researchers concluded that students extensively involved in the arts were also likely to be successful academically. Academic success was

measured by grades, completion of high school, and continuation into post-secondary education. One common quality of these students was self-regulation, in which researchers included habits of practice, focus, and discipline. Students across age-levels mentioned these habits in interviews. Another common quality found through interviews was resilience, the ability to overcome adversity and persist. Finally, researchers noted a common strength of positive identity, or self-perception. The academic success of these students despite adverse life circumstances led researchers to conclude that artistic habits were transferable to academic endeavors.

Researchers collected a multitude of data for each study participant and found dependable and transferable information. However, this study would benefit from a larger population sample to produce confirmable results.

A qualitative study looked at how involvement in music, theater performance, and visual art is linked with student engagement and academic performance. D. P. Wolf (1999) studied four classrooms that participated in the "Creating Original Opera" program. Compared to classrooms that did not use this program, Creating Original Opera enabled more students to participate, take turns, ask questions, comment, constructively critique each other's thinking, revise ideas and proposals, and connect ideas to the long-term theme of the unit than in regular classrooms.

Four elementary classes were chosen to participate in this study based on the full implementation of Creating Original Opera project. Throughout the course of the study, students were repeatedly observed participating in sustained and coherent collaboration over a period of days, weeks, and even months. Through observations and interviews of both students and teachers, as well as collection of student work, the researcher found that this trend translated into the academic classroom over time.

Wolf was able to code the data and develop a set of features that distinguish episodes of problem solving with in the opera context from problem solving in other contexts. In the opera context, the number of students participating rose from 33% to 50%. The percentage of student comments that linked to previous comments rose from 18% to 38%. Students' constructive critique of one another rose from 9% to 32%, and their revisions of one another's ideas rose from 9% to 26%. Wolf concluded that participation in the opera substantially increased group interaction and student engagement, or what he "coherent collaboration" (p.95)

The researcher observed four separate schools and were able to corroborate the data, which suggested high transferability. However, little information was given about the study participants or the study schools, which reduces the validity of the study.

Clearly, the research indicates that participation in drama for its own sake—that is, outside of using drama to teach other content—has much value. Student attitudes towards school are more favorable when active in the arts. The arts also develop student self-concept, initiative, and communication skills, among other things. The arts struggle to maintain a presence in public education, however, this research is a convincing argument of the intrinsic value of drama.

Summary

Chapter two reviewed the research about the effects of drama on student attitude and achievement. Each of the research studies was summarized and analyzed, based on the validity of the study and on the conclusions given by the researchers. The research in the first section of this chapter—Drama Within the Content Areas—indicated a strong correlation between classroom drama activities and student achievement on both standardized tests and classroom measures of progress, such as explanation and interpretation of information. Although the research of this part of the chapter was not generally focused on student attitude, the small number of studies that did look at the correlation between classroom drama experiences and improved student attitude found positive results. The research reviewed in the second section of the chapter focused on the effects of drama participation for its own sake. Research focused on the question of whether time spent in the arts helps to develop other attributes and attitudes that contribute to school success. The research indicates a strong correlation between drama and positive self-concept, linguistic development, and

goal-setting, amongst other qualities. Chapter three will summarize these findings in order to draw an overarching conclusion, including classroom implications and suggestions for further research.

CHAPTER THREE: CONCLUSION

Introduction

Chapter one introduced the idea of drama as a factor of academic achievement, both within specific content areas and as its own set of learning experiences. It introduced the history of drama-in-education, which advocated for drama to be used in the curriculum as a way to contextualize abstract concepts and as a tool for active participation. Chapter one also discussed drama outside of the traditional classroom walls, considering drama in relation to important habits of success, including reading fluency, self-concept, goal-setting, risk-taking, and creative thinking. Although the concept of learning by doing can be traced back to the early twentieth century, the tide of experiential learning has ebbed and flowed throughout the past century and into this one. In the current educational climate—with its emphasis on standardized measures of student progress—drama is often pushed to the side in favor of more direct instruction. This trend highlights the question that was the main focus of this analysis: what effect, if any, can drama have on student attitude and achievement?

Chapter two, then, took a closer look at the research surrounding the effects of drama on student attitude and achievement. Chapter two was divided into two sections and explored first the impact that drama has when incorporated into the curriculum of a specific content area. Next, it explored the impact that drama has when students participated for its own sake. In this chapter, each of

the research studies was summarized and its results analyzed, based on the information provided by the authors. The research was reviewed to examine the effect of drama on student achievement.

Chapter three is the concluding chapter of this literature review. Through a summary of the findings, chapter three will seek to answer the guiding question of this paper: what effect does drama have on student attitude and achievement? Chapter three will then address the implications for classroom practice and suggest avenues for further research.

Summary of Findings

The Effects of Drama Within the Content Areas

Drama and reading: standardized tests. The first section of chapter two explored the relationship between classroom drama and reading. Elements of reading examined included fluency, vocabulary, and comprehension. The first five studies were chosen to begin the chapter because of their use of standardized testing as a tool for measurement of growth. These tests are easily obtainable and quantifiable. Given the central role of testing in today's educational climate, it is important that controversial teaching practices be able to produce quantifiable results. For example, in a quantitative study, Catterall and Waldorf (1998) found positive correlations between classroom drama and reading comprehension in sixth and ninth grade students as measured by the Iowa Test of Basic Skills. Another quantitative study, by Rose, et al. (2000), also found that drama had a significant positive impact on fourth-grade students'

reading comprehension, as measured on the reading comprehension portion of the Iowa Test of Basic Skills. These studies were followed by another quantitative study, conducted by Ingram and Riedel (2003) that found that an increase in arts integration directly correlated to an increase in reading and math scores in fourth-grade students on the Northwest Achievement Levels Tests.

Two studies looked at smaller, single class contexts to determine the effects of drama on standardized test achievement in reading. Griffith and Rasinski (2004) found that a reader's theater program improved the reading rate of a group of fourth-grade students. They found that the average reading rate of the students grew from 62.4 correct words per minute at the beginning of the year to 109.8 correct words per minute at the end of the year. Rasinski teamed up with another teacher (Rasinski and Young, 2009) for another case study focused on the effects of reader's theater on reading performance. They found that reader's theater was an important tool for improving fluency, as measured by several standardized measures, including the Developmental Reading Assessment and the Texas Primary Reading Inventory. After a year of participating in weekly reader's theater activities, a group of second-grade students increased reading pace by an average of 64.9 correct words per minute, doubling their improvement from the year before and growing from an expected first-grade reading level to a third-grade reading level.

These five studies ranged in subject size from large (Caterall & Waldorf; Ingram & Riedel; Rose et al.) to small (Griffith & Rasinski; Henderson & Shanker;

Young & Rasinski). They were also conducted in various regions of the United States, from North Carolina (Griffith & Rasinski) to Chicago (Caterall & Waldorf; Rose et al.) to Texas (Young & Rasinski). The variety of students, including their socioeconomic and cultural backgrounds, serves to increase the external validity that each of these studies has on its own. Furthermore, the use of standardized measures of achievement is helpful in objectively assessing the external validity of the studies.

These five studies were followed by three studies that examined not only student academic achievement on standardized tests, but also any changes in attitude or self-concept that could be related to classroom uses of drama. For example, Gourgey (1984) researched the impact of an improvisational dramatics program on 141 fourth-, fifth-, and sixth-graders' achievement and attitude towards school, and found significant improvement in both areas. Gourgey used measures including the Metropolitan Achievement Test and the Comprehensive Test of Basic Skills to assess student achievement in reading, finding that the drama treatment accounted for 3.5 percent of the variance in reading achievement. Student attitude was measured using a scale that included the dimensions of self-expression, trust, acceptance of others, self-acceptance and empowerment, as both a pre- and post-test. Significant beneficial effects of drama were found in self-expression, trust, and acceptance of others. In 2000, Luftig found that the SPECTRA+ program, which extensively integrated the arts into the classroom of 615 second, fourth, and fifth graders, increased students'

ability to think creatively and their appreciation for the arts. Student results on standardized measures of achievement were varied, however. One district saw no significant differences between SPECTRA and non-SPECTRA students on the Iowa Test of Basic Skills. However, another district did see a significant difference in favor of the SPECTRA students on the Stanford Achievement Test. The use of different measures of academic achievement among subjects decreases the internal validity of this study. However, other studies found significant data to assume a positive correlation between classroom drama and student attitude. For example, Fleming et al. (2000) conducted a quasi-experimental quantitative study that researched the impact of the Transformation drama project on third- and fourth-grade students' language and attitude and also found that drama significantly improved both standardized test achievement and attitude. Furthermore, many of the participants in the Transformation project were learning English as a second language. After two years in the program, participants' reading assessment scores as well as their self-concept were dramatically improved.

These three studies indicate not only increased reading achievement with the implementation of classroom drama, but another pattern as well: an increase in positive student behaviors that contribute to achievement, such as self-concept, creative thinking, and attitude towards school. Each of these studies used standardized measures to determine these student behaviors, which, although they contribute to a controlled study and increase internal validity of the

findings, do not serve to paint a rich picture of individual changes in student attitude. More individual interviews, qualitative research, and case studies in this area would help to identify specific causation between classroom drama and improved student attitude.

Drama and reading: researcher-created tests. Finally, the first section of chapter two reviewed seven studies that also researched the effect of incorporating drama into the literature and language curriculum, albeit without any kind of national standardized tests as their measurement tool. First, Henderson and Shanker (1978) found that the use of interpretive dramatics improved reading comprehension skills in a class of second-grade students, as measured by researcher-created multiple-choice tests. Next, quantitative, experimental study in Georgia found that kindergarten and first-grade students who were exposed to a story and allowed to act it out scored significantly higher in tests that measured their comprehension and understanding than their counterparts who simply discussed the story (Pelligrini & Galda, 1982). A similar, albeit smaller, study examined the effect of dramatic play on second-grade students' narrative competence and found no significant results (Galda, 1983). A study conducted by Levy (1986) examined the correlation between socio-dramatic play and language performance in kindergarten students and found that dramatic play increased the students' vocabulary and use of language in general. Rosen and Kozoil (1990) examined the effects of drama on ninth-grade English students and found an increase in oral communication skills. D. P. Wolf (1998)

found that 10 classroom theater sessions improved third- and fourth-grade students' reading ability, including expression, characterization, and interpretation. Finaly, Gamwell's (2005) qualitative, action-research study found that integrating drama into an eighth-grade curriculum engaged and motivated students, resulting in an increased contextual memory. Through observations and interviews, Gamwell found motivating factors of drama to be the creation of social construction of meaning, and the space for personal choice and control.

These seven studies point to a pattern of improved language performance across grade levels, from primary (Henderson & Shanker; Pelligrini & Galda; Levy; D. P. Wolf) to secondary (Gamwell; Rosen & Kozoil) with the use of drama incorporated into the language arts curriculum. Galda's 1983 study proved the exception to this trend. However, most of these studies were limited to one class of subjects (Galda, 1983; Gamwell; Henderson & Shanker; D. P. Wolf) or even less (Levy's study examined only three subjects). Only two of these studies examined sample populations of more than 100 (Pelligrini & Galda; Rosen & Kozoil). This fact weakens the combined external validity of the studies. In order to increase the validity of the correlation between drama and language performance, more evidence of causation on a large population size would be helpful.

Looked at as a unit, all of the above studies point to a positive correlation between the use of drama in literature classrooms and achievement in reading and language skills. These results were consistent across grade levels—the

studies looked at Kindergarteners to ninth-graders—and across a range of students—from the most accomplished to English-language learners and struggling readers. Moreover, the results were consistent within single standardized measures—such as the Iowa Test of Basic Skills—as well as across standardized measures. These consistent and transferable results increase the individual reliability of each study. However, the majority of the research in this area is quantitative. This means that, although the numbers point to a link between classroom drama and improved student academic achievement and attitudes, there is a lack of rich description as to why this is the case. Only the action-research of Griffith and Rasinski (2004) and Gamwell (2005) provided a rich picture of the qualitative effects of drama on real students. These studies outline not only the development of an integrated drama curriculum, but also the development of student attitude throughout the program. Interviews and written work indicate an emerging trend that relates the use of classroom drama to greater student self-esteem and creative thinking. However, more evidence is needed of the reliability of these results. Therefore, more individual case studies would prove invaluable to understanding why drama has such a positive effect on students.

Drama and writing. The next section of chapter two summarized two studies that explored the relationship between drama and writing. A quasi-experimental quantitative study by Moore and Caldwell (1993) examined 63 primarily lower middle-class Caucasian second- and third- graders in a rural area

of Colorado. Moore and Caldwell found that students who received narrative drama exercises prior to writing exercises showed significant gains in organization, ideas, style and context in their writing over 15 weeks. A qualitative case study conducted by Cremin et al. (2006) also looked at the support that drama can offer children as writers by examining the work of three boys and three girls at each of three levels of writing achievement. After students participated in eight process-drama sessions in the classroom, researchers found improved writing at all levels in the areas of presence of tension, emotional engagement, and a strong sense of stance and purpose.

Each of these studies was well-planned and executed. Moore and Caldwell (1993) controlled for selection and the Hawthorne effect, as well as for reporter bias. Cremin et al. (2006) used multiple means of gathering data on their students and brought their results back to the schools for member-checking. However, both of these studies are quite small. The lack of data available to corroborate their findings limits their external validity, meaning that although a pattern linking drama curriculum with improved writing skills among students can be hypothesized, it cannot be more widely accepted. More research of any kind in this area would help to understand any emerging trends.

Drama and math. The first section of this literature review also summarized five studies that examined the effects of drama within the math classroom. The CAPE study, led by James Catterall and Lynn Waldorf (1999) in the Chicago area, found that sixth-grade students participating in CAPE's

integrated arts instruction program made a substantially greater improvement in sixth-grade math scores on the Iowa Test of Basic Skills (ITBS) when compared with students in other Chicago public schools. A study by Ingram and Riedel (2003) found that students who received a high level of arts integration score significantly better on the math portion of the Northwest Achievement Levels Test than their peers who received little arts integration. The Transformation project, led by Fleming et al. (2004), found that the Transformation group scored significantly higher than the control group on third- and fourth-grade math assessments. Smitherim and Upitis (2005) found that arts integration led to higher achievement on the computation and estimation portion of the Canadian Achievement Test. Duatepe-Paksu and Ubuz (2009) investigated three classes of seventh graders and found that drama had a significant impact both on both students' geometric skills and on their attitudes towards math.

Each of these studies was quantitative in nature and had a pretest/posttest design. They each controlled for selection and history. Although there are few such studies, the internal validity of each study is strong. Moreover, each study included more than 100 participants and took place in Turkey, the United States, Canada, and Great Britain, respectively. This breadth of data increases each individual study's reliability. However, the field would benefit from more research to validate the corroboration between classroom drama and math achievement. Also, the field would benefit from studies that are more qualitative

in nature, that is, studies that carefully examine what works in teaching math through drama, as well as why it works.

Drama and science. Chapter two examined two studies that took place within the science classroom. A quantitative study conducted by Metcalfe et al. (1984) explored the effects of learning science through drama on 10- and 11-year-old students and found that participation in drama significantly increased the students' explanation and interpretation of important information. A qualitative study found that, for students aged 12-16, using drama in the science classroom increased academic achievement by enhancing dialogue, attention, and relevance (Dorion, 2009). Although the Metcalfe et al. controlled for selection, as well as for the Hawthorne effect, its small sample size reduces the study's reliability. The study by Dorion is more dependable, presenting data gathered information through observations and interviews conducted in multiple schools, classes, and locations throughout Great Britain. Dorion's findings, including interactive dialogue, a metacognitive use of discussion, increased engagement, physical simulations which students were able to translate into more abstract concepts, and ongoing formative assessments by the teacher, provide a rich picture of the potential holistic benefits of drama within the content areas. The connections between integrated drama and science achievement would benefit from further research of any kind.

Drama integration and student engagement. Finally, the first section of chapter two analyzed a study that examined what special qualities or processes

of arts education might support students' growth (DeMoss & Morris, 2002). Three clear, almost universal themes were discovered: improved learning environments, engaging content, and learning communities that extended beyond the traditional classroom. This study used student interviews and writing to pinpoint these themes, which provides strong evidence for causation. The study also examined students from a variety of cultural and socioeconomic backgrounds, further strengthening its findings. However, the small sample size (30 students) limits the transferability of the findings. Further qualitative research into the engaging qualities of classroom drama would be beneficial to prove a connection between drama integration and student engagement.

The first section of chapter two provided a strong case for using drama within the content areas. Quantitative studies have shown that drama methods improve standardized test scores. Evidence shows that using drama promotes comprehension and fluency in reading. There is less evidence linking drama to potential success in writing, although studies have found a correlation. In math and science, studies have found that drama has the potential to help students visualize abstract concepts. Furthermore, drama within the classroom has served as a motivating and engaging factor for students.

The Intrinsic Value of Drama

The second section of chapter two analyzed the research that examined the developmental and education effects of drama on its own, that is, outside of

the general education classroom. Several large-scale, multi-year studies found important correlations between arts participation and student attitude and success. For example, Catterall et al. (1999) conducted a study that analyzed more than 25,000 secondary students and found that students extensively involved in the arts were more likely to be earning A's and B's in English, more likely to score in the top two quartiles on standardized tests, less likely to drop out of school, and less likely to be bored in school; the differences were especially significant for students from low socioeconomic backgrounds. A similar study compared over 2000 *high-art*s and *low-arts* elementary students and found that high-arts students consistently outranked low-arts students in measures of creative thinking, expression, risk-taking, and academic self-concept (Burton et al., 1999). In another long-term study, Heath and Roach (1999) analyzed the impact of 124 youth-based organizations in economically disadvantaged communities, and found that participation in the arts encouraged cognitive and linguistic development, including planning for the future, developing ideas for execution, and assessing next steps. Furthermore, participation in an arts program afforded students six times as many opportunities to speak more than one sentence and to experience meaningful problem-solving than they might in their English or social studies classrooms.

All of these studies were broad-based, involving students from a variety of states, grades, and socioeconomic backgrounds over a span of years. The findings are similar, increasing the studies' dependability. Furthermore, the broad

base of the research increases each study's credibility. Especially meaningful are the impacts that drama had on students of lower socioeconomic backgrounds, suggesting that drama can provide a motivating factor for student success. However, these findings were not taken back to the subjects of the studies; therefore, causation can only be assumed, not confirmed.

Finally, the second section of chapter two summarized two smaller case studies that provided a rich picture of the kinds of student attitudes that participation in drama can develop. One study, conducted by Oreck et al. (1999), followed 23 children and young adults, many from economically disadvantaged backgrounds, who were extensively involved in the arts; Oreck et al. found personal qualities that were common across age groups, including resilience, self-regulation, and identity, which contributed to success in school. Wolf (1999) conducted a study to examined the connection between music and theater performance (as the subjects participated in the creation of an original opera) and student engagement and academic achievement. His findings included greater student participation and greater critical thinking within the context of the opera creation than in the regular classroom.

The small number of qualitative studies available means that transferability is inconclusive. However, by collecting academic data, surveys about self-concept and attitude, observations, and interviews, researchers in these last two studies are able to paint a rich picture of the potential of extensive

participation in the arts and its impact on students' attitude and long-term success.

The second section of chapter two provided a view of the myriad benefits of involvement in drama. Student engagement is increased, as is active cognitive and linguistic participation. Student self-concept is also increased. Furthermore, these factors seem to contribute to the likelihood of higher grades that Catterall et al. (1999) reported in their study of over 25,000 high school students. The intrinsic value of drama participation cannot be doubted.

Classroom Implications

The research reviewed for this paper suggests many practical implications for the classroom. First of all, drama has the potential to increase an essential factor for student achievement—reading fluency; including automaticity, accuracy, and prosody (Griffith & Rasinski, 2004; Wolf, 1998; Young & Raskinski, 2009). These researchers found that most helpful in developing fluency is the use of reader's theater in the classroom. Reader's theater has the potential to organically introduce three important methods to promote fluency: repeated reading, modeling fluent reading, and reading for meaning. Reader's theater promotes repeated readings because students are working to rehearse for a final presentation. Actors, of course, need to read their lines more than one to prepare for a performance. So too do students as they work together on a piece of reader's theater. Reader's theater also allows for modeling of fluent reading as

students work with the teacher or with peer coaches to rehearse their lines and develop appropriate expression and phrasing. Finally, reader's theater promotes reading for meaning because an actor cannot say their lines if they do not know what they mean! Reader's theater allows a student to explore text and develop fluency through acting, which is an authentic and motivating approach to reading.

Secondly, dramatic play has the potential to increase reading comprehension (Catterall & Waldorf, 1998; Fleming et al., 2000; Pelligrini & Galda, 1984; Rose et al., 2000). A teacher looking to increase students' literature comprehension would do well to use drama, by having students, for example, act out a story, create a script from a book, or explore characterization through dramatic play. Students from kindergarten to high school benefitted from this kind of exploration, though of course the content and context differed. For young children, drama can be an engaging tool for discovering the elements of a story: setting, conflict, and resolution, for example. As Pelligrini & Galda (1984) noted, young students that are allowed time for dramatic play surrounding a particular story often have a greater ability to re-tell that story than their peers that are not exposed to dramatic play. For older students, drama is a tool for creating text-to-self connections and for exploring characterization and motivation (Gamwell, 2005). When students are able to "become" a character—to embody that character and act out their story—they are able to more deeply relate with a character's choices or to empathize with a character's motivation. Furthermore, drama can be used as a tool for older students to debate themes that arise in

literature. For example, Dorion, et. al. (2009) noted that students were able to use drama to re-enact debates surrounding controversial science topics, such as cloning (p. 2258). Likewise, drama can be used as a tool to debate controversial or difficult themes introduced in literature. In this way, students can be motivated to deeply explore a text and its subtext. Clearly, the use of drama in the literature classroom has many uses for increased comprehension.

By encouraging deep exploration of a text, drama can also be used as a motivating factor for writing (Cremin et al, 2006). Researchers found that engaging students in process drama sessions, that is drama that works to solve a problem or overcome an obstacle, excited students to begin the writing process and motivated them to continue their writing, even during their free time. Again, using drama to debate literature themes can be used to inspire later writing. Reader's theater can provide an impetus for character exploration, which can later be used as a jumping-off point for poetry or first-person narratives. Furthermore, teachers can use dramatic play to enforce writing basics, such as organization, style, and context (Moore & Caldwell, 1993). The researchers found that second and third grade students were able to translate the training they received in drama, such as the ideas of context and conflict, into their later writing. In essence, the time the students spent in drama activities was a rehearsal for their writing!

The research also found positive implications for using drama in the math classroom. First of all, dramatic episodes can introduce and allow for kinesthetic

exploration of abstract mathematic concepts. For example, Duatepe-Paksu and Ubuz (2009) introduced the concept of the radius of a circle within the dramatic context of a group of campers trying to get equal warmth from a campfire. Similarly, younger students can be introduced to the idea of skip-counting and multiples by being challenged to use their bodies to create a life-size number line and act out skip-counting, rather than simply using pencil-and-paper activities. Through problem-solving activities such as these, students not only remain engaged in critical thinking and problem solving, they are also better able to recall that experience and information later. Smitherim and Upitis (2005) attributed the motivating nature of dramatic exploration in the math classroom to higher student achievement on computation and estimation portions of national standardized tests. Other researchers also found a correlation between integrated classroom drama and math achievement (Catterall & Waldorf, 1999; Ingram & Riedel, 2003; Fleming, et. al., 2004). Clearly, drama is able to introduce abstract concepts in a lasting way.

Similarly, in the science classroom, allowing students a kinesthetic learning experience enhances comprehension and memory. Students can use drama to create a model or a machine, for example, to enact protons and neutrons encompassing the nucleus of an atom. Not only that, but students were found to be able to translate those experiences in order to interpret more abstract concepts presented within science texts (Metcalfe et al., 1984). Dorion's research gathered quite a number of drama lessons used in science, including

everything from acting out wavelengths to participating in a mock UN conference. Drama can incorporate interaction, humor, and fun into the science classroom.

In all classrooms, drama is a tool that encourages critical thinking and student-to-student dialogue. The research reviewed found that extensive involvement in the arts allowed students to gain cognitive and linguistic skills that are underdeveloped in the direct instruction classroom. For example, D. P. Wolf (1999) found that in creating the opera, a greater number of students began to participate, take turns, ask questions, comment or constructively critique each other's thinking, revise ideas and proposals, and connect ideas to the long-term theme of the unit than in the regular classroom. Heath and Roach (1999) found similar patterns in their examination of after-school drama programs. This evidence suggests that taking time from other academic endeavors to focus on creating a performance piece helps students develop important skills for long-term success.

Finally, participation in the arts improves student self-esteem and academic self-concept (Burton et al., 1999; Fleming et al., 2000; Luftig, 2000; Oreck et al., 1999). For a teacher interested in developing the whole student, giving students the opportunity to participate in drama activities, either within the context of another content area, or simply for the sake of self-exploration and community building, has the benefit of developing self-concept. Drama certainly has the potential in increase achievement within individual content areas. But

perhaps more importantly, participation in drama can develop student attitudes that have lifelong benefits.

Suggestions for Further Research

The majority of the research available that studies the effects of drama on academic achievement concentrates on drama as it impacts literature study and reading achievement. These studies often used standardized tests as their measures of achievement (Catterall & Waldorf, 1998; Fleming et al., 2004; Gourgey, 1984; Ingram & Riedel, 2003; Luftig, 2000; Rose et al., 2000). While this quantitative measure is appropriate given the climate of high stakes testing, more observational, richly-detailed studies help to paint a holistic picture of the long-term learning benefits and student growth. For example, studies done by Henderson & Shanker (1978), Pelligrini & Galda (1982), and Levy (1986) were able to pinpoint specific aspects of language development—such as story re-telling—that drama can help to develop in young children. Griffith & Rasinski (2004) and Young & Rasinski (2009) noted that reader's theater helped student to develop reading fluency. Classroom drama can develop reading comprehension and fluency, but what other specific aspects of reading can drama help to develop? Can the use of drama help to develop vocabulary or accuracy? How can drama help students to explore difficult or controversial literature? Future research in the area of drama and reading could further support the case for drama in the classroom by providing specific implementation strategies and the student impact in these areas.

Another interesting avenue of research into drama and reading is the implication that drama can motivate struggling or reluctant readers. These students tend to receive more skill and drill and little opportunities to participate in classroom drama (Wolf, 1998, p. 386). However, Wolf (1998) and Gamwell (2005) both found that using drama to approach reading was a motivating tool for struggling students. Furthermore, Fleming, et al. (2004) concentrated on students who were learning English as a second language and found that drama encouraged reading success. However, there is little other research in this area. While the researchers clearly outline their methods, more action-research in this area would help to develop an understanding of specific tools or exercises a classroom teacher can use to engage struggling readers, or to help English language learners. Further positive results would encourage the use of drama for these students.

In the content area of math, four large-scale studies found positive correlations between integrated drama and math achievement as measured by standardized tests (Catterall & Waldorf, 1998; Fleming et al., 2004, Ingram & Riedel, 2002, Smitherim & Upitis, 2005). However, it was a study by Duatepe-Paksu and Ubuz (2009) that provided a detailed observation of methods used and specific outcomes observed, in the area of geometry. The larger studies were unable to pinpoint the correlation, beyond attributing the engaging factor of drama to academic success (Smitherim & Upitis, 2005). Moving beyond standardized tests as a sole measure of achievement would allow for a more in-

depth understanding of the actual benefits of drama within lesser-researched areas. For example, how can drama introduce math concepts, such as number sense, to young students? Can drama be successful in content specific math classes, such as algebra or geometry? There are many avenues of drama and math worth further study.

In other content areas, such as writing and science, there is less available research. The effect that drama can have on writing, for example, seems to be positive in terms of inspiring both motivation and creative thinking (Cremin et al., 2006; Moore & Caldwell, 1993). However, the two available studies have small sample sizes that limit their external validity. This area could benefit from a larger, more diverse study. Similarly, research into the impact of integrated drama in the science classroom is limited but promising. For example, Dorion (2009) found that incorporating drama into science lessons increased interactive dialogue and engagement, and created physical simulations which students were able to translate into more abstract concepts. However, it is unclear how well students retained science concepts over time. Metcalfe, et al. (1984) found that participation in drama significantly increased the students' explanation and interpretation of important scientific information. However the small sample size limits the external validity of the study. These two studies indicate that drama can be used to help students understand and apply otherwise difficult scientific concepts, but further research is necessary to examine what it is that facilitates student cognitive engagement, and whether these findings are transferable.

An interesting finding, relevant to all school subjects, is the idea that drama allows for deeper cognitive understanding and application of knowledge (Metcalfe, et al. 1984; Smitherim & Upitis, 2005). Through the arts, students are able to actively engage in content, rather than simply preparing for a test. Metcalfe, et. al. then found that students were able to better answer more abstract questions having to do with expressing their own ideas or going beyond rote information to hypothesize or apply their knowledge. However, little research has been done to measure the long-term effects of such learning. What effects can drama have on lifetime learning? Do the arts contribute to increased achievement or academic success over time? Further research is needed in this area.

Studies have shown a positive correlation between drama and student attitude, both inside and outside of the classroom (Burton et al., 1999; Catterall et al., 1999; DeMoss & Morris, 2002; Heath & Roach, 1999; Oreck, Baum, & McCartney, 1999). However, these findings were not taken back to the students of the studies, therefore a causation can only be assumed, not confirmed. For example, drama has the potential to inspire intrinsic learning motivation, with students inspired to pursue their interests, despite difficulties or setbacks (DeMoss & Morris, 2002, Oreck, Baum, & McCartney, 1999). Further qualitative research could explore *how* the arts are able to activate motivation and resilience. Does drama create an environment of productivity and success that translates into other aspects of the student's life? How specifically does drama

inspire engagement? How can more students be engaged? How can the arts help to bridge school and life experiences? These are questions that are alluded to, but remain unanswered. Further research would do well to investigate the specific impacts of participation in drama, in other words, to follow-up on these initial studies.

Conclusion

Chapter one introduced the idea of drama as a tool for academic success, both inside the classroom and out. It provided a backdrop of drama-in-education advocacy, including the argument that drama provides concrete experiences on which to build knowledge. It also provides the opportunity to engage in critical and creative thinking and to set and obtain goals. Drama in education can be traced back to the early twentieth century and has its roots in John Dewey's New Education Movement. Chapter one also examined the work of prominent drama educators Brian Way and Dorothy Heathcote and examined Gardner's theory of multiple intelligences and his argument for the arts as an integral part of educating the whole child. Chapter one discussed the demise of arts in the classroom as an outcome of the back-to-basics approach to schooling. Opponents of arts integration argue that classroom time is better spent focused on reading, writing, and mathematics. This led to the guiding question of this paper: What effect does drama have on student attitude and achievement?

Chapter two was a review of the literature surrounding the effects of drama on student attitude and achievement. Chapter two was divided into two

sections of relevant findings. First, it analyzed the impact that drama has when incorporated into the curriculum of a specific content area. Next, it explored the impact that drama has when undertaken for its own sake. In this chapter, each of the research studies was summarized and its results analyzed, based on the information provided by the authors. The research was reviewed to examine the effect of drama on student achievement as well as the strengths and weaknesses of the available studies.

Chapter three summarized the findings of the research and provided a general overview of the benefits that drama has on student attitude and achievement. It then addressed the implications that the research has for classroom practice. However, some of the available research, while initially positive, is not yet able to prove causation. Therefore, chapter three also provided recommendations for further research.

Drama has the potential to increase true student achievement. Through kinesthetic learning experiences and open exploration, students have the opportunity to build their own knowledge. Furthermore, drama can help to bring to life the sometimes abstract concepts introduced in content areas, from story sequencing to geometric proofs to the state of matter. These learning experiences are not only engaging they are also memorable. Students who are given the opportunity to learn through experience perform better on measures of academic achievement. Perhaps more importantly, an integrated arts curriculum has been shown to engage more students in ongoing dialogues, problem-solving,

goal setting, and creative thinking. These experiences will help them to achieve, not only in the classroom, but in life.

REFERENCES

Berube, M. R. (1999). Arts and education. *Clearing House*, *72*(3), 150-153.

Bolton, G. M. (1979). *Towards a theory of drama in education.* London: Longman.

Bresler, L. (2003). Out of the trenches: The joys (and risks) of cross-disciplinary collaborations. *Council of Research in Art Education, 152*, 17-39.

Brewer, T. M. (2002). Integrated curriculum: What benefit? *Arts Education Policy Review*, *10*(4), 31-37.

Burton, J., Horowitz, R., & Abeles, H. (1999) Learning in and through the arts: Curriculum implications. In E. B. Fiske (Ed.), *Champions of change: The impact of the arts on learning* (pp. 35-46). Washington, D.C.: Arts Education Partnership and The President's Committee on the Arts and Humanities.

Butzin, S. (2007). NCLB: Fix it recommendations. *Phi Delta Kappan, 88*(10), 768.

Catterall, J. (2002a). The arts and the transfer of learning. In R. Deasy (Ed.), *Critical links: learning in the arts and student academic and social development* (pp. 151-157). Washington D.C.: Arts Education Partnership.

Catterall, J. (2002b). Research on drama and theater in education. In R. Deasy (Ed.), *Critical links: Learning in the arts and student academic and social development* (pp. 58-62). Washington D.C.: Arts Education Partnership.

Catterall, J., Hapleau, R., & Iwanaga, J. (1999). Involvement in the arts and human development: General involvement and intensive involvement in music and theater arts. In E. B. Fiske (Ed.), *Champions of change: The impact of the arts on learning* (pp. 1-18). Washington, D.C.: Arts Education Partnership and The President's Committee on the Arts and Humanities.

Catterall, J. & Waldorf, L. (1999). Chicago arts partnerships in education: Summary evaluation. In E. B. Fiske (Ed.), *Champions of change: The impact of the arts on learning* (pp. 47-62). Washington, D.C.: Arts

Education Partnership and The President's Committee on the Arts and Humanities.

Chapman, L. (2005). Status of elementary art education. *Studies in Art Education, 46*(2), 118-137.

Cremin, T., Goouch, K., Blakemore, L., Goff, E., & Macdonald, R. (2006). Connecting drama and writing: Seizing the moment to write. *Research in Drama Education*, *11*(3), 273-291.

DeMoss, K. & Morris, T. (2002) How arts integration supports student learning: Students shed light on the connections. Retrieved from http://artseveryday.berndtgroup.net/uploadedFiles/Cultural_Organizations/How%20Arts%20Integration%20Supports%20Student%20Learning.pdf

Dewey, J. (1934). *Art as experience.* New York, NY: Capricorn Books.

Donahue, D., & Stuart, J. (Eds.). (2010). *Artful teaching.* New York, NY: Teachers College Press.

Dorion, K. (2009). Science through drama: A multiple case exploration of the characteristics of drama activities used in secondary science lessons. *International Journal of Science Education*, *31*(16), 2247-2270.

Duatepe-Paksu, A., & Ubuz, B. (2009). Effects of drama-based geometry instruction on student achievement, attitudes, and thinking levels. *Journal of Educational Research*, *102*(4), 272-286.

Fleming, M., Merrell, C., & Tymms, P. (2004). The impact of drama on pupils' language, mathematics, and attitude in two primary schools. *Research in Drama Education*, *9*(2), 177-197.

Galda, L. (1983). The effect of dramatic play on the story retellings of second grade children. *Journal of Instructional Psychology*. *10*(4) 200-206.

Gamwell, P. (2005). Intermediate students' experiences with an arts-based unit: An action research. *Canadian Journal of Education, 29*(3), 359-383.

Gourgey, A.F. (1984, April). *The impact of an improvisational dramatics program on school attitude and achievement*. Paper presented at the Annual

Meeting of the American Educational Research Association, New Orleans, LA.

Griffith, L.W. & Rasinski, T.V. (2004) A focus on fluency: How one teacher incorporated fluency with her reading curruculum. *The Reading Teacher* 58(2) 126-137.

Gullatt, D. (2007). Research links the arts with student academic gains. *The Educational Forum, 71*, 211-220.

Heath, S. B. & Roach, A. (1999). Imaginative actuality: Learning in the arts during the nonschool hours. In E. B. Fiske (Ed.), *Champions of change: The impact of the arts on learning* (pp. 19-34). Washington, D.C.: Arts Education Partnership and The President's Committee on the Arts and Humanities.

Henderson, L.C., & Shanker, J.L. (1978). The use of interpretive dramatics versus basal reader workbooks for developing comprehension skills. *Reading World. 17*(3) 239-243.

Ingram, D. & Riedel, E. (2003). Arts for academic achievement: What does arts integration do for students? Prepared for the Minneapolis Public Schools. Retrieved from http://www.cehd.umn.edu/CAREI/Reports/AAA/documents/DoforStudents.pdf

Levy, A.K. (1986, November). *Sociodramatic play as a method for enhancing the language performance of kindergarten age students*. Paper presented at the Annual Convention of the National Association for the Education of Young Children, Washington, DC.

Luftig, Richard L. (2000). An investigation of an arts infusion program on creative thinking, academic achievement, affective functioning, and arts appreciation of children at three grade levels. *Studies in Art Research*, *41*(3), 208-227.

Maples, J. (2007). English class at the improv: Using improvisation to teach middle school students confidence, community, and content. *The Clearing House*, *80*(6), 273-277.

Marzano, R., Kendall, J., & Gaddy, B. (1999) Deciding on 'essential knowledge.' *Education Week.* Retrieved from http://www.edweek.org/ew/articles/ 1999/04/21/ 32marzan.h18.html

Metcalfe, R., Abbott, S., Bray, P., Exley, J., & Wisnia, D. (1984). Teaching science through drama: An empirical investigation. *Research in Science and Technological Education*, *2*(1), 77-81.

Moore, B. & Caldwell, H. (1993) Drama and drawing for narrative writing in primary grades. *Journal for Educational Research, 87*(2), 100-110.

Oreck, B., Baum, S., & McCartney, H. (1999) Artistic talent development for urban youth: The promise and the challenge. In E. B. Fiske (Ed.), *Champions of change: The impact of the arts on learning* (pp. 63-78). Washington, D.C.: Arts Education Partnership and The President's Committee on the Arts and Humanities.

Parsad, B. & Spiegelman, M. (2012). Arts education in public elementary and secondary schools 1999-2000 and 2009-2010. Retrieved from the National Center for Educational Statistics website: http://nces.ed.gov/ pubs2012/2012014.pdf

Parsons, M. (2004). Art and integrated curriculum. In E. Eisner & M. Day (Eds.), *Handbook of research and policy in arts education* (pp. 775-794). Mahwah, NJ: Lawrence Erlbaum Associates.

Pelligrini, A., & Galda, L. (1982). The effects of thematic-fantasy play training on the development of children's story comprehension. *American Educational Research Journal, 19*(3), 443-452.

Purnell, P. (2004). A place for the arts: The past, present, and teacher perceptions. *Teaching Artist Journal*, *2*(3), 153-161.

Ravitch, D. (2010). *The death and life of the great American school system*. New York, NY: Basic Books.

Rose, D.S., Parks, M., Androes, K., & McMahon, S.D. (2000). Imagery-based learning: Improving elementary students' reading comprehension with drama techniques. *The Journal of Educational Research, 94*(1), 55-63.

Rosen, R.S & Kozoil, S.M., (1990). The relationship of oral reading, dramatic activities, and theatrical production to student communication skills, knowledge, comprehension, and attitudes. *Youth Theatre Journal*, *4*(3), 7-10.

Smithrim, K. & Upitis, R. (2005) Learning through the arts: Lessons of engagement. *Canadian Journal of Education* 28(1&2) 109-127.

Wilkins, J., Graham, G., Parker, S., Westfall, S., Fraser, R., & Tembo, M. (2003). Time in the arts and physical education and school achievement. *Journal of Curriculum Studies*, *35*(6), 721-734.

Winner, E., & Hetland, L. (2000). *The arts and academic achievement: What the evidence shows. Executive summary.* Retrieved from Project Zero project REAP (Reviewing Education and the Arts Project) website: http://www.pz.harvard.edu/research/Reap/REAPExecSum.

Wolf, D. P. (1999). Why the arts matter in education, or, just what do children learn when they create an opera. In E. B. Fiske (Ed.), *Champions of change: The impact of the arts on learning* (pp. 91-98). Washington, D.C.: Arts Education Partnership and The President's Committee on the Arts and Humanities.

Wolf, S. A. (1998). The flight of reading: Shifts in instruction, orchestration, and attitudes through classroom theatre. *Reading Research Quarterly*. *33*(4) 382-415.

Young, C. & Rasinski, T. (2009). Implementing readers theatre as an approach to classroom fluency instruction. *The Reading Teacher*, *63*(1), 4-13.