ATTITUDES, SELF-EFFICACY, AND FREQUENCY OF USE OF THE ARTS BY SECONDARY-LEVEL TEACHERS IN SCHOOLS DEEMED SUCCESSFUL OR IN-NEED-OF-IMPROVEMENT UNDER THE NO CHILD LEFT BEHIND ACT

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ATTITUDES, SELF-EFFICACY, AND FREQUENCY OF USE OF THE ARTS BY SECONDARY-LEVEL TEACHERS IN SCHOOLS DEEMED SUCCESSFUL OR IN-NEED-OF-IMPROVEMENT UNDER THE NO CHILD LEFT BEHIND ACT

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B.S., Southern Connecticut State University, CT, 1998
M.S., Southern Connecticut State University, CT, 2003

A Dissertation
Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Education in Instructional Leadership in the Department of Education and Educational Psychology at Western Connecticut State University

2010
ATTITUDES, SELF-EFFICACY, AND FREQUENCY OF USE OF THE ARTS BY SECONDARY-LEVEL TEACHERS IN SCHOOLS DEEMED SUCCESSFUL OR IN-NEED-OF-IMPROVEMENT UNDER THE NO CHILD LEFT BEHIND ACT

Michael Obre

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Abstract

This study compared and investigated the arts attitudes and practices of secondary-level mathematics and English teachers working in Connecticut public schools deemed either successful or in-need-of-improvement under the No Child Left Behind (NCLB) act. This study considered how educators of subjects directly assessed for NCLB compliance, specifically mathematics and English teachers, felt about using arts in the classroom. The Teaching With the Arts Survey (TWAS) was employed to gauge the arts attitudes, self-efficacy, and frequency of use of the arts among 166 ninth- and tenth-grade mathematics and English teachers in Connecticut. The evidence indicated that while no significant differences in attitudes, self-efficacy, or personal frequency of use of the arts existed for teachers based on their school’s NCLB designation, significant differences did exist on each of the group factors when teachers were compared by classroom discipline with English teachers scoring higher on all measures of arts use and support than the mathematics teachers studied. Among the demographic variables, only ethnicity presented an interesting relationship to the factor of arts attitudes with non-White teachers scoring lower than their White peers on this measure.
ATTITUDES, SELF-EFFICACY, AND FREQUENCY OF USE OF THE ARTS OF SECONDARY-LEVEL TEACHERS IN SCHOOLS DEEMED SUCCESSFUL OR IN-NEED-OF-IMPROVEMENT UNDER THE NO CHILD LEFT BEHIND ACT

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DEDICATION

This dissertation is dedicated to my wife Mari, Mom and Dad.
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CHAPTER ONE: INTRODUCTION

Arts educators frequently hear from peers within other disciplines that the arts are essential components of a complete school curriculum, and there is evidence for the intrinsic positive value of the arts in instruction (Cortines, 1999). When framed intrinsically, arts advocates highlight the importance of arts in education in facilitating reflection on what it is to be human and shaping a fundamental understanding of oneself and others. The “value of consequence” case, as defined by Cortines, identifies the development of many cognitive, affective, and creative skills resultant from arts instruction. Specifically, within today’s climate of standardized testing, a primary case for the arts in schools has been made by highlighting the higher levels of academic achievement in non-arts areas for students engaged in arts programs (Catterall, Chapleau, & Iwanga, 1999).

Rationale

There is evidence in the literature indicating that time now allocated for arts instruction in public schools is decreasing (Jennings & Rentner, 2006; Zastrow, 2004) despite data indicative of high favorability for public school arts instruction from the general population (Americans and the Arts, 2005). In accommodating increases in instructional time for English and mathematics, a decrease of 145 minutes per week, a total average of 30 minutes per day, across individual subject areas such as art, music, and physical education have been reported nationwide (McMurrer, 2007). In some districts, arts instruction time has decreased while arts teacher supervisory time has increased to include reading blocks, student mentoring, and other non-arts tasks (Crane, 2006).

Further, it appears that within districts that fail to meet No Child Left Behind (NCLB) standards of Adequate Yearly Progress (AYP), restrictions are placed on teachers in the form
of perceived scrutiny of test results, real or otherwise, resulting not only in less art being used in
the curriculum, but test-taking strategies being rehearsed in lieu of the facilitation of higher order thinking skills as framed by course content (Chapman, 2004). Is there a significant relationship in NCLB status and the arts attitudes and frequency of use of the arts by those teachers held most accountable under the legislation? Intense pressure for immediate test results may steer teachers towards drill and repetition and prohibit instructional methods that promote artistic approaches to problems; teachers may also simply deem the arts insufficient for ingenuous learning (Chapman, 2007). This study investigated the attitudes of secondary-level teachers in schools deemed as having either successfully or unsuccessfully achieved AYP under NCLB legislation, particularly the attitudes of those teachers whose subjects are directly measured and are currently responsible for successful AYP under the policy.

Statement of the Problem

The preponderance of the literature extolling the merits of quality arts instruction in public schools contradicts the reality of many programs becoming marginalized, trivialized, and deemed as optional frills. The Center on Education Policy noted that 71% of public school districts have reduced the time spent on subjects other than reading and mathematics since the inception of NCLB legislation (Jennings & Rentner, 2006).

Furthermore, few teachers of traditionally academic subjects have training in facilitating instruction through artistic means or developing curricula that include art components (Oreck, 2001). Both perceived and actual classroom conditions may influence a teacher’s proclivity for using arts integration. Unfortunately, the arts reside largely outside the realm of the core curriculum, relegated to a specific domain, particularly at the secondary
level. However, since the body of literature extols the educational merits of arts integration, including that of academic performance, with the public explicitly indicating high favorability for arts in the schools, then the present trend of pervasive marginalization of arts use in instruction is counterintuitive. This study seeks to address how teachers of subjects tested by the *Connecticut Academic Performance Test* (CAPT), the state’s gauge by which successful AYP is determined, feel about using the arts in their classroom lessons.

Eisner (1995) defined the American attitude towards the arts as pleasurable, but not useful. Even in schools with strong commitments to art education, the pressure to raise standardized test scores, logistical limitations in implementation, and lack of support may undermine teachers’ efforts in using the arts as a means of non-arts-specific classroom instruction (Oreck, 2004). There is a need to examine this incongruity between overt attitudes and the actuation of arts use in classrooms.

**Benefits of the Research**

This research study examined the hypothesis that teachers in NCLB successful schools would significantly differ in attitudes, self-efficacy, and frequency of use of the arts in the classroom than would teachers working in schools deemed in-need-of-improvement. Additionally, this study tested the hypothesis that English teachers across both NCLB successful schools and those deemed in-need-of-improvement would report significantly different means for arts attitudes, self-efficacy, and frequency of use of the arts in instruction than secondary-level school mathematics peers. Additionally, the study tested the hypothesis that the particular teacher demographics of teacher age, personal practice of the arts, gender, years teaching, and minority status significantly predict teacher arts attitudes. The analyses of these data may appropriately frame future advocacy discussions on arts integration and
may influence appropriate professional development to help teachers use the arts in instruction effectively.

**Definition of Key Terms**

Several of the terms used frequently in this study benefit from clarification so that researchers unfamiliar with the lexicon of contemporary education, particularly as employed in Connecticut school systems, may fully follow the scope of this study.

_Adequate Yearly Progress (AYP)._ NCLB legislation requires each state to define AYP for school districts and schools, within the parameters set by Title I funding. In defining AYP, each state sets the minimum levels of measurable improvement that school districts and schools must achieve within time frames specified in the legislation. Schools and districts that fail to achieve AYP for 2 or more years are deemed in-need-of-improvement (U.S. Department of Education, 2009a). In Connecticut, successful AYP at the secondary level is determined by the *Connecticut Academic Performance Test (CAPT)*, an examination given to all 10th-grade students (Connecticut State Department of Education, 2008a).

_Art(s)._ Art is, at its essence, the foremost expression of human creativity. While difficult to define and evaluate, the arts typically refer to the processes and products of working with specific mediums, a set of rules for the use of the mediums, and a set of values that determine what deserves to be expressed through the mediums to convey either a belief, an idea, a sensation, or a feeling in the most effective way possible for the mediums (“Art,” 2002; Oreck, 2001). With such an amorphous definition, teachers may feel ill-prepared to include the arts when designing an activity intended to illuminate understanding of non-arts
content. Furthermore, a teacher may inaccurately define an artistic experience as
instructionally efficacious if overemphasis is placed on the product alone.

Attitude. An attitude is a positive or negative bias in evaluating some object that a
person may be able to recognize in himself or herself. Allport (1935) observed that people’s
atitudes toward objects, other people, themselves, or groups provide key insights into their
behaviors towards them. This has been a principle explored in the field of social psychology
for years. In modern times, complementary research, such as Higgins’ (1987) self-
discrepancy theory and Fazio, Powell, and Herr’s (1983) research in identifying
discrepancies between attitudes and behaviors, has assisted in evolving modern attitudinal
theory. Such research is relevant to this study in terms of identifying the schism between the
explicit evidence and support for using the arts in instruction and the potential
marginalization of such initiatives.

District Reference Groups (DRGs). DRGs were designed by the Connecticut State
Department of Education (2008b) to classify school districts by socioeconomic
characteristics and needs. DRGs are divided into nine groups, from A through I, with A
being the most affluent and least in need, and I being the poorest and most in need.

In-need-of-improvement status. The federal No Child Left Behind Act of 2001 aims
to bring all students to the proficient level on state tests by the 2013-2014 school year and to
hold states and schools more accountable for results (U.S. Department of Education, 2008b).
NCLB legislation requires all districts and schools receiving Title I funds to meet state AYP
goals for their total student populations and for specified demographic subgroup populations,
including major ethnic and racial groups, economically disadvantaged students, limited
English proficiency students, and students with disabilities. If these schools fail to meet AYP
goals for 2 or more years, they are classified as schools in-need-of-improvement (U.S. Department of Education, 2008b).

**Self-efficacy.** A belief regarding one’s ability to perform certain tasks or behaviors is referred to as one’s self-efficacy (Bandura, 1977). The degree of self-efficacy expectations, the difficulty of tasks an individual feels capable of attempting, and the strength of self-efficacy expectations contribute to one’s behaviors, both attempted and avoided (Betz & Hackett, 1981). In the case of this study, a person’s confidence or self-efficacy in teaching with the arts was examined.

**Successful schools.** Successful schools are those achieving state AYP goals for their total student populations and for specified demographic subgroup populations, including major ethnic and racial groups, economically disadvantaged students, limited English proficiency students, and students with disabilities for no less than 2 years. Schools failing to achieve AYP for 2 consecutive years or more are deemed in-need-of-improvement (U.S. Department of Education, 2008b).

**Research Questions and Hypotheses**

**Research Questions**

This study investigated three essential research questions regarding the arts attitudes, self-efficacy, and frequency of use of the arts of Connecticut ninth and tenth grade regular-education mathematics and English teachers.

1. Do the attitudes, self-efficacy, and frequency of use of the arts of Connecticut secondary-level teachers in schools designated by NCLB as successful differ from those of teachers working in NCLB in-need-of-improvement schools?
2. Do the arts attitudes, self-efficacy, and frequency of use of the arts demonstrated by Connecticut secondary school regular-education mathematics teachers differ from those of secondary-level school regular-education English teachers?

3. To what extent and in what manner do the demographic characteristics of subject taught, number of years teaching, personal practice of arts, gender, and minority status act as predictors of the arts attitudes of secondary-level teachers?

**Hypotheses**

This study presented three hypotheses regarding the arts attitudes, self-efficacy, and frequency of use of the arts of Connecticut ninth and tenth grade regular-education mathematics and English teachers and was grounded in a thorough review of the literature.

1. The attitudes, self-efficacy, and frequency of use of the arts demonstrated by Connecticut secondary teachers in schools designated by NCLB as successful differ from those of teachers in NCLB in-need-of-improvement schools.

2. The attitudes, self-efficacy, and frequency of use of the arts demonstrated by Connecticut ninth and tenth grade regular-education mathematics teachers differs from those of ninth and tenth grade regular-education English teachers.

3. The demographic characteristics of subject taught, number of years teaching, personal practice of arts, gender, and minority status predict the arts attitudes of Connecticut ninth and tenth grade regular-education mathematics and English teachers.
Overview of Methodology

Subject Institutions

The NCLB status of every public school in Connecticut is available from the Connecticut Department of Education (2008a) Website. At the time of the study, 25 high schools in the state had been deemed in-need-of-improvement for failure to achieve AYP for 3 years or more, 15 of them with less than adequate progress in whole-school academic achievement. Schools with subgroup populations who alone contributed to insufficient AYP were excluded from this study because many believe that holding these students to NCLB criteria is unfair (Suderman, Kim, & Orfield, 2005). Interestingly, Eisner (2002) described the students in these subgroups as the most receptive to teaching with the arts.

Description of Subjects

Participation in this study from mathematics and English teachers from 30 institutions was solicited, although not all institutions agreed to participate. A convenience sample of mathematics and English teachers from the 15 institutions that had been cited for failing to achieve AYP under NCLB and 15 complementary institutions that had successfully achieved AYP within the closest district reference groups (DRGs) were solicited for participation. The convenience sample was used to acquire the quantitative data required for the analysis phase of the research. The causal comparative and correlational study sought responses from secondary-level public school teachers within 30 Connecticut public schools with content expertise in mathematics and English. Completion of the Teaching With the Arts (TWAS) instrument was estimated to take a maximum of 20 minutes for subject completion. Ultimately, 174 surveys were returned to the researcher; 166 of the surveys were deemed to
contain useful data. The summarily eliminated surveys were incomplete, illegible, unclear, unaccompanied by a signed informed consent form, or a combination of such factors.

A modest gift card was given to participants; however, participation in the study was completely voluntary. Although all NCLB compliance data and DRG designations are public information easily accessed through the Connecticut Department of Education Web site, schools selected for this study were not identified so as to maintain confidentiality.

Instrumentation

An instrument developed by Oreck (2001), the Teaching With the Arts Survey (TWAS), was used in this research to assess teachers’ attitudes, self-efficacy, and frequency in arts use and to collect demographic information (Appendix B). The instrument is an amalgam of two previously validated instruments, the Teacher Background Questionnaire and the Arts in the Classroom Survey (Oreck, 2001). Oreck (2001) piloted the TWAS instrument with a sample of teachers \( n = 70 \) at four sites to obtain stability estimates and delete items that did not contribute to explained variance. Following revision of the pilot instrument, the final version of the TWAS was completed by a sample consisting of 423 public-school teachers and 11 arts-based professional development service providers in five regions of the country.

The TWAS uses a 5-point Likert scale for 31 prompts, 23 of them pertaining to attitudes towards the arts and 8 of them pertaining to the frequency of use of the arts in teaching. Oreck designed the arts attitudes portion of the TWAS to encompass five general constructs from the literature, including motivation, concerns, self-efficacy, self-image, and support. The 8 frequency items encompass active classroom participation in the arts and exposure to the arts during instruction (Oreck, 2001). TWAS elicits 24 demographic
characteristics including ethnicity, age, and gender, as well as such background characteristics as teaching experience, average class size, academic degree level, and personal arts experience, including participation in art-related professional development and experience in past and present art activities. Two open-ended short-answer questions conclude the TWAS survey. Qualitative data were collected from these two open-ended short answer questions but were not analyzed.

In Connecticut, NCLB compliance is determined by the Connecticut Academic Performance Test (CAPT) assessment instrument administered to all 10th-grade public-school students in Connecticut. The exam is identical for all districts and assesses reading, writing, mathematics, and science skills (Connecticut Department of Education, 2008c).

Data Collection

Connecticut secondary principals from the schools selected for participation in the study were contacted and given a concise written description of the study. Principals, department heads, assistant principals, or lead teachers were asked to disseminate the surveys to teachers. The surveys were mailed to the proper administrators, accompanied by individual self-addressed stamped envelopes that were distributed to the appropriate faculty of ninth and tenth grade mathematics and English teachers. Administrators were asked to provide ample time, approximately 20 minutes, for the faculty members to complete the surveys during a department meeting. The confidential surveys were independently mailed, typically within a day of participants having received them. Participants in this study were assured of response confidentiality. Participation in this study was completely voluntary, and participants were given a modest $5.00 gift card upon completion of the survey.
Data Analyses

The quantitative statistical analysis methods used for this causal comparative and correlational study were the multivariate analysis of variance (MANOVA) for Research Questions 1 and 2 and multiple regression for Research Question 3. For Research Question 1, MANOVA was applied across the independent variable of ninth and tenth grade mathematics and English teachers, with two levels for NCLB compliance of successful or in-need-of-improvement. Research Question 2 involved the independent variable of teachers, with two levels consisting of ninth and tenth grade mathematics teachers and ninth and tenth grade English teachers. For both Research Questions 1 and 2, the dependent variables were arts attitudes, self-efficacy, and frequency of use of the arts in instruction. Based on the exploratory nature of this study without established precedence of variable analysis in the literature, Research Question 3 required stepwise multiple regression analysis to identify unique contributors to the criterion variable of arts attitudes among the characteristics of subject taught, number of years teaching, personal practice of arts, gender, and minority status.

Limitations

The generalizability of this study may be mitigated by the convenience sample method employed, coupled with the state’s autonomous assessment measure. NCLB legislation grants the independence for each individual state to devise the means of assessment for AYP; therefore, a replication of this study using a sample from a state other than Connecticut may find different results. Furthermore, with a finite group of eligible participants, the resultant unequal sub-groupings of 117 female respondents to 48 male respondents, and 151 White respondents to 14 non-White respondents in example,
complicate analyses in determining significance between such variables. The scope of this study did not allow for clear disaggregation of all factors contributing to arts attitudes. Additionally, this exploratory study was not designed to determine the arts attitudes of respondents prior to NCLB policy implementation. This study’s scope was also limited in terms of disaggregating individual teacher successes from NCLB designations, for instance, in likely cases of successful teachers operating within in-need-of-improvement institutions.

**Chapter Conclusion**

This study sought to compare and investigate the arts attitudes of secondary level mathematics and English teachers in Connecticut public schools deemed either successful or in-need-of-improvement under the NCLB act. The results of this study provide data currently lacking in the literature as a whole. It was a key purpose of this research to generate conversation about the incongruity between arts education research and practice and to illuminate several of the issues related to arts advocacy within the forums of public education.
CHAPTER TWO: REVIEW OF THE LITERATURE

There is a wealth of evidence indicating that arts integration in core curriculum delivery can positively impact student learning and achievement. In keeping with this body of research, there are also a substantial number of professional development programs for teachers that incorporate some form of arts exploration and implementation. However, as Oreck (2004) noted, the field of research on academic teachers’ actual implementation of arts integration in their classroom practices has been hampered by a dearth of empirical study. The various potential applications of arts in the classroom and the relevance for different forms of artistic expression to be explored across the range of academic disciplines present a daunting challenge for investigators. Oreck (2004) noted, in paraphrasing the educational theorist John Dewey, that “almost any classroom activity can potentially provide an artistic experience if it involves attention to aesthetic qualities and the intentional application of artistic skills interacting with a symbolic object or idea” (p. 57). One can see how a body of evidence based on empirical studies that identify and control for several, specific variables and are, therefore, repeatable has proven a somewhat elusive objective in terms of capturing the whole picture of using the arts in the general curriculum.

An exploration of the literature reveals a dearth of research devoted to teacher effectiveness in achieving comprehensive and meaningful arts integration on student achievement across core curricula. Teacher attitudes about arts integration in content curriculum delivery have not been extensively explored, and this is particularly true for secondary-level school teachers (Oreck, 2004). Even when teachers express a belief in the benefit of arts education and support its use in core content curriculum delivery, their own
sense of artistic self-efficacy may have a powerful impact on their ability to integrate arts into their own practice (Ahuja, 2007; Chan, 2003; Levin, 2008).

Following a review of literature methodology, the research presented in this chapter explores educational theory on the rationale for arts in the schools, as well as the effects of NCLB on curriculum delivery in general and on arts education in particular. The research on the cognitive benefits of arts education on students’ development is discussed, and an exploration of how certain art forms are believed to engage particular brain functions and contribute to social, emotional, and psychological processing is presented. The recent literature on teacher attitudes and self-efficacy with regard to pedagogical approach and classroom practice is reviewed.

As the journal articles considered in this chapter suggest, actively using the arts in teaching practice within the core curriculum is a challenging and complex matter. Yet, there is evidence within the presented articles that when arts integration is effectively realized, it is a powerfully effective tool for engaging student learning in a way that has profound and lasting effects on cognitive development, as well as the possibly more short-term but nonetheless critically important impact on student achievement scores as measured by standardized tests. In an age of increasingly regimented school accountability, it may be prudent for researchers to explore in greater depth the potentially dramatic effects of arts integration in the core curriculum on student achievement.

**Review of Literature Methodology**

The literature review begins with considering the rationale for arts in school. While government mandates typically necessitate some degree of arts education in schools (Meyer, 2005; Oreck, 2006), the research clearly underscores the fact that arts education is a vital part
of development and contributes significantly and meaningfully to student learning (Amrein-Beardsley, 2009; Appel, 2006; Azadpur & Silvers, 2005; Burrill, 2005; Constantino, 2007; Ebner, 2006; Finn & Ravitch, 2007; Gullat, 2008; Johnston, 2006; Kronenberg, 2007; Nderu-Boddington, 2008; Oreck, 2004; Rabkin & Redmond, 2006; Suwa, 2003). Frequently, arts education or, more specifically, arts integration is discussed within the context of multiple intelligences theory, which is increasingly being implemented in school initiatives, particularly those directed towards struggling students and schools (Chan, 2003; Felten, 2008; Gardner, 2006; Gullat, 2008; Oreck, 2006; Schofield & Rogers, 2004).

The NCLB Act of 2001 continues to have a powerful impact on how core curriculum delivery is realized in the nation’s schools. In many instances, it appears to contribute to the curtailment or elimination of arts-specific education courses (ACT National Curriculum Survey, 2007; Amrein-Beardsley, 2009; Appel, 2006; Ashford, 2004; Cawelti, 2006; Chapman, 2007; Finn & Ravitch, 2007; Meyer, 2005; Mishook & Kornhaber, 2006; Oreck, 2004, 2006; Spohn, 2008). In response to dwindling resources devoted to the arts, some schools have implemented variations of arts integration into their general curriculum practice, such as cross-curricular instructional collaborations between arts and non-arts disciplines, as noted in recent literature (Amrein-Beardsley, 2009; Appel, 2006; Ashford, 2004; Burns, 2003; Kronenberg, 2007; Miller, 2006; Mishook & Kornhaber, 2006; Oreck, 2004; Rabkin & Redmond, 2006; West, 2007).

Educational researchers have sought to support the relevance of the arts within the general curriculum by highlighting the various ways in which the arts enhance cognitive development (Lin, 2003; Oreck, 2004; Scott, 2003; Sousa, 2006). Some of the current research on the specific cognitive benefits of music (Foster, Theiss, & Buchanan-Butterfield,
dance (Appel, 2006; Johnston, 2006), theater (Andersen, 2004; Gullat, 2008), and
the visual arts (Appel, 2006; Constantino, 2007; Felten, 2008; Gullat, 2008) is
discussed, as well as general findings about brain development spurred by artistic
engagement (Burrill, 2005; den Heyer & Fidyk, 2007; Kronenberg, 2007). Other researchers
have challenged this approach for potentially undervaluing the arts by contending that the
arts are inherently worthwhile in and of themselves and deserving of their own courses,
rather than being instituted merely as support tools for core content delivery (Kamhi, 2007;
Miller, 2006; Winner, 2007; Winner & Hetland, 2003).

The remainder of the literature review moves away from the topic of how arts
education is integrated in school curricula and the effects of arts education on students to the
matter of how teachers impact the process of arts education or integration. The attitudes of
teachers have been found to have a direct impact on their effectiveness in their classroom
practices (Ahuja, 2007; Baratz-Snowden, 2007; Burns, 2003; Engstrom & Danielson, 2006;
Lesley & Mathews, 2009; Olson & Truxaw, 2009). The ways in which this is true for
teacher attitudes about arts education is explored in this chapter (Ash, 2009; Hansen, 2009;
Jensen, 2008; Mishook & Kornhaber, 2006; Zenkov & Harmon, 2009).

Closely related to the question of how teacher attitudes about arts education may
impact arts delivery in the classroom is the impact that teacher self-efficacy in the arts has on
arts integration. The evidence suggests that teacher self-efficacy is perhaps the single most
influential factor in teachers’ willingness and ability to implement new programs or general
educational initiatives (Ahuja, 2007; Heneman, Kimball & Milanowski, 2006; Oreck, 2004;
Scott, 2003; Sy & Glanz, 2008). In terms of arts integration, the degree of teacher artistic
self-efficacy may be central to teachers’ ability to embrace and carry out effective
integration, and this is especially true for secondary level school teachers trained specifically
in core content delivery such as English and mathematics (Chan, 2003; Levin, 2008; Oreck, 2004, 2006). A key piece of the puzzle for secondary-level school teachers charged with integrating arts in their core content curriculum appears to be regular access to well-
structured and ongoing professional development opportunities (Appel, 2006; Baratz-
Snowden, 2007; Constantino, 2003; Conway, Hibbard, Albert, & Hourigan, 2005; Gullat,
2008; Lesley & Matthews, 2009; Oreck, 2004; Stotsky, 2007).

A key purpose of this study was to identify the attitudes and self-efficacy of secondary school teachers working within the NCLB-shaped educational environment and to determine whether arts education through integration was happening in their classrooms and, if so, how frequently. Also of interest was the effectiveness of such integration, if happening, and whether it reflected teachers’ beliefs and confidence in using arts in their practice. The literature explored in this chapter provides a context for considering these issues.

**Rationale for Arts in Schools**

The most direct rationale for arts in schools is that some form of arts education is, in fact, mandated by most states. However, the challenges of high-stakes testing and the push from school systems to address performance standards set out by NCLB in traditionally core academic subjects such as mathematics and English have conspired to create an environment that might be described as almost hostile to arts education, despite the fact that NCLB actually identifies arts as part of the core curriculum (Meyer, 2005). The pressure on teachers and schools to meet NCLB’s strict benchmarks has often resulted in the adoption of a standardized curriculum that is heavy on prescriptive pedagogy (Oreck, 2006), leaving little
room for teacher creativity in practice or freedom of expression in student learning. The problem is particularly acute for struggling schools, those failing to meet the NCLB standards and, therefore, deemed in-need-of-improvement. This label often goes hand-in-hand with a renewed emphasis on didactic, back-to-basics curriculum delivery focusing heavily on the mathematics and English-language learning that is regularly assessed through standardized tests.

However, there is a more compelling rationale for providing arts in schools beyond the simple fact that, despite NCLB dictates, the majority of the nation’s schools are required to make some provision for arts education. There is a wealth of research indicating that the cognitive processes inherently engaged in artistic learning and expression are of higher order thinking and, therefore, make a significant contribution to student academic development (Appel, 2006). While the arts may be regarded by some in the back-to-basics movement as the unruly stepchild of school curriculum in fact, many theorists and practitioners strongly assert the relevance of artistic learning through observation and practice to learning in more traditional academic disciplines. On a related note, teaching practices traditionally associated with arts education, specifically open inquiry and support for creative forms of exploration, are increasingly recognized to be effective in other disciplines, including those subjects prized by back-to-basics advocates such as mathematics and literacy (Oreck, 2004).

Benefits of the Arts

Much of the literature on the value of arts education and, particularly, on the uses of arts integration into the core content curriculum points to the beneficial effects that the arts have, especially in application in some of the nation’s most troubled school systems. Rabkin and Redmond (2006) cited statistics compiled by the National Education Longitudinal Study...
of 1988 (NELS: 88/2000) that demonstrated “a significant correlation, growing over time, between arts participation and academic performance” (p. 60). The NELS: 88/2000 study surveyed a nationally representative sample of 7,900 eighth grade students first in the spring of 1988, then with follow-ups in 1990, 1992, 1994, and 2000 (National Education Longitudinal Study, 2008). The longitudinal study surveyed students who self-reported on topics including school, smoking, and extracurricular activities. For the first waves of the study when students were in eighth, then tenth, then twelfth grade, achievement tests in reading, social studies, mathematics, and science were administered in complement to the student questionnaire. The gains between arts participation and academic performance were greatest for students in the schools in the lowest socioeconomic status demographic (Ebner, 2006; National Education Longitudinal Study, 2008).

An impressive roster of educational theorists, from the 19th century’s Horace Mann to 20th century visionaries as Dewey and Vygotsky, have argued that the arts provide a direct line to cognitive development (Finn & Ravitch, 2007; Johnston, 2006; Suwa, 2003; Vygotsky, 1971). A number of recent studies have compellingly demonstrated that arts integrated curricula produce academic gains as measured by standardized tests scores (Gullat, 2008). One of the ways in which the arts are understood to enhance cognitive development is in their capacity to trigger students’ recognition of and, therefore, contribute to their facility to construct meaning (Constantino, 2007). Gullat (2008) pointed to research demonstrating that, when students are asked to communicate their new learning through different, less traditional forms of communication such as illustrating their understanding through a drawing or cartoon, as opposed to illustrating their understanding through a multiple-choice test, they are able to interpret the new knowledge using different symbols,
engaging their own understanding. This type of comprehensive education is generally recognized to be more effective in terms of durability and depth of understanding for students than simply regurgitating within an essay what their teacher has told them in a class lecture (Foster, 1998; Gullat, 2008; Warren, 1993).

Learning fostered through the arts also necessarily entails student reflection; students must consider how they can most effectively express their ideas through a medium often relying more on symbolism than direct articulation of a concept. The processes of drafting and revising a creative work, be it a drawing or a theater piece or a song, require several stages of development. The process of revision cannot just reinforce the learning of the content matter itself, which is constantly being revisited and reconsidered, but actually train students to become more comprehensive and attentive thinkers, modeling how advanced conceptualizing of a problem leads to new solutions and alternate choices. Students learn to distinguish more effective ways to convey their intent.

The arts’ role in stimulating and facilitating human ability to construct meaning from disparate sources of information is widely accepted (Constantino, 2007). Amrein-Beardsley (2009) noted that meaning “is created through personal action, interpretation, observation, and experience and is often altered through interactions with the environment and the arts” (p. 9). This perspective attaches great significance to the creative experience. Burrill (2005) was compelling in her argument that arts exploration was a critical activity for triggering biological components of cognitive development. She drew on a wealth of empirical literature identifying the link between movement and play in children as “the building blocks for human intelligence” (Burrill, p. 38) and stated that people do themselves a tremendous disservice in divorcing art from their everyday experience, in both schooling and life,
because they are not engaging their full range of “kinesthetic, empathic, and aesthetic ways of knowing” (p. 38). They are, in effect, just drawing on and developing a small part of themselves when they segregate art from education and life.

While many educational researchers concentrate on the value of arts education with elementary-aged students, there is also evidence of the value of arts education for the developing cognitions of adolescents (Kronenberg, 2007). Azadpur and Silvers (2005) cited a RAND report, *Gifts of the Muse: Reframing the Debate About the Benefits of the Arts*, that found that most school systems place greater emphasis on arts education in the elementary school years and that this commitment to arts curriculum delivery fades as students move into secondary-school programs. However, they observed that “aesthetic experience is transformative,” and therefore, arts education is particularly beneficial to countering the “distractions that disrupt learning during adolescence and early adulthood” (p. 39). Students in their middle school and high school years are often negotiating a range of conflicting thoughts and emotions while beginning to define themselves as individuals and, eventually, adults. The arts can serve as a vector for helping them balance competing concerns and emotions while facilitating their making connections between their classroom learning and their daily life experiences (Nderu-Boddington, 2008).

**Considering Multiple Intelligences**

One of the more influential educational theories to emerge in the last 15 years is that of multiple intelligences, which is resultant of the work and writings of Howard Gardner (Gardner, 2006; Oreck, 2006; Project Zero, 2008). Many advocates of arts integration into the core curriculum cite the research on multiple intelligences theory as providing a strong justification for using artistic forms and processes to trigger cognition in the academic
disciplines. Gardner himself strongly supported using the arts to explore multiple intelligences in students, noting the various intelligences are strongly grounded in creative discovery and expression (Felten, 2008; Gullat, 2008; Schofield & Rogers, 2004). He identified eight primary types of intelligence, and a brief review of them illustrates the symbiotic relationship that the arts have in the development of these various intelligences (Gardner, 2006).

The first intelligence is verbal-linguistic, and it constitutes the employment of language to effectively convey meaning in both spoken and written forms. The second intelligence is logical-mathematical, which covers numerical comprehension and related reasoning. Visual-spatial is the third intelligence, and it relates to proper spatial processing that allows the individual to develop an effective picture of his or her environment and to act appropriately within those perceived conditions, for example, the ability to avoid walking into a wall or tripping over an uneven surface. Another physically expressed intelligence is that of bodily-kinesthetic, which refers to how the body expresses emotion or thought as well as functions performed by the hands, such as creating, fixing something, or gesticulating to underscore an emotion or thought. The fifth intelligence actually has an art form in its name: musical intelligence. This intelligence was identified by Gardner as the ability to perceive and understand musical forms, in other words, the almost intuitive identification of a song chorus as providing the framework for meaning or the mood shift intended in the surprising use of a minor chord (Gardner, 2006).

The sixth intelligence, interpersonal, is similar to that of musical intelligence in that it is the ability to identify and respond to the spoken or unspoken cues to shifts in mood or intention provided by others. Intrapersonal intelligence speaks to one’s depth of self-
knowledge and the ability to regulate one’s responses based on that self-knowledge; essentially, it is the micro to the macro of interpersonal intelligence (Gardner, 2006). Finally, the eighth intelligence is one that Gardner defined in later research, and it reflects an evolution in his multiple intelligences theory. This naturalist intelligence moves the awareness of self and others to a much wider landscape, capturing the individual’s ability “to observe patterns in nature, identify and classify objects, and understand natural and human-made systems” (Chan, 2003, p. 522).

Increasingly, educational researchers express the belief that multiple intelligence theory captures something essential about the development of human cognitions, and accordingly, the recent literature reflects a curiosity about how multiple intelligences can be used as a framework for curricular development and may point the way toward a progressive revolution in educational pedagogy. Arts integration into the content curriculum often appears hand-in-hand with studies exploring multiple-intelligences-based practices in the classroom, and the reason for this is quite evident. In terms of Gardner’s breakdown of the various intelligences, the potential for using art forms to explore, illuminate, and clarify the intelligence processes is compelling (Gardner, 2006). Aside from the direct connection between musical intelligence and musical forms, one can imagine how dance and theater can also enhance musical intelligence development by illustrating through different methods how music can be interpreted, how meaning can be derived, and how distinctions can be made through musical awareness. Similarly, the myriad of possible applications of the visual arts for enhancing visual-spatial intelligence and logical-mathematical intelligence are exciting for the possibility of not only deepening comprehension within traditional academic disciplines but also stimulating student thinking about the ability to make connections across
seemingly disparate subject matters. In truth, a little creative thinking applied to the question of how best to explore and develop the intelligences Gardner (2006) identified reveals that every art form has the potential to develop each area of intelligence.

It should be noted, however, that multiples intelligences theory is not without challenge in segments of the literature. Waterhouse (2006), for instance, argued that multiple intelligences theory lacks the empirical support requisite to substantiate its employment in education. Klien (1996) similarly argued that multiple intelligences theory is a too broad and immeasurable a theory to explain much of anything. Allix (2000) asserted that proponents of multiple intelligences theory have yet to define testable subcomponents for the intelligences, without which the validity of the theory remains unsubstantiated, a conclusion similarly reported by Visser et al. (2006) who describe multiple intelligences theory as incapable of being deemed sufficiently rigorous in the absence of falsifiable, testable hypotheses. Regardless of criticisms, however, it is clear that multiple intelligences theory has had a profound influence on education for more than 15 years (Oreck, 2006; Project Zero, 2008; Waterhouse, 2006).

Arts and NCLB

NCLB appears to have had a somewhat chilling effect on arts education in schools (Appel, 2006; Ashford, 2004). Despite the arts being identified as a core curriculum element by NCLB, the fact that accountability standards and the resulting penalties and rewards that come from failing or meeting those standards are tied overwhelmingly to traditionally core academic disciplines has served to direct attention away from fulfilling the commitment to arts education in any meaningful fashion. The ACT National Curriculum Survey 2005-2006 acknowledged that the concentration on several core content areas to the exclusion of others
is particularly acute in high schools: “High school teachers are being held accountable to teach students the content and skills listed in state standards” (ACT National Curriculum Survey 2005-2006, 2007, p. 32). One way in which the law has negatively impacted arts taught, not just as subjects in and of themselves but even as integrated within the general academic curriculum, is in sending a message to teachers that arts are less worthy of focus and less valuable as disciplines than other subjects (Finn & Ravitch, 2007). Furthermore, some school systems, in a desperate rush to satisfy academic accountability standards, have narrowed their curricula drastically to spend as much of the school day as possible addressing those subjects, thereby placing learning via the arts in schools at risk (Meyer, 2005).

Some researchers have questioned whether the situation is quite that dire for arts education (Spohn, 2008). Mishook and Kornhaber (2006) noted that, while the reports of NCLB requirements effectively leaving arts education at risk are numerous, the evidence that certain subjects are being neglected has been largely of an anecdotal nature. A study conducted by Kortez et al. (1996) surveyed fifth grade teachers, eighth grade mathematics teachers, and principals whose schools included either grade in Maryland to see if arts curriculum was compromised during the advent of a new assessment program. Interviews were completed with 112 principals and 224 teachers, and mail surveys were collected from 186 teachers. The study found that while 14% of the teachers reported a decrease in visual arts curriculum delivery, 11% of the teachers reported an increase. However, the study they cited is of negligible value in terms of an NCLB discussion because it was published in 1996, several years before NCLB was introduced and implemented. Mishook and Kornhaber (2006) also noted that arts integration “is a contested and confusing term” (p. 4), thanks to a
lack of agreement as to what exactly is intended when the term is employed in different situations.

This confusion has made the incorporation of arts as a strategy for increasing student cognition in other subjects suspect and rendered teachers more resistant to experimenting with using the arts as a tool in everyday instruction (Mishook and Kornhaber, 2006).

**Impact of NCLB**

The significant emphasis on test scores in traditionally core academic disciplines that was ushered in by NCLB has had the perhaps unintended consequence of conveying to teachers that arts are of little priority in classroom practice. Thus, while a teacher may personally value the arts as providing life-enhancing possibilities, the teacher may “still be unconvinced that learning and enjoyment in the arts is a judicious use of time” in the classroom (Oreck, 2004, p. 57). Amrein-Beardsley (2009) identified this conflict as being created by the tension between an existentialist perspective that humans create meaning from out of their knowledge and experience as opposed to a positivist perspective that there is an absolute truth that can be verified through science or rationality. The researcher stated that NCLB “ushered in a series of positivist tenets, built on the naïve contention that standardized test scores can reveal the truth” about student achievement and individual schools’ effectiveness (Amrein-Beardsley, p. 7).

The rise of NCLB’s influence in classroom delivery has been charted by a number of researchers, and while some practices associated with the back-to-basics perspective favoring drilling and repetition of core curriculum concepts have been empirically demonstrated to produce results, Oreck (2006) and others have argued that research also indicates such gains are shallow and short-lived (Chapman, 2007; Cawelti, 2006). These practices also frequently
supplant strategies designed to encourage student autonomy, self-motivation, and creative expression.

In recognition of the inadvertent yet potent impact that NCLB appears to be having on arts education across the nation’s schools, the National Association of State Boards of Education (NASBE) (2003) formed a study group to examine arts and foreign language instruction across the country. The group of 20 NASBE members, consisting of educators throughout the United States, was charged with examining the impact of NCLB on both arts and foreign language programs, what was then termed the Lost Curriculum, and with considering how the arts might be brought more fully into the school curriculum. Meyer (2005), a member of the study group, wrote that after three years of examining the arts in schools, the committee determined that states needed to develop arts education standards for their school systems to emphasize clearly the ways in which the arts foster conceptual development and can be used to provide linkages across subject matter. Furthermore, they devised a series of recommendations for schools, designed to work in accordance with NCLB requirements.

The first recommendation of the study group was for states to adopt “high quality licensure requirements for staff in the arts that are aligned with student standards in this subject area” (Meyer, 2005, p. 36). They further recommended that ongoing, high-quality professional development in the arts be provided to teachers and school staff and that there be adequate arts knowledge and representation among state education agency staff members to ensure that arts remained a curricular priority. In terms of accountability standards, the study group urged states to include the arts as part of the core graduation requirements while increasing the number of credits in the arts necessary for graduation. In other words, the
study group acknowledged that it was not enough for schools to simply entertain the importance of the arts by allowing a single freshman year drawing class to suffice for graduation. Related to this requirement recommendation, the study group urged greater attention at higher education institutions for accrediting arts curriculum and creating higher standards of admission underscoring the need for and value of arts education (Meyer, 2005).

Two of the study group’s recommendations directly pertained to curriculum and instruction. The first of these specified that the arts be provided to children in the elementary years of schooling, referencing the numerous empirical studies indicating that exposure to music, for example, enhances brain functioning in young children, directly impacting their spatial-temporal reasoning. The second recommendation focused on curriculum materials, noting that most texts used in the nation’s schools failed to integrate the arts in a meaningful manner. Interestingly, the study group did not provide recommendations for arts education specific to secondary level students. Presumably the attention to establishing the arts as a core requirement for graduation was regarded as sufficient for ensuring arts education for middle- and high-school-aged students. The study group’s additional recommendations centered on incorporating the arts into the NCLB improvement standards along with other core subjects (Spohn, 2008) and urging more frequent assessments for the arts through the National Assessment of Educational Progress (NAEP), observing that mathematics are regularly assessed through NAEP while the arts are not. Finally, the study group recognized that, in order for arts education to constitute an effective presence in the curriculum, state and national policymakers must make a greater commitment to the arts and guarantee funding arts instruction in schools (Meyer, 2005).


**Arts Integration in the Classroom Curriculum**

Throughout history, the arts have been an essential aspect of human education. Appel (2006) observed that the seminal Renaissance man was Leonardo da Vinci, who was and remains as notable for his remarkable scientific contributions as for his groundbreaking artwork. In da Vinci’s time, Appel (2006) argued, it would have been unthinkable to consider the arts as somehow subordinate to other subject disciplines. Art was considered integral to learning. Today, however, this view has changed, reflecting widespread resource shortages leading to skewed and short-term thinking, even in as prosperous a nation as the U.S. (Burns, 2003).

Schools struggling to meet the standards required of them by NCLB are unlikely to spend time building their arts education courses as separate subjects; in some cases, arts classes have been eliminated altogether in some schools, this is particularly true for disadvantaged schools with limited resources and often the most academically challenged student populations (Eisner, 1995; Zastrow, 2004). Stullich et al. found in their report commissioned by the U.S. Department of Education that the punitive measures associated with failing to meet NCLB standards hit these schools hardest, and much of the literature indicates that many of the poorest schools have assumed a defensive posture of focusing almost exclusively on curriculum that teaches to the test in an effort to bring up student scores and assure continued funding (2006; Miller, 2006). Left by the wayside are teaching practices that stimulate creative thinking and even traditional subjects such as social studies have atrophied as schools and teachers concentrate almost exclusively on core academic subjects that appear on standardized tests (Catterall, Chapleau, & Iwanga, 1999, Zastrow, 2004).
There is evidence within the literature indicating that the future of arts education in primary and secondary schools depends on making it less vulnerable to cost-cutting efforts and NCLB-based determinations by integrating the arts into the existing curriculum (Eisner, 1995; Gardner, 2006; Oreck, 2006). There are local, state, and federal policy makers who have come to acknowledge the vital necessity to ensure the arts are not neglected in the school curriculum (Miller, 2006). Oreck (2004) embraced Goldberg’s (1997) definition of *arts integration* as “teaching about, with, or through the arts” (Oreck, 2004, p.57). As Oreck (2004) noted, this broad statement encompasses a range of potential goals and strategies. Teaching about the arts covers the history of various art forms and examines how artistic expression both informs and is informed by the place and time in which it is created. Teaching with the arts captures how artistic processes may be used to further learning in academic subjects. *Teaching through the arts* refers to how communication skills and other cognitive abilities can be developed and deepened through an exploration of artistic forms and processes. Furthermore, artistic learning can happen both from a creative, production perspective, or learning through doing, and from an exposure perspective, or learning through observation and listening. Regardless of how the learning is occurring and whatever the perspective, cognitions are created and strengthened through associated processes of discussion, analysis, review, debate, and reflection (Goldberg, 1997).

There is truly compelling evidence that arts integration into the general curriculum produces academic gains for students across the board (Ashford, 2004; Kronenberg, 2007). Rabkin and Redmond (2006) cited a body of research including longitudinal studies, quantitative analyses of standardized test scores, and case studies showing significant achievement improvements for students engaged in arts integrated curriculum as compared to
peers engaged in more traditional classrooms. Appel (2006) declared that arts integration “enhances cognitive engagement among students; provides a better sense of ownership of learning; improves attention, engagement, attendance and perseverance among students; provides unique avenues for parent and community involvement; and inspires positive transformation of school community and culture” (p. 15). Appel may not be off the mark in this comprehensive list of the benefits associated with arts integration. At the head of this list and perhaps most significant when considering an effective counterweight argument to the back-to-basics proponents is that arts in the schools compellingly appear to promote student cognitive development; most persuasive is the finding that arts integration “positively impacts cross-curricular achievement” (Appel, 2006, p. 15).

The empirical studies on arts integration in the curriculum are grouped in two broad categories by Mishook and Kornhaber (2006). They identified the first group of studies as general surveys of arts education in all its forms and the second as studies exploring specific cases of successful arts integration in the curriculum. The researchers were somewhat dismissive of the first category of study, describing a typical instance of such arts integration as singing the names of the U.S. presidents and noting that similar examples had little value in terms of authentic learning either in the art form used or of the academic content on which it was brought to bear. Mishook and Kornhaber were much more positive about studies outlining specific, successful programs of arts integration for illuminating how arts integration could and should be carried out in schools including Catterall and Waldorf’s (1999) study of the Chicago Arts Partnerships in Education (CAPE) program which involved 58 public schools in Chicago and provided professional development for teachers and administrators by paring them with artists in the community to improve both instruction in
the arts and create greater use of the arts among non-arts classroom teachers during instruction. Mishook and Kornhaber (2006) cite the CAPE study (Catterall and Waldorf, 1999) as providing compelling empirical evidence that, at least at the elementary school level where the CAPE program was targeted, student achievement was higher post-CAPE implementation by 20% on average in CAPE schools than in non-CAPE schools on Illinois standardize tests. CAPE is an example of a comprehensive and highly structured arts integration plan incorporating arts directly into the core curriculum while tying state curricular standards to both the content area and the art forms used in instruction.

Mishook and Kornhaber (2006) undertook their own pilot study in Virginia, which had a strong system of accountability across a range of subjects and measured student achievement via its Standards of Learning (SOL) system. While the fine arts, defined as encompassing visual arts, music, and theater, are included in the state’s standards, the SOL does not test for the fine arts. Mishook and Kornhaber (2006) were interested in determining what effect high stakes testing had on the attention paid to arts in the schools in order to determine whether arts integration was of a co-equal, cognitive nature, placing it on a level of attention equivalent to that afforded regularly tested subjects like mathematics and English, or whether the arts integration was subservient to these subjects. They identified 10 schools as being arts-focused and 8 as non-arts focused, with 7 of the total 18 schools being high schools. Through qualitative data collection via semi-structured interviews of the 18 school principals, they found that the arts-focused schools with middle and upper socioeconomic demography populations were most successful at maintaining a co-equal, cognitive arts integration program. That is to say, schools with affluent populations that emphasized the role of arts with the curriculum were better able to actuate arts integration programs that
nurtured an equal collaboration between arts course work and non-arts course work than schools of less affluent populations who tended to use arts integration in non-arts classes in subservient, trivial manners. Furthermore, higher student SOL scores tracked with greater co-equal, cognitive arts integration than with subservient arts integration programs.

Interestingly, one of the arts-focused schools with the least affluent student populations demonstrated a more subservient arts integration program, despite its stated commitment to such. The researchers speculated that the schools with higher socioeconomic demographics also tended to have higher test scores consistent with national findings linking socioeconomic status with student achievement and that, therefore, these schools had the opportunity to devote more time to arts education and integration than schools struggling to keep up with state and national standards in tested academic subjects (Amrein-Beardsley, 2009; Mishook & Kornhaber, 2006). The unfortunate aspect of this finding is that, as Mishook and Kornhaber (2006) argued, co-equal and cognitive integration was consistent with higher student achievement as measured by the state’s SOL scores. Thus, academically struggling schools were likely further hampering their students’ ability to succeed by making arts curricula subservient to the tested curriculum, even though this was clearly the exact opposite of the intent in moving toward arts integration within the curriculum of these schools (Eisner, 1994; West, 2007).

**Arts and Cognition**

Sousa (2006) noted that neuroscientists continue to reveal how the arts stimulate both physical and mental functioning, showing how certain areas of the brain are stimulated differently by different art forms. Participation in or observation of dramatic art appears to tap into regions associated with the language and emotional networks of the brain while the
visual arts directly stimulate the visual processing system (Lin, 2003). A number of educational researchers have observed the connection between arts-based teaching practices, learning processes, and a shift in academic pedagogy that increasingly emphasizes more open inquiry and transformational practice over the traditional hierarchical, teacher-as-leader approach (Scott, 2003; Winner & Hetland, 2003). Instead, the teacher serves as more of a guide, helping students discover their own ways through learning, recognizing that students have different strengths and will therefore respond more favorably to subject matter and classroom practices. Oreck (2004) described this as an “active, student-centered, differentiated, discovery-oriented” perspective and observed that it has been successfully implemented in mathematics, literacy, social studies, and science classrooms across the country (Oreck, p. 66).

**Arts Forms and Cognitive Benefits**

Appel (2006) provided a summary of the evidence exploring particular art forms, delineating how the processes were believed to contribute to cognitive development. The educational integration of visual arts, for example, is thought to enhance text interpretation and, therefore, improve reading comprehension, reading readiness, scientific reasoning, and organization in students as Catterall (2002) summarized in his review of studies linking the arts to higher order thinking skills in the seminal work *Critical Links*. Graphics and images have been used to help students organize their thoughts and streamline their writing, making them more effective in conveying appropriate content (Catterall, 2002). Because themes of balance, pattern, repetition, and unity are common to visual arts, mathematics, and the natural sciences, the application of visual arts in these content areas is easy to effect and is often
highly productive in terms of stimulating student meaning-making and content engagement (Felten, 2008; Gullat, 2008).

In describing the connection between visual arts and mathematics, Gullat (2008) referenced the Dutch master visual mathematician M. C. Escher, whose geometric graphic artworks are ubiquitous in university bookstores as wall posters appealing to the mathematics and science sets, as a prime example of how the arts can be employed to dramatically and effectively convey mathematical concepts. In example, Shaffer’s (2005) study utilizing Escher’s World, a summer program for middle school students (N = 12) engaged in 56 hours of design activity for one month in facilitation of transformational geometry understanding, found that participating students’ scores on pencil-and-paper tests of transformational geometry knowledge rose significantly. However, the importance of the study relied more on qualitative data analyses, including pre-and-post interviews, field notes, and student journals in the development of a grounded theory through which Shaffer (2005) concluded that both the mathematics component and the visual arts component, while distinct, provided reinforcement of the cognitive link between transformational geometry concepts through directing participants toward a common purpose of identifying and describing symmetry and composition.

Musical art forms have been tracked with improved spatial cognitions and temporal reasoning, particularly useful to mathematics education (Meyer, 2005). In a study involving 237 second grade students using piano keyboard training with mathematics software, the group scored 27% higher on standardized proportional mathematics and fractions tests than student participants in the control group (Graziano, Peterson, & Shaw, 1999). The National Education Longitudinal Survey (NELS 88/2000) (2000) reported that students who indicate
high levels of involvement in instrumental music through high school show significantly higher levels of mathematics proficiency by grade 12. Catterall et al. (1999), in complement, additionally accessed NELS 88/2000 data, which afforded analyses of over 25,000 American students in schools for over a decade, and found that the positive correlation exists for all students regardless of socioeconomic condition. Foster et al. (2008) described how music can be used to illuminate literacy, for instance, by breaking a written story down to its essential frames such as plot, character, setting, and problem and having students use a familiar tune to create new lyrics outlining the various story frames.

Additionally, the Mozart effect, a phenomenon used to describe the brief enhancement of spatial-temporal abilities after listening to Mozart sonatas, captures the link between music and mathematics according to Hetland (2000) in his meta-analysis of 36 studies involving 2,465 subjects. Hetland (2000) identified Mozart’s music as distinctly effective in demonstrating spatial and musical intelligences, while establishing that other composers and musical types had a similar effect, yet not all musical forms did. Schellenberg and Hallam (2005) conducted a study of 8,120 preadolescents divided into three groups, one listening to popular music, one to classical, and one to a journalist’s newscast, found through a 20-item pencil-and-paper test of spatial abilities including a jigsaw-like drawing task and a paper-folding activity, that the students listening to popular music scored significantly higher than the other two groups on the paper-folding activity. Interestingly, however, there was no significant difference between the groups on the drawing component of the test (Schellenberg & Hallam, 2005). This finding speaks to the complexity of arts integration research; various art forms may have different effects on cognitive development; furthermore, different expressions of a single art form may
differently affect or fail to affect a particular intelligence and, thus, may not be relevant for integration with particular subject matter. With such complexities, Waterhouse (2006) contends that the Mozart effect is more media hype and novelty than science, and should not be presented within the literature as empirically rigorous until more highly controlled tests are conducted.

Drama and dance forms appear to improve a range of communication-related cognitions (Appel, 2006; Johnston, 2006). Theater integration appears to boost student story comprehension; narrative ability; and identification of character, themes, and symbolism, contributing to improvements in students’ verbal and written expressions (Appel, 2006; DuPont, 1992). Gullat (2008) cited research indicating that drama also encourages students toward advantageous forms of risk-taking. DuPont (1992) found in her study of three groups of seventeen fifth-grade students in remedial classes with comparable skill levels on both the California Achievement Test (CAT) and the Reading Diagnostic section of the Metropolitan Achievement Test (MAT6), that students engaged in a six-week course of literature-based creative drama showed significant gains in reading comprehension than the control group which received the traditional remedial program, and a group that was provided with a variation of non-remedial strategies sans the drama component. The drama group scored significantly higher than both other groups on the CAT and MAT6, and was the only group to show a significant increase from pre-to-post test scores (DuPont, 1992). Dance has also been integrated into some classrooms to effectively enhance learning of reading concepts (Gullat, 2008; Rose, 1999). In Chicago public elementary schools, Rose (1999) found during her three month study that when dance was used as a mechanism for students to spell out and physically represent words and letters, pre-to-post test scores improved significantly. The
study followed the dance students (n = 174) and the control group (n = 198) over 20 sessions and, via pre-and-post test score aggregation on Read America’s Phono-Graphix Test, found significant improvement in the experimental group’s ability to relate written consonants and vowels to their sounds, and to segment phonemes from spoken words, including nonsense words, compared to the students in the control group (Rose, 1992).

Writing about the contribution of dramatic forms to cognitive development, Andersen (2004) referenced research demonstrating that metacognition, which he described as “thinking about one’s own thinking processes,” is instrumental in overall cognitive development (p. 282; Suwa, 2003). Arguing that drama engages metacognitive processes in a clear and entertaining way for students, Andersen described a scenario in which a student played a historian during a social studies lesson in which students were required, after the role playing exercise, to step out of character and assess the characters’ beliefs and motivations and to differentiate these from the students’ own beliefs and motivations. While noting the metacognitive benefits, Andersen was even more intrigued by the potential for drama to stimulate authentic or situated learning. Noting that hands-on experience provided one of the surest ways for learners to make real-time connections between passive learning and active knowledge acquisition, Andersen argued that dramatic play in the classroom could be used to simulate authentic experience. This approach is most useful when the work is situated at a developmentally appropriate level within a clear cognitive construct, allowing “learners to make a valued (i.e., legitimate) contribution at their own level (i.e., peripheral)” (Anderson, 2004, p. 284).
Arts and Development

Burrell (2005) provided a biological argument to underscore the significant contribution the arts make to human cognitive development. She cited an extensive body of natural biology research outlining how movement and sound are critical to brain-stem development and to connections that form in the nervous system. As children grow into adults, the meanings they derive from the environment around them and from the sensations they experience directly inform the way they make sense of any new information they receive. The motor-sensory-feeling functions that concretely contribute to cognitive development are “the ingredients for the arts we make” (Burrell, 2005, p. 37). Conversely, the arts people make serve as a sort of feedback loop to motor-sensory-feeling cognitions, providing new and changing challenges that contribute to continued cognitive growth (den Heyer & Fidyk, 2007).

One of the ways in which arts integration can improve student cognition is through what Hoyt (1992) called the process of transmediation. The process captures the way in which students realize one form of communication by using another form. It is an especially important benefit for students who may struggle in a traditional form of classroom expression, for instance in essay writing. Being able to draw pictures to serve as a form of writing prompt can enable students who have writing difficulties to work their way into writing forms with greater comfort and engagement. For this reason, transmediation accounts for the usefulness of arts integration in core curricula with struggling students who often demonstrate difficulty learning through traditional educational exercises. As Kronenberg (2007) observed, evidence indicates that by linking “creative process to creative
expression to interpretation and analysis, the natural elements of the arts create self-efficacy and critical thinking in young people” (p. 134).

The argument that appears in some quarters of the literature against linking the arts too strongly to cognitive development largely arises from the belief that doing so undervalues the intrinsic merit of art in and of itself (Miller, 2006). Researchers such as Kamhi (2007), Winner (2007), and Winner and Hetland (2003) contended that placing too great an emphasis on how arts can be integrated into the general curriculum to enhance student learning in other content areas distracts from arts’ vital contribution to human experience. Kamhi took the writer Arthur Efland to task for his 2002 book *Art and Cognition: Integrating the Visual Arts in the Curriculum* for buying into the school of thought that the arts in education somehow requires an academic justification. Kamhi rather defiantly stated that, if educational theorists, policy makers, and practitioners “are blind to [the arts’] educational value and can be impressed only with matters of obvious social utility or relevance, then perhaps it would be better to have no ‘art education’ at all” (p. 38). Nonetheless, Kamhi (2007) gave credit to Efland for identifying an integrated theory of cognition that underscored the various ways individuals construct meaning out of experience and for conveying how the arts are integral to that process.

**Arts Attitudes Among Teachers**

Teachers’ beliefs and attitudes about pedagogy in general and certain curriculum initiatives in particular are key indicators of how they will operate in their classroom practices (Ahuja, 2007). Even as the recognition of how the arts can contribute substantially to cognitive development and enhance student achievement informs efforts to effect comprehensive and meaningful arts integration in schools, commitment to integration does
not necessarily mean compliance directly follows. Although a variety of factors may impact how arts in education are supported by government authorities and schools, in the last analysis it is the teachers in the classrooms who are ultimately charged with providing arts education or integrating it into their classroom practices (Baratz-Snowden, 2007; Burns, 2003). Their effectiveness in doing so is often a reflection of their own beliefs about art as a cognitive tool as well as their confidence, or self-efficacy, in incorporating the arts into their professional practices.

In their comparison of schools providing co-equal and cognitive arts integration in which the arts are given equal weight to academic subjects versus those providing subservient arts integration in which arts education takes a back-seat to regularly tested core subjects, Mishook and Kornhaber (2006) found that teacher attitudes on arts curricula were often in line with the school’s philosophy. They noted one example of a subservient arts integration program in which the arts teacher, in this instance the school music teacher, was charged by the school’s administration with linking music to the social studies curriculum while the social studies teacher was not required to make or reinforce that connection. Given this expectation, one might imagine how a social studies teacher could come to regard the arts as a backup support to the perceived more critical education occurring in the subject classroom. Irrespective of the social studies teacher’s attitude or self-efficacy in teaching with arts, the expectation that music served only to reinforce concepts within the social studies curriculum marginalized the use of arts learning and deemed it little more than frill (Mishook and Kornhaber, 2006).

Moreover, in regards to general teacher attitudes, Olson and Truxaw (2009) stated outright that, in terms of literacy education, which the arts are frequently employed to
support, “secondary preservice teachers are often dismissive of efforts to incorporate practices that focus explicitly on literacy” (p. 422), and this is particularly true for high school mathematics and science teachers. Speaking from their vantage point as a science teacher and a mathematics teacher, Olson and Truxaw stated that it is instinctual for preservice secondary-level school teachers to believe that the best way to convey subject content to students is to “directly [engage] with subject matter” (p. 422). While this statement leaves open the matter of exactly how that subject matter is engaged, the fact is that many teachers believe that texts and activities specifically devoted to the subject content are the way to achieve this engagement, leaving little opportunity to use the arts within instruction. Of course, arts integration proponents contend that the arts can provide a perfect vector for helping students engage directly with subject matter in ways that can reinforce learning through their variation and complexity in a way that may not be realizable by subject-specific texts and narrowly structured curricular strategies (Eisner, 2002).

Teachers’ belief systems powerfully impact not only their classroom practices but also their perceptions in their preservice training about what they are learning. Thus, preservice teachers may demonstrate a resistance even to best practices instruction if it goes against their fundamental beliefs about how education should occur (Lesley & Mathews, 2009). Holt-Reynolds (2009) concluded teachers’ “beliefs filter experiences and dramatically shape what is learned in teacher education courses” (Olson & Truxaw, p. 423; Holt-Reynolds, 1992). Olson & Truxaw (2009) conducted a study involving 13 science and 11 mathematics preservice teachers wherein the subject preservice teachers were asked to facilitate a discussion with their secondary-level pupils during a practicum regarding a nonsensical article with both a traditional literacy approach and an internet-based, online
approach. Through qualitative inductive coding, the researchers concluded that efforts to alter teachers’ attitudes about specific curriculum delivery or broader and more fundamental pedagogical realignments were likely to prove quite challenging when they encountered the beliefs teachers held about their practice (Olson & Truxaw, 2009). However, such efforts are not necessarily doomed to failure; Olson and Truxaw’s (2009) study of secondary science and mathematics teachers found that the teachers were able to alter their beliefs about the relevance of literacy practice in their curriculum delivery to content learning by having their invisible discursive practices made visible over the course of the training. The message was that changing teacher attitudes in terms of pedagogy and curriculum delivery is a complex process that likely needed to challenge held assumptions while simultaneously conveying the value, through practice and evidence, of the attitudes and beliefs that were consistent with the changes deemed necessary. There was also evidence that collegial reinforcement and formal or organized structures that help support teachers’ belief and attitude adjustments can be effective in realizing the sought-after changes in pedagogical beliefs (Engstrom & Danielson, 2006).

**Teachers’ Use of Arts in the Classrooms**

In her case study of one urban high school U.S. history class of 26 students, Hansen (2009) described how the teacher explored multiple literacies within the course of the content curriculum by integrating art forms in addition to social literacy processes to engage students in the material and deepen their comprehension of what they were learning. For instance, in the curricular unit concerning the slave trade, students considered a 1791 painting by the artist George Morland, depicting some of the atrocities associated with slavery, as well as a potent narrative poem by William Collins, Morland’s contemporary, that served as the
inspiration for Morland’s painting. As Hansen described it, the “poem not only haunted the students but also helped to set the stage for them as writers” (p. 598).

The teacher of this U.S. history class essentially abandoned the standardized class textbook in favor of texts and art forms created by those who lived in that period of history as well as later writers and artists commenting on that period. The teacher urged students to use the Internet to conduct their own researches, finding materials she herself was not using already in class. The students were encouraged to develop their own forms of demonstrating understanding, conveying what they learned by drawing from a variety of sources. Hansen (2009) regarded this as an inspired form of practice; she noted the standardized history text was bland and aroused no emotions on its own in the students; however, the poems, paintings, and narrative depictions that the teacher introduced students to resulted in a vivid classroom experience that promoted critical thinking, Hansen argued, citing research supporting that conclusion.

Another example of inspired arts integration creating student engagement was the class embarking on theatrical role-playing and dramatization during a unit on the American Revolution in an urban high school in New York (Hansen, 2009). The class, consisting of 16 boys and 10 girls, 16 African-American and 10 White, in a school of 1,350 students, were asked by their teacher, Ms. Price, to role play events and activities of The American Revolution. The role playing connected to historical incidents such as the Stamp Act and The Sugar Act; students were facilitated to write speeches that they delivered in character, while others proposed citizen committees and groups designed to challenge the British authorities through activism. Another example of arts integration within this class by Ms. Price was effected when she gave each student six vocabulary words associated with the
American Revolution such as tariff and sovereign, directing them to write a definition of each of the words on paper and then create an illustration to depict the meaning of the word (Hansen, 2009). Hansen (2009) observed that many of the students took the assignment as inspiration to draw from their own lives and experiences; thus, in depicting his definition of sovereign as ‘to govern themselves,’ one student drew a teenager with a cartoon bubble declaring “I can take care of myself,” alongside two characters identified as the parents who were saying “No, you can’t.” By connecting their history learning to their experiences, the students began to establish a meaningful connection between their studies and their lives (Hansen, 2009).

This symbiotic play between the content learning and students’ engagement through artistic exploration and creative thinking was carried over into the teacher’s review of material that was to be tested on the mandated state history exam. Thus, while the teacher often used aspects of drilling and repetition to drive home the information likely to appear on the test, she did so in a way that referenced the students’ experiential learning of the content through the various art forms they used in class and through their own experiential contributions to their learning. The approach paid off handsomely, Hansen (2009) reported. Despite the composition of the teacher’s secondary-level school class as predominantly urban minority students with mid-to-low achievement ratings according to state measures, all but one of her 26 students passed the state history test that year. This figure is even more impressive when considering that less than 80% of their peers in other history classes in the school also passed the state exam. Hansen (2009) concluded that it was possible for teachers who effectively integrated arts education into their content curriculum to have their students perform well on standardized tests, even when they abandoned teaching to the basics. By not
bending to test pressures and by concentrating on enhancing student engagement and
learning, teachers can prepare students to be academically successful.

**Learning by Doing**

Jensen (2008) in a meta-analysis of theater education and literacy literature explored
how theater education could be employed in and of itself to enhance multiple literacies. The
researcher noted that students today are growing up in a world where so much of their lives
are conducted online that the influence of digital media on students’ cognitive development
should not be ignored or underestimated (Jensen, 2008). Ash (2009) tied the facilitation of
theater in education to Dewey’s view that students best learn by doing, encouraging as much
proactive strategy to involve students in their content discovery as possible. Instances in
which theater has been used to increase students’ language and reading proficiency, improve
their sense-making ability, facilitate theme and symbol identification and employment, and
deepen overall comprehension of meaning were presented by Jensen (2008) as evidence of
theater education’s potential, as a discipline in itself, to contribute to cognitive development.

Zenkov and Harmon (2009), veteran urban English teachers, described the evolution
of their teaching practices to focus more on making the literacy content they were trying to
convey to largely bored and disengaged high school students more stimulating and relevant.
They hit upon the idea of having students photovoice their experiences by taking
photographs and creating written narratives to accompany the photos. In order to have the
project speak directly to their students, the researchers identified the theme of poverty and
had the students capture what this meant to them by going out into their community and
documenting what they saw. By combining the visual and the written expression, Zenkov
and Harman tapped into several of the multiple intelligences identified by Gardner (2006)
and, in doing so, found that the visually focused project had significant implications for the writing instruction the teachers were engaged in during their classroom practice.

A notable and somewhat poignant aspect of the Zenkov and Harmon (2009) study was their recognition that, in the urban population of students they served, high school dropout rates hovered at just over 50%. Most students they spoke with expressed the lack of relevance most of the content curriculum and texts used to support classroom learning had on their experience. Given this, the researchers noted that it was illogical to expect these disenfranchised students to somehow become magically engaged by standardized curriculum delivery. Literacy is critical, they noted, and their photovoice project was created with the commitment to encouraging their students’ literacy by whatever means necessary.

Over the course of 3 years, the researcher-teachers supplied approximately 100 urban high school students with 35mm or digital cameras directing them to provide visual documentation that addressed the questions: “What are the purposes of school?”, “What helps you succeed in school?”, and “What gets in the way of your school success?” (Zenkov & Harmon, 2009, p. 577). The teachers involved adult volunteers, including several professional photographers, in the process of working with the students to clarify the intention and meaning of the photos and to guide students as they provided paragraph-length descriptions or narratives to accompany their photos. From over 8,000 photographs, the researchers culled approximately 300 photo and narrative sets that most effectively addressed the questions. They also managed to have the students’ photos and writings exhibited for the public and produced a catalog of all the works. Zenkov and Harmon (2009) concluded that the act of photographing, that is, artistically capturing and representing their ideas, freed the students in their analytical thinking and aided their ability to write descriptive paragraphs.
Arts Self-Efficacy in Teachers

It would appear self-evident that in order for teachers to be effective in their classroom practices they must demonstrate a sense of competency in their command of their curriculum and the teaching strategies they employ. Teacher training and certification programs, as well as professional development opportunities for experienced teachers, are conducted with an eye to encouraging self-efficacy and stimulating teacher motivation in practice. The particular challenge of arts integration into the core curriculum for teachers who are trained as academic practitioners is that the arts, by their very nature, often require a paradigmatic shift in thinking about instruction. Traditional modes of teaching, particularly as they pertain to student evaluation, do not align simply with artistic expression; it is difficult to place a numerical grade value on a student’s form of artistic exploration.

Oreck (2004) described the conflict implicit in marrying arts to academic curricula when he stated that “arts experiences involve open-ended discovery and encourage unique, personal responses, as opposed to predetermined objectives and right or wrong answers” (p. 56). Critical to the ability of an academic teacher to implement the arts as part of the core curriculum is his or her sense of self-efficacy in doing so. Given the lack of specific evidence as to what forms of art exploration may directly benefit the teaching of algebraic concepts versus reading comprehension if in fact certain forms are more effective than others in particular academic applications, the mathematics or English teacher interested in employing the arts in his or her academic practice is helping to break new ground. Based on the literature discussed in this section, one can infer that teachers who attempt these discretionary approaches are likely to evince a higher degree of arts-related self-efficacy than are their peers who are more resistant to integrating arts education in their classes.
Self-Efficacy and Teacher Effectiveness

Self-efficacy is a critical aspect of teaching practice and the degree to which teachers evince self-efficacy is in large part directly tied to their effectiveness in practice (Ahuja, 2007; Scott, 2003). Bandura (1977), the researcher who framed the theory of self-efficacy as it is most commonly employed in the cognitive sciences today, contended that the key determinant of whether a person would embark on a given activity was the individual’s self-efficacy beliefs concerning performing that task (Heneman et al., 2006). In their study of middle school science and non-science teachers engaged in a project of integrating environmental issues into class curriculum across the disciplines, Haney et al. (2007) defined teacher self-efficacy as two-pronged. The first prong spoke directly to teacher efficacy in terms of confidence with the new subject material and teachers’ beliefs in their skills and ability to convey the material to students effectively. The second prong of teacher self-efficacy was defined as outcome expectancy, the teachers’ beliefs that their knowledge, skills, and abilities could sufficiently overcome any learning obstacles on the part of the students (Haney et al., 2007).

Another study focusing on middle school teachers charged with implementing a tobacco awareness smoking prevention program in their classrooms similarly found the critical impact that teacher self-efficacy had on the effectiveness in fully implementing the curriculum (Sy & Glanz, 2008). Teachers with the highest levels of self-efficacy and who expressed the greatest confidence in their understanding of and ability to communicate to the students the smoking awareness curriculum were inclined to integrate the new materials comfortably and smoothly into their practice. Sy and Glanz contended that those teachers who reported low self-efficacy at the inception of a new educational initiative would greatly
benefit from professional development designed to enhance their knowledge and raise their confidence. While the curriculum intervention was not an arts-based one, the researchers’ conclusions about the relationship of teacher self-efficacy to the effectiveness of the program integration into the classroom has clear application to the arts integration discussion:

“Training that involves informing teachers of the critical strategies of an evidence-based curriculum and increasing their ability to implement such strategies, as found in previous studies, may encourage teachers to more likely implement those innovative, yet complex components” (Sy & Glanz,, p. 271).

**Teacher Self-Efficacy in the Arts**

Encouraging artistic self-efficacy in teachers would appear to be a critical aspect of successful arts integration in the core curriculum. It is also a complex one, for as Oreck (2006) noted, the “teacher’s ability to bring the arts into the classroom—allowing students to truly explore and make discoveries, find and pursue problems, arrive at unique solutions, and communicate in multiple modalities—thus requires both an artistic pedagogy and an understanding of the aesthetic qualities of experience” (p. 4). In other words, artistic self-efficacy in teachers tends to track with a pedagogical approach that is not necessarily in keeping with the teaching-to-the-test mentality quietly encouraged in many school systems. Empowering less assured teachers to develop artistic self-efficacy leading to greater arts usage in their practice may also require some shift in pedagogical perspective, making the entire enterprise a more complicated matter than simply providing a short course in modern dance or impressionist painting appreciation.

Chan (2003) undertook a study of Chinese secondary school teachers in Hong Kong to determine to what degree the teachers’ multiple intelligences were developed and used in
their practice and how their multiple intelligences impacted their sense of self-efficacy within teaching. The researcher surveyed 96 teachers, almost evenly split between males and females, using a revised form of the student multiple intelligences profile (SMIP), adapted to more accurately assess the teachers’ perspectives. Chan found that, while teachers tended to rate their interpersonal and intrapersonal intelligences as high, reflecting a high degree of self-efficacy in these arenas, they rated their bodily-kinesthetic and visual-spatial intelligences as much lower. In fact, they reported significantly lower self-efficacy in these areas than in the verbal-linguistic and logical-mathematical intelligences. The researcher concluded that the high self-efficacy on the person-related intelligences were perhaps unsurprising, given the teachers’ daily interaction with others and the interdependent nature of teaching work. That teachers also evinced a sense of self-efficacy in logical-mathematical and verbal-linguistic intelligences Chan attributed to the Hong Kong school system’s emphasis on student academic achievement in core curricular areas of mathematics and language. Concerning the relatively low self-efficacy ratings among the teachers in terms of their bodily-kinesthetic and visual-spatial intelligences, Chan suggested they might be due to the school system’s “underemphasis on arts, drama, and physical as well as athletic activities” (p. 531).

More generally, Chan (2003) observed that for teachers who expressed high levels of self-efficacy, there appeared to be a positive mediating effect on professional stress. Self-efficacy also appeared to correlate with interest, engagement, and persistence in their teaching practice, and these characteristics further seemed to contribute to greater student motivation and academic achievement. Thus, teacher self-efficacy may have a trickle-down
effect, not only improving teachers’ attitudes in regard to their professional practice but in enhancing student learning.

Further, Levin (2008) described one high school based in Rhode Island that initiated a multiple intelligences approach to curriculum that incorporated the arts directly into content course curriculum delivery. Teachers were engaged in professional development training preceding the initiative’s implementation and continued to participate in collaborative support groups and committees throughout the school year. The high school teachers worked closely with arts specialists from the community as well as their school’s arts teachers to develop curricula that used music, visual arts, theater, and dance to directly engage students in their learning activities while “embedding authentic student assessments” (Levin, p. 18). Levin quoted the superintendent of schools who observed how effective the program was in both increasing teachers’ engagement and risk-taking by “using the arts and multiple intelligence concepts at every lesson” (p. 18) and in improving student achievement. The high school, which had been rated as one of the state’s lowest performing schools, began to report student test scores that moved it into the high performing school category within 3 years.

In his mixed-methods study of 423 primary and secondary school teachers regarding arts education to best assess both the attitudes toward the arts in education and the applications of arts processes in teaching practices, Oreck (2004) found via the TWAS survey instrument that teachers’ self-efficacy did not appear to track according to a specific art form or process but rather reflected an overall sense of self-efficacy with the arts in general. The researcher, whose sample consisted primarily of elementary-level educators with grades K to 3: 47%, grades 4 to 6: 24%, and a gender composition primarily of female
respondents at 86.8% with 73% of all respondents ethnically White, also determined that the teachers tended to interpret and employ the terms *artistic* and *creative* interchangeably in their own responses through short, open-ended questions at the end of the TWAS survey instrument. When teachers did make the distinction, they tended to identify themselves as creative more than artistic by a slightly greater margin, but the distinction seemed largely negligible in terms of relevance.

The teachers’ responses to the open-ended questions at the conclusion of the survey also revealed that their sense of self-efficacy was a primary determinant of their inclination or likelihood of integrating arts into the curriculum. Many of the teachers expressed the need to have more training and professional development specifically addressing arts integration into the academic curriculum. As Oreck (2004) noted, teachers’ notions of self-image and their sense of arts efficacy strongly informed their beliefs about their potentials for integrating arts successfully into their classrooms. Interestingly, a lack of self-efficacy did not appear to directly and negatively impact their attitude about arts integration generally; despite the fact that most of the teachers reported having a year or less of formal instruction in the arts, they nevertheless reported believing the arts could add value to their classrooms by enhancing student experience and improving student achievement. However, many of these same teachers reported little effort or little success in integrating the arts into their classrooms. Most of the teachers cited a lack of support and resources for such efforts, complaining of having too little time to devote to learning, other than targeting NCLB-based assessment standards. Furthermore, the subject population’s relatively low expression of self-efficacy appeared to inhibit any arts integration efforts they might otherwise have been inspired to attempt.
The most significant finding in Oreck’s (2004) research was that the teachers who reported the highest use of arts in their classroom practices were those who also expressed the greatest self-efficacy in relation to the arts. This correlation led the researcher to conclude that “the ability and motivation of teachers to use arts as a tool in their practice is related to their complete education from childhood arts experiences, to preparation in preservice courses, to in-service experiences in the arts and in other subjects” (Oreck, 2004, p. 66). What is encouraging about this evaluation of the situation is that self-efficacy is not a static concept. The general literature on self-efficacy powerfully illustrates the fluid nature of self-image and self-efficacy; self-efficacy is often quickly and demonstrably improved through training, practice, and experience, as well as through mechanisms of positive support and reinforcement. The implication is that teacher integration of arts into the academic curriculum may well be facilitated by efforts to improve teachers’ artistic self-efficacy and that efforts to this end are both possible and likely to realize measurable, positive results within a relatively short period of time.

**Professional Development**

Gullat (2008) was emphatic about the need for schools to provide professional development opportunities in the arts for teachers “utilizing the arts in the classroom as well as those coordinating the arts with other subject teachers. Otherwise, the arts will not be taught utilizing best practice or may even be viewed as an ‘extra’ frill which is distinct from other academic courses” (p. 23). As Oreck (2004) framed it, the intent of arts education programming targeting general education teachers is not to transform them “into arts specialists” but rather to expand their comfort level with using the arts as another, empirically supported tool for enhancing student cognitive development (p. 55).
expectation is that the wider the array of creative approaches at the academic teacher’s disposal, the greater the teacher’s potential for differentiating instruction to reach and engage all the children in the classroom, regardless of their level of ability. Research by Torrance (1970) and others has demonstrated that professional development can go a long way toward encouraging teachers to think in new ways and embrace new pedagogies (Constantino, 2003; Conway et al., 2005; Lesley & Matthews, 2009). The arts, however, may require more specialized instruction to enable teachers to adapt their practice to effectively apply specific artistic skill sets. It is likely not enough to bring in a troupe of Native American dancers to enhance an instruction series on American history. The classroom teacher must also have the ability to understand how elements of the dance form reflect distinctly ethnographic or anthropologic facets of the culture and then be able to engage students in educational inquiry that incorporates their reading, writing, and discussion skills while deepening their knowledge on subject matter.

Professional development for teachers may also require some attention to helping them negotiate a new pedagogical philosophy (Stotsky, 2007). Art education and arts integration essentially call for teachers to implement student-focused curriculum delivery. As Gullat (2008) described it, teachers must “move from the role of dispensers of knowledge into the role of facilitators of learning” (p. 24). As basic and appealing as this shift may sound, in fact, old habits die hard, and as some of the literature on teacher attitudes and, to a lesser degree, self-efficacy reviewed in this chapter suggests, both preservice and experienced teachers may be at least initially resistant toward initiatives that require them to question or rethink their pedagogical visions of their classroom practices (Baratz-Snowden, 2007).
According to Appel (2006), providing professional development to teachers to promote their artistic self-efficacy is not a one-shot proposition. It is an ongoing process that should reflect emerging best practice considerations while continuing to draw on the expanding field of research on arts integration (Lesley & Mathews, 2009). The need to develop curriculum structures or templates for thinking about and achieving cross-curricular integration is clear. Too many teachers are left to their own devices in attempting to implement arts integration into their classroom practices. While this freedom might appear to be in keeping with the tenets of creative expression, in reality, it leaves many teachers struggling to establish practicum and standards to reflect the work they are doing in the classroom. Appel (2006) observed that greater attention to devising professional standards and frameworks would go a long way toward alleviating teacher uncertainty and confusion by removing so much of the avoidable guesswork; of course, creating an environment in which teachers can feel more assured in their arts integration efforts will inevitably contribute to teachers’ sense of self-efficacy in doing so.

Improving teacher self-efficacy in the arts through professional development or preservice training that prepares them to efficiently integrate arts education into their classroom curriculum can have benefits that extend beyond improved student learning (Oreck, 2004). Teachers with a high level of arts self-efficacy who use the arts in their academic practice demonstrate an advanced ability to approach curriculum from a concept-perspective, reflecting a comprehensive understanding of cognitive linkages. These teachers are often well-prepared to help students of differing levels and abilities learn and understand the subject material by employing responsive and creative strategies that stimulate learning for all, not just the lucky ones who are responsive to traditional pedagogical teacher-as-leader
forms of practice. As Oreck (2004) observed, teachers with high arts self-efficacy tend to employ concept-based curricula that encourage higher order thinking skills that not only benefits students but also enhances their own professional development by resulting in more integrated, holistic practice. Thus, teachers who are inclined to integrate the arts into their practices are likely not only to improve their students’ cognitive development but to continue to challenge and strengthen their own cognitive processes as they continue in their teaching practice (Baratz-Snowden, 2007; Ebner, 2006).

Chapter Conclusion

This study explored how arts integration in the content curriculum may contribute to schools’ success in meeting NCLB performance standards for student learning (Amrein-Beardsley, 2009; Appel, 2006; Ashford, 2004; Burns, 2003; Kronenberg, 2007; Miller, 2006; Mishook & Kornhaber, 2006; Oreck, 2004; Rabkin & Redmond, 2006; West, 2007). The literature reviewed in this chapter provides the foundational arguments for using the arts to stimulate student cognition and development (Azadpur & Silvers, 2005; Burrill, 2005; Chan, 2003; Constantino, 2007; Ebner, 2006; Finn & Ravitch, 2007; Gullat, 2008; Johnston, 2006; Kronenberg, 2007; Oreck, 2004; Suwa, 2003). Moreover, there is strong empirical evidence that each of the art forms has a significant role to play in enhancing student meaning-making in various core curricula and especially in those most regularly assessed via standardized tests (Constantino, 2007; Foster et al., 2008; Kronenberg, 2007; Lin, 2003; Oreck, 2004; Scott, 2003; Sousa, 2006).

However, there has been relatively little empirical research devoted to the consideration of how teacher attitudes (Ahuja, 2007; Ash, 2009; Burns, 2003; Hansen, 2009; Jensen, 2008; Lesley & Mathews, 2009; Olson & Truxaw, 2009) and self-efficacy (Gullat,
2008; Heneman et al., 2006; Lesley & Matthew, 2009; Levin, 2008; Scott, 2003; Sy & Glanz, 2008) may affect arts integration in the content classrooms. This study contributes to this necessary field of research by considering the arts attitudes, frequency of arts use, and self-efficacy of ninth and tenth grade mathematics and English teachers.
CHAPTER THREE: METHODOLOGY

The purpose of this study was to investigate three essential research questions regarding the arts attitudes, self-efficacy, and frequency of use of the arts of Connecticut ninth and tenth grade regular-education teachers. Data were collected from a sample of 166 English and mathematics public school educators using the Teaching With the Arts (TWAS) quantitative survey instrument (Appendix B). The sample of English and mathematics teachers were drawn from schools deemed successfully compliant in terms of No Child Left Behind (NCLB) legislation for achieving a benchmark of AYP as determined by the legislation (n = 64) and demographically similar schools deemed in-need-of-improvement for not yet successfully achieving AYP within a contiguous 3-year period (n = 102). For the purposes of the study, multivariate analysis of variance (MANOVA) and multiple regression analyses were conducted to determine whether there were significant relationships between the arts attitudes, self-efficacy, and frequency-of-use scores between variable subsets and whether particular demographic profiles significantly predict a teacher’s attitudes towards arts in schools. This chapter provides information regarding the research design that was used, the subjects selected for the study, the instrumentation, the data collection process, and the methods conducted for data analyses.

Research Questions and Hypotheses

Research Questions

This study investigated three essential research questions regarding the arts attitudes, self-efficacy, and frequency of use of the arts of Connecticut ninth and tenth grade regular-education mathematics and English teachers.
1. Do the attitudes, self-efficacy, and frequency of use of the arts of Connecticut secondary-level teachers in schools designated by NCLB as successful differ from those of teachers working in NCLB in-need-of-improvement schools?

2. Do the arts attitudes, self-efficacy, and frequency of use of the arts demonstrated by Connecticut secondary school regular-education mathematics teachers differ from those of secondary-level school regular-education English teachers?

3. To what extent and in what manner do the demographic characteristics of subject taught, number of years teaching, personal practice of arts, gender, and minority status act as predictors of the arts attitudes of secondary-level teachers?

**Hypotheses**

This study presented three hypotheses regarding the arts attitudes, self-efficacy, and frequency of use of the arts of Connecticut ninth and tenth grade regular-education mathematics and English teachers and was grounded in a thorough review of the literature.

1. The attitudes, self-efficacy, and frequency of use of the arts demonstrated by Connecticut secondary teachers in schools designated by NCLB as successful differ from those of teachers in NCLB in-need-of-improvement schools.

2. The attitudes, self-efficacy, and frequency of use of the arts demonstrated by Connecticut ninth and tenth grade regular-education mathematics teachers differs from those of ninth and tenth grade regular-education English teachers.

3. The demographic characteristics of subject taught, number of years teaching, personal practice of arts, gender, and minority status predict the arts attitudes of Connecticut ninth and tenth grade regular-education mathematics and English teachers.
Research Method

The quantitative research methods used for this study were causal comparative for Research Question 1 and Research Question 2, and correlational for Research Question 3. The quantitative paradigm of research was appropriate for this study because numerical values could be assigned to the variables for analyses (Creswell, 2007). Furthermore, the primary instrument for acquiring pertinent data for this study was a quantitative survey instrument, although it included a small qualitative component in its design that can be used for future studies. In the quantitative method, statistical analyses were conducted to determine whether there were significant relationships or differences between independent and dependent variables. To assess the relationships between the independent and dependent variables, MANOVA and multiple regression analyses were conducted.

The qualitative addendum to the TWAS survey instrument did not facilitate the assessment of direct relationships between variables pertinent to the hypotheses and was, therefore, excluded from analysis for this study (Creswell, 2009). Responses that were provided to the open-ended questions may be coded in future studies to identify themes and trends among responses. Qualitative data aggregated by this study were not germane to the research questions and were not analyzed (Muijs, 2004). The use of the survey instrument, however, allowed for quantification of data directly addressing issues raised in the research questions and, therefore, made apparent the quantitative research method as most appropriate for this study.

Quantitative research designs are employed to measure relationships or differences between variables through the use of statistical analyses (Black, 1999). Moreover, quantitative research is used in determining relationships between a set of variables. In this
regard, the quantitative research design was used to measure different aspects pertinent to this study: a sample of Connecticut English and mathematics teachers in demographically similar institutions with varying degrees of success in achieving AYP. Comparative research was used to compare mean scores of two or more groups to determine whether there were statistically significant differences between the groups of subjects (Ibrahim & McGoldrick, 2003). Within the causal comparative research design, analysis was facilitated through the use of MANOVAs to examine the arts attitudes, self-efficacy, and frequency of use of arts between independent variables; a correlational design was employed using multiple regression analysis to identify potential demographic predictors of arts attitudes amongst the aggregated sample.

**Description of the Subjects**

The NCLB status of every public school in Connecticut is available from the Connecticut Department of Education (2008a) Web site. Every secondary school yet to achieve AYP for 3 years or more was solicited for this study; however, not all schools elected to participate. Similarly, every school successfully achieving AYP for 2 years or more, within two district reference group (DRG) designations of the schools yet to achieve AYP, were solicited for participation; again, not all schools elected to participate.

Participation in this study by mathematics and English teachers from identified institutions was solicited with the optimistic expectation of 10 completed surveys per institution (Table 1), although unequal subgroup responses were anticipated by the nature of the study’s design. The convenience sample was used to acquire the quantitative data requisite for the analysis phase of this study. This causal comparative exploratory study solicited teacher participants from 30 secondary-level public school institutions in
Connecticut with content expertise in mathematics and English from schools with at least 2 years of successfully achieving AYP under NCLB (n = 64) and demographically similar counterparts within three DRG designations yet to achieve AYP within the past 3 years (n = 102). Completion of the TWAS instrument, once disseminated, required a maximum of 20 minutes. Of the 207 surveys sent to Connecticut public school institutions, 174 were completed and returned to the researcher with 166 deemed as having usable data (Table 2). The excluded surveys were incomplete, illegible, unclear, unaccompanied by a signed informed consent form, or a combination of such factors. The favorable return rate of 80% was likely due to several factors: the survey administrators requested precise quantities of survey instruments; the TWAS was primarily administered at faculty meetings; self-addressed stamped envelopes were provided; gift cards were included with each survey as incentive. It is worthwhile to note, however, that survey administrators returned unused surveys; it is not possible to assess whether these were extra copies perhaps from absentee respondents or if respondents refused to complete the survey at the time of administration.

Table 1

<table>
<thead>
<tr>
<th>Schools</th>
<th>Per school</th>
<th>Total</th>
<th>Female/Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 non-AYP</td>
<td>10</td>
<td>150</td>
<td>75/75</td>
</tr>
<tr>
<td>15 AYP</td>
<td>10</td>
<td>150</td>
<td>75/75</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

A modest gift card was given to participants; however, participation in the study was completely voluntary, and those teachers who opted not to participate in the study returned the gift cards via self-addressed stamped envelopes provided by the researcher. Although all
NCLB compliance data and DRG designations are public information easily accessed through the Connecticut Department of Education (2008a) Web site, schools selected for this study have not been identified in order to retain confidentiality.

Table 2

*Actual Survey Responses*

<table>
<thead>
<tr>
<th>Schools</th>
<th>Per school (average)</th>
<th>Total</th>
<th>Total with usable data</th>
<th>Female/male</th>
<th>Non-White respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 non-AYP</td>
<td>7</td>
<td>107</td>
<td>102</td>
<td>38/14</td>
<td>14</td>
</tr>
<tr>
<td>15 AYP</td>
<td>4</td>
<td>67</td>
<td>64</td>
<td>32/10</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>174</td>
<td>166</td>
<td>94</td>
<td>14</td>
</tr>
</tbody>
</table>

In Connecticut, NCLB compliance is determined by the Connecticut Academic Performance Test (CAPT). The CAPT is an assessment instrument administered to all tenth grade public school students in Connecticut. The exam is identical for all districts and assesses reading, writing, mathematics, and science skills (Connecticut Department of Education, 2008c). The CAPT instrument is explained in further detail later in this chapter.

**Instruments**

**Teaching With the Arts Survey (TWAS)**

The Teaching with the Arts Survey (TWAS), created by Oreck (2001), was used for this study to assess teachers’ attitudes, self-efficacy, and frequency in arts use and to collect demographic information (Appendix B). The instrument is an amalgam of two previously validated instruments, the Teacher Background Questionnaire and the Arts in the Classroom Survey. Oreck piloted the TWAS instrument with a sample of teachers ($n = 70$) at four sites.
to obtain stability estimates and delete items that did not contribute to explaining variance.

Following revision of the pilot instrument, the final version of the TWAS was completed by a sample consisting of 423 public-school teachers and 11 arts-based professional development service providers in five regions of the country.

The TWAS uses a 5-point Likert scale for 31 prompts, 11 of them pertaining to attitudes towards the arts, 6 pertaining to self-efficacy, 8 pertaining to the frequency of use of the arts in teaching, and the remainder pertaining to the supports for and constraints of teaching with arts. Oreck (2001) designed the arts attitudes portion of the TWAS to encompass five general constructs from the literature, including motivation, concerns, self-efficacy, self-image, and support. The 8 frequency items encompass active classroom participation in the arts and exposure to the arts during instruction (Oreck, 2001). The TWAS elicits 24 demographic characteristics, including ethnicity, age, gender and such background characteristics as teaching experience, average class size, academic degree level, and personal arts experience, as well as participation in art-related professional development and experience in past and present art activities. Two open-ended short-answer questions conclude the TWAS survey. Qualitative data were collected from these two open-ended short answer questions, but were not statistically analyzed for this study.

Oreck’s (2001) analysis of the TWAS instrument found overall good alpha reliability for the four components comprising the attitudinal survey prompts. Specifically, the internal consistency estimates for the scores were as follows: importance of the arts (.87), self-efficacy (.79), support (.83), and constraints (.55). Oreck found the constraints constituent to show extreme variation among the means of items comprising the component, with a low of 1.59 out of 5 for issues of noise generated by arts activities to a high of 3.43 for concerns
regarding academic curricular demands. For frequency of use, Oreck found adequate alpha reliability results for doing the arts (.75) and exposure to the arts (.73) when analyzed as discrete components, which increased to .83 (mean = 21.1, SD = 6.2) when the 8-item frequency scale was factored as one overall frequency-of-use construct. Cronbach’s alpha coefficients were calculated for the data collected for this study. This calculation was performed to ensure that the survey instrument resulted in reliable estimates for each of the variables in the study.

The Connecticut Academic Performance Test (CAPT)

The Connecticut Academic Performance Test (CAPT) is the gauge by which a school’s NCLB status is determined and is administered to all tenth grade public-school students in Connecticut. The exam is identical for all districts and assesses reading, writing, math, and science skills. The test does not produce passing or failing grades, but compares results against standards derived from previously aggregated data. The CAPT is designed to provide Connecticut districts with enough data to facilitate appropriate curricular revision, if needed, and to identify where each district stands in terms of Connecticut’s educational goals.

The reading component of the CAPT is segregated into two domains, reading across disciplines and reading for information. For the reading across disciplines component of the CAPT, students are asked to respond in writing to four open-ended questions pertaining to a prepared short story. Responses are evaluated according to a student’s aptitude in interpreting the text, making connections to personal experiences, making connections to other texts, and critically evaluating the text. For the reading for information component, students are asked to respond to 12 multiple choice and 6 open-ended questions based on
three prepared non-fiction articles. Answers are evaluated on the respondent’s facility in interpreting the articles and evaluating the way the authors wrote the articles (Connecticut Department of Education, 2008c).

The mathematics section contains 35 questions, 8 of which are open-ended. Assessment is based on a respondent’s aptitude for computation, estimation, problem solving, and communication of understanding. Questions are designed to elicit responses that demonstrate a respondent’s success at understanding number and quantity; measurement and geometry; statistics, probability and discrete mathematics; and algebraic functions (Connecticut Department of Education, 2008c).

Since 1995, the State of Connecticut has used the CAPT data as reliable measures in assessing the academic performance of students. The reliability of the test is calculated in different ways for different sections, yet the CAPT Program Overview states “reliability indices are estimated in terms of internal consistency” (Connecticut Academic Performance Test [CAPT] Program Overview, 2005; Vaz, 2006). In addition, the report explains internal consistency as ‘an indicator of how well the test items as a whole measure student performance. The reliability of the test is examined in terms of decision consistency, that is, how consistently the test classifies students as meeting or not meeting the state and mastery standards’ (Connecticut Academic Performance Test [CAPT] Program Overview, 2005).

Data Collection

Connecticut secondary-level school principals from the institutions selected for participation in this study were first contacted via telephone, then given a concise written description of the study via email or standard mail if the written description was requested. Depending on the hierarchy native to each district, permission to conduct the study may have
been referred to the office of the superintendent, the assistant superintendent for instruction, an assistant principal, department chair, or department coordinator if it did not come from the principal directly. Two schools summarily declined to participate in the study at the initial stage. Among the participating institutions, the contact person was asked to disseminate the surveys to teachers.

The surveys were then sent to contact persons at 30 institutions with each survey accompanied by an informed consent form, a self-addressed stamped envelope, a copy of the TWAS survey instrument, and gift card for each potential respondent; the contact persons were asked to distribute the materials to the appropriate faculty of ninth and tenth grade mathematics and English teachers. The contact persons were asked to provide ample time, approximately 20 minutes, for the faculty members to complete the surveys during a department meeting. In some instances, surveys were delivered personally to teacher classrooms by the principal or department chair or disseminated via teacher mailboxes. Surveys were typically mailed back individually to the researcher within a week of completion. Faculty members were asked to complete and mail the surveys within 2 days of receiving them if they were not completed during a faculty meeting, although this likely yielded a lower response rate than if the surveys were completed in a faculty meeting (Oreck, 2001). Participants in this study were assured of response confidentiality. Participation in this study was completely voluntary, and participants were given a modest $5.00 gift card upon completion of the survey. Teachers declining to participate in the study returned the gift cards and blank survey instruments to the researcher via the self-addressed stamped envelopes.
All data collected from the survey instruments were accompanied by a signed informed consent form (Appendix A) on which participants agreed to the terms of the study. Completed survey materials were returned to the researcher at the researcher’s expense, and the data provided by each of the participants were stored in a locked filing cabinet; raw data from the survey instrument have been imported and saved in a password-protected computer file by the researcher. The responses provided to each of the questions on the survey instrument were first entered into Microsoft® Excel®, with each of the participants who completed the survey instrument representing a row in the spreadsheet and indicating a unique observation. The data were then imported into SPSS Version 16.0 for analyses. The confidentiality of each participant in the study was maintained so that no personal information was accessible to anyone, at any time, other than the researcher.

**Operational Definition of Variables**

To illustrate the types of analyses determined as most efficacious for this study, an explanation of how variables were operationalized follows:

**Attitudes**

The attitudes of the participant were operationalized as a continuous level variable. That is, the attitudes of the teacher could take on a wide variety of different attitude scores measured by the survey instrument. Eleven of the items on the survey instrument pertained to attitudes. To obtain an overall measurement for the attitudes of the participant, mean scores were calculated. For this reason, the overall attitude scores could range from a low of 1 to a high of 5. A higher score indicates that the individual has a more favorable attitude towards arts while a lower score indicates the contrary.
Frequency of Use

The frequency of use of the arts by the participant was operationalized as a continuous level variable; thus, the frequency of use of arts by the teacher could take on a wide variety of different frequency-of-use scores measured by the survey instrument. Eight of the items on the survey instrument pertained to frequency of use. To obtain an overall measurement for the frequency of use of arts for the participant, mean scores were calculated. For this reason, the overall frequency-of-use scores could range from a low of 1 to a high of 5. A higher score indicates that the individual has greater frequency of use of the arts while a lower score indicates the contrary.

Compliance

Successful attainment of AYP for a respondent’s base institution was operationalized as a dichotomous variable and was comprised of two distinct categories: successfully achieving AYP and yet to achieve AYP. For the purpose of this study, those respondents in institutions successfully achieving AYP were assigned a value of 1 while those respondents in institutions yet to achieve AYP were assigned a value of 2. These values comprised subset levels for both English and mathematics teachers. Therefore, instructors of both English and mathematics within institutions successfully achieving AYP were assigned a value of 1, while English and mathematics instructors within institutions yet to achieve AYP were assigned a value of 2. AYP compliance under NCLB was treated as an independent variable.

Self-Efficacy

The self-efficacy of the participant was operationalized as a continuous level variable. That is, the self-efficacy of the teacher could take on a wide variety of different self-efficacy scores measured by the survey instrument. Six of the items on the survey instrument
pertained specifically to self-efficacy. To obtain an overall measurement for the self-efficacy of the participant, mean scores were calculated. For this reason, the overall self-efficacy scores could range from a low of 1 to a high of 5. A higher score indicates that the individual has greater arts self-efficacy while a lower score indicates the contrary.

Gender

The gender of the participant was operationalized as a dichotomous variable with categories of female and male. For the purpose of this study, female participants were assigned a value of 1 while male participants were assigned a value of 2. Gender was treated as a predictor variable for Research Question 3.

Number of Years Teaching

The number-of-years-teaching experience of the participant was operationalized as a continuous level variable; thus, the experience of the teacher could take on a wide variety of different spans measured in years. Number of years teaching was treated as a predictor variable for Research Question 3.

Ethnicity/Minority

The ethnicity of the respondent was operationalized as a dichotomous variable with categories of non-minority for respondents indicating White for ethnicity and minority for respondents indicating non-White for ethnicity. For the purpose of this study, those who were a non-minority were assigned a value of 1 while those who were a minority were assigned a value of 2. Minority status was treated as a predictor variable for Research Question 3.
Subject Taught

The discipline of instruction for each respondent was operationalized as a dichotomous variable with the categories of English or mathematics. For the purpose of this study, respondents who taught English were assigned a value of 1 while those who taught mathematics were assigned a value of 2. Subject taught was treated as a predictor variable for Research Question 3.

Personal Practice of the Arts

A respondent’s personal practice of the arts was operationalized as a dichotomous variable comprised of two distinct categories: regular participation in the arts and little or no participation in the arts. For the purpose of this study, those respondents actively participating in the arts were assigned a value of 1 while respondents with little to no active arts practice were assigned a value of 2. Personal practice of the arts was treated as a predictor variable for Research Question 3.

Data Analysis

The data collected for this study were first coded in Microsoft® Excel® spreadsheets directly from the surveys, then imported into SPSS 16.0 for analysis. Within SPSS, descriptive statistics for exploratory data analysis, MANOVA, and multiple regression analyses were conducted. The frequency distributions for each of the demographic variables measured in this study are presented in Chapter 4. The frequency distributions are presented to indicate whether each of the groups or categories for each variable is equally represented in the data. The mean scores were factored to examine the distribution of the variables in order to provide information regarding the scores received for each item on the survey instrument. The quantitative statistical analysis methods for this causal comparative study
are MANOVA for Research Questions 1 and 2 and correlational with multiple regression for Research Question 3. Since the same data were utilized either in part or in whole for each research question thus weakening the strength for analyses collectively, significance was concluded at the p < .01 level.

For Research Question 1, MANOVA was applied across the independent variable of ninth and tenth grade mathematics and English teachers with two levels for NCLB successful designation and an NCLB in-need-of-improvement designation. The dependent variables for this analysis were the attitudes, frequency-of-use, and self-efficacy scales that were constructed as defined in the previous operational definition of variables section. Research Question 2 addressed the dependent variables of arts attitudes, self-efficacy, and frequency of use of the arts in instruction, with the independent variable of ninth and tenth grade teachers with two levels for mathematics and English. Unlike the first research question of this study, wherein the independent variable was leveled by AYP compliance, Research Question 2 leveled respondents by discipline taught, regardless of their institutions’ success in achieving AYP. English teachers from NCLB compliant institutions were combined with English teachers from in-need-of-improvement institutions, as were mathematics teachers from NCLB compliant institutions combined with mathematics teachers from institutions deemed in-need-of-improvement. Significance for Research Question 2 analysis was concluded at the p < .01 level.

MANOVA was used to determine whether the multiple categorical variables significantly explain the variation in several continuous dependent variables (Tabachnick & Fidell, 2007). If there is a significant relationship between the independent variables and the dependent variables, then the independent variables significantly explain the variation in the
dependent variables. Therefore, MANOVA was used for Research Questions 1 and 2 of this study because several dependent variables were considered to be associated with one another.

MANOVA analyses were used to determine whether there were statistical differences in the scores received for the dependent variables for each group associated with the independent variables (Keuhl, 2000). For the first two research questions of this study, multiple dependent variables were comprised of attitudes, frequency-of-use, and self-efficacy scales aggregated from the responses of participants in the study.

For the MANOVA, the mean values used in the analyses were derived from the different groups of subjects for the combination of dependent variables, creating another source of variability that required an accounting in the assessment of the relationships among the independent variables and dependent variables (Tabachnick & Fidell, 2007). The statistical analysis that was conducted for this procedure was similar to that of a traditional ANOVA except that the extra variability within each of the subjects’ from multiple dependent variables was attended. This was accomplished by partitioning the error term in the MANOVA by the individual differences of the subjects for the multivariate comparison of attitude, frequency-of-use, and self-efficacy scales (Tabachnick & Fidell, 2007). In the context of this study, differences within the attitudes, frequency-of-use, and self-efficacy scales across the independent variables were included and deemed significant at the p < .01 level.

The major assumption of MANOVA is independence of data, such that the scores form one participant do not effect the scores of another participant. Minor assumptions relate to the shape of the data, including skew (tilt), kurtosis (peaked or flat), and homogeneity of variance. MANOVA is robust against violations of these minor assumptions (Keppel &
Wickens, 2004; Stevens, 2009). MANOVA was used for between-subjects analyses to identify not only a multivariate relationship for each of the individuals in the study but also differences between respondents. These analyses were the same as those conducted for within-subjects except for the extra between-subjects factor variability within the model. Analysis was accomplished by partitioning the error term in the MANOVA by the differences between each of the subjects (Tabachnick & Fidell, 2007). MANOVA was effectively used in factoring significant differences in the attitudes, frequency-of-use, and self-efficacy scales at the same time.

If a significant relationship at the p < .01 level between the independent and dependent variables was found, then a post hoc test was conducted to determine which categories of the independent variable significantly differed from one another with respect to the average scores of the dependent variable observed for each category. The post hoc analysis that was conducted was a regression analysis for each dependent variable. Using the regression analysis made it possible to determine whether one independent group scored higher than the other group on each of the dependent variable scales.

In each case, the significance of the regression method was assessed by a statistic that follows a t distribution. If the t statistic exceeded the critical value for the distribution, then it was concluded that there was a significant difference between the independent groups of subjects. The variables that were assessed in the post hoc analysis were based on those that were found to be significant in the univariate analysis.

Based on the exploratory nature of this study without established precedence of variable analysis in the literature, Research Question 3 required stepwise multiple regression analyses to identify unique predictors of the criterion variable of arts attitudes from among
the factors of subject taught, number of years teaching, personal practice of arts, gender, and ethnicity. The dependent variable for this analysis was the arts attitudes scale score constructed in the section addressing operational definitions of variables. The independent variables were as follows: subject taught, dichotomous as English or mathematics; number of years teaching, continuous level variable; personal practice of arts, dichotomous as yes or no; gender, dichotomous as male or female; and minority status, dichotomous as non-minority or minority. The general equation for the multiple regression model was \( \text{Attitudes} = A + B_1 \times \text{Subject Taught} + B_2 \times \text{Number of Years Teaching} + B_3 \times \text{Personal Practice of Arts} + B_4 \times \text{Gender} + B_5 \times \text{Minority Status} + e \), where \( \text{Attitudes} \) represents the dependent variable of arts attitudes, \( A \) represents the intercept of the regression model, \( B_1 \) through \( B_5 \) represent the regression coefficients for the independent variables, and \( e \) represents the random error term with mean zero and common variance (Moore & McCabe, 2006). Multiple regression assumes independence of data, linearity, homoscedacity, and normality (Keppel & Wickens, 2004; Neter, Kutner, Nachtsheim, & Wasserman 1996; Stevens, 2009). Multicolinearity was assessed by calculating Variance Inflation Factor (VIF) for each predictor variable in the regression model. The regression coefficients for each independent variable were assessed by using a test statistic from the \( t \) distribution (Tabachnick & Fidell, 2007). Significance was concluded at the \( p < .01 \) level. If the test statistic exceeded the critical value from the \( t \) distribution, then it was concluded that the independent variable was a significant predictor of arts attitudes. In other words, the slope of the regression coefficient was significantly different from zero.

If the independent variable was found to be significant at the \( p < .01 \) level, then the sign of the regression coefficients were considered. If the regression coefficient was
positive, then it indicated that, when the independent variable increased, the dependent variable increased as well. If the regression coefficient was negative, then it indicated that, when the independent variable increased, the dependent variable decreased as well. In terms of the dichotomous independent variables, the regression coefficients indicated the average increase or decrease in the dependent variable for one level of the dichotomous variable compared to the other level of the dichotomous variable. Therefore, one level of the dichotomous variable was treated as a reference group for the analysis. For example, the class variable was comprised of English and mathematics teachers such that the resulting regression coefficient compared the arts attitude scores of English and mathematics teachers. A significant relationship between the independent and dependent variable, thus, indicated that English teachers scored differently from mathematics teachers on their arts attitude scores at the $p < .01$ level.
CHAPTER FOUR: ANALYSES OF DATA
AND EXPLANATION OF THE FINDINGS

This chapter presents the results of the analyses conducted to investigate three essential research questions regarding the arts attitudes, self-efficacy, and frequency of use of the arts of Connecticut ninth and tenth grade regular-education mathematics and English teachers in schools affected by No Child Left Behind (NCLB) legislation. The NCLB status of every public school in Connecticut is available from the Connecticut Department of Education (2008a) Web site. Mathematics and English teachers from every secondary school in Connecticut yet to achieve Adequate Yearly Progress (AYP) for 3 years or more were solicited for this study; however, not all schools elected to participate. Similarly, every school successfully achieving AYP for 2 years or more and within two District Reference Group (DRG) designations of the schools yet to achieve AYP were solicited for participation; again, not all schools elected to participate. In total, 30 institutions were solicited for participation, 207 surveys were sent, 174 surveys were returned to the researcher, 166 of the surveys were deemed to contain useful data. The summarily eliminated surveys were incomplete, illegible, unclear, unaccompanied by a signed informed consent form, or a combination of such factors.

The quantitative statistical analysis methods used for this causal comparative study were multivariate analysis of variance (MANOVA) for Research Questions 1 and 2 and multiple regression for correlational analysis for Research Question 3. Significance was concluded at the p < .01 level since repeated use of same data sets contributes to a weakening of statistical power; that is to say, testing needed to be more stringent than at the \( \alpha = .05 \) level could provide and was therefore conducted at p < .01.
This chapter has been divided into four distinct sections to detail the results of the study. The first section includes the exploratory data analysis conducted for each of the variables in the study along with the construction of the teachers’ scores for arts attitudes, self-efficacy, and frequency of use of the arts. The subsequent sections provide the results for Research Question 1, Research Question 2, and Research Question 3, respectively.

**Exploratory Data Analysis**

**Demographic Variables**

The frequency distributions for each of the demographic variables measured in this study are presented initially. The frequency distributions are presented to indicate whether each of the groups or categories for each variable is equally represented in the data. The frequency distribution will also provide information regarding the number of occurrences observed for each variable measured in this study. Presented along with the frequency distribution of the variables are the percentages of occurrences for each of the categorical variables.

For English teachers in schools yet to achieve AYP, the majority of respondents were females (73.1%), most of them being White (88.2%). One individual left her ethnicity blank, meaning that there was one missing value for English teachers in schools yet to achieve AYP (Table 3). For this reason, this individual was not included in the analyses including the ethnicity variable. For the purpose of this study, those teachers whose ethnicity was other than White were grouped as a minority set while those who were White were grouped as a non-minority set. The age of the teachers ranged from a low of 20 to a high of 60. The average age of the teachers was equal to 38.18 (SD = 11.51).
For those English teachers within schools successfully achieving AYP and within two DRG designations of their counterparts in schools yet to achieve AYP, the majority were again females (76.2%) and comprehensively White (100.0%). Respondents completed all demography sections of the survey instrument, ensuring complete values for gender and ethnicity of the sample subset (Table 4). For the purpose of this study, those teachers whose ethnicity was White were grouped as a non-minority set. The age of the teachers in this subset of the sample ranged from a low of 25 to a high of 64. The average age of these teachers was equal to 41.48 (SD = 11.44).

Table 3

_Demographic Characteristics for English Teachers in Schools yet to Achieve AYP_

<table>
<thead>
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<th>Percent</th>
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<td>Latino</td>
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<tr>
<td>Other</td>
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Table 4

Demographic Characteristics for English Teachers in AYP Successful Schools

<table>
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<th>Percent</th>
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<td>Male</td>
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<tr>
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<td>42</td>
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</tr>
</tbody>
</table>

For mathematics teachers in schools yet to achieve AYP, the majority of respondents were again females (70.0%) with most of them being White (83.0%). Two individuals left the ethnicity prompt blank, meaning that there was one missing value for ethnicity for each of those teachers (Table 5). For this reason, these individuals were not included in the analyses including the ethnicity variable. For the purpose of this study, those teachers who responded to the ethnicity prompt of the survey instrument as White were grouped as a non-minority subset while those who indicated another ethnic derivation were grouped as a minority subset. For this strand of data, the age of the teacher respondents ranged from a low of 22 to a high of 66. The average age of the teachers was equal to 40.33 (SD = 13.08).

For mathematics teachers within schools successfully achieving AYP and within two DRG designations of their counterparts in schools yet to achieve AYP, the majority were again females (57.1%) and overwhelmingly White (100.0%). One individual left blank responses for both the gender and ethnicity prompts, meaning that there were missing values for the gender and ethnicity in the aggregated matrix of mathematics teachers within schools successfully achieving AYP (Table 6). Those teachers who responded to the ethnicity
prompt of the survey instrument as White were grouped as a non-minority subset while those who indicated another ethnic derivation were grouped as a minority subset. The age of the teachers ranged from a low of 24 to a high of 65. The average age of the teachers was equal to 35.63 (SD = 12.40).

Table 5

*Demographic Characteristics for Mathematics Teachers in Schools yet to Achieve AYP*

<table>
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Table 6

*Demographic Characteristics for Mathematics Teachers in AYP Successful Schools*

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Survey Responses

The average values for each strand of Likert-style survey prompts solicited by the TWAS instrument were calculated. Both the means and median values for each of the prompts were calculated and ordered from highest to lowest, based on the average obtained for each variable. The results for English teachers in schools yet to achieve AYP are presented first (Table 7). The question numbers in the table directly correspond to the numbered Likert-style prompts of the survey instrument. The item with the highest average value was item 4 (“read or attend a play,” \( M = 4.69, SD = .54 \)) while the item with the lowest average value was item 20 (“I am concerned that music, dance, and theater activities are too noisy or disruptive for the classroom,” \( M = 1.50, SD = .61 \)).

Table 7

Summary Statistics for English Teachers in Schools yet to Achieve AYP

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<th>( SD )</th>
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<td>8</td>
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<td>0.75</td>
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<td>0.75</td>
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</tr>
<tr>
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<td>28</td>
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<td>0.82</td>
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Table 7

*Summary Statistics for English Teachers in Schools yet to Achieve AYP* (continued)

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<tr>
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<td>0.86</td>
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</tr>
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<td>20</td>
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</tr>
<tr>
<td>Frequency</td>
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<td>1.06</td>
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<tr>
<td>10</td>
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</table>

The results for English teacher respondents in AYP successful schools are presented in Table 8. The means for each of the Likert-style items on the survey instrument were
calculated. Along with the means, the median values for each of the questions were calculated and ordered from highest to lowest, based on the average obtained for each variable. The question numbers in the table directly correspond to the numbered Likert-style prompts of the survey instrument. The item with the highest average value was item 4 (“read or attend a play,” $M = 4.88, SD = .33$) while the item with the lowest average value was item 10 (“show a video tape of dance to students,” $M = 1.38, SD = .62$).

Table 8

*Summary Statistics for English Teachers in AYP Successful Schools*

<table>
<thead>
<tr>
<th>Scale</th>
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<th>$SD$</th>
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</thead>
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</tr>
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Table 8

Summary Statistics for English Teachers in AYP Successful Schools (continued)

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The results for mathematics teachers in schools yet to achieve AYP are presented in Table 9. The means for each of the Likert-style items on the survey instrument were calculated. Along with the means, the median values for each of the questions were calculated and ordered from highest to lowest, based on the average obtained for each variable. The question numbers in the table directly correspond to the numbered Likert-style prompts of the survey instrument. The item with the highest average value was item 4 ("read
or attend a play,” $M = 3.94$, $SD = 1.17$), while the item with the lowest average value was item 10 (“show a video tape of dance to students,” $M = 1.16$, $SD = .42$).

Table 9

*Summary Statistics for Math Teachers in not yet AYP Successful Schools*

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<td>1.27</td>
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<tr>
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<td>2.81</td>
<td>1.12</td>
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<td></td>
<td>20</td>
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<tr>
<td>Frequency</td>
<td></td>
<td></td>
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</tr>
<tr>
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<td>16</td>
<td>1.84</td>
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</tr>
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<td>0.81</td>
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</tr>
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<td></td>
<td>9</td>
<td>1.66</td>
<td>0.85</td>
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<tr>
<td></td>
<td>13</td>
<td>1.58</td>
<td>0.73</td>
<td>1.0</td>
</tr>
<tr>
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<td>11</td>
<td>1.48</td>
<td>0.65</td>
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<tr>
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<td>14</td>
<td>1.26</td>
<td>0.53</td>
<td>1.0</td>
</tr>
</tbody>
</table>
Table 9

Summary Statistics for Math Teachers in not yet AYP Successful Schools (continued)

<table>
<thead>
<tr>
<th>Scale</th>
<th>Question</th>
<th>M</th>
<th>SD</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>12</td>
<td>1.24</td>
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<td></td>
</tr>
<tr>
<td>10</td>
<td>1.16</td>
<td>0.42</td>
<td>1.0</td>
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</tr>
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<td>Efficacy</td>
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</tr>
<tr>
<td>30</td>
<td>3.34</td>
<td>0.98</td>
<td>3.0</td>
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<td>24</td>
<td>2.76</td>
<td>1.11</td>
<td>3.0</td>
<td></td>
</tr>
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</tr>
<tr>
<td>26</td>
<td>2.10</td>
<td>1.23</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>2.04</td>
<td>1.29</td>
<td>1.0</td>
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<tr>
<td>17</td>
<td>1.92</td>
<td>1.26</td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>

The results for mathematics teacher respondents in AYP successful schools are presented in Table 10. The means for each of the Likert-style items on the survey instrument were calculated. Along with the means, the median values for each of the questions were calculated and ordered from highest to lowest, based on the average obtained for each variable. The question numbers in the table directly correspond to the numbered Likert-style prompts of the survey instrument. The item with the highest average value was item 8 (“engage in visual arts activities,” $M = 3.5, SD = 1.01$) while the item with the lowest average value was item 10 (“show a video tape of dance to students,” $M = 1.00, SD = .00$).
<table>
<thead>
<tr>
<th>Scale</th>
<th>Question</th>
<th>M</th>
<th>SD</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>8</td>
<td>3.50</td>
<td>1.01</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>3.41</td>
<td>1.37</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>3.41</td>
<td>0.80</td>
<td>3.5</td>
</tr>
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<td>6</td>
<td>3.32</td>
<td>1.36</td>
<td>3.5</td>
</tr>
<tr>
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<td>7</td>
<td>3.23</td>
<td>1.41</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>3.19</td>
<td>0.75</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2.95</td>
<td>1.21</td>
<td>3.0</td>
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<td>5</td>
<td>2.91</td>
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<tr>
<td></td>
<td>3</td>
<td>2.41</td>
<td>1.01</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2.23</td>
<td>1.07</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>2.18</td>
<td>1.05</td>
<td>2.0</td>
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<tr>
<td>Frequency</td>
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<td>1.82</td>
<td>0.96</td>
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<tr>
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<td></td>
<td>9</td>
<td>1.50</td>
<td>0.67</td>
<td>1.0</td>
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<tr>
<td></td>
<td>13</td>
<td>1.23</td>
<td>0.53</td>
<td>1.0</td>
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<tr>
<td></td>
<td>14</td>
<td>1.09</td>
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<td>1.0</td>
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</tr>
<tr>
<td></td>
<td>10</td>
<td>1.00</td>
<td>0.00</td>
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</tr>
</tbody>
</table>
Table 10

Summary Statistics for Math Teachers in AYP Successful Schools (continued)

<table>
<thead>
<tr>
<th>Scale</th>
<th>Question</th>
<th>M</th>
<th>SD</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficacy</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>30</td>
<td>Efficacy</td>
<td>3.36</td>
<td>1.09</td>
<td>3.5</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td>2.32</td>
<td>1.21</td>
<td>3.0</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>2.27</td>
<td>1.16</td>
<td>2.0</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td>2.14</td>
<td>1.17</td>
<td>2.0</td>
</tr>
<tr>
<td>21</td>
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<td>1.91</td>
<td>1.11</td>
<td>1.5</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>1.41</td>
<td>0.73</td>
<td>1.0</td>
</tr>
</tbody>
</table>

The results for all respondents combined are presented in Table 11. The means for each of the Likert-style items on the survey instrument were calculated. Along with the means, the median values for each of the questions were calculated and ordered from highest to lowest, based on the average obtained for each variable. The question numbers in the table directly correspond to the numbered Likert-style prompts of the survey instrument. The item with the highest average value was item 4 ("read or attend a play," $M = 4.34$, $SD = 1.02$), while the item with the lowest average value was item 10 ("show a video tape of dance to students," $M = 1.36$, $SD = .34$).
Table 11

*Summary Statistics of Aggregated Likert-Style Survey Prompts for All Respondents*

<table>
<thead>
<tr>
<th>Scale</th>
<th>Question</th>
<th>M</th>
<th>SD</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4.34</td>
<td>1.02</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4.07</td>
<td>1.01</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>4.05</td>
<td>1.03</td>
<td>4.0</td>
<td></td>
</tr>
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</tr>
<tr>
<td>2</td>
<td>3.77</td>
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</tr>
<tr>
<td>5</td>
<td>3.42</td>
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<td>4.0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2.95</td>
<td>1.16</td>
<td>3.0</td>
<td></td>
</tr>
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</tr>
<tr>
<td>Frequency</td>
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<td></td>
</tr>
<tr>
<td>16</td>
<td>2.44</td>
<td>1.15</td>
<td>2.0</td>
<td></td>
</tr>
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</tr>
<tr>
<td>10</td>
<td>1.36</td>
<td>0.64</td>
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Table 11

Summary Statistics of Aggregated Likert-Style Survey Prompts for All Respondents (cont.)

<table>
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<tr>
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<th>Question</th>
<th>M</th>
<th>SD</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td>3.57</td>
<td>1.00</td>
<td>4.0</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td>3.08</td>
<td>1.20</td>
<td>3.0</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td>2.79</td>
<td>1.36</td>
<td>3.0</td>
</tr>
<tr>
<td>21</td>
<td></td>
<td>2.26</td>
<td>1.15</td>
<td>2.0</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>2.22</td>
<td>1.26</td>
<td>2.0</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>1.67</td>
<td>1.01</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Reliability Analysis and Variable Construction

The arts attitudes, self-efficacy, and frequency of use of the arts of Connecticut ninth and tenth grade regular-education mathematics and English teachers were measured using the items presented in the previous subsection. To construct the arts attitudes, self-efficacy, and frequency-of-use variables, the items listed above were first summed to provide an overall measurement for the variables. To ensure that the items used to measure the arts attitudes, self-efficacy, and frequency of use were reliable, Cronbach’s alpha scores were calculated for each group of teachers separately: English teachers in schools successfully achieving AYP, English teachers in schools yet to achieve AYP, mathematics teachers in schools successfully achieving AYP, and mathematics teachers in schools yet to achieve AYP. Cronbach’s alpha scores were calculated for a final group of all teachers regardless of subject taught and NCLB designation.
There were 11 items pertaining to attitudes, 8 items pertaining to the frequency of use of the arts in teaching, and 6 items pertaining to self-efficacy. The remainder of Likert-style survey items elicited responses to external influences on the use of arts as instructional devices. Data for these items were collected and aggregated yet did not directly relate to the research questions and were not factored into analyses other than for descriptive and observational purposes. For those English teachers in schools yet to achieve AYP, the attitudes scale had an internal consistency coefficient of $\alpha = .78$, while the frequency of use had an internal consistency of $\alpha = .79$, and self-efficacy had an internal consistency of $\alpha = .78$. These values indicate that each item resulted in reliable estimates for the attitudes, frequency-of-use, and self-efficacy scales.

For those English teachers in schools successfully achieving AYP, the attitudes scale had an internal consistency coefficient of $\alpha = .77$ while the frequency of use had an internal consistency of $\alpha = .78$, and self-efficacy had an internal consistency of $\alpha = .77$. These values indicate that each item resulted in reliable estimates for the attitudes, frequency-of-use, and self-efficacy scales. For those mathematics teachers in schools yet to achieve AYP, the attitudes scale had an internal consistency coefficient of $\alpha = .85$ while the frequency of use had an internal consistency of $\alpha = .78$, and self-efficacy had an internal consistency of $\alpha = .84$. These values indicate that each item resulted in reliable estimates for the attitudes, frequency-of-use, and self-efficacy scales.

For those mathematics teachers in schools successfully achieving AYP, the attitudes scale had an internal consistency coefficient of $\alpha = .84$ while the frequency of use had an internal consistency of $\alpha = .34$, and self-efficacy had an internal consistency of $\alpha = .85$. These values indicate that the attitudes and self-efficacy resulted in reliable estimates for the
attitudes and self-efficacy scales. The frequency-of-use internal consistency was low, however; to be consistent with the remaining groups, the variable was constructed assuming that it resulted in reliable estimates. For the combined variables overall, the attitudes scale had an internal consistency coefficient of $\alpha = .82$ while the frequency of use had an internal consistency of $\alpha = .87$, and self-efficacy had an internal consistency of $\alpha = .81$. These values indicate that each item resulted in reliable estimates for the attitudes, frequency-of-use, and self-efficacy scales.

Based on these results, the scales were constructed by summing the item responses to give an overall measurement for each scale. The attitudes scale had an overall mean value of 3.40 ($SD = .63$). The frequency scale had an overall mean value of 2.03 ($SD = 0.75$) while the self-efficacy scale had an overall mean value of 2.60 ($SD = 0.83$). The results for the overall scales as well as for each variable subset are presented in Table 12.

Table 12

*Summary Statistics for Constructed Scales*

<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>Math</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>AYP–No</td>
<td>AYP–Yes</td>
</tr>
<tr>
<td><strong>Attitudes</strong></td>
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<td></td>
</tr>
<tr>
<td>$M$</td>
<td>3.68</td>
<td>3.48</td>
</tr>
<tr>
<td>$SD$</td>
<td>0.45</td>
<td>0.50</td>
</tr>
<tr>
<td><strong>Frequency of use</strong></td>
<td>2.55</td>
<td>2.41</td>
</tr>
<tr>
<td>$M$</td>
<td>0.62</td>
<td>0.59</td>
</tr>
<tr>
<td><strong>Self-efficacy</strong></td>
<td>2.84</td>
<td>2.75</td>
</tr>
<tr>
<td>$M$</td>
<td>0.78</td>
<td>0.75</td>
</tr>
</tbody>
</table>

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Research Question 1 Results

To address the first research question, which addresses whether the attitudes, self-efficacy, and frequency of use of the arts of Connecticut secondary teachers in schools designated by NCLB as successful differ from those of NCLB in-need-of-improvement schools, a MANOVA was conducted. The dependent variables for this analysis were the attitudes, frequency-of-use, and self-efficacy scales that were constructed in the section addressing reliability and variable construction. The independent variable for this analysis was teachers grouped by NCLB compliance as successfully achieving AYP or in-need-of-improvement. For Research Question 1, English and mathematics teachers were combined in a subset contingent on NCLB status.

The major assumption of MANOVA is independence of data, such that the scores form one participant do not affect the scores of another participant. Minor assumptions relate to the shape of the data, including skew, kurtosis, and homogeneity of variance. MANOVA is robust against violations of these minor assumptions (Keppel & Wickens, 2004; Stevens, 2009). Skewness for the variables did not exceed the absolute value of 1 (attitudes, -0.81; frequency, 0.39; and self-efficacy, 0.21), nor did they for kurtosis (attitudes, 0.99; frequency, -0.77; and efficacy, -0.61); the assumptions for skewness and kurtosis therefore were met (Meyers, 2006). Correlations between dependent variables ranged from .29 to .52, an acceptable range indicating relationships as not too uncorrelated, nor too highly correlated as defined by Anastasi and Urbina (1997). Box’s Test M was used to test for heterogeneity of variance. Box’s test revealed no significant heterogeneity of variance, (Box's M = 3.80, p = .72) The significance of the MANOVA was determined by the Wilks’ Lambda (Λ) statistic, which is the multivariate version of an F statistic.
There was not a significant multivariate relationship between the teachers of disparate NCLB designations and the attitudes, frequency-of-use, and self-efficacy scales, \( \Lambda = .98 \), \( F(3, 162) = .96, p = .41 \). This finding indicates that the NCLB designation of AYP compliance or in-need-of-improvement did not significantly explain the variation in the multivariate combination of the attitudes, frequency-of-use, and self-efficacy scales. Table 13 shows that the individual attitudes \( (p = .13) \), frequency-of-use \( (p = .95) \), and self-efficacy scales \( (p = .75) \) were not significantly different between teachers from AYP successful or AYP in-need-of-improvement schools.

Table 13

Summary Statistics for Grouped Variables by Discipline and Analysis of Variance Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>AYP Yes ((N = 64))</th>
<th>AYP No ((N = 102))</th>
<th>( F(df\ 1, df\ 2) )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>3.31 0.62</td>
<td>3.46 0.63</td>
<td>( F(1, 164) = 2.29 )</td>
<td>.13</td>
</tr>
<tr>
<td>Frequency of use</td>
<td>2.03 0.73</td>
<td>2.03 0.76</td>
<td>( F(1, 164) = 0.01 )</td>
<td>.95</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>2.58 0.81</td>
<td>2.62 0.85</td>
<td>( F(1, 164) = 0.10 )</td>
<td>.75</td>
</tr>
</tbody>
</table>

Research Question 2 Results

For the second research question, which addressed whether the arts attitudes, self-efficacy, and frequency of use of the arts of Connecticut secondary school regular-education mathematics teachers differ from those of secondary school regular-education English teachers, a MANOVA was conducted. The dependent variables for this analysis were the attitudes, frequency-of-use, and self-efficacy scales that were constructed in the section on reliability and variable construction. The independent variable for this analysis was teachers
with two levels for a mathematics discipline and an English discipline. For the purpose of answering Research Question 2, all mathematics teachers were grouped regardless of NCLB designation, as were all English teachers. As a result, there was a single dichotomous variable that indicated either English, assigned a value of 1, or mathematics, assigned a value of 2.

The major assumption of MANOVA is independence of data, such that the scores from one participant do not affect the scores of another participant. Minor assumptions relate to the shape of the data, including skew, kurtosis, and homogeniety of variance. MANOVA is robust against violations of these minor assumptions (Keppel & Wickens, 2004; Stevens, 2009). Skewness for the variables did not exceed the absolute value of 1 (attitudes, –0.81; frequency, 0.39; and self-efficacy, 0.21), nor did they for kurtosis (attitudes, 0.99; frequency, -0.77; and efficacy, –0.61); the assumptions for skewness and kurtosis therefore were met (Meyers, 2006). Correlations between dependent variables ranged from .29 to .52, an acceptable range indicating relationships as not too uncorrelated, nor too highly correlated as defined by Anastasi and Urbina (1997).

Box’s Test M was used to test for heterogeneity of variance. Box's test revealed heterogeneity of variance (Box's M = 39.65, p < .01) such that the standard deviation of the mathematics teachers was twice as large for the self-efficacy scale (SD = .81) than for the frequency scale (SD = .40), yet not significant when testing at an appropriate p < .001 since group sizes were unequal (Garson, 2009). The significance of the MANOVA was determined by the Wilks’ Lambda (Λ) statistic, which is the multivariate version of an F statistic.
There was a significant multivariate relationship between the class type of the teachers and the attitudes, frequency-of-use, and self-efficacy scales, $\Lambda = .49$, $F(3, 162) = 57.27, p < .01$, indicating that the discipline the teachers instructed significantly explained the variation in the multivariate combination of the attitudes, frequency-of-use, and self-efficacy scales. To determine how class type significantly explained the variation in the attitudes, frequency-of-use, and self-efficacy scales individually, the MANOVA results were examined. Testing at $p < .01$, there was a significant relationship between the class type of the teachers and the scores received on the attitudes scale, $F(1, 164) = 21.54, p < .01$, indicating that the class type of the teachers did significantly explain the variation in the attitudes scale scores, with English teachers scoring significantly more favorably than mathematics teachers.

There was also a significant relationship between the teachers of the different disciplines and the scores received on the frequency-of-use scale, $F(1, 164) = 165.19, p < .01$, indicating that the class type of the teachers significantly explained the variation in the frequency-of-use scale scores. In other words, there was a significant difference in the frequency-of-use scale scores for mathematics teachers compared to English teachers with English teachers scoring significantly higher for frequency of using the arts in instruction than teachers of mathematics. Additionally, there was a significant relationship between the class type of the teachers and the scores received on the self-efficacy scale, $F(1, 164) = 13.16, p < .01$, indicating that the discipline of the teachers significantly contributed to the variation in the self-efficacy scale scores. In other words, there was a significant difference in the self-efficacy scale scores for mathematics teachers compared with English teachers.
with English teachers indicating significantly greater self-efficacy than teachers of mathematics. The results of these analyses are presented in Table 14.

Table 14

*Summary Statistics for Grouped Variables by Discipline and Analysis of Variance Results*

<table>
<thead>
<tr>
<th>Variable</th>
<th>English</th>
<th>Mathematics</th>
<th>$M$</th>
<th>$SD$</th>
<th>$M$</th>
<th>$SD$</th>
<th>$F(df_{1}, df_{2})$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td></td>
<td></td>
<td>3.59</td>
<td>0.48</td>
<td>3.16</td>
<td>0.72</td>
<td>$F(1, 164) = 21.54$</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>Frequency of use</td>
<td></td>
<td></td>
<td>2.49</td>
<td>0.61</td>
<td>1.43</td>
<td>0.40</td>
<td>$F(1, 164) = 165.19$</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td></td>
<td></td>
<td>2.80</td>
<td>0.76</td>
<td>2.34</td>
<td>0.85</td>
<td>$F(1, 164) = 13.16$</td>
<td>&lt; .01</td>
</tr>
</tbody>
</table>

**Research Question 3 Results**

To address the third research question, which addresses to what extent and in what manner the demographic characteristics of subject taught, years of teaching, personal practice of arts, gender, and minority status are predictors of the arts attitudes of secondary-level teachers, a stepwise multiple regression analysis was conducted. The dependent variable for this analysis was the arts attitudes scale score constructed in the section on reliability analysis and variable construction. The predictor variables were subject taught, years of teaching, personal practice of arts, gender, and minority status. All predictor variables were dichotomous, with the exception of years of teaching, which was continuous. Subject taught was either English or mathematics; personal practice of the arts was either yes or no; gender was either male or female; minority status was either non-minority or minority.

Multiple Regression assumes independence of data, linearity, homoscedacity, and normality (Keppel & Wickens, 2004; Neter, Kutner, Nachtsheim, & Wasserman 1996;
Multicollinearity was assessed by calculating Variance Inflation Factor (VIF) for each predictor variable in the regression model. VIF near 1.0 signals no colinearity violation and VIF of less than 10 is considered acceptable (Haan, 2002; Neter, Kutner, Nachtsheim, & Wasserman 1996). All predictor variables in the present study exhibited VIF near 1.0 (max = 1.09).

There was not a significant relationship between the gender of the participant and the attitudes scale scores, \( t(145) = .89, p = .38 \), indicating that the gender of the participant was not a significant predictor for the attitudes scale scores. There was not a significant relationship between the personal practice of the arts for the participant and the attitudes scale scores, \( t(145) = -0.45, p = .65 \), indicating that whether the teacher had a personal practice of the arts was not a significant predictor for the attitudes scale scores. There was not a significant relationship between the number of years teaching experience of the participant and the attitudes scale scores, \( t(145) = -2.11, p = .04 \), indicating that the number of years teaching experience was not a significant predictor for the attitudes scale scores.

There was a significant relationship between the minority variable and the attitudes scale scores, \( t(145) = 2.72, p < .01 \), indicating the that minority status of the teacher, White or non-White, was a significant predictor for the attitudes scale scores, with members of the non-White group significantly predicting more favorable attitudes toward teaching with arts.

There was a significant relationship between subject taught variables and the attitudes scale scores, \( t(145) = 4.94, p < .01 \), indicating that the discipline of a teacher, English or mathematics, was a significant predictor for the attitudes scale scores. This result provided evidence that mathematics teachers scored less favorably than English teachers on the arts attitudes scale scores and reinforced the conclusions of Research Question 2, which found a
significant difference as well. Overall, this model was able to explain 20.5% of the variation in the arts attitudes scale score as indicated by the $R^2$ value. The results of the multiple regression analysis are presented in Table 15.

Table 15

*Multiple Regression Analysis Results*

<table>
<thead>
<tr>
<th>Source</th>
<th>$B$</th>
<th>$SE$</th>
<th>$t$</th>
<th>$p$</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3.53</td>
<td>0.32</td>
<td>11.20</td>
<td>&lt;.01</td>
<td></td>
</tr>
<tr>
<td>Minority (White or non-White)</td>
<td>0.49</td>
<td>0.18</td>
<td>2.72</td>
<td>&lt;.01</td>
<td>1.01</td>
</tr>
<tr>
<td>Gender (M or F)</td>
<td>0.09</td>
<td>0.10</td>
<td>0.89</td>
<td>.38</td>
<td>1.05</td>
</tr>
<tr>
<td>Personal practice of arts (yes or no)</td>
<td>-0.05</td>
<td>0.11</td>
<td>-0.45</td>
<td>.65</td>
<td>1.09</td>
</tr>
<tr>
<td>Subject (English or math)</td>
<td>-0.47</td>
<td>0.09</td>
<td>-4.94</td>
<td>&lt;.01</td>
<td>1.01</td>
</tr>
<tr>
<td>Years of teaching</td>
<td>-0.01</td>
<td>0.00</td>
<td>-2.11</td>
<td>.04</td>
<td>1.07</td>
</tr>
</tbody>
</table>

*Note. $R^2 = .205$. $B$ represents the regression coefficient; $SE$ represents the standard error of the regression coefficient; $t$ represents the resulting test statistic for the regression coefficient; $p$ is the $p$ value of the test statistic; VIF is the Variance Inflation Factor for each variable. VIF < 10 is considered acceptable (Neter, Kutner, Nachtsheim, & Wasserman 1996).*

**Summary and Chapter Conclusion**

For Research Question 1, there was not a significant multivariate relationship between the teachers of schools deemed in-need-of-improvement or successful under NCLB and the attitudes, frequency-of-use, and self-efficacy scales. To determine whether the NCLB designation significantly explained the variation in the attitudes, frequency-of-use, and self-efficacy scales individually, the MANOVA results were examined with $p < .01$ indicating significance. There was not a significant relationship between the teachers from schools deemed in-need-of-improvement or successful under NCLB and the scores received on the attitudes scale. There was not a significant relationship between the teachers
from schools deemed in-need-of-improvement or successful under NCLB and the scores received on the frequency-of-use scale. There was not a significant relationship between the teachers from schools deemed in-need-of-improvement or successful under NCLB and the scores received on the self-efficacy scale. These results, therefore, do not provide any evidence for the hypothesis; the hypothesis was rejected.

For Research Question 2 with \( p < .01 \) indicating significance, there was a significant multivariate relationship between the academic discipline of the teachers and the attitudes, frequency-of-use, and self-efficacy scales. To determine how the academic discipline of teachers significantly explained the variation in the attitudes, frequency-of-use, and self-efficacy scales individually, the MANOVA results were examined. There was a significant relationship between academic discipline of the teachers and the scores received on the attitudes scale. There was a significant relationship between the academic discipline of the teachers and the scores received on the frequency-of-use scale. There was a significant relationship between the academic discipline of the teachers and the scores received on the self-efficacy scale. The significant relationships indicate that teachers of English have more positive attitudes to teaching with arts, greater self-efficacy in teaching with arts, and use the arts in instruction significantly more than mathematics peers. These results, therefore, do provide evidence for the hypothesis; the hypothesis was not rejected.

For Research Question 3 with \( p < .01 \) indicating significance, there was not a significant relationship between the gender of the participants and the attitudes scale scores. There was not a significant relationship between the personal practice of the arts for the participants and the attitudes scale scores. There was not a significant relationship between the number of years teaching experience of the participants and the attitudes scale scores.
There was, however, a significant relationship between the minority variable and the attitudes scale scores with non-White respondents reporting more favorable arts attitudes than White peers. Lastly, there was a significant relationship between the academic discipline variable and the attitudes scale scores in complement to findings in Research Question 2. Based on these results, there was some evidence for the hypothesis; however, only two demographic variables were significant; therefore, the hypothesis was rejected.
CHAPTER FIVE: RESULTS AND FINDINGS

This study was designed to explore the arts attitudes, self-efficacy, and frequency of use of the arts of Connecticut ninth and tenth grade regular-education teachers in the disciplines of mathematics and English. The matter of integrating arts into the core curriculum has become a major and sometimes contentious topic in this era of NCLB performance mandates and high-stakes testing (Kamhi, 2007; Lin, 2003; Oreck, 2004; Scott, 2003; Sousa, 2006; Winner, 2007; Winner & Hetland, 2003). While numerous studies have explored the impact of arts on children’s cognitive development (Andersen, 2004; Appel, 2006; Foster et al., 2008; Gullat, 2008; Meyer, 2005), there has not been a great deal of empirical evidence produced to demonstrate the benefits of arts education integration into the general curriculum. There has been even less exploration of the impact of teaching practice on the efficacy of arts integration (Ash, 2009; Chan, 2003; Hansen, 2009; Levin, 2008). As Oreck (2006) observed, “few studies have delved into the personal characteristics and background of teachers and teacher candidates, their attitudes toward the arts, their self-image, and other factors that could have an impact on the use of the arts in the classroom” (p. 4). This study sought to address this deficit in the existing research by considering some of the factors that might have an impact on core curriculum teachers’ perceptions and willingness to integrate arts into their classroom practices.

The population for this study was drawn from public secondary schools in Connecticut. Schools were identified as either in-need-of-improvement according to the NCLB guidelines for AYP performance or as successfully compliant with the NCLB standards across a range of three district reference groups. A sample of 166 teachers was ultimately obtained, with subsets of 102 English teachers and 64 math teachers. All
participants completed the TWAS survey soliciting information on teachers’ arts attitudes, self-efficacy, and frequency of use of the arts. The TWAS also provided the demographic data considered in these findings.

**Discussion of Findings**

There is general agreement among educators of all disciplines that the delivery of arts in the curriculum is a meaningful and worthwhile objective for schools. Burrill (2005) discussed the arts in terms of the neurophysiological components of learning, noting that humans, as other animals do, learn to perceive the world through movement and sound. Photoimaging of fetuses has revealed that, as early as 3 weeks after conception, the first sensory-perceptual nerve develops and myelinates. This vestibular-cranial nerve enables the fetus to perceive vibrations and sounds produced by muscles and other external forces, shaping the developing fetus’ perception of gravity and space. After a child has been born and throughout the formative years of childhood, science has demonstrated that the brain experiences stages of growth spurts. A child’s movement and play is often reflective of these spurts, showing how leaps in neurofunctioning progress the child from integrative and non-linear thinking through levels of more abstract processing as well as foveal focus, the two-dimensional space scanning ability that is central to the development of reading and writing skills (Burrill, 2005; Sousa, 2006).

Engaging in art, whether actively participating in its creation or as an observer who witnesses artistic works, stimulates the motor-sensory skills of human beings. Established educational theorists and practitioners like Gardner (Project Zero, 2008), Eisner (1995, 1997, 2002), and Catterall et al. (1999) have provided compelling evidence that the arts are central to stimulating learning processes in children. Unfortunately, Burrill (2005) and Eisner
(1995) contended that, for many, art has become decontextualized; it has been separated from their daily lives and placed in a static state of experience. They may visit a museum or go to a live performance of theatre, music, or dance only rarely and confine much of their creative intake to passive television viewing and, sometimes, film. Nevertheless, most Americans support the idea of arts education and do not dispute the merits of arts exposure and expression in the development of children (Americans and the Arts, 2005).

The questions of how to deliver arts and how much to deliver in the curriculum is the defining aspect of the debate over arts in the classroom in the current education environment of high-stakes testing and NCLB mandates (Meyer, 2005; Mishook & Kornhaber, 2006). It may be that part of the argument reflects the problem Burrill (2005) identified in that the “modern-day relationship with art is detached, intellectual, philosophical, and critical” (p. 37). Art is something humans indulge in as a periodic treat, but it is not something they consider to be a vital component of their lives. However, art is all around them on a daily basis, and they are engaged in or exposed to artistic expression all the time. The issue is, rather, how much value they assign to the arts in their lives, what gravity and weight they attach to prioritizing it as a way to expand their knowledge and open their communications. It is a matter of recognizing how the arts contribute to various ways of knowing such as empathically, kinesthetically, aesthetically, and intellectually and resisting the urge to wall the arts off as a separate, indulgent pursuit people get around to only after more important or more fundamental components of their learning and their lives have been addressed. Thus, arts education has taken a backseat to the academic fundamentals students are regularly tested on and the test scores teachers and schools are expressly concerned with (Gullat, 2008).
There is advocacy within the literature for integrating arts education into other disciplines’ curricula as a way to ensure that arts are being taught and to derive some of the cognitive benefits that may accrue through employment of the arts in instruction (Appel, 2006; den Heyer & Fidyk, 2007; Foster et al., 2008; Gullat, 2008; Kronenberg, 2007). Researchers, such as Kamhi (2007) have identified the cognitive benefits of artistic expression but are resistant to the curricular integration argument, urging instead the importance of valuing arts in and of themselves and teaching them in the schools as stand-alone subjects. These researchers argue that weaving arts throughout English, mathematics, or science curricula without requiring separate arts education classes for students places the arts in a second-rate position; the lesser sibling to the valued subjects of English, mathematics, and science (Miller, 2006; Winner, 2007; Winner & Hetland, 2003).

However, schools struggling to meet AYP of the NCLB mandate are challenged in terms of resources that include time, money, faculty, and space to commit to arts education, and given the demands placed on them to achieve certain levels of reading, writing, and mathematics scores on standardized tests, it is not surprising that much, if not all, of the school day is devoted to training or drilling in those select subject areas (Amrein-Beardsley, 2009; Ashford, 2004; Cawelti, 2006; Crane, 2006; Jennings & Rentner, 2006). Many educators realize and are resigned to the notion that the best way to ensure arts education in the curriculum is to tie it meaningfully to achievement in the traditionally tested areas of the school curriculum.

A portion of the literature discussed in Chapter 2 explored the role that teachers play in providing arts education through integration. The research has suggested that embracing arts integration into other classroom subjects is not a solution. Teachers currently working in
the disciplines of mathematics and English, for example, have often not been exposed to extensive arts education themselves and do not necessarily possess the skills or background to suddenly and effectively integrate arts into their classroom practice. Meyer (2005) articulated this when she proposed that school systems embarking on efforts to integrate arts education into the standard curriculum consider several key recommendations. The first of these was to establish high licensing standards for teaching staff that include arts education knowledge as an aspect of teachers’ assessment. In addition, Meyer (2005) advocated for expanded professional development opportunities in arts education for all teachers, suggesting that these efforts could be further supported by working closely with state arts organizations. As these recommendations indicate, teacher preparation for meaningfully realizing arts integration into the general curriculum is a process that requires time and commitment because it entails learning and development on the part of teachers across multiple dimensions (Engstrom & Danielson, 2006).

Teachers of core curriculum subjects may also evidence some bias that arts education is not as crucial to student academic progress as their training in the core subject material. This bias is likely to impact teachers’ ability to effectively integrate arts into their subject matter practice, even if doing so is required by their school system. Efforts to integrate arts education, even if supported by professional development opportunities, may not be effective unless and until “a systemic culture of learning and a common language for studying new knowledge and practices” (Engstrom & Danielson, 2006, p. 173) is realized and embraced by all faculty within a school. Some teachers may regard efforts to integrate the arts into content curriculum delivery as a nuisance, at best, and, at worst, an impediment to devoting time to delivering subject matter content (Lesley & Matthews, 2009).
Research Question 1

The first research question of this study explored multiple considerations through a broad-based inquiry into whether the attitudes, self-efficacy, and frequency of use of the arts by secondary school teachers differed in schools successfully meeting their NCLB AYP targets from those schools deemed in-need-of-improvement according to the NCLB mandates. The data generated showed no clear correlation between teachers’ attitudes regarding arts education and their school’s NCLB compliance ranking. Secondary teachers working in schools successfully meeting AYP goals did not demonstrate significantly more positive or alternatively more negative views of the arts in education than did their peers working in NCLB in-need-of-improvement schools. There was also no significant difference reported for self-efficacy in regard to arts instruction for these two broad cohorts of teachers. Finally, there was no significant difference reported for frequency of use of the arts for teachers in NCLB compliant schools and those working at in-need-of-improvement schools. These variables were assessed both singly and in multivariate combinations, and none of the analyses revealed a correlation to NCLB status.

Based on the literature supporting the development of children’s cognitive abilities through arts instruction, one assumption underlying this research was that factors associated with arts integration into core curricula would contribute to greater student achievement as measured by standardized tests. Proceeding from the research indicating that teacher knowledge, comfort with, and attitudes regarding the nature of their classroom practice has a measurable impact on student achievement (Mishook & Kornhaber, 2006; Olson & Truxaw, 2009), this first research question was predicated on the notion that teachers in NCLB compliant schools might demonstrate significantly different means for self-efficacy,
frequency of use, and attitudes about the integration of arts into the core curriculum than their peers.

For this study population, there did not appear to be a significant correlation between schools’ NCLB designation and teachers’ relations to the arts or arts education. The scope and novelty of this study restricted the ability to examine to what degree teachers’ were effectively engaging in arts integration in their subject matter practice; however, subsequent research may delve more deeply into this topic. No direct line can be assumed between the level of arts integration and school AYP success because the study question was not framed to assess that precise relationship. However, the results do indicate that the arts attitudes of teachers working at NCLB in-need-of-improvement schools did not meaningfully diverge from those of their peers working in NCLB compliant schools. Similarly, the self-efficacy scores and frequency-of-use reports from teachers across both cohorts were quite similar.

It is logical to assume, then, that the secondary school teachers in this subject population are relatively consistent in their attitudes, self-efficacy, and frequency of use in regard to the arts, regardless of their employment at either an NCLB compliant or in-need-of-improvement school. Given the multivariate analyses conducted to address the data for this question, one may conclude that there is no clear difference in teacher attitudes about arts education that track with NCLB compliance. Further, teacher self-efficacy regarding the arts appears not to be impacted by NCLB ranking, nor does frequency of use of the arts. It is important to note that the framing of this first research question and the manner in which data were collected and analyzed do not preclude the possibility that any, or all, of these variables may impact student achievement. Rather, the results indicate that the matter of student
achievement and NCLB compliance are not directly tied to differences exemplified in arts attitudes, self-efficacy, and frequency of use as expressed by teachers.

There is evidence within the literature that has made a powerful case for arts integration. Rabkin and Redmond (2006) referenced several longitudinal studies indicating that, particularly for disadvantaged youth, those most likely to comprise the populations of in-need-of-improvement schools according to the NCLB, arts participation can have a positive impact on academic performance. However, a thorough examination of the literature reveals that there is a dearth of empirical evidence that directly connects arts integration to improved student academic performance. Much of the literature outlining the benefits of arts integration in the curriculum is theoretical and narrative in nature (Ebner, 2006; Gullat, 2008; Kronenberg, 2007). While these discussions are valuable and illuminating, they do not provide the hard evidence that policy makers and some educational researchers seek as pedagogical validity. It is clear that this is an area of research consideration that is need of further examination.

**Research Question 2**

Research Question 2 asked whether arts attitudes, self-efficacy, and frequency of use of the arts differed for secondary school teachers depending on whether their content discipline practice was in mathematics or English. The evidence produced by the study confirmed that a difference did exist for teachers in terms of their content practice. For this data analysis, the teachers were grouped according to their subject discipline, rather than their NCLB school-compliance ranking. Thus, English teachers from both NCLB successful schools and those in-need-of-improvement were considered together while the mathematics teachers from both designations of school were considered together as a second group.
Across all three variables of arts attitudes, self-efficacy, and frequency of use, the English teachers scored significantly higher than their mathematics peers. The smallest difference was seen for self-efficacy. The difference was more appreciable in terms of arts attitudes and frequency of use.

The results indicate that the English teachers had greater experience with and expression in the arts than did the mathematics teachers. It is interesting to note that significantly greater differences in arts attitudes and frequency of use for English teachers produced a less substantial, though still statistically significant, difference in self-efficacy scores. Despite ranking substantially lower on arts attitudes and frequency of use, the mathematics teachers reported self-efficacy scores that were closer to the English teachers’ expressed self-efficacy scores. One might speculate that the math teachers were inclined to overestimate their arts awareness and integration abilities or perhaps, conversely, the English teachers were inclined to devalue theirs. A closer look at the data reveals proportional differences between teachers’ attitudes toward the arts and their frequency-of-use and self-efficacy scores. For English teachers, their frequency-of-use mean was 2.49 and their self-efficacy was 2.80. For the mathematics teachers, their self-efficacy mean was higher at 2.34 than their frequency-of-use mean at 1.43. Several intriguing questions are raised by the difference in these means and the fact that English teachers report frequency-of-use scores higher than their self-efficacy scores while math teachers report higher self-efficacy but lower frequency-of-use scores.

One of the first questions raised by the data examined for Research Question 2 is why such a degree of difference exists for both English and mathematics secondary school teachers between the degree of positive attitudes about the arts and their frequency of use of
the arts. In the case of the mathematics teachers, the frequency-of-use mean was approximately one third that of their arts attitude score. For the English teachers, the difference was narrower, with frequency of use essentially half that of the attitudes mean, but either way the difference is quite significant. It may be that the subject of English is considered a more natural match for arts integration, given its reliance on reading and writing communication and the fact that several art forms such as poetry, drama, and literature are direct examples of reading and writing in practice (Ferrero, 2007; Gioia, 2007).

However, much of the recent literature on arts in education, particularly that proceeding from the multiple intelligences perspective, indicates that artistic expression informs skills related to concrete and data-driven subjects like mathematics and science by developing spatial and temporal reasoning, which critically contribute to mathematics and science ability (Appel, 2006; Constantino, 2007; Foster et al., 2008). There is evidence that visual arts integration helps students pay attention to detail and think concretely about the context of material, reasoning abilities that are clearly connected to mathematics skills. Much of the research on children’s experience of music and their training in music appreciation is quite compelling in linking cognitive gains, specifically, to improved mathematics reasoning and to spatial comprehension (Appel; Meyer, 2005). Therefore, there is good reason to believe that such art forms as music and graphic arts, as well as painting and sculpture, contribute to students’ ability to learn more effectively in their core curriculum subjects. Playing music quietly in the mathematics classroom may stimulate students’ mathematics processing while displaying artistic works, for instance, one of Escher’s intricate lithographs, and asking students to consider ways in which geometry and art align may also enhance student cognitions (Gullat, 2008).
It is also interesting to note that, even for English teachers, given the evident link to artistic forms of writing and reading expression, there is still a significant gap between teachers’ positive attitudes towards the arts and their frequency of use. One might anticipate that, in secondary-level English classrooms, dramatic texts, poetry, lyrics, and other forms of written artistic expression would present an attractive and viable mechanism for driving curriculum delivery. Additionally, encouraging students to express themselves creatively in their own communications would seem a likely and valid approach to developing their writing skills. On the surface, secondary-level English classes would appear to offer numerous opportunities to integrate the arts into the material. A teacher could discuss a print of an Ansel Adams’s photograph of Yosemite and charge students with writing a descriptive paragraph that places them as characters within the photo. Movies can be screened in class, and then the English teacher can have students work in groups to re-imagine one of the scenes they viewed and reconstruct their own dialogue for new versions of these scenes.

**Research Question 3**

Research Question 3 focused specifically on the arts attitude variable of teachers’ experience. Research Question 3 asked to what extent and in what manner are the demographic characteristics of subject taught, number of years teaching, personal practice of arts, gender, and minority status predictors of teachers’ attitudes regarding the arts in education? To answer this question, a multiple regression analysis was employed to tease out whether any of the factors predicted a trend in teachers’ arts attitudes. Reaffirming the findings discussed above for Research Question 2, the subject taught by the teacher had a significant impact on arts attitudes, as did minority status. Teachers of English scored more
favorably on arts attitudes than did their mathematics-teaching peers. Non-White teachers scored more favorably on arts attitudes than their White peers.

Building on the findings above concerning Research Question 2 results, the data from this study suggest that English teachers, despite their expressed reservations about their self-efficacy and frequency of use, at least in relation to their arts attitudes scores, are likelier to view arts education more favorably than their mathematics teaching peers. Why this is the case remains an open question for study. Arguably, the fact that certain art forms directly lend themselves to written expression and reading comprehension such as drama, fiction, poetry, and music lyrics may incline teachers working in the discipline of English to regard these artistic expressions as viable within the classroom curriculum delivery. For mathematics teachers, the efficacy of many art forms in instruction may prove a harder sell because the link between mathematics cognitions enhanced by artistic forms is not as immediately obvious. One cannot point directly to the effects of a musical composition on a student listener’s temporal or spatial reasoning, whereas one can point to a line from Shakespeare and clearly see that it is something that can be read or that one can attempt to write something in a similar vein.

This finding also raises some question about mathematics teachers’ self-efficacy ratings considered in the data addressing Research Question 2. If mathematics teachers are less favorably disposed to arts integration in the curriculum and exhibit lower frequency of use of the arts than even their self-efficacy reports would suggest, why is this the case, and what are the implications for considering arts integration into the core curriculum? English teachers in this study expressed self-efficacy ratings lower than their frequency-of-use
ratings, yet mathematics teachers reflected higher self-efficacy and lower frequency-of-use ratings than did English teachers.

The variable of personal practice of arts had no significant impact on either mathematics or English teachers’ arts attitude scores. While the amount of research on content curriculum teachers’ attitudes about arts integration is very limited, there has been some research to suggest that teachers’ attitudes about the use of the arts are shaped by their own personal experience of the arts (Oreck, 2006). This personal experience is often formulated in childhood but also includes any formal training in the arts that teachers may have experienced during their years of schooling or later as an adult. Oreck (2006) noted that the majority of studies that have addressed teacher attitudes about the arts have been theoretical in nature or limited in scope by examining teachers working at private and specialized schools, such as Montessori academies, where the arts are fully integrated into the curriculum and, presumably, teachers are hired and retained on the basis of their willingness and ability to embrace an arts-integrated pedagogy. This is not the environment most public school teachers in America work in; thus, it limits the ability to extrapolate wider meaning from findings of studies with these highly specialized teacher populations.

Oreck’s (2006) qualitative research study with six teachers who had experienced professional development programming in the arts through the New York City public elementary schools yielded findings consistent with those found here in terms of personal use of the arts as a predictor of teacher attitudes. In the case of Oreck’s subjects, the teachers surveyed all expressed a general appreciation for the arts, but only two of the six had received any formalized instruction in the arts at an earlier point in their lives. In fact, Oreck’s teachers reported relatively little personal use of the arts in their daily lives, although
they noted that they could identify elements of art or a sense of artistic expression in some of their hobbies or interests, such as gardening. Nevertheless, the fact that the teachers were not pursuing artistic fulfillment in their personal lives with any regularity did not appear to impede their positive attitudes towards arts integration. Based on the reports of these teachers, Oreck (2006) concluded that personal use of the arts was not a predictor of teachers’ attitudes toward arts integration into the curriculum. Oreck (2006) similarly found that prior formalized training or a set of specific arts skills was also not necessary to favorably dispose teachers to arts integration in the curriculum. Rather, the salient factor appeared to be teachers’ general values or beliefs about art because it was these beliefs that prompted these teachers to participate in professional development workshops designed to involve the arts more integrally in classroom practice (Oreck, 2006).

In terms of this research, the inquiry into the factors that might predict teachers’ arts integration attitudes was designed to identify whether differences existed and, if so, what potential predictors they were related to. Personal use of the arts was not a statistically significant predictor here, concurring with the sample Oreck (2006) reported on for his study. Oreck’s (2006) study further found that the number of years teachers had spent in practice had no apparent impact on their arts attitudes. This was also the finding for this present study, in terms of the years spent teaching being a predictor of teachers’ arts attitudes; however, at p < 04, there may be reason to conduct more research in this domain with a larger sample group. This study may hint at a possible correlation for teachers with less experience and more positive arts attitudes. Yet, at p < .01 significance for this study, there was no significant correlation between length of teachers’ practice experience and their attitudes regarding arts in education.
The only demographic variable, aside from the subject taught predictor that yielded a significant relationship was the factor of minority status. The attitudes scales for teachers, when correlated with minority status, revealed that minority teachers reported more favorable attitudes in regard to arts education than did their White majority peers. However, it must be cautioned for this analysis that all of the non-White teachers identified in this study (n = 14) worked in schools that were deemed in-need-of-improvement according to NCLB. In the schools that successfully achieved their AYP, the English and mathematics teacher populations were 100% White. While there is significance reported for minority status as a predictor for the criterion of arts attitudes in this study, it is recommended that future studies explore this significance with both a larger sample of non-White teachers and from a greater array of successful school designations.

As Oreck (2006) observed, there has been little investigation into the possible effects of teacher demographics on the formation of teachers’ arts attitudes. Therefore, the difference in minority teacher attitudes regarding arts education and White majority teacher attitudes is, at this point, largely a matter of speculation. Drawing from the literature, the significant difference toward more favorable art attitudes by non-White teachers in schools failing to achieve AYP is surprising. Amrein-Beardsley (2009) noted that disadvantaged schools serving largely minority student populations are often drastically underfunded in terms of arts programming. Compared to schools in middle and upper class socioeconomic districts with largely White populations, predominantly or exclusively minority schools are 25% less likely to have designated art rooms with sufficient supplies, and students are 20% less likely to receive any type of formal arts instruction within their schools. Ahuja (2007)
similarly noted the various limitations many urban schools with largely minority populations encounter in attempting to provide for arts education programming.

One of the arguments forwarded by detractors of NCLB’s performance mandates and the emphasis on standardized test results is that the most disadvantaged school populations suffer the punitive effects of more restricted curricula: classroom practice that is increasingly focused on drilling test-related content material to the exclusion of a more holistic educational practice directed towards stimulating and educating the whole child (Eisner, 1995, 1997; Project Zero, 2008). For some schools, it is a matter of survival because failure to show improvement in AYP over a multi-year period can result in program defunding or, worse, school takeover or closure. There is ample evidence that, in the face of such concerns, teachers are less likely to deviate from school directives to drill students on test content and more likely to express concern over any additional programming or guidelines that might appear to complicate test-content delivery (Cawelti, 2006; Chapman, 2007; Ravitch & Finn, 2007). With a significant causal relationship between minority teachers’ status and their expressed arts attitudes, with all non-White teachers responding from in-need-of-improvement schools further investigation into this relationship would appear to be merited by this study’s findings.

**Limitations of the Study**

The generalizability of this study was mitigated by the convenience sample methods employed, coupled with the state’s autonomous assessment measures. NCLB legislation grants independence to each individual state to devise the means of assessment for AYP; therefore, a replication of this study using a sample from a state other than Connecticut may yield different results. Furthermore, with a finite group of eligible participants, the resultant
unequal sub-groupings of 117 female respondents to 48 male respondents, or 151 White respondents to 14 non-White respondents in example, complicate analyses in determining significance between such variables. The scope of this study does not allow for clear disaggregation of all factors contributing to arts attitudes. Additionally, this exploratory study was unable to determine the arts attitudes of respondents prior to NCLB policy implementation. This study was also limited in its scope to disaggregate individual teacher successes from NCLB designations, for instance, in likely cases of successful teachers operating within in-need-of-improvement institutions.

As with any self-report survey, internal validity may be negatively affected via self-report bias and direct contact with study participants (Campbell & Stanley, 1963; Isaac & Michael, 1995; Oreck, 2001). With self-report surveys, such as the TWAS, explicit attitudes may be subject to inaccuracies because subjects may record their attitudes as being generally more favorable than they are, more politically correct or socially acceptable, or disingenuously aligned with the attitudes of the researcher (Campbell & Stanley, 1963). Additionally, inherent threats in soliciting survey data include unforeseen problems with instrumentation, over-rater and under-rater bias of oneself, and differential selection (Gall, Borg, & Gall, 1996; Isaac & Michael, 1995; Oreck, 2001). To mitigate as many validity threats as possible, the instrument selected for this study was piloted, revised, and used in various research studies (Brandon, Lawton, & Krohn-Ching, 2004; Oreck 2001).

**Summary**

One of the limitations in the existing body of research on arts integration into general core curricula is the dearth of studies examining teacher beliefs and attitudes regarding arts education, particularly at the secondary level. In order to get a clearer picture of how arts
integration may or may not be occurring in the classroom and to properly assess the effects of integration on student learning, it is necessary to understand how content curriculum teachers think about the arts and the factors that contribute to shaping their attitudes, either positive or negative, about integrating arts into their classroom practices. Oreck (2006) stated that, in order to arrive at a clear sense of the effects of arts integration in the general curriculum, it is first necessary to understand how content curriculum teachers think about the arts and to determine the “factors that motivate or undermine their attempts to implement artistic methods and approaches in their teaching” (p. 4).

This study was designed to consider these factors and to illuminate any potential relationships that might exist between teachers’ attitudes, self-efficacy, and frequency of use of the arts in their classrooms and their affiliated school’s NCLB performance compliance. The data produced in this research effort did not support the hypothesis that teacher attitudes, self-efficacy, and their use of the arts in practice would be different for teachers working in NCLB compliant schools and those working in schools deemed in-need-of-improvement. There were no statistically significant differences among these variables for teachers, based on NCLB school designation. The study was not structured to assess whether these factors contributed directly to student achievement; therefore, it would be erroneous to make indirect inferences, such as concluding these findings suggest that teacher attitudes, self-efficacy, and frequency of use have no bearing on arts integration program effectiveness, or alternatively concluding that arts integration has no bearing on whether or not schools meet their NCLB AYP goals.

The research did provide compelling evidence of several significant relationships. First, English teachers reported more positive attitudes, higher self-efficacy, and greater
frequency of use of the arts than their secondary level mathematics peers. An interesting sidebar to this finding was that mathematics teachers reported self-efficacy scores higher than their frequency-of-use scores; this result raises the question of why mathematics teachers may be less likely to integrate arts in education than their reported comfort in doing so would appear to indicate. Another interesting finding was that minority teachers overall held less favorable arts attitudes than their non-White peers, regardless of subject discipline taught, yet further research would need to deem this as statistically significant or not. Since all non-White teacher respondents for this study were from schools deemed in-need-of-improvement, it is unclear whether their less favorable attitudes towards the arts in instruction are related to their non-White status or the in-need-of-improvement status of their schools. These findings suggest key issues that merit further investigation.

**Recommendations for Future Research**

The literature on arts integration into the curriculum, particularly that examining the impact of teachers on the delivery and efficacy of arts-integrated programming at the secondary level, demonstrates the genuine need for further research exploring the relationship of teacher demographic variables on teacher attitudes, self-efficacy, and frequency-of-use characteristics.

The results of this study suggest that the question of NCLB designation and the potential effects of arts integration in the core curriculum should be investigated and considered separately from teacher characteristics in order to refine future investigations. This study did not seek to distinguish the degree or nature of arts integration within the schools in which the study subjects were working. Instead, teacher attitudes, self-efficacy, and frequency of use were taken as indicators of arts integration effectiveness. It seems clear
that further elucidation of a potential relationship between effective arts integration and NCLB status would benefit from narrowly defining the relationship so as to assess whether any causal link exists. One recommendation is for longitudinal studies that would track and compare teachers within NCLB in-need-of-improvement schools, comparing those programs identified as implementing comprehensive arts integration with those following a more traditional model of directly delivering content-specific information. This comparison could be usefully performed in NCLB compliant schools as well.

Oreck (2006) posited a strong argument for the professional development of teachers to support arts integration into the core curriculum. While this study did not pursue this line of inquiry, the discrepancies between English and mathematics teachers’ attitudes, self-efficacy, and frequency of use of the arts raises the question of whether greater exposure and professional development might improve teachers’ perceptions regarding arts integration.

“The teacher’s ability to bring the arts into the classroom—allowing students to truly explore and make discoveries, find and pursue problems, arrive at unique solutions, and communicate in multiple modalities—...requires both an artistic pedagogy and an understanding of the aesthetic qualities of experience” (Oreck, 2006, p. 4). Oreck (2006) noted that there have been virtually no follow-up studies tracking the effects of professional development in arts integration on teachers’ classroom practices. This study contributes useful data to the necessary and ongoing discussion of teachers’ attitudes, self-efficacy, and frequency of use of the arts in regard to arts integration into domains of the general curriculum.
References


Appendix A:

Informed Consent
Appendix A: Informed Consent

Dear Participant,

My name is Michael Obre, and I am a doctoral candidate in the Education Department at Western Connecticut State University (WCSU). Under the direction of Dr. Gina Cicco of Eugenio Maria de Hostos Community College of The City University of New York, I am conducting research that focuses on the arts attitudes of secondary level regular-education teachers in public schools. It is hoped that this research will expand our basic understanding of art’s significance within the public school hierarchy.

If you agree to participate in this research study, you will be asked to complete a demographic and attitudinal survey, *The Teaching With Arts Survey* (TWAS). All information will be kept confidential.

Your participation will likely not exceed 20 minutes to complete the survey.

Participation in this study is completely voluntary.

For completing the survey, please accept a modest $5 gift card for Starbucks.

If you have any questions about this research, please contact me through the office of Dr. Marcia Delcourt, WCSU Coordinator of the Ed.D Program in Instructional Leadership, at (203) 837-9121. This study has been approved by the WCSU Internal Review Board.

I have read this consent form and understand that I will take part in a study examining arts attitudes of secondary level teachers. My participation requires completing a brief demographical and attitudinal survey. Last, I understand that I may withdraw from the study at any time without penalty.

I ___________________________________________ agree to participate in this research study.

(Please print your name)

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(Signature) (Date)
Appendix B:

Teaching With the Arts Survey (TWAS)
Appendix B: Teaching With the Arts Survey (TWAS)

Teaching with the Arts Survey
by Barry A. Oreck, Ph.D.

The Role of Dance, Music, Theater, & Visual Arts in Your Classroom

This questionnaire asks you to consider the role of the arts in your curriculum. Please answer all of the questions honestly and completely; if you leave any blanks your data is automatically excluded from the analysis. Choose an answer even if a specific item seems obvious or does not seem relevant to your current position or practice (i.e., frequency of teaching music if you are a music teacher). Your responses will be kept strictly confidential and will not be reported on an individual basis.

Name ______________________________ Phone # (optional) _______________________

School _____________________________ City __________________________ State ______

Grade/Class ______________ Specialist? Y / N if yes, what subject? ______________________

Gender (please circle): Female / Male

Age: ______

Ethnicity (please circle): African American / Latino / White / Asian / Other

# of Students in Class (avg) _______ # of Years Teaching ______

Do you currently practice an art form?

Which art form(s)? ________________________________

How frequently do you practice? ________________________________

Have you received instruction or performed in an art form in the past, either as a child or as an adult?

Which art form(s)? ________________________________

For how long? ________________________________

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What is the highest academic degree you have earned? ___________ Major ______________

Approximately how many staff development workshops of any kind have you attended this year? __

Have you attended any arts workshops for teachers in the past 12 months? Yes / No

If yes, was your attendance voluntary? Yes / No

Did the workshop(s) focus on a specific art form? Which art form?

Visual / Music / Dance / Theater / Literary / Media / other ___________

Which (if any) in-service staff development workshops (arts or other subject) have you found to be most helpful in your teaching practice?

How would you characterize the arts instruction in your school?

<table>
<thead>
<tr>
<th></th>
<th>Inadequate</th>
<th>Adequate</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theater</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual Arts</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following questions ask you to rate the importance of using various art forms and types of artistic activities as part of the classroom curriculum to help students learn and communicate what they know.

**IMPORTANCE SCALE**
1 = not important
2 = of little importance
3 = somewhat important
4 = important
5 = very important

<table>
<thead>
<tr>
<th>How important do you feel it is for your students to:</th>
<th>not important</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. view a video tape of a dance (e.g. to study a culture, concept, or time period)?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>2. listen to a piece of music (e.g. to study a culture, concept, or time period)?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3. engage in dance activities (e.g. create a short movement study to explore natural processes such as the water cycle, or the movement of planets)?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>4. read or attend a play (e.g. to study a culture, concept, or time period)?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>5. engage in music activities (e.g. create a sound score to accompany a story; write and sing a song in the style of a different time period)?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6. look at works of art (e.g. to study a culture, concept, or time period)?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>7. engage in theater activities (e.g. play a role from a piece of literature, write a play with characters students developed)?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>8. engage in visual arts activities (e.g. draw a cartoon of a current political situation, create a storyboard of the major events of a book)?</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
The following questions ask you to estimate how frequently, on average, you use various art forms and different types of artistic activities in your classroom.

**FREQUENCY SCALE**
1 = never  
2 = rarely  
3 = once a month  
4 = once a week  
5 = daily

| How frequently do you: | never |  |  |  |  | daily |
|------------------------|-------|---|---|---|---|
| 9. lead a movement activity with your students? | 1 | 2 | 3 | 4 | 5 |
| 10. show a video tape of a dance to your students? | 1 | 2 | 3 | 4 | 5 |
| 11. lead a music activity with your students? | 1 | 2 | 3 | 4 | 5 |
| 12. lead a theater activity with your students? | 1 | 2 | 3 | 4 | 5 |
| 13. actively listen to a piece of music with your students? | 1 | 2 | 3 | 4 | 5 |
| 14. read or watch a tape of a play with your students? | 1 | 2 | 3 | 4 | 5 |
| 15. study works of art with your students? | 1 | 2 | 3 | 4 | 5 |
| 16. lead a visual arts activity with your students? | 1 | 2 | 3 | 4 | 5 |
The following questions refer to your own attitudes and potential concerns about the arts in the curriculum. Please respond to the following statements based on how strongly you agree or disagree with the assertion.

**AGREEMENT SCALE**
1 = strongly disagree  
2 = disagree  
3 = neither agree nor disagree  
4 = agree  
5 = strongly agree

<table>
<thead>
<tr>
<th>To what extent do you agree with the following statements?</th>
<th>strongly disagree</th>
<th></th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. I feel confident in my ability to facilitate dance activities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18. I feel that I don’t have enough time to teach the arts along with the rest of the curriculum.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19. I consider myself an artist.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20. I am concerned that music, dance, and theater activities are too noisy or disruptive for the classroom.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>21. I feel confident in my ability to facilitate music activities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>22. My supervisor encourages teacher creativity.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>23. I don’t have enough space to use movement effectively in the classroom.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>24. I feel confident in my ability to facilitate visual arts activities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>25. My students have trouble concentrating on other work after an arts activity.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Question</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>-----------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---</td>
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</tr>
<tr>
<td>26. I feel confident in my ability to facilitate theater activities.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. In general, my school is supportive of innovative teaching approaches.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. I feel that there are many students in my class who would especially benefit from more arts activities in the curriculum.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. I am free to use new teaching approaches in my classroom as I see fit.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. I consider myself a highly creative person.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. I feel constrained by the demands of the curriculum I have to teach.</td>
<td></td>
<td></td>
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</tbody>
</table>

The final open-ended questions ask you to consider why you use the arts and what would make you use them more.

32. What do you feel is the strongest current motivation for you to use the arts in your teaching?

33. What do you feel would motivate you to use the arts more often than you already do?

Thank you for your time.