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A Multilevel Analysis of Student, Community, and School Factors that Predict Students' Achievement in Visual Art

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A MULTILEVEL ANALYSIS OF STUDENT, COMMUNITY, AND SCHOOL FACTORS THAT PREDICT STUDENTS' ACHIEVEMENT IN VISUAL ART

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DEDICATION

In memory of my grandfather, Dr. Harold R. Hunter, who taught me to live life to the fullest and embrace the unique experiences of others. I cherish childhood memories of sun-filled mornings in his studio, discovering new colors in the endless tubes of paint and listening to the sounds of his brushes sweep across the canvas. The curiosity and pleasure discovered through those experiences continues to shape me today.

For Henry and Theo, in the hope they develop the same sense of inquisitiveness and discovery.

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A MULTILEVEL ANALYSIS OF STUDENT, COMMUNITY, AND SCHOOL FACTORS THAT PREDICT STUDENTS' ACHIEVEMENT IN VISUAL ART

CHRISTINE BAKER MITTON

ABSTRACT

Multiple access points for visual art education exist within the nation's schools and communities. How these diverse school and community contexts collectively impact the development of student visual art achievement and perceived competence has not been sufficiently researched. The purpose of the study was to identify student, community, and school factors that impact middle school students' achievement and perceived competence in visual art. The study sought to contextualize the structures and policies that shape visual art instruction within the nation's schools by building understanding of how visual art experiences influence adolescents at a crucial moment in their social, emotional, and academic growth.

A nationally representative sample of 4,000 8th grade students nested in 260 schools from the 2008 National Assessment of Educational Progress (NAEP) in visual art was used in the study. A two-level hierarchical model was used to determine the extent to which school and community practices and characteristics predict visual art achievement and perceived competence when student-level variables are controlled for. Findings revealed that schools' frequency of instructional offerings, percentage of blacks and Hispanic students enrolled, and amount of community resources used were positively related to students' perceived competence and achievement in visual art, regardless of student-level variables such as race and self-directed experiences.

These findings suggest that schools and community organizations should collectively leverage resources to provide supportive visual art learning networks for students. School administrators and teachers should recognize the impact of self-directed visual art experiences by engaging these experiences in both art and non-art classrooms. Schools should also advocate for an active visual art education agenda to create and maintain more authentic family and community connections. Community art organizations should direct funding and programming resources to grow active networks of school administrators, and support self-directed visual art experiences through active family programming and access to resources. Further research to extend our knowledge of the dynamics within diverse communities that enhance visual art outcomes is recommended.

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INTRODUCTION

Statement of the Problem

Visual art education policy and access. Efland (1990) has described the historically complicated role of visual art education within American public schools, attributing it to the ambiguous relationship between the arts and American society. Moreover, the team of stakeholders responsible for art education policy development, advocacy and implementation often represented an ad hoc coalition who lacked the time or resources to maintain policy development over time (Brewer, 2009; Heilig, Cole, & Aguilar, 2010). National content standards developed in 1994 called for sequential and consistent instruction allowing students in grades K through 12 to make artistic decisions and develop understanding of the nature and meaning of visual art (National Art Education Association, 1994). These national content standards suggested what students should know and be able to do in visual art and informed the voluntary development of visual art content standards or indicators in most states (Arts Education Partnership, 2013).

Simultaneously, the Consortium of National Art Education Associations developed voluntary opportunity-to-learn (OTL) standards in music, dance, theater, and

visual art, reflecting the national contemporaneous dialogue surrounding the *Goals 2000: Educate America Act* (Ericsson, 2005; Wang, 1998). The OTL standards in visual art designated appropriate conditions in four areas: curriculum and scheduling, staffing, materials and equipment, and facilities (Consortium of National Arts Education Associations, 1995). The national voluntary content and OTL standards in visual art thus provided states and local school districts a framework for ensuring all students have access to developmentally appropriate curriculum and resource-rich environments for learning.

Access to visual arts instruction in American public schools currently reflects the intersection of these visual art content and OTL standards with the climate of accountability embodied by the reforms and policies of the No Child Left Behind (NCLB) Act of 2001. While the NCLB act included the fine arts as a core academic subject, it did not provide adequate support for visual art instruction or assessment (Chapman, 2005). Consequently, access to sequential consistent instruction within adequate learning environments is not universal. The National Assessment of Educational Progress (NAEP) 2008 Arts Assessment indicated that 53% of the nation's 8th graders attend schools where instruction in visual art is available less than twice a week or not at all (Keiper, Sandene, Persky, & Kuang, 2009). In schools where visual art instruction is available, school administrators make complex decisions about visual art in relation to other subjects. With administrators and teachers reporting mounting pressure to increase test scores in core subjects of reading and math (Cruz, 2012; Grey, 2010; Maguire, Mishook, Garcia, & de Gaillande, 2013; Myers, 2010; Woodworth, Gallagher, & Guha, 2007), equitable access to visual art instruction depends upon how curriculum and

instruction are prioritized by individual administrators within individual school districts. Such a policy structure leaves most visual art educators and their instructional programs in a state of vulnerability (Dimitriadis, Cole, & Costello, 2009) and increasing obsolescence (Gamboa, 2012).

Reflecting this policy environment, research and data suggests differential visual art access and achievement across student subgroups. A national measure of arts education in public schools found that during the 2008-2009 school year, 95% of low poverty schools offered visual art instruction compared to 80% of high poverty schools. Over half of low poverty schools offered five or more visual art classes, while only 22% of high poverty schools offered the same range of courses (Parsad & Spiegelman, 2012). This differential access to visual art instruction based on poverty level may be understood as part of a long-term trend within art education in general (Rabkin & Hedberg, 2011). While all 18 year olds reported decreasing access to childhood art experiences from 1982 to 2008, children with high SES reported a 17% decline while low SES children reported a precipitous drop of 77%. White 18 year olds from 1982 to 2008 report almost unchanged access to childhood art education, while Blacks report a 49% decline and Hispanics a decline of 40%. National patterns of visual art achievement also suggest variation across subgroups. The NAEP 2008 Arts Assessment of the nation's 8th grade students revealed urban students underperformed suburban, town, and rural students in creating and responding tasks; similarly, students eligible for free/reduced price lunches underperformed ineligible students (Keiper et al., 2009).

Visual art learning environments. While in-school visual art instruction represents a significant access point for most young people, multiple pathways to a wide

range of additional visual art experiences also exist within many families and communities. Accessing visual art through community-based experiences enhances opportunities to learn through a multiplicity of curriculum, schedules, educators, materials, and resources (Krensky & Steffen, 2009; Wolf & Denson, 2009). The diverse range of community-based visual art education settings and structures make measuring access among youth challenging.

Recent sociological research on the relationship between extracurricular activities, cultural capital, and academic achievement provides some insight into how youth participate in community-based visual art instruction. Data from the ECLS-K dataset revealed visual art classes had the lowest levels of participation among a range of out-of-school activities across subgroups of kindergarten and 1st grade students. The most stratifying factor for visual art classes was SES, as only 5.7% of students in the lowest SES quintile took art classes, compared to 25.0% of students in the highest SES quintile (Dumais, 2006). A separate analysis of the same data found non-White children were less likely to participate in art or cultural activities than White children, and children of immigrant mothers were less likely to participate than children of native-born mothers (Lee & Kao, 2009). Among middle-class families, adolescent children's participation in extracurricular activities represents a complex negotiation of middle-class identity and the resulting demands on family schedules and unstructured time (Lareau, 2003). Middle-class families with adolescents spent more time on homework and organized sports than art or religious activities, as parents felt they must engage their children in extracurricular activities that will allow them to maintain the competitive edge that they believe defines the middle class (Gutiérrez, Izquidero, & Kremer-Sadlik, 2010).

Much more difficult to capture or understand through existing research is how and when students may choose to make, look at, or engage with visual art individually or with peers and family members. Self-directed visual art experiences may be encouraged and viewed as a valuable aspect of family identity, allowing youth to openly experiment. Alternatively, such experiences may be undervalued or discouraged, forcing youth who value or are curious about visual art to keep their explorations hidden or muted. Access and attitudes toward self-directed visual art experiences also influence student engagement with in-school art instruction (Hafeli, 2002) and student understanding of their ethnic and academic identities (Charland, 2010; Moje & Martinez, 2007).

Recent research suggests a way of understanding the multiple possibilities collectively embodied by in-school and community-based experiences. Conceiving visual art education within an ecological framework (Bodilly, Augustine, & Zakaras, 2008; Knutson, Crowley, Russell, & Steiner, 2011) embraces the diverse places and methods through which students may access visual art instruction. Such a framework recognizes how schools and communities collectively offer sufficient access to opportunities to learn through curriculum, educators, artists, materials, and equipment and recognizes the powerful potential of the network of relationships existing between these many environments to fully support student visual art achievement and self-efficacy.

Affective growth through visual art. Bandura (1986, 1997) defined self-efficacy as the belief in one's ability to complete tasks and achieve certain goals. Four factors contribute to the development of self-efficacy: mastery experiences; vicarious experiences, or observations of others; social persuasions, such as verbal feedback or judgments; and physiological states including anxiety, stress, or negativity. Pajares

(1996) suggested self-efficacy within academic settings is best understood as domain- and even task-specific, as math self-efficacy differs from science self-efficacy. Understanding self-efficacy in academic settings requires measuring capabilities closely matched to domain-specific tasks as well as the family, peer, and school contextual influences that may interact with how students engage with tasks. The presence or absence of forms of capital or role models within families, peer interests and motivations, and teacher-student relationships and pedagogical practices all may influence student beliefs about their academic capabilities (Pajares, 1996; Schunk & Pajares, 2009).

Research has documented positive developments of self-identity and personal understandings through visual art in both school and community settings (College Board, 2012; Deasy, 2002; McCarthy, Ondaatje, Zakaras, & Brooks, 2004). This research often reveals the potential of visual art to provide spaces in which young people discover new identities (Holloway & Lecompte, 2001; Maguire, Donovan, Mishook, & de Gaillande, 2012) or demonstrate competency and personal vision in unexpected ways (Catterall & Peppler, 2007; Heath & Roach, 1999; Horowitz, Serig, & Kleiman, 2005; Stevenson & Deasy, 2005; Tobey & Jellinghaus, 2012). Such research suggests visual art experiences may occupy a crucial role within adolescent discoveries of personal capabilities and possibilities. While some research specifically has been designed to explore the relationship between general self-efficacy and visual art instruction (Catterall & Pepplar, 2007; Mitchell, 2009) or the dimensions of music self-efficacy (Ritchie & Williamon, 2010; Trusty & Olivia, 1994), scarce research exists to define or demonstrate visual art self-efficacy or competence beliefs. Accordingly, there is little understanding of how

school and community contextual factors that impact the development of student visual art self-efficacy.

National Assessment of Educational Progress (NAEP). The NAEP is a nationally representative assessment of what the nation's students know and can do. The congressionally mandated project is administered yearly in a variety of subjects by the U. S. Department of Education's National Center for Education Statistics (NCES). Each assessment is created according to a subject-specific organizing framework developed by the National Assessment Governing Board.

The current NAEP Arts Education Framework, designed by a committee of art educators, practicing artists, assessment specialists, and policymakers, informed the design of the 1997 and 2008 NAEP Arts Education Assessments. The 2008 NAEP Visual Art Assessment measured the creating process through written answers to constructed-response questions. Students also completed a performance task by creating a self-portrait that communicated an important element of their personality using oil pastels, charcoal pencils, and a mirror. The responding process was measured through multiple-choice and constructed-response questions. Through these questions, students demonstrated knowledge of media, processes, visual elements and design principles, and cultural contexts for works of art. School administrators also completed surveys to gather information about factors that may impact student achievement, such as school demographics, visual art teacher and curriculum characteristics, and availability of visual art resources and programs.

A previous factor analytic analysis of 1997 NAEP visual art data (Diket, 2001) encouraged further research guided by both contextual factors of art education and

motivation theory. However, Dimitriadis et al. (2009) revealed the "vulnerability" of art education because the field over the subsequent decade had not adequately explored the implications of the contexts of art education. Documenting the implications of visual art education and experiences in isolation from the layered meso- and macrolevel contexts of families and communities diminishes our understanding of the implications of the visual art opportunity gap for different subgroups of students (Chappell & Cahnmann-Taylor, 2013; Kraehe & Acuff, 2013).

Using a representative national data set such as the 2008 NAEP Visual Art Assessment will allow for a comprehensive data analysis of how predictors that impact visual art outcomes intersect with school and community characteristics (Southgate & Roscigno, 2009). This comprehensive analysis will reveal the multidimensional and multilevel nature of opportunities-to-learn within visual art education (Wang, 1998).

Purpose of the Study

The purpose of this study is twofold. First, the study will identify the student, community, and school factors impacting student visual art outcomes. Second, it will capture student visual art self-efficacy according to student characteristics. Data analysis will build an understanding of how 8th grade students demonstrate varied levels of achievement and efficacy within ecology of visual art experiences. It is hoped the results of the study will reveal that differing patterns of access to school and community visual art opportunities-to-learn significantly impact student visual art achievement and self-efficacy. It is important that such patterns and understandings are documented so that local and state policy makers and stakeholders can make informed decisions about visual art instruction in an era when such instruction is often misunderstood or discounted. This

study will build understanding of how visual art experiences benefit students at a crucial moment in their social, emotional, and academic growth.

Research Questions

The study addressed the following research questions:

1. To what extent do individual student characteristics of race/ethnicity, depth of school experiences, extracurricular class enrollment, and amount of self-directed experiences predict 8th grade student visual art achievement?
2. To what extent do school location, Free-Reduced Price Lunch (FRPL) eligibility, percent Black and Hispanic enrollment, frequency of visual art instruction, and amount of visual art community resources used predict 8th grade students' visual art achievement when individual student characteristics are controlled for?
3. To what extent do individual student characteristics of race/ethnicity, depth of school experiences, extracurricular class enrollment, and amount of self-directed experiences predict 8th grade student visual art perceived competence?
4. To what extent do school location, Free-Reduced Price Lunch (FRPL) eligibility, percent Black and Hispanic enrollment, frequency of visual art instruction, and amount of visual art community resources used predict 8th grade students' visual art competence when individual student characteristics are controlled for?

Significance of the Study

This study is significant because it provides a richer understanding of the place visual art occupies in schools and communities given the over-emphasis on AYP subjects such as reading and math. The study's novel use of national visual arts assessment data and multilevel modeling methodology will allow richer exploration of the contexts of

visual art education within the structures of public schooling and the implications of unequal access across student subgroups. While existing research repeatedly demonstrates the experiential possibilities of visual arts instruction and achievement for groups of students, teachers, and schools in relative isolation, there is scarce research that contextualizes the structures and policies that shape visual arts achievement within the nation's schools. The 2008 NAEP visual arts assessment database measures the representative achievement of all 8th grade students and thus presents a unique opportunity to explore achievement for students regardless of whether or not they choose or are able to participate in visual art instruction in their schools or their communities. Because of its research design and use of a representative population of the nation's 8th graders, this study will inform policy makers, school administrators, and teachers of the role visual art plays in the healthy development of our nation's youth.

CHAPTER II

LITERATURE REVIEW

Four topics contribute to our understanding of student outcomes in visual arts. This literature review will explore visual art education policy, visual art learning environments, affective growth through visual art, and the National Assessment of Educational Progress (NAEP).

Visual Art Education Policy

Visual art content standards. The historically complicated role of visual arts education within American public schools has been attributed to the ambiguous relationship between the arts and American society. As key actors and ideologies engaged within the nation's social and political contexts, attitudes toward visual art and visual art education ebbed accordingly (Efland, 1990; Rabkin & Hedberg, 2011). Moreover, the team of stakeholders responsible for art education policy development, advocacy and implementation often represented an ad hoc coalition of actors who lacked the time or resources to maintain policy development over time (Brewer, 2009; Heilig et al., 2010). National content standards developed in 1994 by the National Art Education Association called for sequential and consistent instruction allowing students in grades K

through 12 to: develop the capacity and ability to appropriately use arts materials and methods to communicate and solve problems; develop an understanding of how to analyze and evaluate works from a variety of historical contexts; and recognize how the visual arts have contributed to cultural contexts across time and borders (National Art Education Association, 1994). These national content standards suggested what students should know and be able to do in visual art and informed the voluntary development of visual art content standards or indicators in most states (Arts Education Partnership, 2013).

Visual art opportunity-to-learn standards. Simultaneously, the Consortium of National Art Education Associations developed voluntary opportunity-to-learn (OTL) standards in music, dance, theater, and visual art, reflecting the national contemporaneous dialogue surrounding the *Goals 2000: Educate America Act* (Ericsson, 2005; Wang, 1998). The 1994 federal legislation defined OTL standards as the level of resources, practices, and conditions needed for all students to meet voluntary national or state content standards (Goals 2000, 1994). The OTL standards in visual art designated appropriate conditions in four areas: curriculum and scheduling, staffing, materials and equipment, and facilities (Consortium of National Art Education Associations, 1995). The national voluntary content and OTL standards in visual art thus provided states and local school districts a framework for ensuring all students have access to developmentally appropriate curriculum and resource-rich environments for learning.

Access to in-school visual art education. Access to visual arts instruction in American public schools currently reflects the intersection of visual art content and OTL standards with the climate of accountability embodied by the federal policies of the No

Child Left Behind (NCLB) Act and the Race to the Top initiative. While the NCLB act includes the fine arts as a core academic subject, it does not provide adequate support for visual art instruction or assessment (Chapman, 2005). Consequently, access to sequential consistent instruction is not universal. The National Assessment of Educational Progress (NAEP) 2008 Arts Assessment indicated that 53% of the nation's 8th graders attend schools where instruction in the visual arts is available less than twice a week or not at all (Keiper et al., 2009). In schools where arts instruction is available, school administrators make complex decisions about the arts in relation to other subjects. While visual art course offerings and teaching staff often remain unchanged, schedule reductions and sequence interruptions in visual art classes are often made to allow for extended reading and math instruction (Chapman, 2005; Collins, 2010; Sabol, 2010; Spohn, 2008). With administrators and teachers reporting mounting pressure to increase test scores in core subjects of reading and math (Cruz, 2012; Grey, 2010; Maguire et al., 2013; Myers, 2010; Woodworth et al., 2007), equitable access to visual art instruction depends upon how curriculum and instruction are prioritized by individual administrators within individual school districts. Such a policy structure leaves most visual art educators and their instructional programs in a state of vulnerability (Dimitriadis et al., 2009) and increasing obsolescence (Gamboa, 2012).

Access to visual art education across student subgroups. Moreover, a closer examination of visual art education research and data suggests differential access and achievement across student subgroups. A national measure of arts education in public schools conducted by the National Center for Education Statistics (NCES) found that during the 2008-2009 school year, 95% of low poverty schools offered visual art

instruction compared to 80% of high poverty schools. Over half of low poverty schools offered five or more visual art classes, while only 22% of high poverty schools offered the same range of courses (Parsad & Spiegelman, 2012). This differential access to visual art instruction based on poverty level may be understood as part of a long-term trend within art education in general revealed through analysis of the National Endowment for the Arts' Survey of Public Participation in the Arts (SPPA) data (Rabkin & Hedberg, 2011). Using parent education levels as proxy for socioeconomic status (SES), researchers found that while all 18 year olds reported decreasing access to childhood art experiences from 1982 to 2008, children with high SES reported a 17% decline while low SES children reported a precipitous drop of 77%. Rabkin and Hedberg found a similar differential according to race and ethnicity, as White 18 year olds from 1982 to 2008 report almost unchanged access to childhood art education, while Blacks report a 49% decline and Hispanics a decline of 40%. The researchers attributed these declines to cuts in school-based art education, as minority and low-income students were more likely to access art experiences only in school settings. National patterns of visual art achievement also suggest variation across subgroups. The NAEP 2008 Arts Assessment of the nation's 8th grade students revealed urban students underperformed suburban, town, and rural students in creating and responding tasks; similarly, students eligible for free/reduced price lunches underperformed ineligible students (Keiper et al., 2009).

Understanding access to and achievement in the visual arts among the nation's youth becomes more complex as one explores differences between states. A 2007 study of art education in California conducted by the RAND Corporation determined that 81% of the state's middle schools offered visual art instruction and about one quarter of the

state's middle school students took visual art courses. Most of these courses were electives, allowing more students per school to enroll but resulting in only 83 hours of average instructional time per year, about half the national average. RAND researchers further found that 48% of students at low poverty school enrolled in visual art courses compared to 29% of students at high poverty schools. Parental support of visual art education heightened this difference, as low poverty districts reported parent funding levels high enough to cover certified teacher salaries, while high poverty districts reported lower funding levels, allowing for performances, events, or art materials (Woodworth et al., 2007). An examination of arts education in Ohio painted a much different picture. The study looked at access to education in the four art disciplines of music, visual art, dance, and theater/drama according to school urbanicity and poverty level during the 2009-2010 school year. Researchers found 93% of Ohio's middle schools offered visual art instruction and 85% of Ohio's middle school students enrolled in visual art courses, a much higher percentage of overall student enrollment when compared to California. However, students attending urban high poverty or rural high poverty schools were more likely to attend schools that offered instruction in none or one of the art disciplines, with 10% of urban high poverty schools reporting no art instruction in any discipline (Ohio Alliance for Arts Education, 2013).

Visual Art Learning Environments

Accessing community-based visual art education. While in-school visual art instruction represents a significant access point for most young people, multiple pathways to a wide range of additional visual art experiences also exist within many families and communities. These experiences may occur in a range of locations, from camps or

afterschool programs, to community art centers and libraries, to cultural institutions and museums. The experiences may be guided or structured by artists, community volunteers, professional staff, or even school art teachers choosing to work outside of school. These instructors may be self-taught, have apprenticed or assisted in an artist's studio, or earned undergraduate or graduate degrees in visual art. Other visual art experiences may be more spontaneous and unstructured, such as participating in a drop-in studio activity or visiting an art gallery or museum. Each of these experiences may occur once, sporadically, or continue over extended periods of time, providing for differing levels of exploration and understanding. In addition, young people may experience visual art through family members who enjoy photography, woodworking, scrapbooking, or similar hobbies without seeking organized instruction. In short, accessing visual art through community-based experiences enhances opportunities to learn through a multiplicity of curriculum, schedules, educators, materials, and resources (Krensky & Steffen, 2009; Wolf & Bransom, 2007; Wolf & Denson, 2009). The diverse range of community-based visual art education settings and structures make measuring access among youth challenging.

Extracurricular visual art. Recent sociological research on the relationship between extracurricular activities, cultural capital, and academic achievement provides some insight into how youth participate in community-based visual art instruction. As part of a larger study of kindergarten and 1st grade students from 1998-99 using the ECLS-K dataset, Dumais (2006) looked at levels of participation in a range of out-of-school activities, such as sports, organized clubs, and music, dance, or visual art classes, according to student SES, race/ethnicity, and sex. Visual art classes had the lowest levels of participation among all possible activities across student subgroups. The most

stratifying factor for visual art classes was SES, as only 5.7% of students in the lowest SES quintile took art classes, compared to 25.0% of students in the highest SES quintile. 14.8% of White students participated in art classes outside of school, compared to 12.3 % of Black or 9.1% of Hispanic students. More girls than boys took art classes, with 15.3% and 11.6% participating respectively. Lee and Kao (2009) used the same data set in a separate study of immigrant student cultural capital and teacher perceptions of reading and math ability. Measures included mother's immigration status (native-born or immigrant) and race/ethnicity along with participation in art activities (organized lessons and performances in any of the four arts disciplines) or cultural activities (museum visits and concerts). Across mother's immigrant status and race/ethnicity, 67% of children had not participated in any art activities outside of school, while 47% had not attended any cultural activities. Non-White children were less likely to participate in art or cultural activities than White children, and children of immigrant mothers were less likely to participate than children of native-born mothers. Most striking were the differences among Hispanic children. 71% of children of native-born mothers did not take art classes compared with 86% of children of immigrant mothers. Similarly, 48% of children with native-born mothers did not attend cultural activities, while 63% of children of immigrant mothers did not attend.

Additional research suggested differential access among adolescents as well. Roscingo and Ainsworth-Darnell (1999) determined Black students in 8th through 10th grades were less likely than Whites to go on cultural trips to art, science, or history museums, or to take classes in art, music, or dance outside of school. Black students were also less likely than White students to have access to household educational resources

like encyclopedias, computers, or books that could aid in their visual art self-discovery. Controlling for family SES and family structure reduced these gaps, with lower SES and single-parent or stepparent households associated with lower access to cultural classes, cultural trips, and household educational resources. Among middle-class families, adolescent children's participation in extracurricular activities represents a complex negotiation of middle-class identity and the resulting demands on family schedules and unstructured time (Lareau, 2003). Middle-class families with adolescents spent more time on homework and organized sports than art or religious activities, as parents feel they must engage their children in extracurricular activities that will allow them to maintain the competitive edge that they believe defines the middle class (Gutiérrez, Izquidero, & Kremer-Sadlik, 2010).

Involvement in community-based extracurricular visual art experiences thus is complexly intertwined with race/ethnicity and SES. Moreover, existing research does not adequately capture how, when, or why youth choose to participate in extracurricular visual art experiences. The limited existing research cannot adequately measure type or intensity of extracurricular visual art experiences because the variables within the large datasets used do not capture such information. Further, visual art variables within much of this research are used within a cultural capital framework and inform understandings of academic achievement or other dependent variables unrelated to visual art outcomes.

Self-directed visual art experiences. Much more difficult to capture or understand through existing research is how and when students may choose to make, look at, or engage with visual art individually or with peers and family members. Families nurture or inhibit creative exploration through their varied beliefs, traditions, and choices about how

to allocate time and resources to creative experiences. The resulting relationship between high or low family creative activity and supportive or challenging family living circumstances suggests a complex range of possibilities for young people (Wolf & Denson, 2009). Self-directed visual art experiences may be encouraged and viewed as a valuable aspect of family identity, allowing youth to openly experiment. Alternatively, such experiences may be undervalued or discouraged, forcing youth who value or are curious about visual art to keep their explorations hidden or muted. Access and attitudes toward self-directed visual art experiences also influence student engagement with in-school art instruction (Hafeli, 2002) and student understanding of their ethnic and academic identities (Charland, 2010; Moje & Martinez, 2007). Further research is needed to understand the implications if students believe self-directed visual art experiences are not valued or recognized within school (DeGrief, 2010) or community settings (Charland, 2010; Moje & Martinez, 2007).

Implications of unequal school- and community-based access. Given the intense pressure placed on in-school visual art educators and their instructional programs within the current policy atmosphere outlined previously, research has documented a loss of autonomy (Myers, 2010) and feelings of vulnerability (Dimitriadis et al., 2009) and obsolescence (Gamboa, 2012) among K-12 visual art teachers. Art teachers have been urged to assert themselves in advocating for art education in their schools and districts (Freedman, 2011) while tension and mistrust have developed between in-school and community-based visual art educators (Bodilly et al., 2008; Lackey, Chou, & Hsu, 2010; Shin, 2012). Community-based organizations have struggled to navigate the complexities of ever-changing federal and state education policies and the needs of local school

districts (Amerin-Beardsley, 2009; Rademaker, 2003) or failed to adequately communicate the outcomes of their youth programs for a wider audience (Wright, 2007). Increasingly, in-school and community-based visual art education programs seem entrenched in an antagonistic relationship where both sides feel threatened, marginalized, and misunderstood.

Visual art education ecology framework. Recent research suggests another way of understanding the multiple possibilities embodied by in-school and community-based experiences. Conceiving visual art education within an ecological framework (Bodilly et al., 2008; Knutson et al., 2011) embraces the diverse places and methods through which students may access visual art instruction. Such a framework recognizes how schools and communities collectively offer sufficient access to opportunities to learn through curriculum, educators, artists, materials, and equipment and recognizes the powerful potential of the network of relationships existing between these many environments to fully support student visual art achievement and self-efficacy.

Knutson et al. (2011) examined two case studies of families' experiences with visual art at a Midwestern urban children's museum. They grounded their work in previous research within science education that suggested in-school learning provided sequential, scaffolded, consistent instruction while community-based learning encouraged learner-guided exploration and life-long learning. Through qualitative analysis of family interactions and conversations while making and looking at art, Knutson et al. found that the museum provided unique pathways for visual art learning through content, staffing, resources, and facilities that could not be duplicated in other environments. The research team asserted that all community-based environments should

recognize how they can capitalize on their strengths when contributing to a healthy art education ecology. The use of the term "ecology" becomes purposeful in that it captures two qualities essential for bridging the school-community divide. Ecologies require both strength through the diversity of their constituent parts and interdependence among all components. Based on their research, Knutson et al. concluded that an art education ecology framework emphasizes access to a range of experiences and outcomes throughout a community, rather than searching for a range of possible experiences and outcomes within a single entity or institution.

Bodilly et al. (2008) also contributed to the understanding of a visual art education ecology framework. Their study examined community-wide art education collaborations in six urban communities to determine how ecologies of art education develop and what qualities foster or impede their growth. Ecologies in these communities included providers, institutions such as schools and cultural or community-based organizations that offered learning experiences, and influencers, institutions that regulated and funded providers like state and local government agencies, funders and philanthropic organizations, and higher education institutions. The researchers found that provider institutions emphasized four distinct learning goals: mastery of an art form; aesthetic awareness and appreciation; academic achievement through arts learning; and youth development or life skills. Institutions focused on one or a combination of these goals depending on their missions and organizational structures. Researchers suggested that future exploration of the structure and capacity of art education ecologies examine the knowledge of state art content standards, amount of instructional time spent in learning environments, certification or qualifications of the instructor, type of teacher

(classroom, art, artist), location of instruction (school or community), method of delivery (stand-alone art instruction or integrated into other topics), mission and values of partner organizations, and mission and capacity of the lead organization. In assessing the art education ecologies of the six communities according to these measures, the study revealed the range of possible learning outcomes was directly tied to the local resources and relationships inherent in each community.

Through this research, visual art education ecologies can be understood as the combination of unique pathways for visual art learning across many organizations. These pathways are shaped and defined by the human and physical resources inherent within each organization as well as the larger community through its influencer organizations. This network functions interdependently in that all the constituent entities collectively assume responsibility for visual art experiences and growth.

Affective Growth through Visual Art

Competence beliefs in academic settings. Bandura (1986, 1997) defined self-efficacy as the belief in one's ability to complete tasks and achieve certain goals. Factors contributing to the development of self-efficacy include *mastery experiences* (attempts to demonstrate mastery of a task or skill), *vicarious experiences* (observing others succeeding or failing at a task), *social persuasions* (verbal feedback or judgments received from others about one's capabilities), and *physiological states* (emotions such as anxiety, stress, or negativity that impact one's ability to develop competence or feel successful). Pajares (1996) suggested self-efficacy within academic settings is best understood as domain- and even task-specific, as math self-efficacy differs from visual art self-efficacy. The presence or absence of forms of capital or role models within

families, peer interests and motivations, teacher-student relationships, and pedagogical practices may all influence student beliefs about their academic capabilities (Pajares, 1996; Schunk & Pajares, 2009)

Middle school represents a crucial point in student social and emotional development. Physical transitions to new school environments, teacher beliefs about the need for increased student control, and pedagogical shifts toward competitive or low level tasks (Raphael, Pressley, & Mohan, 2008; Usher & Pajares, 2006) occur as young people look for increased acceptance from peers and experiment with identity formation (College Board, 2012). Middle school students who perceive their teachers as encouraging effort and mastery of learning tasks over grades or performance reported increased self-regulation and willingness to participate at school (Wang & Holcombe, 2010). Highly engaging middle school teachers demonstrated confidence in student abilities and emphasized mastery and effort to create classroom cultures that expected success (Raphael et al., 2008). Students in subgroups rely on the sources of self-efficacy differently. Usher and Pajares (2006) found that social persuasion was a greater predictor of academic self-efficacy than mastery experiences for middle school girls and Black students, suggesting teacher and peer feedback play a more powerful role for these students. Students with low academic ability reported fewer mastery experiences, vicarious experiences, and social persuasions with none of the sources predicting their academic self-efficacy. Student perceptions of their role within the classroom environment and their interactions with peer, teachers, and family members clearly impact self-efficacy development, suggesting further research is needed to understand

how these many contextual factors play a role (Pajares, 1996; Raphael et al., 2008; Schunk & Pajares, 2009; Wang & Holcombe, 2010)

Competence beliefs in visual art. The Studio Thinking Framework (STF) (Hetland, Winner, Veenema, & Sheridan, 2007) uncovered the instructional methods and learning outcomes characteristic of high-quality in-school visual art instruction. A continuous cycle of demonstration-lecture, individual student exploration, and peer critique provides multiple opportunities for mastery experiences, vicarious experiences, and social persuasion or feedback from both student peers and teachers. Such instruction facilitates a range of learning outcomes. While students *develop craft* by learning visual art techniques and processes through direct experience and the observation of others, they also discover how to *engage and persist* when confronted with challenging tasks, *envision* a variety of solutions or next steps, and *stretch and explore* through experimentation. Creating a classroom environment that encourages mastery through exploration, self-regulation, and both inter- and intrapersonal reflection through these instructional methods and learning outcomes provides multiple opportunities to impact self-efficacy and personal competence.

Recent research has revealed a relationship between visual art experiences and general self-efficacy beliefs. Horowitz et al. (2005) asserted that arts-integrated literacy instruction designed and implemented in collaboration with an art teacher or local artist resulted in non-arts teachers reporting increased student self-confidence and positive risk-taking as students engaged in a new range of tasks, including increased public speaking or assuming new individual roles during collaborative work. Such findings mirror those of Stevenson and Deasy (2005), who noted that in high-arts schools, or schools allowing

students to access the arts through both direct and integrated instruction, students revealed backgrounds, skills, and experiences otherwise hidden to classroom teachers as their learning manifested itself in new ways. Catterall and Pepplar (2007) also found a relationship between visual art experiences and general self-efficacy. 3rd graders participating in long-term visual art residencies with community-based art organizations had statistically significant higher gains in general self-efficacy and originality. They also were more engaged and demonstrated higher sustained focus with non-arts classroom tasks when compared to students not participating in the visual art residency. These results suggest the impact of visual art experiences on general self-efficacy and personal competence. However, McCarthy et al. (2004) asserted the impact on general self-efficacy may be understood as one of many possible instrumental benefits from visual art experiences. Along with other benefits such as increased academic test scores or the growth of social capital, growth in general understandings of self-efficacy and competence are indirectly related to visual art and also could result from participating in other types of experiences beyond visual art.

Even more relevant for this study is McCarthy et al.'s (2004) assertion that we must develop a much better understanding of the intrinsic impacts or benefits that may only result from visual art experiences, such as captivation, pleasure, expression of personal or collective meaning, or cognitive growth within visual art. Research has documented positive developments of self-identity and personal understandings through visual art in both school and community settings (College Board, 2012; Deasy, 2002; McCarthy et al., 2004). This research often reveals the potential of visual art to provide spaces in which young people discover new identities (Holloway & Lecompte, 2001;

Maguire et al., 2012) or demonstrate competency and personal vision in unexpected ways (Catterall & Peppler, 2007; Heath & Roach, 1999; Horowitz et al., 2005; Stevenson & Deasy, 2005; Tobey & Jellinghaus, 2012). Such research suggests visual art experiences may occupy a crucial role within adolescent discoveries of personal capabilities and possibilities. While some research specifically has been designed to explore the relationship between general self-efficacy and visual art instruction (Catterall & Pepplar, 2007; Mitchell, 2009) or the dimensions of music self-efficacy (Ritchie & Williamon, 2010; Trusty & Olivia, 1994), scarce research exists to define or demonstrate visual art self-efficacy or competence beliefs. Accordingly, there is little understanding of how school and community contextual factors that impact the development of student visual art self-efficacy. This study seeks to contribute such understandings of the intrinsic potential of visual art experiences.

National Assessment of Educational Progress (NAEP)

The NAEP is a nationally representative assessment of what the nation's students know and can do. The congressionally mandated project is administered yearly in a variety of subjects by the U. S. Department of Education's National Center for Education Statistics (NCES). Each assessment is created according to a subject-specific organizing framework developed by the National Assessment Governing Board. The current NAEP Arts Education Framework, designed by a committee of art educators, practicing artists, assessment specialists, and policymakers, informed the design of the 1997 and 2008 NAEP Arts Education Assessments.

2008 NAEP visual art assessment.

Framework design. The National Assessment Governing Board began work on the NAEP Arts Education framework in 1992 under the guidance of the Council of Chief State School Officers (CCSSO), the College Board, and the Council for Basic Education. The development of the Framework paralleled the development of the voluntary national standards in the four arts disciplines, including the National Visual Arts Standards (National Art Education Association, 1994). Together, the standards and NAEP were envisioned as a cohesive structure for arts education content and assessment throughout the nation. While the standards and NAEP are based upon the same foundational content and processes, the Framework planning and steering committees emphasized that NAEP served an important role within the assessment of arts teaching and learning. NAEP was designed to articulate what students know and can do in the arts given the diverse and dynamic contexts of school-based arts education. It does not measure direct or individual mastery of specific content standards, which is better assessed through other methods and tools (National Assessment Governing Board, 2008).

Shared definitions. The Framework outlined processes and content common in the four art forms of dance, music, theater, and visual art.

Processes. Creating involves student expressions of ideas, feelings, and responses through the generation of original works of art, such as images, physical movements, musical selections, or written or performed texts. Responding engages affective, cognitive, and physical behaviors to interact with a particular medium, other performers, or audience members. Responses may be spoken or nonverbal and demonstrate

descriptive, analytic, and evaluative capabilities. Performing/interpreting refers to interpreting, re-creating, or performing existing works of art. This process is often not emphasized in visual art.

Content. By engaging in the three processes above, students develop knowledge and understanding of the arts. They build awareness of broader historical, social, and cultural contexts and become aware of a personal perspective, or what the arts mean to them on an individual level. Developing aesthetic understanding allows students to discern how cultures have come to find meaning and value in the arts. Students also need to gain knowledge about materials, tools, and techniques within each art discipline. Students should also develop perceptual, technical, and reflective skills through arts teaching and learning. These skills allow students to engage the senses, solve artistic problems, and consider multiple possibilities while making high-quality works of art.

Assessment design. The 2008 NAEP Visual Art Assessment measured the creating process through written answers to constructed-response questions. Students also completed a performance task by creating a self-portrait that communicated an important element of their personality using oil pastels, charcoal pencils, and a mirror. These questions gave students an opportunity to generate and communicate ideas, solve visual problems, and create original works of arts. The responding process was measured through multiple-choice and constructed-response questions. The questions asked students to look at or compare works of art and provide answers about their aesthetic or expressive qualities. Through these questions, students demonstrated knowledge of media, processes, visual elements and design principles, and cultural contexts for works of art.

At each participating school, an administrator also completed a school survey to gather information about factors that may impact student achievement. The 2008 school survey included multiple-choice questions covering school demographics, visual art teacher and curriculum characteristics, and availability of visual art resources and programs.

NAEP and the visual art opportunity gap. A previous factor analytic analysis of 1997 NAEP visual art data (Diket, 2001) encouraged further research guided by both contextual factors of art education and motivation theory. However, Dimitriadis et al. (2009) revealed the "vulnerability" of art education because the field over the previous decade had not adequately explored the implications of the contexts of art education, instead focusing largely on instrumental impacts on academic achievement or experiential possibilities using the constructivist framework of Dewey (1934) or libratory framework of Greene (1995; 2004). Documenting the implications of visual art education and experiences in isolation from the layered meso- and macrolevel contexts of families and communities diminishes our understanding of the implications of the visual art opportunity gap for different subgroups of students (Chappell & Cahnmann, 2013; Kraehe & Acuff, 2013).

Using a representative national data set such as the 2008 NAEP Visual Art Assessment will allow for a comprehensive data analysis of how predictors that impact visual art outcomes intersect with school and community characteristics (Southgate & Roscigno, 2009). This comprehensive analysis will reveal the multidimensional and multilevel nature of opportunities-to-learn within visual art education (Wang, 1998) by providing a richer understanding of student visual art outcomes regardless of whether or

not they choose or are able to participate in visual art instruction in their schools or their communities. Because of its research design and use of a representative population of the nation's 8th graders, this study will inform policy makers, school administrators, and teachers of the role visual art plays in the healthy development of our nation's youth.

CHAPTER III

RESEARCH METHODOLOGY

Introduction

This study investigated the extent to which student, school and community factors predicted student achievement and perceived competence in visual art. This chapter discusses the study's design and methods. The nesting nature of the database used and implications for data analysis will be discussed, as well as the data analysis method.

Data Source

Data for this study came from the 2008 NAEP Visual Art Assessment. The data included visual art cognitive and general demographic information for a representative sample of the nation's 8th grade students (N = 4,000), and general demographic and background information from the schools attended by participating students (N = 260). This study used restricted data from the assessment, which included the respondent-level data in raw format and the weights required for statistical analysis.

Data Collection Procedures

Researcher procedures. NAEP data are considered restricted by the Institute of Education Studies (IES) due to confidentiality concerns about participating students.

Researchers must apply for a restricted data license and agree to multiple security procedures prior to accessing the data. Before applying for a license, the researcher attended a three-day NAEP Database Training Seminar entitled "Using the NAEP Database for Research and Policy Discussion" sponsored by IES, the National Center for Education Statistics (NCES), and the U. S. Department of Education. Participants received an overview of NAEP database design and contents, explored methodological and technical issues that must be accounted for when analyzing NAEP data, and received hands-on training with NAEP specific software. After the researcher completed this training, she obtained permission to apply for a NAEP restricted data license from Cleveland State University's Institutional Review Board, Office of Research and Sponsored Programs, and legal counsel. A formal request for a restricted data license was approved by the Institute of Education Sciences (IES) for one year, and the required data security guidelines were adhered to throughout the course of this study. Data from the 2008 NAEP visual art student and school surveys was received from IES on a CD-ROM and was housed in a secure project office for use by licensees only.

NAEP procedures. A multistage sampling design identified geographic regions or primary sampling units (PSU) from current census data. Public and private schools within each PSU were placed into strata according to school characteristics. Schools were then selected for participation according to probability proportional to size (PPS) sampling, or in the case of NAEP, the probability proportionate to total 8^{th} grade enrollment. Selected schools were notified by NAEP State Coordinators according to protocols established by the chief school officer in each state. Participating schools compiled complete lists of all grade-eligible students from which NAEP drew a random

sample of students, resulting in a nationally representative sample of the nation's 8th grade students (National Center for Education Statistics, 2010).

NAEP Assessment Coordinators worked with staff and administrators at selected schools to secure parental consent for selected students, design accommodations for students with disabilities and English language learners, and identify the appropriate location for assessment administration within the school. Trained NAEP assessment administrators conducted scripted assessment sessions at participating schools from late January through early March, 2008. Participating students each completed two of four possible sections of the assessment and were allotted from 75 minutes to 100 minutes according to the sections they received (Keiper et al., 2008).

NAEP Instrumentation

Two surveys administrated by trained NAEP assessment administrators at each participating school were used in this study. The surveys were developed according to the 2008 Arts Education Framework designed by the National Assessment Governing Board, the board created by Congress to oversee NAEP policy and implementation (National Assessment Governing Board, 2008). One survey was completed by 8th grade students selected to participate in the NAEP assessment, and the other survey was completed by a school administrator at each participating school.

The 2008 NAEP visual art student survey included cognitive items and background questions. Cognitive items measured what students know and can do in visual art and focused on the processes of creating and responding. Creating process items were constructed response and required students to express ideas and emotions through an original work of art and written answers. Responding process items required

students to demonstrate their ability to observe, describe, and analyze works of art through multiple choice and constructed response questions. Background questions were multiple choice questions designed to gather information about student demographics, visual art achievement, visual art education experiences, and attitudes toward visual art. Student assessment booklets used a balanced incomplete block (BIB) design to allow precise results for each question while only requiring approximately 75-100 minutes of assessment time per student (National Center for Education Statistics, 2008). In the 2008 assessment, each student booklet contained two of four possible blocks of seven to eleven cognitive items each. The background questions were the same in all booklets.

The purpose of the school survey was to gather information about factors that may impact student achievement. The 2008 school survey included multiple-choice questions covering school demographics, visual art teacher and curriculum characteristics, and availability of visual art resources and programs.

NAEP Participants

Student-level (Level-1) participants included a sample of 4,000 8th grade students. These students (n=4,000) participated in the 2008 National Assessment of Educational Progress (NAEP) visual art assessment and formed a representative sample of the nation's 8th grade student population. A multistage sampling design drew students from sampled public and private schools, with each student representing a portion of the overall 8th grade student population (Keiper et al., 2009).

School-level (Level-2) participants were the 260 public and private schools identified in the 2008 NAEP visual art sampling frame with students participating in the assessment.

Variables and Measures

The study used multiple NAEP variables that were examined at the student (level-1) and school (level-2) levels.

Student-level variables.

- *Plausible values* are the NAEP measure of visual art achievement. The NAEP assessment does not provide achievement scores for individual students. Rather, it reports student achievement through five proficiency estimates, or plausible values, for each student. The plausible values represent the distribution of potential scores that a student might receive according to his/her individual characteristics and item response pattern (Beaton et al., 2011) and account for each student answering only a small number of the total possible assessment questions. Plausible values range from 0 (low) to 300 (high).
- *Perceived student competence* was created by calculating the mean of six items where students self-reported their engagement with and skill in visual art ($\alpha = 0.82$). The items used are listed in Appendix A. Values range from 1 (low) to 3 (high).
- *Race/ethnicity* in this study represented Black and White students. It was not possible to include a variable measuring Hispanic student origin because of the way in which items were designed on the NAEP student instrument. The variable was dummy coded 1=Black and 0=White.
- *Depth of school experiences* was created by calculating the mean of seven items associated with the question "When you have art in school, how often does your teacher have you do the following things?" The items used are listed in Appendix A. Values range from 1 (low) to 4 (high).

- *Extracurricular class enrollment* was created as a dichotomous variable indicating if a student was enrolled in formal visual art classes in the community. The items used are listed in Appendix A. The variable was dummy coded 1=yes and 0=no.
- *Amount of self-directed experiences* was created as the sum of nine items associated with the question "When you are not in school, do you ever do the following things on your own, not in connection with schoolwork?" The items used are listed in Appendix A. Values range from 0 (no experiences) to 9 (nine experiences).

School-level variables.

- *School location* in this study represented location according to the Census Bureau Urban-Centric Locale Codes used by NAEP for all participating schools. The variable was dummy coded 1=suburb and 0=city.
- *Free-Reduced Price Lunch eligibility* in this study represented the percent of students eligible for the National School Lunch Program. The variable was dummy coded 1=76+% and 0=0-75%.
- *Percent Black and Hispanic enrollment* was created as the sum of two items measuring the percent of Black and Hispanic enrollment. The variable is continuous with values from 0 to 100.
- *Frequency of visual art instruction* in this study represented how often 8th graders receive instruction in visual art. Values range from 0 (not taught) to 4 (daily).
- *Amount of community resources* was created as the sum of four items about access to field trips and artist programs. The items used are listed in Appendix A. Values range from 0 (low) to 4 (high).

Data Analysis

Data were extracted in raw form from the restricted-use NAEPEX database using SAS 9.2 software. NAEP data employed a complex sample design requiring the use of weights. A scaled weight was calculated to maintain the population representativeness while allowing the sample to approximate its original size (Osborne, 2011). AM Statistical Software developed by the American Institutes for Research for the analysis of complex large-scale assessments was used to apply this scaled weight for data analysis.

Two 2-level hierarchical linear models (HLM) (Raudenbush & Bryk, 2002) were used to investigate the extent to which student, school and community factors predict student achievement and perceived competence in visual art. Visual art achievement and perceived competence were considered outcome variables at the student-level (level-1) model. These outcome variables were predicted by student race, depth of school visual art experiences, extracurricular class enrollment, and amount of self-directed experiences at level-1, in schools that were different by school location, Free-Reduced Price Lunch eligibility, percent Black and Hispanic enrollment, and amount of community resources at level-2. HLM 2-Level Model/Version 7.0 was used in conjunction with SPSS 18.0 for the analysis of data. The 0.05 alpha level was used as the criteria for determining statistical significance.

Rationale for Using HLM

Analysis of the data using the hierarchical linear model (Raudenbush & Bryk, 2002) determined the impact of student- and school-level variables on visual art achievement of the nation's 8th grade students. HLM allows for the analysis of multilevel data with students nested within classrooms or schools. Such multilevel sets of data

violate the independence assumptions of traditional analysis models such as ANOVA or multiple regression (Peugh, 2010). The hierarchical nature of NAEP data with students nested within schools makes the use of HLM particularly appropriate (Arnold, 1995; Braun, Jenkins, & Grigg, 2006).

In this study, individual student achievement in visual art was explained as a function of school-level characteristics, while taking into account the variance of visual art achievement according to student-level variables. Through two 2-level HLM models the researcher determined whether certain school factors moderated the impact of student factors—such as race, and access to school and community visual art experiences—on students' visual art achievement and perceived competence In this way, HLM provided the ability to explain the differences in student visual art achievement and perceived competence using school-level variables of school location, FRPL eligibility, percent Black and Hispanic enrollment, frequency of visual art instruction, and amount of community resources. HLM was better able to predict student visual art achievement within the entirety of the visual art education ecology by simultaneously moderating student-level and school-level variance.

HLM Model Specifications

This study used a two-level HLM model to determine the impact of school and community factors on the visual art achievement and perceived competence of the nation's 8th grade students. All predictor student-level variables were grand mean centered, or centered at the mean for each variable over all students in the population (Braun, Jenkins, & Grigg, 2010). By centering the prediction at the grand mean, the Y-intercept (β_{0j}) represented the average achievement at each school *j* (Arnold, 1995).

Student-level model.

$Y_{ij} = \beta_{0j} + \beta_{1j}(BLACK_{ij}) + \beta_{2j}(SCHEXP_{ij}) + \beta_{3j}(EXTCLS_{ij}) + \beta_{4j}(SELALL_{ij}) +$

R_{ij} where,

Y_{ij} = score of student *i* in school *j* (the variable is considered for visual art achievement and perceived competence),

β_{0j} = adjusted school average in school *j*,

β_{1j} = impact of Black/White gap in school *j*,

β_{2j} = impact of depth of school experiences in school *j*,

β_{3j} = impact of extracurricular class enrollment gap in school *j*,

β_{4j} = impact of amount of self-directed experiences in school *j*,

R_{ij} = residual error for student *i* in school *j*.

School-level model.

$\beta_{0j} = \gamma_{01}(SCHLOC_j) + \gamma_{02}(HIFRPL_j) + \gamma_{03}(SCHMINEN_j) + \gamma_{04}(FREQ_j) +$

$\gamma_{05}(RESOUR_j) + \mu_{0j}$

where,

β_{0j} = predicted mean visual art achievement or perceived competence in school *j*,

$(\gamma_{01}, \gamma_{02}, \gamma_{03}, \gamma_{04}, \gamma_{05})$ are the regression coefficients associated with the school-level predictors (SCHLOC, HIFRPL, SCHMINEN, FREQ, RESOUR,) respectively,

μ_{0j} = unique random effects associated with school *j*.

A similar school-level model will be specified for each of the student-level parameters (i.e. $\beta_{1j}, \beta_{2j}, \beta_{3j}, \beta_{4j}$).

Summary

This chapter discussed the study's design and methods. The nesting nature of the database used and implications for data analysis were presented. An overview of the data analysis method and specifications of the HLM model at the student-level (level-1) and school-level (level-2) followed. Findings will be presented in Chapter 4.

CHAPTER IV

RESEARCH FINDINGS

Introduction

This purpose of this study was to investigate the extent to which student, school, and community factors predict student achievement and perceived competence in visual art. The chapter begins with a presentation of the descriptive statistics related to the students and schools involved in the study, followed by the presentation of findings according to the research questions.

Descriptive Information

Because data in this study were representative of a national sample, weights were applied for data analysis to preserve the representative nature of the data. For this reason frequency counts are not presented, as each individual student in the study represents a portion of the entire United States 8th grade population. Table 1 presents the mean and standard deviations for visual art achievement and perceived competence by student-level characteristics. White students outscore Black students in visual art achievement scores by 30 points. Students in the third quartile of depth of school experiences outscore those in the lowest quartile by 15 points, and also outscore those in the highest quartile by 6 to

Table 1

Mean and Standard Deviations for Visual Art Achievement and Perceived Competence by Student-Level Characteristics

	Plausible Value #1		Plausible Value #2		Plausible Value #3		Plausible Value #4		Plausible Value #5		Perceived Competence	
Predictors	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Race												
White	159.81	30.79	159.95	31.62	159.74	31.06	160.55	30.93	159.47	31.31	1.89	0.58
Black	129.31	33.27	128.65	34.28	129.59	32.48	127.15	33.29	128.14	33.40	1.96	0.60
Depth of School Experiences												
Lowest quartile	140.73	33.68	140.75	33.65	140.50	32.58	140.29	34.60	140.73	33.45	1.69	0.55
Second quartile	151.29	33.00	151.41	33.81	151.63	33.14	151.96	33.19	150.79	33.69	1.97	0.53
Third quartile	155.01	34.79	155.98	35.15	156.38	33.46	154.67	34.41	154.33	34.86	2.04	0.55
Highest quartile	147.81	36.05	148.00	37.03	149.33	35.96	148.54	37.11	148.88	36.23	2.17	0.56
Taking extracurricular classes												
Yes	144.27	40.33	144.17	40.86	146.82	39.48	146.38	39.69	144.41	39.68	2.25	0.54
No	151.82	32.87	151.70	33.51	151.62	32.81	151.50	33.81	151.46	33.36	1.86	0.56
Amount of self-directed experiences												
Lowest quartile	143.69	32.41	143.11	32.80	142.08	32.14	141.01	34.05	142.54	32.94	1.41	0.41
Highest quartile	153.18	37.92	151.42	39.28	154.76	36.92	153.19	38.43	152.74	38.00	2.42	0.43

Table 2

Mean and Standard Deviations for Visual Art Achievement and Perceived Competence by School-Level Characteristics

	Plausible Value #1		Plausible Value #2		Plausible Value #3		Plausible Value #4		Plausible Value #5		Perceived Competence	
Predictors	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
School location												
Suburb	154.74	35.46	155.53	35.65	155.30	34.60	155.15	35.50	153.96	35.28	1.93	0.59
City	143.88	35.48	143.93	36.44	144.40	35.08	142.63	36.19	143.35	36.03	1.94	0.57
Free-Reduced Price Lunch												
0-75% eligible	153.50	33.29	153.21	34.06	153.43	32.89	153.71	33.60	153.62	33.30	1.93	0.58
76+% eligible	124.61	31.84	125.78	33.70	127.56	32.75	123.66	32.75	124.70	32.39	1.98	0.59
% Black and Hispanic enrollment												
Lowest quartile	160.12	30.84	159.86	32.36	160.28	31.70	161.01	31.93	160.74	31.54	1.89	0.58
Highest quartile	130.81	33.03	131.95	34.35	133.83	33.30	130.38	34.09	130.59	33.08	2.01	0.56
Frequency of visual art instruction												
Not taught	138.58	32.44	137.38	31.72	137.95	31.40	135.83	32.07	137.80	31.99	1.86	0.58
1-2 times/week	153.67	34.47	154.52	34.47	154.29	32.49	154.51	33.09	154.26	34.15	1.94	0.58
Daily	149.31	33.87	149.59	35.37	150.15	34.28	149.74	35.65	149.48	34.71	1.94	0.58
Amt. community resources used												
None	141.82	33.41	141.53	34.31	142.38	32.89	141.23	33.80	141.92	33.17	1.92	0.57
Two	153.90	35.17	153.43	36.09	153.97	35.21	154.46	35.78	152.90	35.62	1.94	0.60
Four	160.50	31.96	160.74	32.85	161.17	31.45	159.56	33.19	159.16	34.01	1.93	0.61

8 points. Students report higher perceived competence as the depth of their school experiences increases, with a mean score difference for students in the lowest and highest quartiles of 0.48. Students enrolled in community classes report higher perceived competence than students who do not take these classes with a mean score difference of 0.39. Students also report higher perceived competence as they participate in more self-directed experiences, with a mean perceived competence score difference for students in the lowest and highest quartiles of 1.01.

Table 2 presents the mean and standard deviations for visual art achievement and perceived competence by school-level characteristics. Suburban students outscore city students in visual art achievement scores by 12 points, while students at schools with lower FRPL eligibility outscore students at schools with higher FRPL eligibility by 28 points. Mean achievement scores decrease as a school's percentage of Black and Hispanic enrollment increases, as students at schools in the lowest quartile of enrollment outscore students in the highest quartile by 30 points. Mean achievement scores decrease at schools with no visual art instructions as students at these schools are outscored by all students at schools with any visual art instruction by 10-15 points. Students at schools where the most community resources were used had mean achievement scores that were 20 points higher than students at schools where no community resources were used. Students report slightly higher perceived competence scores in the highest quartile of Black and Hispanic enrollment, as the mean score difference between the lowest and highest quartile is 0.12. Other school-level characteristics did not greatly impact reported perceived competence scores.

Research Questions 1 and 2

To what extent do individual student characteristics of race/ethnicity, depth of school experiences, extracurricular class enrollment, and amount of self-directed experiences predict 8th grade student visual art achievement?

To what extent do school location, Free-Reduced Price Lunch (FRPL) eligibility, percent Black and Hispanic enrollment, frequency of visual art instruction, and amount of visual art community resources used predict 8th grade students' visual art achievement when individual student characteristics are controlled for?

Table 3 presents the hierarchical linear model results for the extent to which school characteristics predicted the adjusted school average, the Black/White gap, and the extracurricular gap in visual art achievement. These results show that school location ($\gamma = 51.8, p < .01$), percent Black and Hispanic enrollment ($\gamma = 0.65, p < .01$), frequency of visual art instruction ($\gamma = 26.2, p < .01$), and amount of community resources used ($\gamma = 17.9, p < .01$) are significant predictors of the adjusted school visual art achievement average. Achievement scores were positively impacted by suburban location and an increase in the percent of Black and Hispanic students enrolled. More frequent visual art instruction and greater use of community resources such as field trips and visiting artists also positively impacted achievement score. The results revealed no school characteristics had a statistically significant relationship with the Black/White gap or the extracurricular gap.

Table 4 presents the hierarchical linear model results for the extent to which school characteristics predicted the strength of the relationship between school

experiences slope or self-directed experiences slope and visual art achievement. The results show no school characteristics had a significant relationship with the school

Table 3

HLM Results for the Prediction of the Adjusted School Achievement Average (β_{0j})*, the Black/White gap* (β_{1j})*, and the Extracurricular Gap* (β_{3j}) *by School Characteristics*

School characteristics	(β_{0j})		(β_{1j})		(β_{3j})	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
School location (1=suburb)	51.8	<0.001	1.36	0.828	-2.20	0.709
% Black & Hispanic enrollment	0.65	<0.001	-0.25	0.090	-0.03	0.791
Frequency of visual art instruction	26.2	<0.001	-4.50	0.102	-3.47	0.097
Amount of community resources used	17.9	<0.001	-1.20	0.632	1.42	0.640

Table 4

HLM Results for the Prediction of the School Experiences Slope (β_{2j}) *and the Self-Directed Experiences Slope* (β_{4j}) *in Achievement by School Characteristics*

School characteristics	(β_{2j})		(β_{4j})	
	Coefficient	P-value	Coefficient	P-value
School location (1=suburb)	0.32	0.939	2.47	0.009
% Black & Hispanic enrollment	-0.08	0.106	0.01	0.368
Frequency of visual art instruction	1.11	0.379	0.25	0.559
Amount of community resources used	1.34	0.379	0.22	0.710

experiences slope in terms of visual art achievement. However, school location $(\gamma = 2.47, p < .01)$ had a statistically significant positive relationship with the self-directed experiences slope of visual art achievement. Figure 1 shows a suburban location magnifies the relationship between visual art achievement and the amount of self-directed experiences in which students participate.

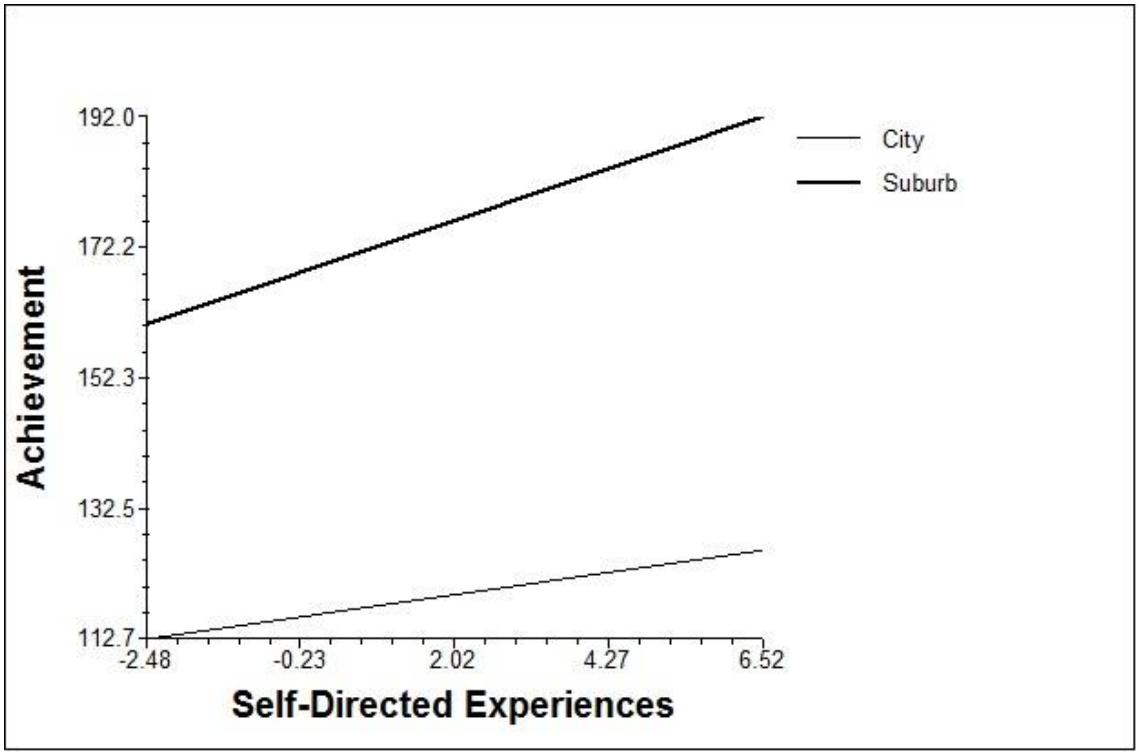

Figure 1. Relationship between visual art achievement and self-directed experiences by school location

Research Questions 3 and 4

To what extent do individual student characteristics of race/ethnicity, depth of school experiences, extracurricular class enrollment, and amount of self-directed experiences predict 8th grade student visual art perceived competence?

To what extent do school location, Free-Reduced Price Lunch (FRPL) eligibility, percent Black and Hispanic enrollment, frequency of visual art instruction, and amount of visual art community resources used predict 8th grade students' visual art competence when individual student characteristics are controlled for?

Table 5 presents the hierarchical linear model results for the extent to which school characteristics predicted the adjusted school average, the Black/White gap, and the

Table 5

HLM Results for the Prediction of the Adjusted School Perceived Competence Average (β_{0j})*, the Black/White gap* (β_{1j})*, and the Extracurricular Gap* (β_{3j}) *by School Characteristics*

School characteristics	(β_{0j})		(β_{1j})		(β_{3j})	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
School location (1=suburb)	0.64	<0.001	-0.05	0.501	0.01	0.901
Free-Reduced Price Lunch eligibility (1=76+%)	0.43	0.204	0.31	0.037	0.02	0.897
% Black & Hispanic enrollment	0.01	0.048	-0.00	0.346	-0.00	0.173
Frequency of visual art instruction	0.35	<0.001	0.07	0.038	0.04	0.181
Amount of community resources used	0.17	0.006	-0.06	0.119	0.02	0.508

extracurricular gap in visual art perceived competence. The results show that school location ($\gamma = 0.64, p < .01$), percent Black and Hispanic enrollment ($\gamma = 0.01, p < .05$), frequency of visual art instruction ($\gamma = 0.35, p < .01$), and amount of community resources used ($\gamma = 0.17, p < .01$) are significant predictors of the adjusted school visual art perceived competence average. Perceived competence scores were positively impacted by suburban location and an increase in the percent of Black and Hispanic students enrolled. More frequent visual art instruction and greater use of community resources such as field trips and visiting artists also positively impacted perceived competence scores. The data also revealed Free-Reduced Price Lunch eligibility ($\gamma = 0.31, p < .05$) and frequency of visual art instruction ($\gamma = 0.07, p < .05$) were significantly positively related to the Black/White gap in perceived competence scores.

Figure 2 shows while the gap between perceived competence of Black and White students is small at schools with less than 75% students eligible for Free-Reduced Price Lunch, the perceived competence gap increases at schools with 76+% students eligible, with Black students at these schools having higher perceived competence scores than White students.

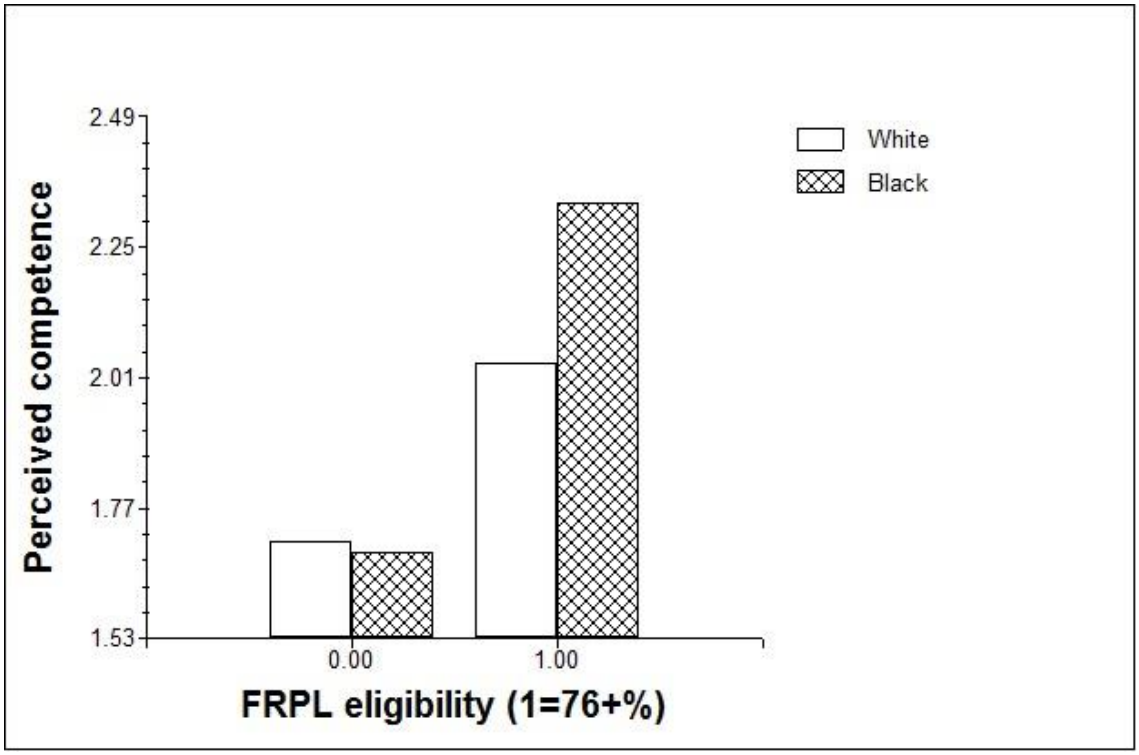

Figure 2. Relationship between perceived competence and FRPL eligibility by race

Figure 3 shows as the frequency of school visual art instruction increases, the gap between perceived competence scores of Black and White students increases. Finally, the data revealed no school characteristics had a statistically significant relationship with the extracurricular gap in visual art perceived competence.

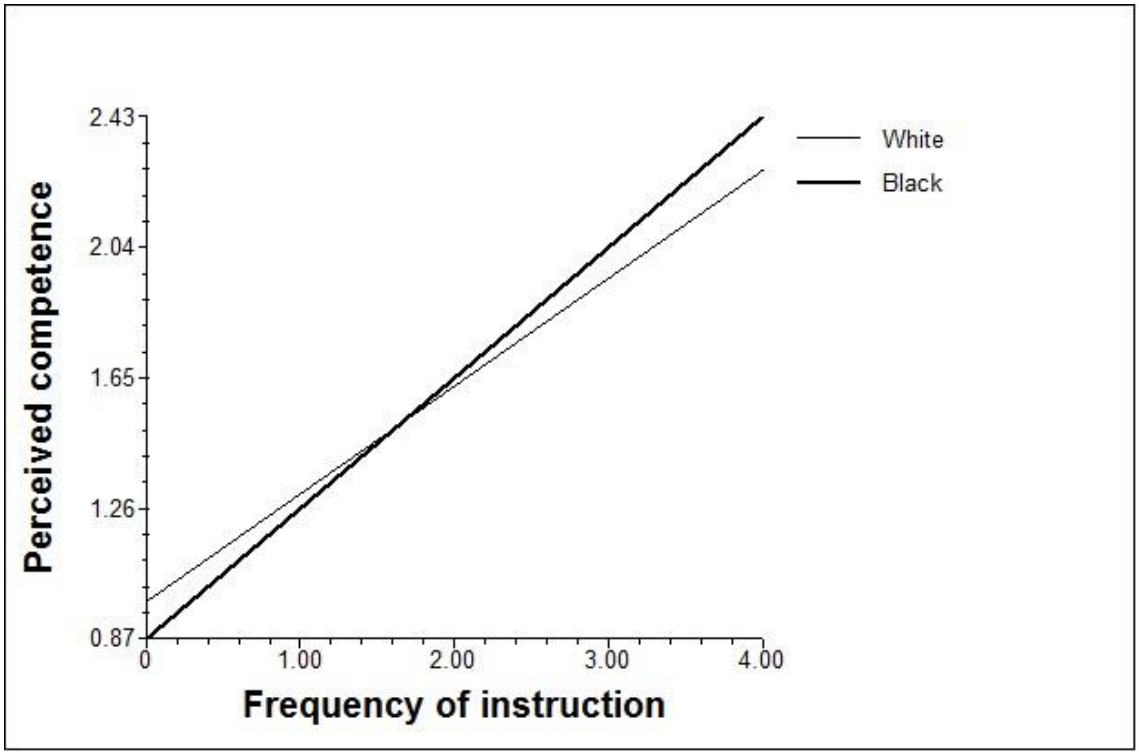

Figure 3. Relationship between perceived competence and frequency of visual art instruction by race

Table 6 presents the hierarchical linear model results for the extent to which school characteristics predicted the strength of the relationship between school experiences slope or self-directed experiences slope and visual art perceived competence. The results show percent Black and Hispanic enrollment $(\gamma = 0.00, p < .01)$ had a statistically significant positive relationship with the school experiences slope of visual art perceived competence. Figure 4 shows a greater percentage of Black and Hispanic enrollment magnifies the relationship between visual art perceived competence and the depth of school visual art experiences in which a student participates.

Table 6

HLM Results for the Prediction of the School Experiences Slope (β_{2j}) and the Self-Directed Experiences Slope (β_{4j}) in Perceived Competence by School Characteristics

School characteristics	(β_{2j})		(β_{4j})	
	Coefficient	P-value	Coefficient	P-value
School location (1=suburb)	-0.05	0.286	0.08	<0.001
Free-Reduced Price Lunch eligibility (1=76+%)	-0.13	0.054	0.05	0.013
% Black & Hispanic enrollment	0.00	0.002	0.00	0.110
Frequency of visual art instruction	-0.01	0.727	0.02	0.028
Amount of community resources used	0.04	0.051	0.03	<0.001

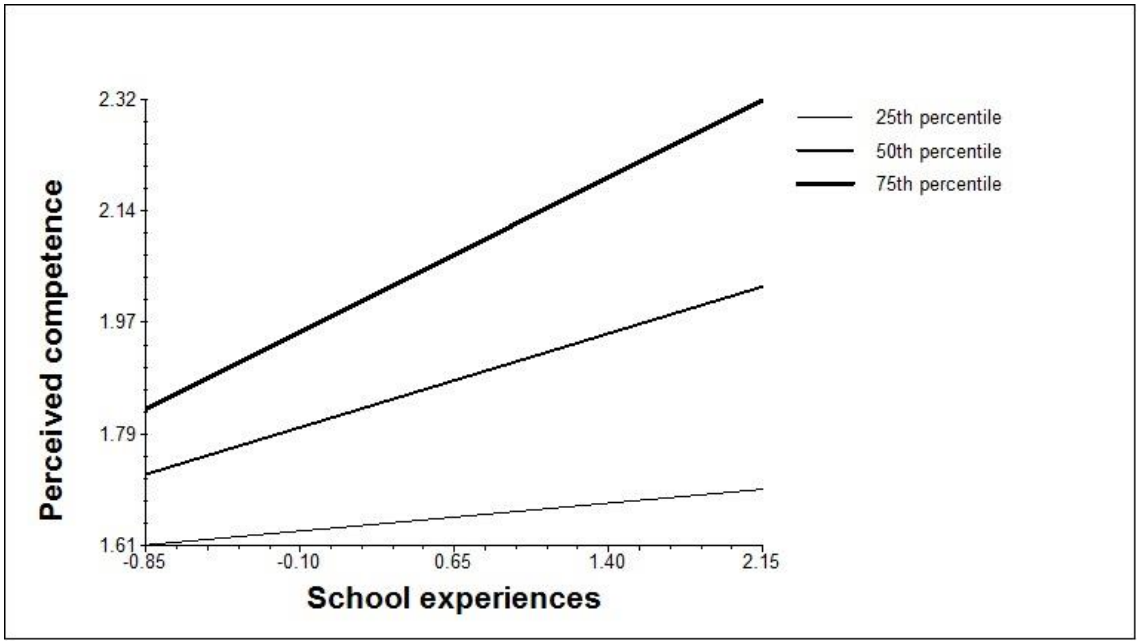

Figure 4. Relationship between perceived competence and depth of school experiences by percent Black and Hispanic enrollment

The data also revealed school location $(\gamma = 0.08, p < .01)$, Free-Reduced Price Lunch eligibility $(\gamma = 0.05, p < .05)$, frequency of visual art instruction $(\gamma = 0.02, p < .05)$, and amount of community resources used $(\gamma = 0.03, p < .01)$ had statistically

significant positive relationships with the self-directed experiences slope of visual art perceived competence. Figure 5 shows a suburban location magnifies the relationship between visual art perceived competence and the amount of self-directed visual art experiences in which students participate. Figure 6 shows more than 75% of students eligible for Free-Reduced Price Lunch magnifies the relationship between visual art perceived competence and the amount of self-directed visual art experiences in which students participate. Figure 7 shows more frequent visual art instruction magnifies the relationship between visual art perceived competence and the amount of self-directed visual art experiences in which students participate. Figure 8 shows greater use of community resources such as field trips and visiting artists magnifies the relationship between visual art perceived competence and the amount of self-directed visual art experiences in which students participate.

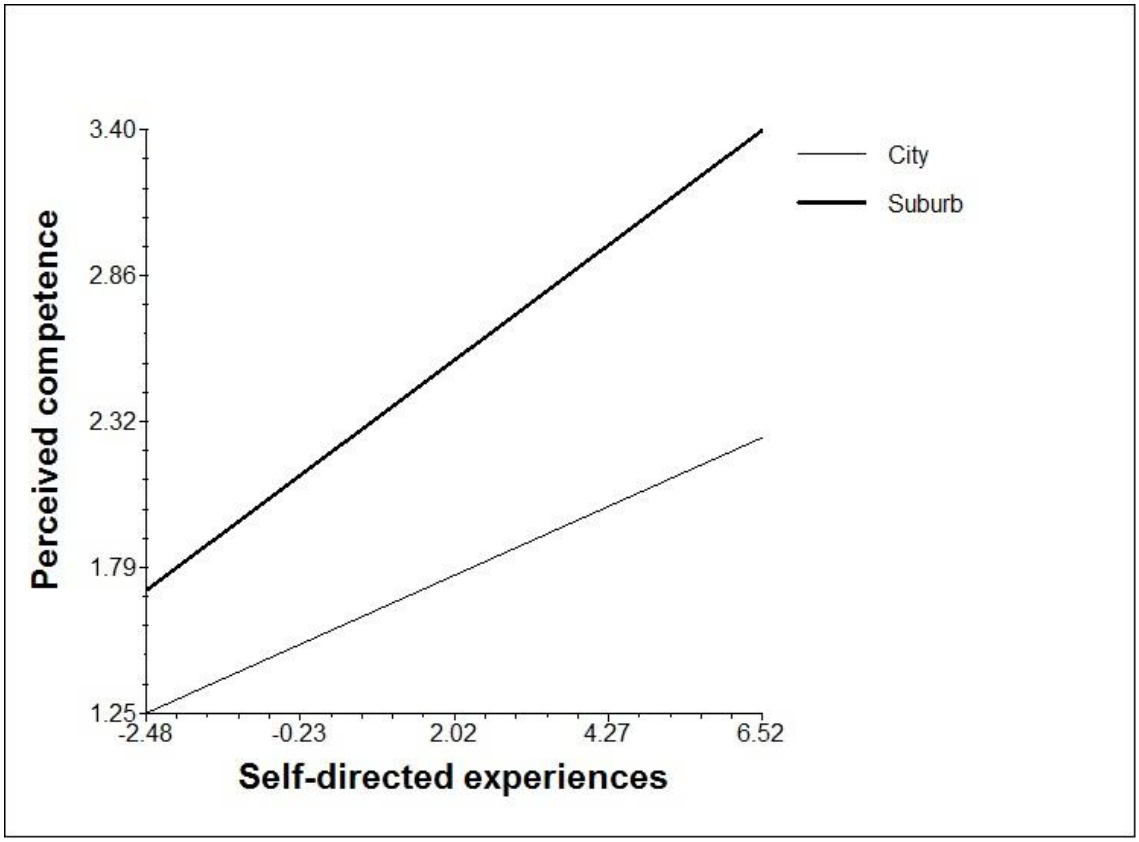

Figure 5. Relationship between perceived competence and amount of self-directed experiences by school location

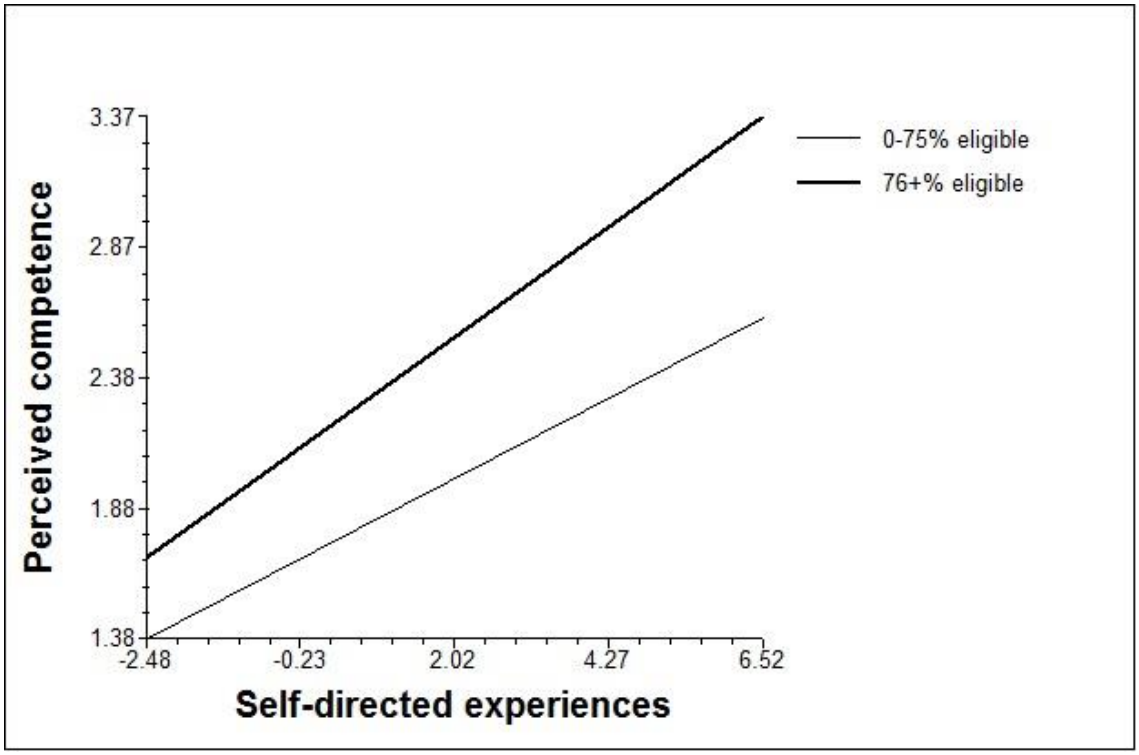

Figure 6. Relationship between perceived competence and amount of self-directed experiences by FRPL eligibility

Figure 7. Relationship between perceived competence and amount of self-directed experiences by frequency of visual art instruction

Figure 8. Relationship between perceived competence and amount of self-directed experiences by amount of community resources used

Summary

Visual art achievement and perceived competence were predicted by the student characteristics of race, depth of school visual art experiences, enrollment in community art classes, and amount of self-directed experiences. A two level hierarchical linear model was used to investigate the extent to which the school characteristics of school location, Free-Reduced Price Lunch eligibility, percent Black and Hispanic enrollment, and amount of community resources used predicted the adjusted school averages and strength of relationships among the student characteristics, visual art achievement and perceived competence. The implications of the results are discussed in chapter 5.

CHAPTER V

SUMMARY, DISCUSSION AND RECOMMENDATIONS

Introduction

The purpose of this study was to investigate the extent to which student, school, and community factors predict student achievement and perceived competence in visual art. Student factors include student race, depth of school experiences, extracurricular class enrollment, and amount of self-directed experiences. School location, Free-Reduced Price lunch eligibility, percent Black and Hispanic enrollment, frequency of visual art instruction, and amount of community resources were utilized for the prediction of adjusted school averages and the strengths of relationships among the student factors, visual art student achievement and perceived competence using two hierarchical linear models. Below is a summary and interpretation of findings. Limitations are presented, followed by implications for theory and practice. The chapter closes with recommendations for further research.

Summary

Index of school effectiveness. HLM analyses were used to determine which of the school factors predicted adjusted school averages for visual art achievement and perceived competence. The school predictors of frequency of visual art instruction and amount of community resources used significantly impact mean scores in both visual art achievement and perceived competence.

Achievement and perceived competence related positively to frequency of visual art instruction, as schools offering instruction several times per week had significantly higher adjusted averages than schools with little or no weekly instruction. As expected, increased exposure to classroom environments that encourage mastery through development of craft and technique (Hetland et al., 2007) and validation of student experiences through inter- and intra-personal reflection (Hafeli, Stokrocki, & Zimmerman, 2005; Pennisi, 2013) will boost student achievement and competence for students enrolled in visual art classes. Schools with more frequent instruction may be expected to have more areas devoted to classroom and exhibition space, as well as visual art teachers who may interact with students outside of class while fulfilling other duties. Such spaces and relationships lead to more chance encounters with visual art, which may explain how more frequent instruction could impact all students in a building regardless of whether they are taking visual art classes.

Achievement and perceived competence related positively with amount of community resources used, as schools with more field trips, artist residencies, and artist demonstrations had significantly higher adjusted averages than schools offering fewer or

none of these opportunities. These resources provide additional spaces to discover new identities (Maguire et al., 2012) or demonstrate personal vision in unexpected ways (Catterall & Peppler, 2007; Horowitz et al., 2005; Stevenson & Deasy, 2005). Such community-based resources also allow students and teachers to access materials, techniques, and instructional strategies beyond what is available within schools and families (Bodilly et al., 2008; Stevenson & Deasy, 2005). Increased access to these opportunities would accordingly boost achievement and build competence.

School location. Achievement and perceived competence related positively with school location, as suburban schools had significantly higher adjusted averages than urban schools. Suburban location also magnifies the relationship between self-directed experiences and both visual art outcomes of achievement and perceived competence. As students participate in a greater amount of self-directed experiences, such as talking with friends about art, keeping journals or sketchbooks, and visiting museums, both achievement and perceived competence scores increase. However, the rate and amount of increase is greater for suburban students than for urban students. These findings associated with school location are complicated by diversity among suburban schools, which range from those serving affluent, largely white communities to those serving inner-ring communities with mixed race/ethnicity and lower SES student populations (Ferguson, 2002). White middle-class suburban students may have more time and resources with which to engage in richer personal exploration of visual art (Bennett, 2011) and may attend schools providing student-centered visual art instruction based upon student experience and ample opportunity for group reflection and critique (Hefeli et al., 2005). However, this does not fully explain the higher achievement and

competence scores across the diversity of suburban communities. These findings merit further study.

Self-directed experiences. The three school predictors of percent Free-Reduced Price lunch eligibility, frequency of visual art instruction, and amount of community resources used all magnify the relationship between perceived competence and the amount of self-directed visual art experiences in which students participate. Schools with higher percentage FRPL eligibility, visual art instruction several times per week, and greater use of visual art field trips and visiting artist programs have students that report higher perceived competence scores. For each of these groups of schools, perceived competence scores increase at a greater rate as students participate in higher numbers of self-directed experiences. A similar relationship between suburban location, self-directed experiences, and perceived competence was described above. These findings support the hypothesis that community and self-directed experiences will increase competence beliefs. Visiting museums, keeping sketchbooks or journals, or talking about art with friends and family increases student enjoyment of and development of positive self-beliefs through visual art across urbanicity and SES. The positive relationship between high FRPL eligibility, self-directed experiences, and perceived competence is notable, as schools with low-SES populations are less likely to offer in-school instruction (Ohio Alliance for Arts Education, 2013; Parsad & Speigelman, 2012; Rabkin & Hedberg, 2011). Recognizing and connecting these self-directed experiences within the school environment may be particularly powerful for students at these schools.

Student race. The percentage of Black and Hispanic enrollment was significant in predicting both visual art achievement and perceived competence. Schools with more

minority students have significantly higher adjusted averages than schools with less minority students. In addition, the percent of Black and Hispanic enrollment magnifies the relationship between perceived competence and the depth of exploration of visual art media and techniques during in-school instruction. Schools with a higher percent of Black and Hispanic enrollment have students that report higher perceived competence scores, and these scores increase at a greater rate as students are able to experiment with a broader range of visual art media and techniques more frequently, as shown previously in Figure 4.

The finding about minority enrollment and visual art achievement differs from much research about racial composition and academic achievement (Hanushek & Rivkin, 2006), while the relationship between minority enrollment, competence, and depth of school instruction challenges the deficit view of high-minority schools unable to provide adequate opportunity and resources (Kraehe & Acuff, 2013). Yosso's (2005) assertions about the accumulation of cultural wealth within Communities of Color allow us to reconsider our understandings. Students within these communities may arrive at school with linguistic capital (skills to communicate in multiple languages or through visual art, music, or poetry) or familial capital (cultural knowledge connecting students to community history and resources) that may be deployed when visual art instruction incorporates students' prior experiences and understandings (Chappell & Cahnmann-Taylor, 2013; Kraehe & Acuff, 2013; Wolf & Dennison, 2009). However, these findings differ from Charland's (2010) demonstration of the lack of artist identity among Black high school students, despite recognizing and participating in creative activities throughout their communities.

In addition, two school characteristics enhanced the gap in reported perceived competence between Black and White students. The gap increases as both the frequency of visual art instruction and the percent FRPL eligibility increases. Black students report higher perceived competence scores than White students at schools offering visual art instruction several times per week, and lower scores at schools with little to no weekly instruction. Middle school art teachers recognize the developmental social and emotional needs of their students by designing studio spaces based on cycles of feedback and encouragement allowing teachers to guide or mentor (Hetland et al., 2007; Graham & Zwirn, 2010; Hafeli et al., 2005; Pennisi 2013). Prior research on racial disparities in suburban schools suggested the importance of teacher-student relationships and teacher encouragement as motivating factors for Black students across SES levels (Ferguson, 2002), which could explain some of the racial gap found in schools with more art instruction. More research is needed to better understand how race, prior experience, social and emotional needs, and visual art engage within schools and communities.

Limitations

1. This analysis used an existing large dataset and instruments, impacting the choice and composition of the predictors. It was not possible to include a variable measuring student Hispanic origin because of the way in which items were designed on the NAEP student instrument. Items measuring school, community, and self-directed experiences used different answer scales, which prevented the creation of similar composite variables for each of these experiences. Finally, NAEP visual art assessments do not include instruments completed by teachers or

family members, preventing a more nuanced analysis of the range of opportunities-to-learn in visual art.

2. Although participants include a nationally representative sample of the nation's 8th grade population, the findings may not be generalizable to other ages or grades. In addition, the representative nature of the data prevents the understanding of relationships within smaller units of analysis, such as schools or school districts.
3. Visual art achievement was measured in part through the creation of a self-portrait using provided drawing paper, oil pastels, and charcoal pencil. Using this two-dimensional process facilitated administration of the assessment, but may have impacted students who prefer to work in other two- or three-dimensional media or may have been unfamiliar with these materials.

Implications

Theory. This study begins to fill a gap in the literature by adding to our understanding of visual art competence. While some existing research has explored the relationship between general self-efficacy and visual art instruction (Catterall & Pepplar, 2007; Mitchell, 2009), scarce research exists to define or illustrate visual art efficacy or competence. In this study, a composite variable measured student beliefs about their engagement with and skill at visual art. Several factors were found to positively impact this measure of perceived competence, including school location, percentage minority enrollment, and frequency of both in-school instruction and community-based programming. The amount of self-directed experiences pursued by students enhanced the relationship between these factors and perceived competence. Finally, Black students

reported higher perceived competence than White students at lower SES schools and schools with more in-school instruction. These findings provide future researchers a framework to build understanding of visual art efficacy and competence.

Within the current environment of high stakes accountability, significant but persistent research has been unable to demonstrate a causal link between academic achievement and art education (Boyes & Reid, 2005; Davis, 2010; McCarthy et al., 2004; Melnick, Witmer & Strickland, 2011; Winner & Hetland, 2000). This has led to recognition within the field that a richer understanding of the transformative (Melnick, Witmer, & Strickland, 2011) or contextual (Dimitridais et al., 2009; President's Commission on the Arts and the Humanities, 2011) implications of art education would better support our understandings of visual art education across diverse student groups nested within a variety of communities. This study's findings about perceived competence contribute to a richer contextual understanding of the possible intrinsic benefits of visual art teaching and learning.

Practice.

Schools. The results of this study demonstrate the impact of self-directed visual art experiences on visual art achievement and perceived competence. Visual art teachers should develop teacher-student relationships that allow them to discover and build upon student self-directed experiences. Similarly, non-arts teachers should also be encouraged to better understand student self-directed experiences, particularly at schools with limited or no visual art instruction. At these schools, and particularly schools serving low SES student populations, non-arts teachers should provide spaces for students to share or engage with these experiences.

District and middle school administrators should recognize the critical role schools play in building and maintaining a community's art education ecology, as an active visual art education agenda would serve as an anchor for deeper, more authentic family and community connections. Providing spaces and pathways for school-based instruction, community-based programming, and recognition of student/family talents and interests would facilitate new connections among students and teachers or provide unique spaces for adolescents to demonstrate competence. Advocating for visual art instructors and community-based partners in an era of high stakes accountability may be challenging or daunting, but school leaders should recognize visual art education as a valid outlet for personal discovery and competence. This should have special consideration in schools with higher minority enrollment and for Black students, as the study's findings suggest the impact of visual art competence in these contexts.

Community art organizations. Staff and artists should continue to highlight the crucial role of community programming in providing and maintaining valid paths for building youth competence and identity. Financial and programming resources should be directed toward developing active networks of engaged, informed district and building administrators to sustain a community's visual art education ecology. Additionally, organizations should further develop family networks to support self-directed visual art exploration for youth and their caregivers. Most importantly, community organizations must recognize the marginalized role many school visual art instructors believe they may occupy. Cultivation of school-community partnerships should be based upon the shared goal of growing student competence beliefs, rather than successful delivery of specific instructional techniques and media.

Families. Parents and caregivers may contribute a strong voice by demanding that school districts maintain and enrich visual art education through both school- and community-based programming. Forming networks or partnering with teachers and community organizations as much as possible will support these efforts. More importantly, families should recognize that self-directed visual art exploration may allow for important social and emotional growth opportunities for their children and facilitate such engagement whenever possible. Even access to basic materials like pencils, paper, and a quiet contemplative space may fuel a curiosity and inquisitiveness that could be further supported by museum and gallery visits, browsing books and magazines, and further exploration with other materials.

Recommendations for Future Research

The following recommendations are made for further research related to this study:

1. Similar research should be conducted with a population that includes Hispanic youth to compare research findings.
2. Replicate the study with older and younger students to compare research findings.
3. While existing literature suggests enrollment in visual art extracurricular classes is an important access point for youth in certain social groups, it was not a significant predictor in these analyses. The NAEP dataset only allowed a dichotomous yes/no variable for extracurricular enrollment regardless of the type, length, or structure of the instruction. Further research is needed to better understand the impact of extracurricular classes on achievement and perceived competence.

4. This study used schools as the level-2 unit of analysis because of the structure of the NAEP dataset. Similar research should use teachers as the Level-2 unit of analysis to better understand how specific instructional choices and teacher-student relationships among members of diverse social groups impact achievement and perceived competence.
5. Further research exploring additional psychological factors that reflect middle school visual art instruction and experiences would provide a richer understanding of adolescent visual art efficacy and competence.
6. The findings showed unexpected results about the impact of self-directed experiences within suburban versus urban schools on perceived competence, as well as the racial composition of schools and perceived competence. Further research would lead to better understandings of the dynamics in diverse communities that enhances visual art achievement and competence. A localized study may reveal factors that are hidden in national representative samples, or ethnographic research may fill in our knowledge.

Summary

This study used a hierarchical linear model to investigate the extent to which student, school, and community factors predict student achievement and perceived competence in visual art. Findings from the study indicate there are school-level variables that moderate the effect of student-level variables. The student-level variables of race and self-directed experiences were most impacted by schools that offered more frequent visual art instruction and more frequent engagement with community visual art resources, as well as the school characteristics of location and racial composition.

It is important that a network of stakeholders, including district administrators, teachers, community arts providers, and families, work together to create a community-based ecology supporting visual art access and participation for youth. Providing multiple opportunities to learn, explore, and experiment with media and techniques ensures that more students find spaces in which to build competence beliefs. Sustaining these ecologies even in the face of mounting high stakes accountability pressures in schools and students validates the multidimensionality of visual art education.

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Appendix A

NAEP items used to form composite variables

Study Composite Variable	NAEP Item
Perceived student competence	I like to look at art I like to do artwork I think I have a talent for art People tell I am a good artist I like to show my artwork to other people I would like to be an artist when I grow up
Depth of school experiences	Paint or draw Make things out of clay or other materials Work in a pair or a group on an art project Talk with others about your artwork or that of other students Write about your artwork Look at videotapes, filmstrips, slides, or television programs about art Work with a camera, computer, or photocopier to make artwork
Amount of self-directed experiences	Go to an art museum or exhibit Make artwork Exhibit your artwork Enter an art competition Look at or read a book about art Watch a videotape or television program about art Talk with your family or friends about art Visit an artist's studio Keep an art journal or sketchbook
Amount of community resources	Do 8th graders in your school participate in school-sponsored extracurricular activities such as clubs, competitions, fairs, or exhibits in visual art? In the last year, did your school sponsor 8th grade field trips in connection with visual art? In the last year, did your school bring in visiting artists to perform, demonstrate, or teach in visual art? In the last year, did your school sponsor a visiting artist program (such as an Artist-in-the-Schools program) in visual art?