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Foundations of School Stakeholder's Perceptions Related to School Building Conditions and Learning

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COLLEGE OF EDUCATION

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Abstract

As school buildings continue to age, school stakeholders are increasingly concerned about the influence school facilities have on the academic achievement of students, especially in urban low income school districts. The purpose of this qualitative multiple case study was to examine school building conditions through the perceptions of 12 stakeholders including teachers, facility managers, administrators, and school board members in 3 school districts. The research question involved understanding how local school stakeholders perceived or acknowledged the relevance and relationship of school building conditions to student learning, social constructivism and aspects of organizational theory severed as the conceptual frameworks for this study. A recursive coding method and a comparative content analysis of semistructured interviews was completed. Themes that emerged included thermal comfort, technology, and symbolism. Analysis of interview responses revealed stakeholders perceived that thermal comfort and the presence of stationary technology within classrooms are of primary importance to student learning. Also, the analysis highlighted a common perception supporting the premise that the condition of school facilities represents a symbolic measure of the importance placed on student achievement by the school community. Implications for positive social change include a data-driven dialogue involving policies and practices that support providing optimum school buildings and facilities to support low-income and minority student achievement.

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by

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Dedication

I dedicate this work to Barbara Leslie Banner, my love and my friend, who I first noticed on a dusty ball field in 5th grade, who cheered for me on in high school, and who God allowed me to find once again. I think without her love, help, and wisdom, I would not have persevered. My son Christopher Michael-George and my daughter Jacqueline Michele, who loved and supported me during good days and bad; their belief in me urged me forward. Words cannot express my gratitude to my amazing family for supporting this long and demanding scholarly quest.

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Finally, I would like to thank my Lord who travelled with me every step of the way.

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Section 1: Introduction to the Study

Introduction

Conditions of schools buildings can convey symbolic importance regarding the significance the local school community places on students, teachers, and academic excellence (Cleveland, 2009; Duyar, 2010; Poplin & Weeres, 1992). Additionally, attributes of school buildings can influence student learning (Cash, 1993; Chan, 1996; Earthman, 2004; Harrison; 2010) as well as student health (Mendell & Heath, 2006). In a study of school buildings in Washington, D.C., Edwards (1991) noted that many public schools had deteriorated "to the point of having classrooms with falling ceiling plaster, chained fire doors, and nonfunctioning bathrooms; students question whether society really places a value on them or on education" (p. 4). Earthman and Lemasters (1998) noted that many U.S. students attend schools in deplorable condition and inequities among school facilities, according to socioeconomic status, exist across the nation. Researchers have suggested that a community's socioeconomic status is linked to a disparity in the adequacy of school buildings.

The severity of the problem pertaining to poorly maintained and deteriorating schools has been noted by educational advocates and decision makers. In1998, the New Jersey Supreme Court found "that the school buildings in [the state's poorest districts] are crumbling and obsolescent and that this grave state of disrepair not only prevents children from receiving a thorough and efficient education, but also threatens their health and safety" (*Abbott v. Burke*, 1998, p. 189). Vangen (2001) characterized schools in the United States as a "national disaster" (p. 62). The American Federation of Teachers

(AFT, 2006) cited several testimonies regarding the condition of the schools including a statement from a teacher in Guam that was striking: "I believe learning is affected when it rains in the room" (p. 2). Speaking about the nationwide condition of U.S. schools, Duncan (2009) commented that "the social and physical conditions around some schools are horrific" (p. 1) and Duncan further suggested that many public school stakeholders are either unwilling or unable to fix these schools, especially within urban-poor communities. In the context of the impact of school building conditions on student learning, U.S. public schools are in need of fundamental change that will eliminate inadequate building conditions.

In today's dynamic school environment, a school organization's ability to innovate and implement change is a requisite for operational excellence and positive student academic performance. Schools represent one of the most complex institutional settings for systemic change to take place, and change represents one of the most important challenges in the field of education (Taylor, 2006; U.S. Department of Education, 2006). According to the U. S. Department of Education (2003), the No Child Left Behind Act (NCLB, 2002) was promulgated in part to help create high-performing schools with the objective to "change the culture of America's schools" (p. 1). Kofman and Senge (1995) suggested that the successes and failures of education are inextricably linked to the prevailing prosocial ethos shaped by the attitudes, perceptions, and awareness of school stakeholders. Improvement in the condition of school buildings is linked to the ethos of local school stakeholders that recognizes the importance of the relationship between facilities and student academic success.

Certain factors have been acknowledged as impacting student learning, and among these is the school's operational performance; the level of performance is typically illustrated by the school's organizational culture (Wheatley & Frieze, 2010). Hargreaves (1997) noted that the culture of a school impacts every aspect of curriculum and instructional practice, including the extent to which classrooms are decorated. Understanding the constructs of organizational culture is particularly important when attempting to conceptualize whether the quality of school operations is aligned with the prosocial modalities of the awareness, perceptions, and attitudes of stakeholders (Somech, 2010).

Today's school buildings are intended to function as support for instructional practice and academic achievement (Chaney & Lewis, 2007). Beyond the physical dangers of poorly maintained and deteriorating schools, inadequate conditions may interfere with a student's academic performance and achievement (Barbra, 2007; Cash 1993; Flutter, 2006; Harrison, 2010; Higgins, Hall, Wall, Woolner, & McCaughey, 2005; Uline & Tschannen-Moran, 2008; Schultz, 2011; Vandiver, 2011). Inadequate conditions can also hinder students' rights to a thorough and efficient education (Educational Law Center, 2010). Researchers have also indicated that the condition of school facilities exerts an influence over student health and wellness (Mendell & Heath, 2005; Milkie & Warner, 2011); instructional staff morale and efficacy (Earthman & Lemasters, 2009; Tanner, 2007); student emotions, cognition, and learning motivation (Evans, 2006; Joe, Joe, & Rowley, 2009; Ruszala, 2008); and school attendance (Durán-Narucki, 2008). Earthman (2004) noted that there is enough research to sustain "without equivocation" (p.

8) that the physical quality and condition of the school facilities influence how well students learn. The condition of school buildings do not only impact the physical comfort of the occupants, but also adversely impacts the student's opportunity to receive an education in a healthy and safe environment.

To understand the influence of the physical environment of public schools, it is necessary to explore the underlying interrelationship between those elements that create the physical school setting in which school staff and students interact and work towards academic achievement. How these stakeholders perceive the nature of school building conditions is an important aspect of understanding whether the quality of building conditions will become part of a sustained school culture of educational excellence. Attaining that understanding necessitates an examination of the school's culture and the interrelated perspectives among key local school stakeholders who shape and impact that culture.

Problem Statement

The goals of social equity and economic prosperity have been dependent upon the opportunities created in U.S. classrooms where all children, rich or poor, might academically thrive and mature (Daggett & Pedinotti, 2005). Researchers of school building conditions have called attention to the fact that low-income students, and especially urban low-income minority students, are much more likely to be attending poorly maintained schools relative to students living in more affluent schools (Durán-Narucki, 2008). Kozol (1991) documented the educational inequalities that exist in low-income school communities across the United States and highlighted that school building

conditions are important to student learning and academic success. The consequences of inadequate school building conditions translates into ineffective instruction and is shown to be a factor in maintaining educational inequity among school districts throughout the United States (Kozol, 2005; Schneider, 2002).

Despite the existence of a robust rationale for construction of new buildings and continued improvements to existing school buildings and classrooms, the condition of New Jersey's K-12 educational facilities remain disparate among communities and school districts (Sciarra, 2007). Unsafe and deteriorated school buildings threaten academic development as well as the attainment of those skills necessary for success (Yonezawa, Jones, Mehan, & McClure, 2008). In contrast, well-maintained schools can become synonymous with academic success (Patinelli & Verdeny, 2010). Where school buildings are deteriorating and inadequate, educational equity, opportunity, and student achievement are negatively impacted (Crampton, 2009; Durán-Narucki, 2008; Kozol, 2005).

Policy is a function of the individual sense-making and perspective (Hoppe, 1999) that eventually merges into the shared perceptions of a group or organization (Hemmati, 2002). Researchers have suggested that sustained school-based improvement is dependent upon the policies and practices that emerge from a school's organizational ethos that is collectively developed among local school stakeholders (Brown, 2005; Hargreaves, 1994). Qualitatively investigating the perspectives of local school stakeholders helps to provide impetus to the body of existing school building condition research and how the local school stakeholders (teachers, administrators, staff, and school

board members) perceive school building conditions became the genesis of this qualitative study.

Nature of the Study

This multiple case study (Yin, 2009) is bounded by a qualitative interpretative research approach (Creswell, 2007) and this study was designed to collect participant attitudes, perceptions, and the awareness of a *complex phenomenon* (Baxter & Jack, 2008) in the form of school building conditions. Although a quantitative design could have been employed to gain access to perceptions of local school stakeholders through survey research, obtaining a depth of perspectives from semistructured interviews provided insight that has not been well delineated within the existing body of research. Additionally, researchers have concluded that schools and classrooms provide a poor locale for experimental investigations (Goldharber, 2007). A rigorous quantitative study within the bounds of an authentic educational setting that necessitate controls linked to a variety of concomitant variables would be difficult, if not impossible (Bulterman-Bos, 2008). The rationale for using a qualitative approach to data collection and analysis was associated with the lack of previous qualitative study in the area of school building conditions. Also, there has been growing support among researchers for the use of a qualitative approach to the study of the influence of school building conditions on learning (Edwards, 2006; Geier, 2007; Winkel, Saegert, & Evans, 2009).

A multiple case study design allowed for the collection and appraisal of different experiential perceptions by gaining thick and rich descriptions from data (Carlson, 2010; Yin, 2009). Linked to school building conditions and student learning, the framework of

a case study format was suitable for acquiring a "better understanding" (Creswell, 2003, p. 223) of school building conditions. According to Willig (2008), multiple case study supports the authenticity of data derived from interviews explaining the beliefs of groups of participant regarding a phenomenon (school building conditions).

A semistructured interview technique (Leech & Onwuegbuzie, 2007) was used to gain access various perspectives and allowed an evaluation of the conceptual awareness, perceptions, and attitudes of 12 purposely selected education professionals or local school stakeholders working in three disparate suburban school districts in New Jersey. Interview data were analyzed on a case-by-case and a cross-case basis through a thematic examination and coding of interview data (Denscombe, 2007; Lacey & Luff, 2007). From the interview data, themes emerged through a recursive synthesis of content (Seidel, 1998), analogous to Creswell's (2007) "spiral analysis" (p. 151) and by a supplementary cross-case analysis of data advocated by Stake (2006). The methodology associated with the collection, evaluation, and coding of interview data is designed to bring meaning and insight to the study's research question (Rubin & Rubin, 2005). Aside from data derived from interviews, additional data were obtained through field journal memos and a review of associated archival documents. This multiple case study (Creswell, 1998; Stake, 2006; Yin, 2009) is bounded by an interpretative research approach (Creswell, 2007) and is designed to collect for evaluation participant attitudes, perceptions, and an awareness of the complex phenomenon (Baxter & Jack, 2008) in the form of school building conditions.

Creswell (2009) posited that qualitative inquiry should introduce one pivotal or primary research question that serves to develop the pathway that opens to the discovery and understanding of the phenomenon under study. To explore personal perspectives of local school stakeholders regarding the relational constructs between the phenomenon of school building conditions and student learning, the following guiding question was addressed; How do local school stakeholders, recognized as school facility managers, administrators, teachers, and school board members, perceive or acknowledge the relevance and relationship of school building conditions as an influence on student learning in three diverse school districts in coastal New Jersey?

Purpose Statement

The purpose of this qualitative multiple case study was to explore the perceptions of local stakeholders who act to regulate organizational decision-making to support or hinder the value of school building conditions. In addition, the goal was to build on the knowledge from previous studies by using a subjective record of school stakeholders' personal constructs (awareness, attitudes, and perceptions) of school building conditions and student learning. In this study, I conceptualize, through the reporting of personal constructs, the importance of school building conditions in the context of student learning. Gathering, analyzing, and assembling a reporting of the experiences and tacit knowledge that underpins organizational practices is a rudimentary starting point from which the impact of school building conditions can be better understood.

The staff and parents perceptions are a source for understanding a school organizations ethos or culture regarding an optimum school environment for learning.

According to Szuba and Young (2003), local school stakeholders are best suited to influence the development of the shared vision and associated policies within a school organization. These stakeholders, within a community of practice (Wenger, McDermott, & Snyder, 2002) in a school organization include, but are not limited to, teachers, administrators, school facilities managers, and school board members. How these stakeholders perceive the critical nature of school building conditions is an important aspect to understanding whether the importance of the quality of building conditions will become a sustainable part of a developing school culture that is allied with organizational and educational excellence.

School buildings have been described as an experiential medium that influences the perceptions of teachers, students, and others who have an interest in educational achievement (Barbra, 2008; Cleveland, 2009; Duyar, 2010; Lanham, 1999). The development and implementation of the policies attributed to the quality of school building conditions requires a collaborative commitment at all levels of the school organization (Szuba & Young, 2003). Royea and Appl (2009) pointed to the "voices behind" (p.1) educational advocacy and change, as mattering most to challenging the injustices in public education that may obstruct a child's right of access to learning. For public school educators, advocacy is a matter of professional responsibility (Mitchell & Philbert, 2002) and Geier (2007) suggested that for advocacy to be effective, an authentic understanding of building conditions becomes necessary.

Such authenticity, according to Geier (2007), can be obtained through educators who are most experienced in dealing with school conditions and academic progress.

Turning attention to local school stakeholders, as a community of practice that has been empowered with unique awareness of student learning and an awareness of building conditions that might obstruct access to learning is important to school reform and improvement efforts. Toward this end, the intention of this inquiry was to look beyond previous survey research to establish a causal relationship between school building conditions and student learning success.

Conceptual Framework

In this study, I developed a conceptual framework that was used to facilitate a "better understanding" (Creswell, 2003, p. 223) of the underlying personal perspectives of members of a school organization linked to the relationship of school building conditions and student learning. I did not directly examine building conditions but rather I addressed a research paradigm that was directed towards the evaluation of the antecedents of the ethos of a school organization (Donnelly, 2000) that impacts the policies and practices linked to school building conditions. The constructs of organizational theory, social constructivist theory, and environmental psychology are used to advance the notion that human reality is a complex construct developed within the physical environment between people, in part, by means of the interpersonal relationships, discourse, and creation of culture (Woolner, McCarter, Wall, & Higgins, 2011).

A constructivist approach to inquiry involving schools necessitates an investigation of the constructed meanings or value systems that are internalized within a school organization that form the school's ethos. Donnelly (2000) explained that a

school's ethos is a product of the interaction among members that creates the values and behaviors ultimately promoted by the school organization and shaped into a particular organizational culture. How a school organization's ethos creates meaning of school building conditions became the core premise of this qualitative multiple case study.

The quality and condition of school facilities has a transactional impact on students (Graetz, 2006). Researchers have identified acoustics, building age, lighting, the aesthetic affect of color, and thermal comfort as key physical attributes of school buildings (Cash, 1993; Chan, 1996) and have employed a variety of subjective survey instruments to quantitatively evaluate the influence of the physical conditions of school buildings on student performance and learning (e.g., Crook, 2006; Fuselier, 2008; Harrison, 2010; Mendell & Heath, 2005; O'Sullivan, 2006; Tanner, 2007). Additionally, some researchers have approached the topic of school building conditions through a qualitative framework of interviews involving the reported perceptions of the influence on student learning (e.g., Barbra, 2006; Edwards, 2006). All studies have focused upon obtaining a better understanding of the influence of school building conditions on student academic achievement.

The conceptual model for this study entailed the examination of the underlying ethos of school organizations that can be represented, in part, by the attitudes, perceptions, and awareness of key members of an organization described as local school stakeholders. What was necessary to authenticate is that an organizational ethos existed regarding school building conditions and the model sought to provide an understanding of that ethos.

Definition of Terms

The following definitions are provided to maintain compatibility with terms and phrases used in other research relevant to this study and for clarification of usage. Definitions are provided relative to what may be ambiguous operational meanings found in the literature associated with this study. Many of the definitions are derived from both state and federal regulations such as the NCLB (2002) act or definitions proffered by the New Jersey Department of Education.

Best educational practices: Those institutional aspects of instruction and learning associated with a society's beliefs towards the pedagogic nature of schools (Bailey & Pransky, 2005).

District factor group (DFG): The categorization of school districts by socioeconomic status based on (a) high school and college graduation rates, (b) employment statistics, and (c) report of family income and those living in poverty (New Jersey Department of Education, 2005).

Educational adequacy: For purposes of a school facilities project, the suitability of a facility for the provision of instruction that will enable students to achieve the Core Curriculum Content Standards and encompass the standards established in the facilities efficiency standards combined with the requirements of N.J.A.C. 6:26-5 (New Jersey Department of Education, 2005).

Educational equity: A cohesive set of policies, programs, and practices that ensure high expectations and positive achievement patterns and equal access to

educational opportunity for all learners, including students and teachers (New Jersey Department of Education, 2005).

Role orientation: A combination of individual and organizational perspectives influencing beliefs, behavior, and cognition (Whetten, 2007) that form personal expectations associated with social position within an organization and about the mission of an organization (Stryker, 2007).

School building condition: The defined as the rating of Inadequate, Below Average, Average, Above Average and Excellent in the school district's Long Term Facility Plan that must conform with the requirements of N.J.A.C. 6A:26-2 et seq. (New Jersey Department of Education, 2005).

Student academic achievement: A level of academic performance that is determined on a school-wide basis via the New Jersey Assessment of Skills and Knowledge 8 (NJ ASK 8) that measures student achievement in the knowledge and critical thinking skills defined by the NJCCCS in language arts literacy and math (New Jersey Department of Education, 2005).

Assumptions, Limitations, Scope and Delimitations

Leedy and Ormrod (2005) defined research assumptions as self-evident truths. It was assumed during the course of interviews that all key informants responded to the interview questions honestly and that the interview protocol reflected a process that introduced questions that created the opportunity for key informant responses to be accurately examined and measured. The data collected were interpreted regarding the constructs of the research questions. Moreover, it was assumed that participation was

completely voluntary and undertaken without coercion. It was similarly assumed that a generalization could not be made about all local school stakeholders due to the small size of the case field. The final assumption unfolds through the testimony of the key informants that will positively contribute to the body of research and allow educational decision-makers the opportunity to better understand the underlying aspect of school building conditions.

Best and Kahn (2006) posited that limitations are those conditions that lie beyond the command or control of the researcher and tend to inhibit the "application" (p. 39) or generalization of the study's conclusions. The information generated by this study may be employed in future research on school building conditions. This multiple case study was limited by the small size of the case field, the size of the participant group referred to as key informants, and the narrow focus upon gathering data from purposely selected local school stakeholders within a small geographic area. The small size of the case field does not allow for conclusions to be broadly applicable or generalized beyond the cases under study and cannot be viewed as characteristic of other school districts in New Jersey, or school districts nationwide.

Interview questions were designed for participants to recollect perceptions regarding the role school building condition play in education. The interview guide (Appendix A) was not constructed to gain access to understanding the actual impact of school building conditions on student learning, but rather, to gain access to testimony of perceptions regarding the impact. Semistructured interviews represented a potential

limitation related to either intentional or unintentional mischaracterizations of perceptions by participants (Hancock & Algozzine, 2006) during each interview.

Additionally, the research design also reflected the potential that the depth of informant knowledge may be lacking and possible evasiveness on the part of informants might intrude upon the credible nature of the interviews (Taylor-Dunlop, 2009). The accuracy aligned with key informant recall is believed to be a factor that places limitations of the trustworthiness of recalled and reported facts (Yin, 2009). Additionally, it was recognized that researcher biases and perceptual misrepresentations can become potential limitations of a qualitative study; thus, any misrepresentations unknowingly or knowingly made during each interview, may affect participant responses and create a limitation.

This study was confined to purposely chosen key local school stakeholders including teachers, administrators, school facilities managers, and school board members from among three school districts and considered separate cases of study. The setting of this study is similarly confined to the suburban school districts in coastal New Jersey. Data gathering was confined to face-to-face, semistructured interviews and field notes recorded in a journal-type notebook during a period of time between August 2011 and March 2012. This qualitative case study is bounded due to constraints regarding timeframe for this study and a delimitation was created by the constructs of the time frame during which the semistructured interviews will take place.

Significance of the Study

This goal of this study was to understand the emergent organizational ethos maintained by local public school stakeholders through attitudes, perceptions, and awareness of the importance attributed to the influence of school building conditions on student academic success. No previous researcher has approached the issue of school building conditions through a qualitative multiple case study inquiry of the reported perspectives of local school stakeholders with different role orientations and across different school communities. A credible source of qualitative data can assist local school stakeholders and other decision-makers with the creation of innovative policy approaches regarding the nature of school buildings (Lewis et al., 2007). Also, the importance attached to academic achievement as a result of the mandates within federal legislation obliges all local school stakeholders to adopt data-driven strategies to maintain facilities at optimum levels.

In the case of an educational organization, the common mission is to provide and maintain a constructive and supportive learning environment so that all students may become academically successful (Epstein & Associates, 2008). Spillane (2004) recognized the central role that local school organizations assume when fostering system-wide change leading to reforms of practice and Gallucci (2003) asserted that successful reform is contingent on the influence of local schools and its stakeholders. In New Jersey, the primary responsibility for school building conditions remains a local school matter (Ponessa, 2004) and evaluating whether members of the local school community attribute

an importance to school building conditions is important to the ultimate fulfillment of that mission.

This study is intended to deepen understandings of the underlying perceptions within an educational organization of school building conditions. Moreover, this study was conducted as an effort to advocate for positive social change. With the accumulated data, valuable conclusions may be gained for the benefit of school district superintendents, boards of education, teachers, facility management professionals, and those government decision-makers involved in the funding of school facilities.

Summary

The problem presented in Section 1 revolves around the premise that unless the local school stakeholders who influence local education policy and practice recognize the link between the quality of school buildings and student learning, maintaining optimum building conditions will not be sustained. The purpose of this study was to ascertain whether a school organizational culture exists among stakeholders of different suburban school districts. Section 1 also includes an outline of the requisite components of the nature of this study, the conceptual framework, relevant definitions, the significance of this study, and the limitations, delimitations and scope of this study.

Section 2 serves as the review of research literature associated with school building conditions as they are theoretically linked to academic achievement and student health. The review presents the underlying principles or "guiding ideas and insights" (Senge, 1990, p. 373) of critical theory organizational culture, social constructivism, and social justice that support the need for research and educational change such as school

climate, social justice, and social constructivism. Additionally, Section 2 includes conclusions regarding the individual attributes of school buildings as well as those research conclusions connected to overall conditions and student learning. The section concludes with researchers who have suggested that school building conditions also are a factor regulating student motivation and emotions (Jensen, 2008).

Section 3 proceeds with an introduction of the methodology and the research design employed that includes an overview of the character of qualitative research and case study methods. Section 3 continues with the research question and a delineation of this study's context. The ethical conduct and the protections related to key informants and the role of the researcher are discussed in length. Section 3 concludes with a description of the characteristics of the appropriate approach to data collection and analysis, as well as precautions taken to increase the validity and reliability of the data collection and analysis process.

Section 4 serves to distinguish the results from the interviews of each key informant's as well as the results of the examination of archived records in the form of previous studies. The results will reflect a thematic approach to the testimony of local school stakeholders relative to the core research question. Section 5 will conclude with the findings and discussion of this study as well as a summary of the entire study and relevant conclusions.

Section 2: Review of the Literature

School buildings are an object of moral concern and are more than just capital resources. The definition of what counts as an attribute of a school building, how it is described, and what constitutes an acceptable solution to mitigate the adverse impact of poorly maintained buildings tend to differ across the different professional perspectives that inform school policy. To capture the richness of the attitudes, perceptions, and awareness that underpins a school organization's ethos requires an interdisciplinary approach to reviewing both the quantitative and qualitative research standpoints related to the impact school building conditions may have on student learning. While the field of study has been dominated by a quantitative perspective to explain the phenomenon, few researchers have undertaken a qualitative approach.

Those stakeholders who are involved in the daily operation of schools have a direct impact upon the policies that underpin school improvement. According to the New Jersey Department of Education (2010), the origin of the policies and practices that most impact student learners originate within local school organizations. Education policy remains a derivative of local school stakeholders resolving, through consensus, relevant issues that are reflective of community-wide expectations regarding the goals and operation of public schools (Burch, 2007; Hollister, 2007). A construct emerges suggesting that policies pertaining to the conditions of school buildings are a consequence of a cultural dynamic or collective ethos within the school community (Kozol, 1991), Understanding the collective ethos of members of a school organization is relevant to understanding the reasons underpinning the success or failure of a school to

provide optimum physical conditions for learning. Developing a comprehensive understanding of past efforts to synthesize the influential relationship involving school building and learning became an underlying catalyst towards informing a research approach that would provide credible and trustworthy conclusions.

The dynamic influence of the physical qualities of school buildings related to student learning remains a polemical concept not easily defined, difficult to articulate, and prone to a myriad of methodological approaches (Goldharber, 2007; McGuffey, 1982; Riegg-Cellini, Ferreira, & Rothstein, 2008). Durán-Narucki (2008) noted, "Little is known about how the condition of school facilities affects academic outcomes" (p. 278) and Dyck (2009) pointed out researchers who have studied school building conditions have failed to isolate those physical attributes, as controllable variables, thereby rendering findings ambiguous and inconclusive. Pincus, Marion, and Calvo (2005) argued that school building condition research has lacked the necessary authoritative data needed to establish an empirical interrelationship between student achievement and school building condition. Pincus et al. also noted that research has been "plagued with methodological problems and not surprisingly, produced conflicting, ambiguous results" (p.73). Lair (2003) provided the following observation, "The researcher of facilities and student achievement must make conclusions that weigh the difficulties of control in educational research" (p. 50). Hyslop-Margison, Hamalian, and Anderson (2006) offered the observation that the inability to directly observe phenomenon creates a dilemma for researchers when attempting to explain the phenomenon's authenticity relative to human behavior. In essence, resolving "how" and "why" the phenomenon of building condition

influences human behavior and student learning has been impossible to quantify. The variability of a school environment is a difficult locale to make uniform observations and construct consistent conclusions (Goldharber, 2007). Finding an empirical link between the physical attributes of a school building and student learning behavior or learning has been difficult to achieve because school buildings are not well suited for experimental studies.

Thus, while researchers have found that there are phenomenal forces at work that support or hinder student learning (Earthman, 2004), researchers have indicated that school building conditions such as building age, lighting, air quality, noise, thermal comfort, and school building aesthetics are the chief influences on student academic achievement (Earthman, 2004; Mendel & Heath, 2005; O'Neill, 2000). In New Jersey, the Supreme Court, according to Goetz and Weiss (2007), determined that where inadequate school building conditions exist, a student's access to learning is denied and academic success frustrated. The complexity of the phenomenon under study necessitated a comprehensive review of a wide assortment of scholarly sources.

Literature Review Process

This literature review provided a requisite level of understanding from which a considered methodology could be drafted to ultimately report trustworthy and credible conclusions. To inform the constructs of the research question and support the conceptual framework of this study, approximately 160 current sources associated with school administration, human psychology, health science, organizational theory, and construction technology research were reviewed. Access to books, journal articles, and

government records allowed for a critical evaluation of what is known and what researchers still need to learn about the educational consequences of poorly maintained schools or inadequate academic facilities.

Scholarly materials were primarily obtained through the Walden University online library and the databases of EBSCOhost, EdResearch Online, the National Clearinghouse for Educational Facilities (NCEF), ProQuest, and ProQuest Digital Dissertations, World Cat, and the inventory of sources maintained by the U.S. Department of Education's Educational Resource Information Center (ERIC), as well as the New Jersey Department of Education. Terms and descriptors applied to the search for germane literature included *case study*, *constructivism*, *critical social analysis and theory*, *environmental psychology*, *organizational change*, *organizational theory*, *prosocial*, *school building conditions*, *social justice*, and *student learning*.

This literature review is organized by thematic subsections related to several areas of social science. The first subsection includes a discussion of the need to develop a conceptual orientation to undergird this study's rationale and methodology for investigating the relationship between school building conditions and student learning. The subsection produces an overview of the aspects of environmental psychology, organizational theory, critical theory, and social justice that coalesce into a deeper understanding of the human-environment relationship and the merits of why the study of school building conditions is relevant and important. In the second subsection, I distinguish previous research and reports regarding different approaches to explaining the perspectives and relationship between school building conditions and student learning.

Conceptual Orientation

It became my belief that constructing this study's research design should be cognizant of conceptual, theoretical, and philosophical rationales that have served to support previous research on school building conditions. Nwokah, Kiabel, and Briggs (2009) suggested that a review of related theoretical frameworks renders informed decisions possible and Cooper (1985) noted that attention must be afforded to those theories that are directly associated with the subject matter under study. In other words the review of literature helped produced a methodological rationale suggesting that a school's organizational culture or ethos is driven by the underlying attitudes, perceptions, and awareness of school's stakeholders. Understanding how the culture or ethos connects to and mediates the condition of school buildings is important to gaining deeper insight into the direct and indirect influences on student learning.

Environmental Psychology

Theorists regard the ambient environment as the context in which human behaviors actualize (Montello, 2007; Pati & Barach, 2010). Wechsler (1958) viewed learning as the "global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment" (p. 7). The affect of the physical design or constructed features of a school building on students and staff is recognized in a variety of studies linking school building condition to student learning (Earthman, 2004). Because the psychology of perceptions concerning school building conditions is the context of this study, the human-environment relationship expressed through environmental psychology became relevant and the focus of attention. The field of

environmental psychology is used to highlight the existence of a transactional relationship among the physical elements of the environment and human behavior (Pati & Barach, 2010).

There have been many theorists who have explained the transactional nature of the paradigm of behavior and environment. In his field theory, Lewin (1935) supported the premise that human behavior was, in part, shaped by both a social and physical environmental milieu. Lewin suggested that the ambient physical environment is not neutral, rather human behavior is impacted and shaped by the ecological interrelationships that occur with physical spaces. Garrett (1980) relied on Lewin's field theory and the associated assertion that physical environment becomes integral to the biological as well as psychological aspects of a child's learning behavior. Garrett's study of school buildings noted that Lewin was clear in asserting that the condition of the surrounding environment is inseparable from human cognitive processes.

Understanding human behavior and the physical environment in the context of environmental psychology is a way to approach the understanding of the idiosyncratic perspectives regarding the influence school building conditions exert on learning behavior and achievement. Examining the nexus of the human-environment relationship, Montello (2007) suggested that psychology and the proximate environment are codependent; meaning, human psychology impacts the environment and the environment is impacts human psychology.

The theoretical constructs of environmental psychology are, according to Graetz (2006), aligned with the relational aspects of school building conditions and student

learning. For instance, the quality or condition of a school building becomes the context in which learning behaviors and instructional practices takes place. Although not immediately apparent from the literature on school building conditions, the transactional characteristics embodied in environmental psychology unfolds within a number of studies and reports (e.g., Barbra, 2006; Cash, 1993; Durán-Narucki, 2011; Edwards, 2006; Harrison, 2010). Developing a conceptual understanding of the transactional nature involved in constructing normative ideology within an organization is important (Jonassen, Cernnusa, & Ionas, 2007; Richardson, 2003). Hatch (2002) suggested that social institutions reflect an individual's or group's constructed social identity. This is particularly important when undertaking an examination of the belief systems connected to prosocial school building conditions perceptions.

Organizational Ethos or Culture

Among educational organizations, the common mission is to provide and maintain constructive and supportive learning environments so all students may become academically successful (Epstein & Associates, 2008). Understanding the belief system or sense making from which local school stakeholder's perspectives develop, entailed an examination of the principles of organizational theory, and in particular the aspects of organizational culture. The idea of organizations possessing a character, culture, or ethos is based on the notion that organizations are, in many ways, like individuals (Waeraas & Ihlen, 2009). An organization's culture is also understood as an important element of high performance workplaces and that a school's culture impacts every aspect of

curriculum and instructional practice, including the extent to which classrooms are decorated (Hargreaves, 1997; Johnson, 2010).

Those underlying perspectives of school stakeholders are also articulated in the symbols created by the organization (Silverman, 1970) and those symbols can be represented by the quality and conditions of school buildings (Berner, 1993; Cash, 1993; Noguera, 2008). Schein (1992) viewed an organization's culture as a reflection of the behaviors espoused by stakeholders that arise from mutually accepted and shared perceptions or beliefs. Fullan and Hargreaves (1996) noted that the operational framework or policies and practices of a school organization, and the operational effectiveness of policy and practice, are influenced by the assumptions, beliefs, and expectations embraced by a school's stakeholders. According to Brown (2005), it has been observed in research that an organization's mission success is emblematic of the organization's culture. Brown further noted that the influences on a school organization's culture join to create an environment where teachers and students have the opportunity to successfully do their work.

Burch (2007) posited the following question; "Why is it that, in education, there are many examples of reforms that have been faithfully implemented and yet very few examples of sustained improvements at the core of schooling?" (p. 84). From a social constructivist perspective, a plausible explanation for Burch's suggested gap between theory and practice is the constructed sense-making among the members of the school organization. The absence of a recognition among local school stakeholders of the importance of the positive influences that well maintained facilities encourage, emerges

from the prosocial ethos of the school community. Gaining a better understanding of the sense-making or perspectives of stakeholders, as they relate to school facilities, provides access to understanding why inadequate conditions exist. As Apple (2006) noted, critical analysis of education reveals the means by which educational policy and practices support or reject the abuse of the disadvantaged.

Understanding the constructs of organizational culture or ethos is particularly important when attempting to conceptualize whether the quality of school operations is aligned with the behaviors regulated by the awareness, perceptions, and attitudes of school stakeholders (Sergiovanni, 2000; Somach, 2010). The construction of specific policies can often be explained by the prosocial perceptions of the organization's members (Honig, 2006; Tidwell, 2005). Thus, as van der Westhuizen, Mosoge, Swanepoel, and Coetseem (2005) noted, a school organization's collective goals for positive academic achievement are framed by the underlying sense-making and perceptions of the school's stakeholders. Tableman (2004) suggested that the persona of a school organization can be inferred from the quality of the conditions of that school. In sum, the creation and support of the conditions of a school are produced and nurtured by the perspectives of the membership within a school organization that are most concerned with the operations and quality of school building conditions and student learning.

These perspectives, when supporting positive change in educational policy and practice, are linked to the concept of prosocial motivation or behavior. According to Aronson, Wilson, and Akert (2004), prosocial behavior is "any act performed with the goal of benefiting another person" (p. 382) and Grant (2007) asserted that organizational

prosocial motivations are represented by the altruistic desire of the organization or individuals within the organization to have a beneficial impact on others. In other words, an organization's prosocial or public service motivation is understood to be produced by the beliefs, values, and attitudes of the organization's membership to act in the best interests of others (Paarlberg & Lavigna, 2009; Perry & Vendenabeele, 2008).

For instance, situational prosocial motivation could be illustrated by a desire of teachers to help students towards academic success or a school organization's goal to provide students and teachers school building conditions that are in optimum condition. Building on the principles of environmental psychology and the aspects of prosocialism, investigating the dynamics of the individual prosocial attitudes, perceptions, and attitudes towards the importance of school building conditions may provide an insight into the paradox affiliated with the existence of poorly maintained or inadequate school facilities and the organizational awareness of the school community. Madsen (2005) explained that where school organization awareness of an important problem facing educators is lacking or absent, the necessary governance to mitigate the problem becomes marginalized or even ignored within the school organization. Duyar (2010) asserted in a study of school building conditions that educational policies that are critical to maintaining the quality of school buildings are "the most neglected" (p. 9) component of organizational best practices in schools.

Researchers have asserted that the symbolic nature of the surrounding environment impact the construction and sustainability of an organization's culture. Silverman (1970) observed and detailed that understanding the cultural undertones of an

organization requires the acknowledgement that the perspectives of an organization's members can be articulated through the symbols and artifacts that define the character and complexion of the organization. Schein (2010) explained that organizational symbols and artifacts are a product of the underlying modalities of human thought and knowing and are the "manifestation of culture" (p. 24). According to theorists interested in organizational change and culture, the values of an organization are embodied in the symbols communicated to employees and others involved in the organizational mission (Mitchell & Willower, 1992). McIntosh (2008) noted that the quality and character of the physical features of built spaces are influential on the development of self-identity or culture.

The physical features of public buildings act to influence individual perceptions of the importance the community attributes to the mission of the public institution. Researchers have posited that poorly maintained school facilities suggest a diminished importance within a community that extends to the self identity of the entire school community. Dillon (2001) viewed the architectural design of schools as acting as a "silent moral influence" within a community impressing on the virtues of student good character (P.113). Vischer (2007) explained that the "architectonic details" (p. 179) or the aesthetic aspects of the physical decoration of space symbolically convey meaning and can impact emotions. In an effort to explain the school building phenomenon, Poplin and Weeres (1992) concluded that the conditions of school buildings are illustrative of the worth a community attaches to student learning and Berner (1993) noted that students require the

reassurances that their education is valued by society and school building conditions are symbolic of that value.

Cash (1993) asserted that the quality and condition of school facilities is symbolized by the school organization's culture, and Edwards (2006) explained that the symbolic nature of building conditions produce an influence on student academic identity and behavior. Noguera (2008) suggested that the aesthetic character of school building signifies the normative ethos within the school community and that ethos can be recognized by the quality of such conditions as

> The lighting of the hallways, the cleanliness of restrooms, the positioning and demeanor of secretaries in the front office, the absence of prevalence of greenery on the playground are just some signs I take note of to obtain insights into the culture and atmosphere of a particular school (p. 190).

Theorists have suggested that an organization's ethos can be recognized in the symbols created by the organization's membership (McIntosh, 2008; Noguera, 2008). In the case of school organizations, the condition of school facilities becomes emblematic of the individual awareness, perceptions, and attitudes of those individuals with a vested interest in the school's mission.

Social Constructivism and Social Justice

Researchers have revealed an underlying ideology connected with the aspects of social class struggle and perspectives of critical social constructivism (Kincheloe, 2005) and social justice (Rawls 1971). Edwards (2006) explained that the conceptual approach of the constructivist has been successful in "legitimizing the significance of social

contexts in education" (p. 17). Meaning that social status within a community impacts the quality of education received and the impact can extend to the quality of school building conditions. In a study involving poor urban schools dominated by African and Latino American students, Edward approached school building conditions from a constructivist perspective. The use of constructivism allowed Edwards to explain that a disadvantaged student's academic identity is shaped or constructed, in part, by the quality of the school building in which the poor urban student learns. Kincheloe (2005) posited that critical social constructivism helps to make sense of the educational aspects of society and politics. Creswell (2003) explained that the social constructivism serves as a framework for systemic change that produces equity and opportunity in education. As a conceptual paradigm, social constructivism requires an examination of those forces which might marginalize or diminish positive change or reform associated with educational improvement.

Important to shaping perspective towards school building conditions is the acknowledgment among members of the local school community that school buildings reflect both genuine and symbolic values that represent community expectations of academic excellence (Duyar, 2010). The constructed orientation of a group of educators is wholly dependent upon collective understanding and acceptance of the important issues facing a school organization (Cohen, 2010). It would seem that the sustainability of adequate school building conditions would be rendered immaterial if the physical setting of schools was an enigmatic concept to members of the school community.

Many theorists, researchers, and educationalists troubled by the dilemma of poorly maintained school buildings and facilities have consistently articulated that children can become victims of public indifference towards providing a quality education for all children, especially in the area of school facilities (Earthman, 2004; Educational Law Center 2010; Kozol, 2005). Rawls (1971) pointed out that fairness is a primary principle of social justice. Rawls' conceptual framework included a constellation of imperatives that included; the necessity of the basic human rights, equity of access to education, and the notion that there existed a public responsibility to guarantee that the least advantaged members of society will be afforded those valuable advantages of equal opportunity and fundamental fairness. The principles of social justice can be reduced to the conflict that arises between the inequalities that exist among people or groups in society and government institutions whereby institutional ideology acts to marginalize of the rights of a particular group or person (North, 2006). Ideologically, social justice theory takes a position that stems from the notion that "justice is a social virtue that shapes prosocial behavior and a culture's responsibility for the welfare of others" (Miller, 1999, p. 21) and social justice emerges as the shared beliefs of the community.

An important aspect of social justice is the notion of equity in the allocation of resources. Bankston (2010) explained that a lack social justice within a public organization can be illustrated by the allocation of resources and access to resources by stakeholders. Furman and Shields (2004) suggested that social justice requires interventions that defy those inequities that impact student academic outcomes. In the case of public schools, Furman and Shields also pointed out that aspects of social justice

are important in constructing an understanding of the dynamics that may allow inequities in resources that allow school buildings to deteriorate and decay. Brighthouse and Swift (2008) argued that social justice "demands adequacy, but also demands equality" (p. 3). As an imperative of law in New Jersey, the allocation of public funding to build and maintain adequate school facilities has been particularly important to children living in low income neighborhoods (Sciarra et al., 2006).

Social justice reflects a rationale linked to social change and the reevaluation of those public institutions and policies that repeatedly oppress the immutable rights of all children to unhindered access to a free and appropriate education (Coates, 2007). Social justice can also be explained as an ideology concerned with conditions like poorly maintained school buildings that produce educational inequities that promote academic failure. Such conditions, according to Marshall and Oliva (2006), can be eliminated through deliberative changes in public policy that make possible equity and equal opportunity in schools. Clark (2006) opined that it would be inconceivable for any responsible educator or other education policymaker to ignore social injustice as a guiding theoretical principle that reevaluates policy approaches to educational improvement. Clark explained that for school policy to effectively satisfy the need for educational improvement, a normative understanding by teachers, administrators, and parents of basic tenets of social justice is required. Thus, an understanding of social justice is important for school stakeholders who are challenged to create transformative policies and practices that alleviate the inequities that exist in education.

The incidence of poorly maintained schools touches most every school district in America and is especially evident in low income communities. According to the U. S. Census (2006), over 50 million children are attending 94,000 public schools in the United States and this necessitates funding formulas, policies and practices that enhance and maintain school building in optimum conditions for learning. The Healthy Schools Network (2006) reported, "Millions of children attend polluted schools that daily erode health and learning" (p.5). Kozol's (1991) work served as a catalyst that helped provoke a nationwide dialogue and debate regarding the aspects of social justice and the condition of public schools, especially in poor inner city communities. Kozol continued to write extensively about the underlying causes involving equality and adequacy of U.S. schools primarily in urban school districts and his writing chronicled the nationwide institutional disparities between the schools rich and poor students attend. Kozol suggested that a culture of empowered education policymakers tended to work against the conditions in less affluent disadvantaged communities where school buildings were allowed to deteriorate. Kozol concluded that while the concept of the common public school opened education to all children, severe disparities have emerged from differences in community attitudes and resulting standards related education. The presumption asserts that it has been the inequities bounded by race and socioeconomics that has served to create a type of educational apartheid between poor and wealthy school communities across the nation.

Many parts of the United States have untaken initiatives to mitigate inadequate school building conditions (Vincent & Filardo, 2006) and research is consistent in maintaining that the most economically disadvantaged school districts have not seen

sufficient progress towards improvement of educational facilities (Kozol, 2005). This is partially due to insufficient capital funding and the lack of resolve among those decision-makers vested with the responsibility for school buildings (Rhim, Hassel, & Redding, 2008). According to national public spending statistics, local school districts with high populations of low-income students typically invest the least in school building facilities, and low income students were the most likely to attend physically substandard schools (Thornton, 2006). This is particularly alarming when viewed in the context of reports portending that as of 2008 approximately 15.5 million children are living at or below the poverty level in the United States (U.S. Bureau of the Census, 2008) Moreover, the trajectory of those poverty numbers are rising (Moore, Redd, Burkhauser, Mbwana, & Collins, 2009).

Several researchers have noted that the dynamics of social injustice are at work and have drawn attention to the achievement gap through studies of the deteriorating and poorly maintained conditions of schools. Poplin and Weeres, (1992) suggested that the poor physical conditions of many urban schools is believed to be a result of organizational and community indifference for the students or staff that attend inadequate schools. Schneider (2002) asserted that the linkage between school facility conditions and student achievement is nested in social justice and the "disproportionate burden that poor and minority students carry in education" (p. 5). A meta-analysis produce by Carrol, Fulton, Abercrombie and Yoon (2004) for the National Commission on Teaching and America's Future (NCTAF) referenced previous survey research on socioeconomic status and education, and concluded that low income or poor students, as opposed to higher

income or affluent students, typically attend schools that fail to provide adequate resources for learning including well maintained facilities. In sum, the NCTAF pointed out, that poorer at risk students, "are not being given an opportunity to learn that is equal to that offered to children from the most privileged families" and the report continues, "disadvantaged children attend schools that do not have basic facilities and conditions conducive to [learning]" (p. 7). NCTAF also stated that as a matter of basic civil right, poorly operated schools derive children of an equal opportunity to learn.

Returning to the framework of Rawls' (1971) definition of social justice, the obligations of those invested with the responsibility for the health, education, and general welfare of children, particularly of disadvantaged children, seems to be lacking in the policymaking in many school districts (Cherney, Greteman, & Travers, 2008). Stevenson (2006) asserted that equity and the fundamental elements of fairness become impossible when some children are afforded access to modern schools with facilities that support pedagogy; and other children attend schools that are wholly inadequate due to poor facilities. A variety of scholars have substantiated that across the United States the poorest school districts are plagued with the worst school building conditions (Earthman, 2004).

Edwards (1991) and Berner (1993) conducted district-wide research in Washington, D.C., related to the physical conditions of schools and the impact on academic performance. Within each study, a trend emerged regarding the allocation of funding by board of education officials that was disproportionate among neighborhoods and funding decisions appeared to be detrimental to the poorest neighborhoods. Both

researchers found that funding levels for school buildings appeared to be congruent with socio economic status and more affluent neighborhood schools received higher funding than less affluent schools. Previous research studies have produced undeniable results supporting the notion Schneider (2002) followed with a study of school building conditions in Washington, D.C. and Chicago, Illinois as they relate to teacher efficacy and student learning.

Schneider's conclusions were similar to Edwards' (1991) and Berner's (1993) and highlighted that the relationship among the quality indicators of school buildings, student learning outcomes of poor urban students, and levels of teacher efficacy appeared to be adversely impacted by inadequate school building conditions. Building assessments in both cities indicated that school neighborhoods deemed to be impoverished contained schools considered to be in the poorest condition. In addition, teachers in both cities rated school facilities in a condition that functioned to frustrate instructional practice, student learning, and social equality among students. Schneider also noted that teachers reported a perception that local school governance was unresponsive and poor management of school resources was a significant source linked to poor working conditions.

Taylor (2009) investigated the impact of school building conditions on student learning in Washington, D.C. and framed the philosophical constructs of Freire (1970) to undergird the study's objective. Taylor suggested that school building conditions have been an outlier for the existence of a latent societal struggle or conflict involving economically disadvantaged students who expected to perform in physically disadvantaged or inadequate facilities, while advantaged students perform and learn in

school facilities that are maintained to support academic achievement. Taylor also opined that the notion of a social class struggle was relevant to the problems of school building conditions especially in low income communities.

According to Taylor (2009), Freire's perspective advanced the theory that education is a social dynamic that must be viewed in terms of society's socio-political interests. The theory developed by Freire (1970) was that the well-being of the underprivileged has been preempted by the competing self interests of the privileged and that access to education has been used in a struggle by the privileged or powerful to marginalize the underprivileged or powerless by denial of public benefits like education. Taylor explained that according to Freire's view, unhindered access to education provides the underprivileged the power of self-reflection afforded by education that can free them from ignorance and poverty.

Not all research into the relationship between school building conditions and poverty has been conclusive. Thornton (2006) completed a partially inconclusive study of school building conditions and the academic achievement of high school students classified as minorities and those student living below the poverty level in the Commonwealth of Virginia. Thornton separated the two student groups and examined both in the context of reported adequacy of school building and test scores. An anomaly emerged from the data indicating that economically disadvantaged students in substandard school building achieved higher test scores than disadvantaged students in school buildings rated in standard condition. Thornton noted that this was inconsistent with earlier studies as no consistent or significant impact on the test scores of

economically disadvantaged students whether in substandard or standard conditions were demonstrated. In contrast, Thornton did find a significant impact on the test scores of minority students. Thornton noted the "troubling indication" (p. 94) that learning achievement among minority students attending schools rated as substandard is adversely impacted while the impact on non minority low income students was found to be insignificant.

Based upon a quantitative survey of New Jersey principals, Schneider (2004) detailed, using the perceptions and opinions of New Jersey school principals, the level of quality and adequacy of school facilities across the state. The survey was designed to gather feedback from K-12 principals regarding the overall condition of facilities based upon a grading index of facilities conditions. Participant surveys where ultimately categorized by the researcher using New Jersey's district factor grouping matrix. The matrix categorizes school districts according to various socioeconomic factors.

Schneider's findings highlighted that principals working in the lowest income communities reported the lowest ratings of school building conditions and more than half of all principals considered their school either somewhat adequate or less than adequate relative to optimum use of learning spaces for science, art, music, and physical education. Schneider produced results revealing that one third of the principals considered facilities under their supervision to be either average or below average with another 10% believing facilities to be in poor condition. In contrast, those principals working in wealthy school districts graded their buildings as very adequate. As a derivative of the issues of equity, the survey results portrayed a disparity between the quality and conditions of New Jersey

public schools in low income communities as compared to public schools in middle or high income communities.

Schneider (2004) pointed out that New Jersey may have gone farther than any other state jurisdiction to equalize or improve facility quality due to the concerns of educational equity in low income school districts. Because of a long history of protracted court actions linked to inadequate schools programs that included a disparity in the condition of facilities, the analysis of data paid particular attention to the perspectives of those principals from New Jersey's poorest districts. Overall, New Jersey principals reported the condition of schools as average or above. However, Schneider also produced an overarching conclusion that significant problems existed between the functional adequacy of educational facilities when accounting for the particular needs of curricula like music, art, and physical education. Schneider concluded that principals believed that training in facility management for administrators was lacking and there was widespread concern among principals that the lack school facility professional development opportunities prevented them from effectively rating the condition of school facilities. There was also a consensus among principals that they had few opportunities to become involved with facility planning and design efforts. Finally, Schneider revealed that principals believed input into matters concerning programmatic aspects of school building conditions and follow-up mitigation of conditions by local school stakeholders was nonexistent.

The inadequacy of school building also impacts student attendance. In a study of public school buildings as a predictor of student absenteeism rates and learning

achievement in New York City, Durán-Narucki (2008) observed that notwithstanding the conclusion that poor school building condition adversely impact student attendance and learning, poor school building conditions influenced the long term social outcomes of students well into the future. The focus of the Durán-Narucki study was primarily directed towards poor urban students that yielded the conclusions formulated through the lens of social justice. Durán-Narucki suggested that the conditions at school buildings became part of a deliberate policy decision regarding the distribution of money and other educational resources. Resources were reserved for more affluent neighborhood schools. Durán-Narucki further concluded that urban poor children had been less likely to attend schools on a regular basis that are functionally inadequate. According to Durán-Narucki, the condition of public school buildings is considered, by students, a representation of the community's depth of dedication to academic excellence. A similar outcome was reported for students attending suburban schools in upstate New York schools suggesting that poorly financed schools with poorly maintained facilities created an environment where student attendance was lower that schools adequately maintained (Klatte, Hellbrück, Seidel, & Leistner, 2010).

Uline, Tschannen-Moran, and Wolsey (2009) conducted a qualitative study of the relationship between school facilities and the reported perceptions of school staff, students, and parents (stakeholders) in an undisclosed mid-Atlantic state. The quality of each school building through the reported perceptions stakeholders was deemed favorable as was academic achievement at both schools was considered high. Although both schools served predominately low income students, each school was situated in different

communities – one urban the other rural. Uline et al., conducted semistructured, one-one-one and focus group interviews to explore the perceived influence school building conditions exerted on student learning. Earthman (2004) noted, from a synthesis of previous research, a common theme developed regarding perceptions of equity and fairness. According to Earthman, the inventory of the oldest school buildings with the worst building condition ratings are typically located in low income disadvantaged communities.

Baines and Foster (2006) also noted that poor school building conditions are analogous to a neighborhood's low property values and those low values are tied to socioeconomic status. Gehrke (2005) produced data indicating that almost 25 % of children living at or below the poverty threshold in deteriorating urban neighborhoods attend schools in a similar physical condition – poor neighborhoods beget poor schools. Earthman (2004) further suggested that in poor income communities the "failure to improve a demonstrably old and failing infrastructure may convey a message to such students that the system values them less than it does their counterparts in more affluent areas" (p. 19). Glanville (2005) posited that institutional buildings create in the minds of people "phenomenological qualities and meanings" (p. 7). Cleveland (2009) also found the quality of the physical attributes of institutional buildings like schools symbolize academic excellence. This suggests that a manifestation of public pride and self-esteem is attributed to the character and quality of school buildings. This also suggests that not only have school building conditions been educationally relevant, rather the conditions of school buildings are linked with a community's belief system involving the perceived

value of educational achievement as well as the value attributed to the students who attend public schools.

There has been a range of interventions into the disparity among school districts where the state's highest court has sought to address the achievement gap that exists between the state's poorest school districts and the wealthiest school districts. During 1997 and 1998, rulings in the case of *Abbott vs. Burke* by the state's Supreme Court tackled the issues of educational equity and school building conditions in poor urban school districts. The Court recognized, from evidentiary material, that the condition of school facilities were a key factor in providing students an adequate educational setting from which academic achievement could be obtained and that low-income students were being denied a state constitutional right of educational equity and fairness. Embedded in the Court's ruling was the notion that children require educational facilities that support learning and such support was absent in poorest communities across New Jersey.

The studies of school building conditions appear to be consistently grounded by the theory of social justice is a reality among local school stakeholders who work and learn in the nation's public schools. The difference between school building conditions in rich and poor school districts has been a manifestation of a sociopolitical agenda whereby economically disadvantaged students attending classes in physically disadvantaged school buildings is linked to the principles of social justice. The thesis of social justice resonates throughout a number of studies of school building conditions conducted in urban settings where the policies of the school district's bureaucracy denies disadvantaged students full access to educational opportunities. Smith (2008) suggested

the denial of equity and opportunity becomes a means to perpetuate a social hierarchy in which underprivileged are derived of social and economic success due to an inadequate educational experience while wealthier student enjoy the academic advantages of well maintained and adequate school facilities.

Physical Conditions of Schools and Student Learning

Student learning success has been repeatedly tied to the physical conditions of the schools in which teachers and student work. Earthman (2002) recognized a significant differential of between 5 and 17 percentile points in testing results among students attending school determined to be substandard and standard even after the socioeconomic status of the students is statistically controlled. In an era where school buildings are reported to be integral to the success of education practices, researchers have indicated that the quality of school building inventory in the U. S. is continuing to decline and mitigation efforts are weak (Crampton & Thompson, 2008; Van Roekel, 2008). School buildings are intended to function as a support for instructional practice and academic achievement (Chaney & Lewis, 2007). Poor school facility conditions undermine the provision of a safe, nurturing, and caring school environment (Bly, 2007; Cohen & Geier, 2011; Roberts, 2009).

Researchers have also sustained the view that the condition of school facilities maintains a genuine influence over student health and wellness (Mendell & Heath, 2005; Milkie & Warner, 2011); instructional staff morale and efficacy (Earthman, & Lemasters, 2009; Tanner, 2007); as well as student emotions, cognition, and learning motivation (Evans, 2006; Joe, Joe, & Rowley, 2009); school attendance (Boese & Shaw, 2005;

Durán-Narucki, 2008); and school culture (Cohen, Pickeral, & McCloskey, 2008). Beyond the physical dangers of poorly maintained and deteriorating schools, the evidence also supports the intuitive notion that inadequate conditions interfere with a student's academic performance and achievement (Barbra, 2007; Cash 1993; Harrison, (2010); Higgins et al., 2005; Uline et al., 2008; Schultz. 2011; Vandiver, 2011).

The previous study of school building conditions has been divided into distinct categories. According to Bowers and Urick (2010), the body of existing research on school buildings could be organized into three categories of inquiry. The first category examined the quality and condition of school facilities as a consequence of local and state funding formulas. The second category of inquiry highlighted the attitudes, perceptions, or awareness of teachers, principals and other school stakeholders regarding quality of school building conditions as an influence upon staff moral, efficacy, and job retention, as well as student achievement and school culture or climate. The third category focused on the association of specific and measurable engineered or structural attributes of school facilities as an influence on student health, wellbeing, and student academic achievement. Using this organizational scheme highlighted by Bowers and Urick the remainder of this literature review produces a diligent overview of research of the influential aspects of school building conditions.

Cash (1993) originated a research model that would influence several subsequent studies (Bullock, 2007; Crook, 2006; Fritz, 2007; O'Sullivan, 2006; Thornton, 2006). Central to Cash's quantitative model is the comparative analysis of three data sets. The first data set entailed the creation by Cash and the subsequent analysis of a school

building evaluation survey called the Commonwealth Assessment of the Physical Environment or (CAPE). The instrument was designed to solicit details from school officials regarding the rated condition of school facilities. The purpose of the survey instrument was to illustrate the fundamental metrics that defined conditions in terms of above standard, standard, and below standard rating based upon the indicators of building age, interior lighting, indoor air quality, heating, air conditioning and ventilation, and the aesthetic aspects of interior or exterior paint. The second data set was derived from archival records in the form of summative student achievement test scores that were used as a proxy for student learning success. The third data set was socioeconomic status that was derivative of student participation in the federal free and reduced lunch program. The Cash model presumed that the quality of the physical attributes of a school building directly influenced student learning success and would correlate with testing outcomes. Through a quantitative analysis of participant responses to the CAPE survey and the analysis of student test results, Cash determined that where school building conditions were reported s substandard, student achievement tests would be similarly low, whereby the opposite circumstance would emerge for schools that reported above standard conditions.

Subsequent to the publication of Cash's work, several other studies were designed using the basic methodology involving a building condition survey and student test scores. Crook (2006) employed the CAPE school facility inventory instrument administered to high school principals in the Commonwealth of Virginia. Crook determined that the reported condition of participant schools to be a predictor of student

success and that there was a significant relationship between building conditions and the results of the high school language arts state standardized tests. Crook also concluded from the data that the conditions of the physical environment might have a reciprocal effect on school staff efficacy. O'Sullivan (2006) quantitatively investigated the relationship between the overall, cosmetic and structural features of school buildings and student academic achievement in 250 Pennsylvania high schools. As a proxy for student learning, O'Sullivan evaluated averages of summative mathematics and language arts testing outcomes over a three year period. The low income socioeconomic status of students was controlled using free and reduced lunch participation. Like Crook (2006) in the Commonwealth of Virginia, O'Sullivan in Pennsylvania revealed that in those schools that reported positive overall building conditions, also achieved higher achievement test scores than school that categorized building conditions as marginal or substandard conditions.

Several researchers have accumulated data suggesting that school administrators (principals) do not consider or perceive school building conditions as a significant obstruction to student academic achievement. Using a qualitative methodology, Barbra (2006) undertook an investigation using structured interviews of 12 purposively selected school principals in Georgia. The intent of the interviews was to gain access to the principal's perceptions of school facilities and each principal's beliefs regarding the influences of facility conditions on student academic achievement. The selection of participants was evenly apportioned among the highest and lowest performing elementary, middle, and high schools. The schools were further apportioned according to

newer and older schools buildings within the same geographic region of northwest Georgia. Barbra concluded from the data that the perceived differences between the physical characteristics of older and newer school buildings were not considered by principals as a significant detriment on student learning. Rather, the interviews contradicted earlier quantitative studies that indicated school building age had a significant impact on student learning.

Chaney and Lewis (2007) summarized a nationwide survey of school principals that examined, in part, the physical factors of schools and classrooms that influence instruction and student learning. The survey was designed to focus attention on the perceived quality of school building attributes such as lighting, indoor air quality, room size, acoustics, and general physical condition, and ventilation, heating and air conditioning systems. More than 80% of school principals reported that the overall environmental quality in their respective schools were either satisfactory or very satisfactory. In addition to questions regarding specific physical attributes, the researchers extended the questions to those related to instructional effectiveness or factors that interfered with instruction. The research data suggested that a small minority of principals believed that the environmental factors of their schools represented an obstruction to instruction.

Harrison (2010) studied the perspectives of school principals in low-performing schools and concluded that the extent to which principals attached importance to school building conditions was marginalized within the hierarchy of other factors not associated with building conditions (i.e., socioeconomic status, ethnicity). There was an

acknowledgement among principals that inadequate conditions hindered the principal's ability to effectuate improvements and inadequate conditions caused a loss of instructional time due to the inflexible nature of classrooms in older buildings. Also, these school principals acknowledge that student learning was obstructed due to inadequate structural conditions. Harrison speculated that this perspective may be rooted in a complacent attitude among administrators and further suggested that complacency towards building conditions appeared to be a result of a culture of mediocrity that may be embedded within the sample of participants. Harrison, (2010), Chaney and Lewis (2007), and Barbra (2006) suggest a contradiction exists relative to other previous quantitative studies involving the comparative analysis of perceptions of building conditions and student learning outcomes.

As educational decision makers, school board members retain an important role in shaping the financing, policies and practices regarding the maintenance and condition of school facilities. Moulton (1998) quantitatively examined the data gathered from a nationwide survey of the perceptions of school board members relating to the quality of school building conditions and how board members articulate support for maintaining adequate conditions. Working from the premise that well kept school buildings have a beneficial impact on instructional practice and student learning. Moulton's objective was to obtain insight into the level of support as a measurement of the strength of commitment among school board members towards optimum facility conditions. Moulton noted that as important decision makers, board members exercise a degree of hegemony over local spending priorities and other resources. The majority of survey

respondents reported that school building conditions were a recognized top priority as school building inventories were generally believed to be old.

However, school board members also reported that building conditions were either adequate or better than adequate. Although school building conditions were cited as a top priority, almost three quarters of respondents reported that school facilities accounted for a very small part of the overall budget and further reported that money dedicated to facilities was considered adequate for the purposes of effectively maintaining an acceptable level of quality. The survey revealed that an underlying factor for school board attention to school building conditions was the influence and advocacy of local school stakeholders concerned about the academic success of the student body. This interpretation regarding influence and advocacy are aligned with findings articulated in Berner (1993) about parental involvement and advocacy.

Researchers have initiated investigations of school building conditions relative to other student behaviors associated with student achievement and instructional effectiveness. McGowen (2007) investigated the relationship of school facility conditions and a variety of factors and outcomes including student academic achievement, attendance, incidents requiring disciplinary action, drop-out rate, and teacher retention rates. McGowen found there was no statistically significant result that could support a link between academic achievement, drop-out rate, or pupil attendance, and school building condition. In contrast, however, McGowan found that student behavior requiring discipline was statistically significant regarding school facility conditions. McGowan also

revealed that the incidence of teacher retention rates was connected to school building conditions.

The inadequacy of school building also impacts student attendance. In a study of public school buildings as a predictor of student absenteeism rates and learning achievement in New York City, Durán-Narucki (2008) observed that notwithstanding the conclusion that poor school building condition adversely impact student attendance and learning, poor school building conditions influenced the long term social outcomes of students well into the future. The focus of the Durán-Narucki study was primarily directed towards poor urban students that yielded the conclusions formulated through the lens of social justice. Durán-Narucki suggested that the conditions at school buildings became part of a deliberate policy decision regarding the distribution of money and other educational resources. Resources were reserved for more affluent neighborhood schools. Durán-Narucki further concluded that urban poor children had been less likely to attend schools on a regular basis that are functionally inadequate. According to Durán-Narucki, the condition of public school buildings is considered, by students, a representation of the community's depth of dedication to academic excellence. A similar outcome was reported for students attending suburban schools in upstate New York schools suggesting that poorly financed schools with poorly maintained facilities created an environment where student attendance was lower that schools adequately maintained (Klatte, Hellbrück, Seidel, & Leistner, 2010).

Duyar (2010) focused upon the relationship between the cosmetic features of a school and instructional effectiveness. Duyar conducted a nationwide survey of school

building conditions involving school principals in 2005 based upon the hypotheses that a correlation existed between the quality of the cosmetic attributes of a school building and the delivery of instruction. The research questions also reflected a presumption that principals would report that as the quality of conditions improved, instructional effectiveness would improve. Duyar sustained the hypothesis that several physical attributes of school buildings did impact classroom instruction and practice. The study was unique as it focused upon instructional delivery and whether the cosmetic attributes of a school impacted instruction. Duyar suggested that the findings support previous empirical research finding that sustained the notion that facility conditions are more influential on instructional delivery than other school issues confronting a teachers and students

The premise advanced by Berner (1993) was that parental involvement appeared to be aligned with the allocation of funding for school building maintenance and repair. Ultimately Berner suggested that higher parental involvement to advocate for better school building conditions equated to a shift in funding for facilities in those neighborhoods with higher parental involvement in schools. In Moulton (1998) the study suggested that school board members were similarly influence by the advocacy of local school stakeholders. Viewed in the context of consistent nationwide reports suggesting that the condition of school buildings are substantially inadequate (Cash, 1993; Dockrell & Shield, 2006; Earthman 2002; Educational Law Center, 2010; Jacobs 2009; Lee, 2006; Mendell & Heath, 2005; Taylor, 2009), Moulton's nationwide survey created a

contradiction between the perceptions shared by school decision makers (school board members) and the true character of school buildings cited in a variety of studies.

Researchers are increasingly developing a common notion that links the qualities of school buildings and facilities to academic achievement, most focusing on specific features of the building's overall infrastructure. Building conditions shown to influence academic achievement in these studies include acoustics (Dockrell & Shield, 2006; Klatte, Hellbrück, Seidel, & Leistner, 2010; Sato & Bradley, 2008; Stewart, 2009); building age (Cash, 1993; Durán-Narucki, 2008; Jeffrey & Filardo, 2008); indoor air quality (Lyons, 2001; Mendel & Heath, 2005; Stephenson, 2010); daylight, artificial lighting, and color (Barrett and Zhang, 2009; Buckley, Schneider, & Shang, 2005; Rayneri, Gerber, & Wiley, 2006); and thermal comfort (Durán-Narucki, 2011; Helwig, Antretter, Holm, & Sedlbauer, 2008).

Building Age

School building age and the cumulative deterioration of a building's mechanical systems have an impact on student learning. By 2000, more than 75 % of school buildings in the U. S. were constructed prior to 1970 (Lyons, 2001). With an inventory of more than 118,000 public schools that average 40 years of age, the physical condition of many schools connected to building age continues to decline or deteriorate unabated (Jeffrey & Filardo, 2008). The aging of school buildings represents an important challenge in meeting the contemporary instructional needs of teachers and students, and several researchers have pointed the combination of aging facilities and poor maintenance as a precondition for low student learning outcomes (Bowers & Burkett,

1987; Cash, 1993; Chan, 1978; Thomas, 1962). Additionally, insufficient preventative maintenance of buildings tends to accelerate the decline and deterioration of various physical aspects of the building's mechanical and structural attributes. The logic advanced in these studies is that successful pedagogy and learning is adversely impacted by the aging condition of a school's structural, cosmetic, and mechanical components.

In a study of the relationship between building age and student learning, Schneider (2002) concluded that older school facilities are subject to repeated age-related repairs to a building's mechanical systems as well as a failure of the cosmetic attributes like cracking plaster, fading paint, and inoperable windows that hinders teacher instruction and student learning. Earthman (2002) noted that while the age of a school building may be an initial indicator for overall condition, building age has been identified as a separate and distinct physical component. Earthman further suggested that the age and condition of a school building's structural envelope coupled with old or antiquated mechanical systems simply overwhelms all reasonable efforts intended to mitigate old failing systems.

According to a report by National Research Council (2006), aside from the aging substructure of a school building (e.g., foundations and walls), other physical attributes of the building's infrastructure, including mechanical systems involving heating, ventilation, air condition, and lighting suffer from increased wear and tear that renders those mechanical attributes functionally obsolete in a matter of 15 to 20 years. Hull (2009) reported that aging school buildings become increasingly more expensive to operate and necessitates the diversion of limited funding away from other priorities in order to

maintain conditions at optimum levels to preserve an effective instructional and learning space.

Several researchers have demonstrated that building age is a significant contributor to student achievement and poor maintenance of aging facilities is a precondition for low student learning outcomes. In a study that evaluated the conditions of school buildings constructed prior to World War II, Thomas (1962) arrived at the conclusion that the building age of schools was a significant contributing factor influencing student learning. Plumley (1978) evaluated differences in school building ages and student test outcomes arriving at a conclusion supporting the premise that the quality of the physical attributes of old buildings, in contrast to the same attributes of new school buildings, acted to obstruct student academic performance. Chan (1979) followed with a study of that arrived at a similar conclusion regarding school building in rural Georgia. Through the employment of a comparative analysis of a school building condition survey administered to students; Chan discovered students believed that poorly maintained schools obstructed learning.

Chan (1979) explained that school districts operating old and poorly maintained buildings as failing in the important obligation to maintain an adequate academic setting that included satisfactory "thermal, acoustical, visual and aesthetic environment which have been documented to be significantly related to student achievement" (p. 4). In contrast, Chan described newer modern school buildings as supportive of student performance and learning success. Looking at student achievement test scores, Chan suggested that test scores as a proxy for student learning were linked to age of school

buildings in Georgia – newer buildings equated to increased overall test results. ring that same year, McGuffey and Brown (1979) also investigated building age of elementary schools in Georgia and determined, as had Chan, that students attending schools determined to be old and obsolete scored lower on achievement tests than students attending new or modernized schools.

In Tennessee, researchers Bowers and Burkett (1987) examined school building age of two rural elementary schools. The researchers defined the quality of environmental systems (heating and ventilation), acoustics, lighting types and the aesthetic condition of the wall covering and color, the state of furniture, and the condition of instructional equipment relevant component attributes that defined building age. The older school (circa 1939) was deemed by the researchers to be inadequate and outdated. In contrast, the newer school was considered adequate with updated environmental systems including central air conditioning, modern lighting, wall coverings that were colorful and interesting, and instructional equipment that was considered to be in optimum working condition. Bowers and Burkett determined when those physical attributes are deemed inadequate, student learning significantly suffers. The researchers extended the study to issues of student attendance, discipline, and efficacy. Differences between the behavior of students in the old and new schools was evaluated through archived statistical data. In the newer school attendance was better and the number disciplinary actions lower.

Cash (1993) conducted a study in Virginia elementary schools that demonstrated, in part, school building age exerted a negative impact on student learning and further determined that school building age became a predictor of the student achievement. Cash

found that reported test scores were generally lower in schools rated inadequate. Wicks (2005) examined the academic improvement of Mississippi students making the transition between an older school building and a newly constructed facility. Rather than using the comparative results of summative achievement test scores, Wicks examined student grade point averages (GPAs) as a proxy to student learning and categorized the GPAs according to several variables including gender, ethnicity, age, grade level, urban/rural residence, and participation in the free and reduced lunch program (socioeconomic status). Additionally, Wicks gathered data from school principals through a school climate survey and the data supported the conclusion that students attending newer schools maintained an increased record academic achievement over students who attended school built before 1999.

Fritz (2007) undertook a quantitative examination of Ohio students entering the 6th grade at newly-built schools. Fritz collected longitudinal student testing data specific to the two prior years before transfer from a facility determined to be old to a newly constructed school facility. Employing a comparative analysis using school building construction dates and the testing data, Fritz discovered significant before and after changes in testing outcomes and a substantial increase in the reported test scores in the new school facility. Fritz concluded that the data supports the existence of a relationship between the quality of new and old buildings and student academic achievement.

Smith (2008) contributed additional elements to *building age* by the examination of whether technology (modern instructional equipment) can be effectively retrofitted within the building and whether the building contained the adequate facilities required by

the Americans with Disabilities Act. Smith concluded that the general age and associated condition of the physical components examined correlated with data on student testing outcomes. Where those components were found to be in generally poor condition, testing outcomes were similarly low. Bishop (2009) proposed in a case study involving high school building conditions that students performed academically better in newer school facilities. Bishop's rationale was that students in newer schools felt happier and safer, and such individual feelings facilitated and supported learning. Like the Lee (2006) study in New Jersey, a student's efficacy and feelings about the school are impacted by the physical environment and positive efficacy was a precursor for learning. The qualitative assessment undertaken by Bishop involved the perceptions of principals and teachers regarding the influence of the structural design elements in new high school buildings relative to student achievement and academic behaviors. Bishop concluded that principals and teacher's believed that newer school building provoked a positive influence upon student behaviors and learning.

Air Quality, Ventilation, and Thermal Comfort

Although preferences among student and school staff are variable, researchers agree that adequate conditions of indoor air quality (IAQ), thermal comfort, and ventilation are required for optimal instructional practice and successful student learning achievement (Earthman, 2004; Lyons, 2001; Mendell & Heath, 2005); Schneider, 2002). The National Center for Education Statistics (NCES, 2003) determined that while a majority of public schools reported IAQ as satisfactory, there remained many schools reporting that air quality was unsatisfactory and a problem. According to the NCES

report, “Ventilation was rated as unsatisfactory by more schools than any other environmental condition” (p. 21). Children spend many hours within school buildings and are exposed to a multiplicity of indoor air pollutants including organic and inorganic contaminants (e.g., mold and fungal spores, dust, volatile organic compounds and chemicals) (Salo, Sever, & Zeldin, 2009). A variety of researchers raised a concern that poor IAQ was endemic in school buildings across the United States and air quality remains a primary concern to educationalist (Shaughnessy, Haverinen-Shaughnessy, Nevalainen, & Moschandreas, 2006).

In contrast to other studies that concentrated on the cosmetic and structural aspects of school buildings, the work of Mendell and Heath (2005) focused upon the mechanical aspects of a school’s infrastructure that are associated with health risks, namely ventilation and IAQ, moisture control, ineffective thermal controls, and exposure to microbiologic and chemical substances within public schools. Mendell and Heath cited numerous instances where the incidence of sick building syndrome was identified as the source of “eye and upper respiratory tract irritation, headache, fatigue, and lethargy, and breathing difficulties or asthma” (p. 3). Mendell and Heath also detailed the crucial nature of IAQ for children’s health fitness and argued, there is a general lack of study within school buildings regarding the influence of indoor air quality on student academic achievement. Illness linked to poor IAQ and the resultant student absences from school were considered an adverse impact upon student academic performance (Durán-Narucki, 2008; U.S. Environmental Protection Agency, 2008, 2010).

Interventions into the inadequate quality of indoor air, as it pertains to classroom conditions and student health, have not been effective in mitigating the condition of poor indoor air quality (Stephenson, 2010). In recent years, however, an environmental advocacy has emerged related to the quality of children's health in schools that had raised the level of interest in the dynamics of classroom air quality (Pastor, Morello-Frosch, & Sadd, 2006). Ventilation and properly working indoor mechanical air exchange systems can markedly reduce and control indoor pollutants and increase children's respiratory health (Parker, Larsen, Eskelson, Wood, & Vernath, 2008; Pope & Dockery, 2006).

Thermal comfort is the individual recognition regarding the level of satisfaction with the heating or cooling within a physical space. According to the Institute of Health (2011) indoor thermal comfort impacts human performance whether it is in the workplace or schools. In several studies and reports on school building conditions, the thermal conditions of schools and classrooms have been shown to impact student learning (Earthman, 2004; Lemasters, 1997; Herschong Mahone Group, 1999; McGuffey 1982; Mendell & Heath, 2005). In a study of the instructional practice of teachers, Lang (2002) concluded that inadequate electronic temperature control that requires teachers to mediate classrooms that are either too hot or too cold adversely impacts instructional efficiency. Wargocki, Wyon, Matysiak and Irgens (2005) noted student task performance improved in a climate controlled classroom that could be cooled when necessary. Wargocki et al. also found that as part of their research, students in an identical classroom that was not similarly cooled suffered a decline in performance. Fisk and Seppanen (2007) noted that there is a general belief that properly maintaining heating and cooling is an important

aspect of adequate school building conditions. Reporting on the perceptions of students, administrators, teachers, and security guards in four New Jersey high schools, rated in the lowest A-B District Factor Group category, Durán-Narucki (2011) found that teacher interviews yielded perceptions regarding the primacy of inadequate thermal control and conditions in classrooms. Helwig, Antretter, Holm, and Sedlbauer (2008) concluded both thermal levels and ventilation rates in school buildings resulted in a significant impact on student performance and learning.

From an epidemiological perspective, there was a growing collection of literature (Khaleghi, Bartlett, & Hodgson, 2008; Mendell & Heath, 2005) that sustains the belief that a circumstantial interrelationship among the mechanical aspects of heating, ventilation, IAQ, and student respiratory morbidity influence student learning. Mendell and Heath (2005) pointed out that several studies resulted in producing credible evidence that poor school building conditions represented a serious national public health risk for school children.

Acoustics

The accuracy of the exchange of acoustical learning material in a classroom setting is important to student learning. The U.S. Department of Health and Human Services (2009) reported that about 300,000 school-age children between the ages of 5-18 have undiagnosed hearing loss from a variety of preconditions. Such numbers suggests that exterior and interior noise levels can create a barrier to student learning especially those children with hearing loss, and mitigation of the sources of noise in the classroom is important to improving classroom instruction and learning. Educational research of

chronic outdoor noise within close proximity to classrooms has been recognized as an important medium when investigating obstacles to learning and student health (Stewart, 2009). Education researchers have chronicled second-hand noise within close proximity to schools as well as the noise levels within classrooms (Amram, Abernathy, Brauer, Davies, & Ryan, 2010) and recognized acoustics as an important factor when investigating barriers to student learning and health (Rydeen, Erickson, & Lange, 2008; Stewart, 2009).

Current studies of the acoustics in classrooms highlight that noise is a significant source of discomfort, annoyance, and reduced learning performance (Mendell & Heath, 2005). Researchers have has also suggested that high noise levels within classrooms have had a harmful impact upon student motivation and learning performance (Sato & Bradley, 2008; Wålinder, Gunnarsson, Runeson, & Smedje, 2007) as well as student reading speed (Klatte, Hellbrück, Seidel, & Leistner, 2009) and mathematics competency (Ljung, Sörqvist, & Hygge, 2009). Klatte et al. (2009) documented that children's hearing was at increased risk within poor acoustical settings and further suggested that abating levels of secondhand noise drifting into classrooms was essential to increasing reading ability and comprehension achievement.

Several researchers have indicated that unlike many suburban schools districts, schools in urban settings with higher populations of academically at-risk students are plagued by noisy poorly maintained mechanical heating, ventilation, and air condition units (Durán-Narucki, 2008; Nelson, Kohnert, Sebur, & Shaw, 2005). Bernardi and Kowaltow (2006) described noise in terms of the levels of annoyance that can lead to

frustration, displeasure, and anger among student learners. Zannin and Marcon (2007) concluded through a mixed methods study of the acoustical characteristics of classrooms, noise levels consistently exceeded recommended threshold levels for a classroom setting. Zannin and Marcon's mechanical measurements were corroborated through interviews with teachers and students who perceived classrooms as noisy and annoying. Zannin and Marcon determined that the absence of acoustical treatments designed to reduce the level of ambient noise levels enable noisy conditions. The absence of noise abatements treatments suggested a lack of acknowledgement school officials of the adverse nature of the high noise levels and student learning.

Light and Color

Human sight is sensitive and capable of recording more than 30,000 messages per hour, and 80% of all information absorbed by the human brain is visual (Wilmes, Harrington, Kohler-Evans, & Sumpter, 2008). Lighting research in education distinguishes between the effects on students by artificial, interior lighting and of natural light or daylight through windows. Lighting research has identified artificial and natural daylighting as an influence on psychological and physiological status (Buckley, Schneider, & Shang, 2005). Barrett and Zhang (2009) has asserted that optimal levels of indoor lighting, whether from natural daylight or artificial sources (e.g., fluorescent lighting) maintains a beneficial impact on human behavior and performance. Rayneri, Gerber, and Wiley (2006) suggested the importance of providing the lighting that best fits the purposes of the classroom setting and adequate lighting is supportive to the various student learning styles. In relation to student learning, research has indicated that daylight

offers the most supportive lighting (Earthman, 2004) and Altamonte (2009) contended natural daylight serves best to accentuate the in situ experience of the built environment and controlled "a large number of biochemical processes in the human body…for health and well-being" (p. 3).

Jensen (2008) explained that this visual acuity is connected to the intensity of lighting and becomes a crucial beneficial element for learning. Veitch (2005) reported that research had presented findings that light can act as either a positive or negative inducer of health and behavior. Gelfand (2010) cited the work of the Heschong, Mahone Group (2003) that indicated the introduction of natural daylight was associated with student health and increased learning performance. Fielding, (2006) an architect that specializes in school building design and an advocate for appropriate lighting in classrooms, reported that as education shifts towards classrooms and instruction that is learner centered, the physical setting of the classroom is crucial to meeting learning styles and academic success. Fielding suggested that the diversity of styles requires schools to create a variety of lighting levels and lighting colors. The design and delivery of lighting that best fits the immediate needs of the learning can be best maintained by purposes and patterns of natural or artificial of full spectrum light.

In contrast, a report by the National Research Council (2006) cautioned that the small number of studies on the impact of daylight precludes the conclusion of a definitive causal connection with student learning success. Absent from the body of research are studies linked to cognitive processes and the use of color within the classroom environment (Elliot et al., 2007). While a primary source of ambient lighting has

traditionally been natural daylight in most school settings, alternate modes in the form of artificial lighting has been dominated by either cool white fluorescent or a newer technology called full spectrum fluorescent lighting (National Research Council, 2006). Gifford (2007) expressed a concern regarding the salience of studies linked to the attributes of full spectrum fluorescent lighting. Gifford suggested that data prepared and presented has been misstated "in self-serving ways by secondary authors" (p. 37) and many studies are inexpertly conducted by untrained researchers. Gifford's concerns centered on the possibility that the benefits full spectrum lighting is overstated for commercial reasons by researchers sponsored by the lighting industry and that the benefits of full spectrum has been largely inconclusive. This suggests that further scholarly study of the influence of artificial interior lighting is necessary.

Jacobs (2009) evaluation of the built environment and the aesthetic use of light explained that as part of the building design process, the use of color often becomes an afterthought. Bernardi and Kowaltow (2006), as well as Winterbottom and Wilkins (2009), suggested that creating contrasts of color and light is especially effective in maintaining visual comfort and a learner's visual comfort is linked to learning or task performance. Yildirim, Akalin-Baskaya and Hidayetoglu (2006) concluded that colors can accentuate the conscious and subconscious instinctual human responses. In a study of the psycho-physiological reactions on the autonomic nervous system and levels of anxiety, Lehrl et al. (2007) found that colored light could be used to either increase or decrease the level of anxiety in study participants. Golden, et al. (2005) and Jacobs (2009) were supportive of the conclusion that colors can provoke positive reactions

associated with mood, emotion, and motivation in humans. In contrast, interior conditions of Georgia school buildings were evaluated in relationship to the results of statewide standardized testing. Aside from air conditioning, no other attribute examined (lighting, carpeting, or interior wall colors) demonstrated an influence or affect on testing (Chan, 1979).

School Building Condition Research in New Jersey

In New Jersey, there has been limited research regarding the school building conditions as a factor influencing student academic achievement. Within the body of literature, two contemporary two studies associated with school facilities have been undertaken. Lee (2006) quantitatively examined the relationship between school staff perceptions of school climate regarding transition to a newly constructed school as opposed to formerly working in an old obsolete school in southern New Jersey. Lee explained that the issue of school building age was particularly important in New Jersey as the statewide average age of school buildings in New Jersey exceeded 50 years with many built prior to the end of World War II in 1946. Using an ex post factor design, the study undertook to examine the before and after perspectives of school staff in transition and Lee reported that a positive view of a school's climate created positive academic outcomes.

The objective of the Lee (2006) study was to demonstrate that a change in perceptions had taken place during the transition an old obsolete school into new facilities and that the change had a presumed positive impact on student learning as students and staff became acclimated to a new school. Lee noted that school climate has

had a demonstrative influence on student achievement and educational outcomes. However, Lee noted that a substantive definition of school climate was difficult to create and Lee relied upon a general concept centered upon factors that induced feelings of safety, security, and efficacy among staff and students. Lee posited that the study was designed to provide impetus to the notion that the large investment in school construction projects was justified in the context of the positive impact on student learning. Also, Lee suggested that new school buildings created a value added impact that would serve to inform the comprehensive school building program that was underway by the New Jersey Department of Education. Lee (2006) supported earlier conclusions that the age of school buildings either positively or negatively impacts the perceptions and feelings of both students and teachers. Hoy, Tarter, and Hoy (2006) asserted that student learning success is linked to a student's self-efficacy as well as the efficacy related to the collective positive view of a school's climate. When the view of school climate was negatively impacted by old worn- out facilities, student efficacy is compromised and learning suffers.

Summary

As part of the overarching strategy to improve student academic achievement, the study of school building conditions and student performance has become important. Across the United States students, teachers, and staff attend schools that have been deemed to be dangerous to health and welfare, which results in a reduction of academic achievement (American Federation of Teachers, 2006). As the nation's school building infrastructure continued to age, school districts needed to treat school building conditions

as an integral component to the overall plan to improve student academic success. As previously noted, Earthman (2004) asserted that compelling research supported "without equivocation" (p. 8) that school building conditions influence student academic achievement. If Earthman and other researchers are correct, then distributing critical findings and conclusions on school building conditions is necessary relative to the formation and implementation of effective policy and best practices for improving student learning success. The review of literature served as a compendium of details to extend and strengthen the principle that the physical condition of a school or classroom impacts student learning (Cash, 1993; Earthman, 2004; Mendel & Heath, 2005).

Goodwin and Dean (2006) asserted that school improvement was best realized by an examination of the underlying factors that impacted student learning improvement. Goodwin and Dean's research suggested that the school building condition and student learning are a function of the core ethos or culture of the local school community. That ethos becomes, in part, a construct of the experiences and perceptions of local school stakeholders that form a common vision toward academic excellence. McBrien and Brandt (1997) described school culture as the culmination of normative values created between teachers, administrators, and parents as stakeholders. Collaboration among local school stakeholders with a common vision of student academic achievement is a prerequisite to a sustainable program of school improvement (Bulach et al., 2008). Equipping policymakers, including all stakeholders, with the necessary insight regarding the importance of school building conditions has been a fundamental step towards whole school improvement. Researchers have advanced the premise that a gap in research exists

whereby vital perspectives of members of the school district's community have not been qualitatively studied regarding school building conditions. Section 3 extends the review of literature by detailing the case study methodology and procedures employed to gather, organize, and evaluate data.

Section 3: Methodology

Introduction

Inadequate school building conditions are pervasive across the United States and adversely impact student learning; the reasons why such conditions are allowed to persist have not been well articulated in existing literature nor are understood by educationalists (Pincus, Marion, & Calvo, 2005). Additionally, there have been few qualitative researchers who have explored the subject matter through the personal constructs linked to the meanings attributed to the physical quality and conditions of school buildings. The purpose of this study is aligned with the proposition that personal constructs reflected in the attitudes, perceptions, and awareness of local school stakeholders have an influence on the sustainability and quality of school building conditions.

Section 3 includes details about the qualitative research methodology used to address the appropriateness of this study's case study approach and research question, the merits of the participant selection, the framework of the conceptual setting for this study, the role of the researcher, and the procedural aspects of data collection and analysis, including the qualities of credibility and trustworthiness. Section 3 concludes with a section summary.

Research Design

Appropriateness of a Qualitative Research Design

Quantitative research is regulated by the ability to produce empirical results from an individual's reported perceptions (Johnson, 2001). When investigating a phenomenon like school building conditions, through the examination of perceptions, the linear

attributes of quantitative inquiry rely upon indirect statistical analysis that categorizes, scales, or rates participant's preferences or perceptions (Frick, 2005). However, researchers have found that quantitative methods undertaken in the context of educational settings are problematic and do not yield conclusive findings. Berliner (2002) cautioned that quantitative methods are unable, within the bounds of a school setting, to maintain the necessary controls of the many concomitant variables inherent within learning and instructional settings. Berliner further explained that the narrow reliance upon the statistical mechanisms of a quantitative approach may lead to ignoring the depth and vitality of a qualitative design that can capture the richness of human perceptions within a social setting.

Qualitative research provides a subjective orientation to the examination of the relationships and differences among the conceptual perspectives of study participants that is exploratory in application (Frankel & Devers, 2000). Silverman (2010) noted that when examining an appropriate approach to study, the goal of qualitative research emerges as a holistic means to investigate and evaluate a phenomenon though the authenticity of human experience without the constraints of prescriptive procedures, guidelines, or statistics that are typical of quantitative research. Winkel et al. (2009) pointed out that there has been increased support for a qualitative approach to the examination of school building conditions as a means to further legitimize the functional relationship with instructional practice and student learning. Acquiring access and an understanding of the experiential insights within an organization or within an interactive social setting (like a

school), renders qualitative inquiry an indispensible research alternative (Coleman, Guo, & Simms-Dabbs, 2007).

To that end, the central objective of this study reflected an effort to capture the personal constructs of key informant perspectives and to satisfy the demands of an inquiry's research question (Creswell, 2009). I employed a descriptive multiple-case study model of inquiry (Yin, 2009). Additionally, in this qualitative study, I do not directly explore the relationship of school building conditions and student learning; rather, the design was used to investigate and evaluate the underlying rationale or personal perspective linked to the attitudes, perceptions, and awareness, of each local school stakeholders.

Appropriateness of Case Study

Aligned with the principles of qualitative research, case study methodology was chosen as the most suitable model for this educational study. Creswell (1998) described a qualitative case study as a useful research model to examine a social dilemma through the construction of comprehensive findings derived from precise reports of the views of informants. Cognizant of the criticism that suggests a case study may lack a required degree of rigor, Yin (2009) characterized a case study as a formidable methodology within a qualitative paradigm of research. To Neale, Thapa, and Boyce (2006), a case study design can provide a comprehensive picture of how and why individual perceptions or beliefs are shaped. Stake (2006) advocated the use of a case study methodology as a means to gather data from a variety of authentic perspectives linked to the existence of an *in situ* phenomenon. A case study is a good procedural vehicle to examine the

experiential perceptions of a phenomenon that emerges, “through the eyes of the participants” (Cohen, Manion, & Morrison, 2007, p.13). Framed by the overarching context of qualitative research, a multiple case study satisfies the need for authenticity (Willig, 2008), and allows trustworthy findings connected to a phenomenon and the viewpoints of various key informants to emerge.

The study of organizations is suited for case study research. Barkley (2006) suggested that one objective of case study methodology is to explain plausible reasons for the “success or failure” (p. 1) of an organization’s governance, policies, or practices. Desimone (2006) noted that case-study methods have been successfully employed to collect credible data from key informants at various levels of an education organization, and according to Gall, Gall, and Borg (2005), a case study has been an effective method to explore real-life issues in the effort to improve educational practice.

The sustainability of adequate school building conditions would be rendered immaterial if the phenomenon was enigmatic to the member of the community and school organization. Collecting credible data from key informants within an educational organization to help explain the character of governance, policies, and practices pertaining to school building conditions is significant to future reform and improvement of school operations. Additionally, in this study, I focused on the complex nature of the organizational ideologies that emerge from the attitudes, perceptions, and awareness of local school stakeholders from among a field of participants from several local school organizations.

Research Question

The conceptual framework of this study is focused on gaining insight into the underlying school stakeholder perspectives that influence the sustainability of policies and practices concerning the physical environment school buildings. Insight and understanding are dependent upon the emic ideology or organizational ethos espoused by school officials. Policy researchers have indicated that implementation of policy is impacted by the preexisting awareness or perceptions of educational professionals (Coburn, 2001; Spillane, Reiser, & Reimer, 2002). There is a need to develop a deeper understanding of whether those school officials who are integral to the core mission of a school organization possess a level of awareness about the functional aspects of school building conditions and learning. Thus, the central question underpinning the purpose; data collection; and analysis of the reported attitudes, perceptions, and awareness of key members of a school organization are articulated by the following question: How do local school stakeholders, recognized as school facility managers, administrators, teachers, and school board members, perceive or acknowledge the relevance and relationship of school building conditions as an influence on student learning in three diverse school districts in coastal New Jersey?

Context for the Study

In addition to the data derived from key informant interviews, additional data were gathered consisting of details pertaining to the demographics associated with the school setting and information pertaining to the 12 local school stakeholders who would act as key informants from three diverse suburban school districts in coastal New Jersey.

Together with the self-reported details of the informant's attitudes, perceptions, and awareness of the subject under study, information regarding their individual professional roles and number of years of service in an educational setting was obtained prior to each interview session. To accomplish a within-case and cross-case analysis, the testimony of key informants were disaggregated according to role orientation and panel affiliation. Data pertaining to reported personal information are detailed in Table 2 with Section 4. To provide a description of the school district data, a report of the setting in which data were collected became necessary. The demographic data were compiled in the form of statistical demographic information provided through the U. S. Census (2010) and public information from the New Jersey Department of Education that highlighted the differences among each school district organizations.

Table 1

District Factor Groups and Socioeconomic Status

School District Cases			
School Code	DFG	Median Family Income	Poverty Level Children 5 -18 years
P-2	CD	$ 56, 509	13.7%
P-2	B	$61,347	5.5%
P-3	DE	$76,648	7.3%

Note: N. J. Department of Education, (2006); U.S. Census Bureau, Decennial Census (2010)

According to U. S. Census (2010) data, school district P1 is a suburban community of 7,242 residents located in central New Jersey. The median family income is $56,509 and 13.7 % of children between the ages of 5 and 18 are living in poverty (U.S. Census, 2010). The school community is a kindergarten through 12th grade school district comprised of approximately 1,162 students enrolled in one elementary school and one high school (U.S. Census, 2010). The total 2010 per pupil expenditure for operations and plant was $1,453 below the state average of $1,731 per pupil (U.S. Census, 2010). School District P2 is categorized as DFG-CD.

School district P2 is a suburban community of approximately 6,245 residents located in central New Jersey (author, year). The median family income is $61,347 and 1.4 % of children between the ages of 5 and 18 are living in poverty (U.S. Census, 2010). The school community is a kindergarten through eighth grade school district comprised of approximately 765 students enrolled in one early child learning and elementary school, and one high school (U.S. Census, 2010). The total 2010 per pupil expenditure for operations and plant was $1,484 and below the state average of $1,731 per pupil (U.S. Census, 2010). The school district is termed a *sending district* whereby high school students are sent to a regional high school. School District P2 is categorized as DFG-B

School district P3 is a suburban community of 20,324 residents located in central New Jersey. The median family income is $76,648 and 0.9 % of children between the ages of 5 and 18 are living in poverty (U.S. Census, 2010). The school community is a kindergarten through 12th grade school district comprised of approximately 3,300 students enrolled in one early child learning center for preschool and kindergarten, three

Grade 1 through 4 schools, two schools serving students in Grades 5 and 6 in a departmentalized model, one middle school and one high school (U.S. Census, 2010). The total per pupil expenditure for operations and plant was $1,670; below the state average of $1,731 per pupil in 2010 (U.S. Census, 2010). School District P3 is categorized as DFG-DE school district.

The school community differences were established by alignment with New Jersey's District Factor Group Matrix published by the New Jersey Department of Education School (NJDOE, 2006). The matrix, according to the NJDOE, is a categorization of public school districts on the basis of socioeconomic demographics. The most disadvantaged school districts are identified under district factor A or B and the most advantaged (affluent) school districts are identified under district factor I and J.

Stringent data collection practice was followed in order to augment the credibility and trustworthiness of this study. Subsequent to completing an Internet-based training course on Protecting of Human Research Subjects, as certified by the National Institutes of Health (NIH) Office of Human Subjects Research, it became necessary to draft a consent letter and research proposal to satisfy the requirements of Walden University's Institutional Review Board (IRB) prescribed application, which was approved under # 06-09-11-0114682.

As a prerequisite to contacting potential key informants, access to each school district required the presentation of a formal written request directed to each superintendent of schools in order to approach staff and school board members (Appendix B). In two cases, the request was presented to the district superintendent for

ultimate approval by the district's school board, and in the third case, only superintendent approval was necessary. The process became delayed due to the summer vacation schedules and the availability of superintendents and school staff. By the end of January 2012, all superintendents had approved the parameters of this study, provided permission to conduct this study, and provided approval to approach various staff as potential key informants.

Following administrative approval, potential key informants were contacted by phone and/or e-mail with an invitation to join this study. Informed consent is an important rudimentary research component of ethical conduct involving human subjects and a prescribed consent form was submitted for review and approval by the IRB, and was approved for use. The consent form included a brief description of the procedural aspects of this study; identification of the researcher and educational institution under which the research would be conducted; the appropriate assurance regarding confidentiality, anonymity, the voluntary nature of participation including the right of unobstructed withdrawal; and the intended benefits of the research (Appendix B).

Across the three chosen public school districts (panels), no individual invitation to participate was refused. Upon the key informant's affirmation to partake in this study, each interview was scheduled to discuss the purpose of the study, obtain a signed consent letter, and to conduct an audio recorded, one-on-one, semistructured interview. All meetings were arranged according to the preference and at the convenience of each key informant. Prior to each interview, each key informant was informed that the interviews would be completely confidential, that all consent letters would be protected, and that I

would make myself available to any key informant for any postinterview questions or concerns that might arise.

Of New Jersey's eight district factor groups, the three school districts selected occupy three of the lower four midrange socioeconomic factor groups within the factor group continuum. The districts were aligned by panels with Panel 1 (DFG-B) as (P1), Panel 2 (DFG-CD) as (P-2), and Panel 3 (DFG-DE) as (P-3). The rationale for clustering school districts was to achieve a wider sample of districts spread along the lower middle income district factor group continuum. I also chose these school districts primarily due to the economic and academic diversity as well as the districts involved in this study were accessible and are situated within close geographic proximity.

I chose these school district cases primarily due to their economic and academic diversity and because all of the districts are situated within close geographic proximity. The county population, according to the U.S. Census Bureau (2008), in which the four school districts are situated was about 642,000 with a total of 52 separate school districts. The Census Bureau data also set forth the median value of a single family home was $203,100.00 and the median family income was $76,843. Furthermore, the Census Bureau identified family poverty with children under the age of 18 was 7.5% According to the Bureau Economic Statistics (2008), the county was ranked 55th in per capita income in the United States.

Ethical Protections and Confidentiality of Key Informants

From the initial stages of the design of this study to the final drafting of conclusions, consideration regarding the ethical standard to protect the confidentiality of

the school districts and key informants was strictly maintained. Data collection for the study required me to be mindful of the responsibility and obligation to key informants regarding the information revealed through participation in this study. Particular attention was afforded to the sensitive nature of information acquired and the recognition that, if improperly disclosed, the professional status of the individual participant or key informant would be adversely impacted.

During the early stages of the study and before the gathering of data, I obtained the required certification from the NIH's Office of Extramural Research certifying completion of the NIH training course titled Protecting Human Research Participants. A certificate 282975 was issued on September 7, 2009 and was made part of the IRB applications. Prior to the commencement of the interview process, written permission was sought from school superintendents regarding access to school personnel and to members of each district's local board of education (Appendix B). Subsequent to gaining the appropriate written approval from the various school district superintendents, all local school stakeholders (key informants) were contacted in writing or by telephone regarding the purpose of the study and the parameters of the interview process. Each potential key informant was provided with the appropriate consent form (Appendix B) prior to each interview that outlined the parameters of the study and the purpose of the interviews. Upon receiving individual permission regarding participation in the interview process, each selected local school stakeholder was provided, by mail or e-mail, with the interview questions from the researcher-designed interview protocol prior to our meeting.

All interview questions were crafted for relevance, clarity, and impartiality (Hatch, 2002). All interviews were also conducted at a location convenient and preferred by the participant, and were audio recorded and transcribed in a timely manner. I recognized that all key informants retain an expectation of confidentiality and upmost respect (Hatch, 2002; Lichtman, 2010) and I additionally acknowledged that all data will remain protected and confidential. All data have been and will continue to be securely retained for an appropriate time not to exceed 1 year after acceptance of this study by Walden University. At that time, all confidential data will be commercially destroyed and receipted regarding date of destruction.

Role of the Researcher

An essential component of qualitative design is linked to the role of the researcher as the medium connecting data collection to evaluation of data (Janesick, 2004; Kvale & Brinkmann, 2009). In qualitative research, the influence of the researcher on the study's design is undeniable (Brodsky, 2008). Dunne (2005) portrayed the researcher as critical to the conception and construction of a research continuum from identifying the object of study to preparing findings and conclusions. Thus, in this study, I acted in a capacity of a scholar-learner balanced against the professional expertise and competence of key informants. Furthermore, given the integral role of the researcher, my experience, education, and knowledge undoubtedly impacted the collection and analysis of data. Rubin and Rubin (2005) explained that relationship building with participants (key informants) is predicated, in part, on the level of comfort and confidence the participants attribute to the researcher. In addition, Rubin and Rubin noted a need for the researcher to

demonstrate an acceptable depth of knowledge to frame an inquiry that is well informed and to assume a competent role.

I exercised a commensurate degree of control over the procedural aspects of the study to increase credibility and trustworthiness by carefully defining the parameters linked to participant selection, study design, and the accurate maintenance and transparency of collected data at all stages of the study's methodological continuum. I administered, collected, evaluated, and interpreted all data related to the key informant's reported awareness, perceptions, and beliefs gathered during interviews. Moreover, I maintained a level of collegiality and preserved a high measure of professionalism that provided key informants confidence in the level of quality linked to the entire research process.

The evaluation and analysis of a successful approach to interviewing depended upon an interpretative framework requiring me to obtain a prerequisite level of basic background understanding of the complexities of the subject matter under study. I undertook a review of literature to build an appropriate level of knowledge and understanding to create a commensurate level of competence in the phenomenon under study. In addition, the process of self regulated bracketing (Creswell, 2007; Tufford & Newman, 2010) whereby the personal beliefs, assumptions, and attitudes are removed from the data, became an important element of my role. I maintained no direct personal or professional relationship with any of the participants.

Participant Selection

Criteria for Participant or Key Informant Selection

Developing criteria for the identification and selection of key informants was an important aspect of this study's methodology. Coburn and Talbert (2006) pointed out that little is known about how various professionals with different role orientations across a school system might view data-driven information regarding student learning. As previously noted, no researcher appears to have published research regarding the viewpoints of various school professionals across a school system regarding the impact of school building conditions on student learning. Tuckett (2004) described the method of qualitative sampling as a practical process where participants are selected to produce convincing and credible conclusions. Onwuegbuzie and Leech (2007) explained that rarely in research are the constructs of participant selection considered crucial to the overall methodology, though the process of participant selection are connected to the legitimacy of the collected data.

To better understand the conceptual framework from the collected data, selection of participants was an important component of the overall design of this study. Liamputtong and Ezzy (2005) explained that purposive sampling allows selection of information-rich participants that may generate desired data. Maxwell (2005) suggested that the benefits of a purposeful selection of key informants are important to understanding whether sustainable school improvement at all levels of an educational organization can take place. According to several researchers, the selection rationale involving potential key informants is focused on the competency, level of awareness, or

professional role orientation relative to the matter under study (Flyvbjerg, 2006; Pokinghorne, 2005; Yin, 2008). Maxwell also explained that purposeful selection deliberately concentrates on a particular setting or specific individuals from where well-informed data can be obtained to effectively build trustworthy conclusions.

A purposive selection method (Maxwell, 2005) was employed for this study and selection was limited to school professional staff and elected school officials (school board members) who could be best distinguished as local school stakeholders who might best provide the data necessary to answers the research question (Hatch, 2002). To limit bias, data gathering was accomplished by taking advantage of the diversity of possible perspectives (Eisenhardt & Graebner, 2007) and professional role orientations within and across each school organization. As already noted, multiple case study (Creswell, 1998; Stake, 2006; Yin, 2009) methodology provides the opportunity to collect credible data from key informants at various levels of an educational organization (Desimone, 2006) and allows for the examination of the phenomenon under study from the viewpoints of various groups of participants (Willig, 2008).

As the elected voice of the community, the role of a school board member is critical to the goals and vision of a school district (Solomon & Preis, 2006). School board members influence the policies and practices of schools including the level of managed care for the condition of school buildings. Teachers, according to Fullan (1993, 2005), hold a unique position associated with a moral purpose that is a key mechanism for school-wide improvement. Additionally, by the nature of the responsibilities and duties of school facilities managers, the condition of facilities is the measure of professional

effectiveness and success. According to the U.S. Department of Environmental Protection (2006), school facility managers, due to the unique role within the school organization, are the logical leaders to maintain an adequate level of quality of a school's infrastructure.

Leadership in facility management is vital to the operational success of an organization and that distinctive leadership is an important function of a facility manager (Cotts, Roper, & Payant, 2010). The inclusion of school building administrators calls to attention that administrators either principals or vice-principals maintain the role orientation as the "on site administrator responsible for the school facility" (Schneider, 2004, p. 2) and play a key role in ongoing maintenance and facility management programs (Barbra, 2006; Harrison, 2010). School administrators are integral to the development of issues concerned with educational improvement (Hargreaves & Fink, 2006).

Previous researchers have introduced the notion that to augment quantitative findings derived from the surveyed perceptions or perspectives regarding school building conditions, qualitative studies that include school professional staff with expertise regarding school building conditions and learning is a necessity (Geier, 2007; Schneider, 2004). Finally, I recognized that a balance of perceptions among the key informants and the point at which redundancy emerges was important to acquire credible and trustworthy testimony and reliable findings.

As a contingency, a fourth school district was identified to participate as an alternate to ensure and protect the continuity of the study in the case a gap in interview

data occurred or in the case a school district found it necessary to withdraw prematurely from the study. Due to the unresponsive nature of one of the primary school districts originally indentified as a potential participant panel, the contingency was satisfactorily employed regarding the alternate panel. The appropriate arrangements were concluded with the alternate school district prior to the commencement of the data collection phase of the study. The alternate was geographically contiguous and provide a suitable panel of key informants.

Size of Key Informant Group

Three cohorts of local school stakeholders had been ultimately identified as participants based on criteria related to professional role orientation, school district affiliation, and perceived competence. The cohorts were identified as *panels* (Cassell, Buehring, Gilliam, Johnson, & Bishop, 2005). A total of 12 key informants were invited to join the study and each school district panel consisted of a teacher, administrator, educational facilities manager, and school board member. Table 1 provides a brief description of the selected school organizations relative to district factor group and socioeconomic metrics.

Crouch and McKenzie (2006) asserted that unlike quantitative study that is focused upon advancing a generalization of findings across a wide population, a qualitative approach is attentive to experiential meanings and a large sample size may be unwarranted. Patton (2002) noted, “Qualitative inquiry typically focuses in depth on relatively small samples . . . selected purposefully” (p. 230). Punch, (2005) and Creswell (2007) suggested, in the context of qualitative research, that the research objective of

generalization is not a desired outcome; rather the goal is the development of deeper understanding which may be transferable to other populations. While the size of the key informant group will not allow for generalization of conclusions beyond the school organizations involved, the diversity and richness of the reported attitudes, perceptions, and awareness provided the necessary saturation of common themes that led to credible and trustworthy findings and conclusions.

Scott and Morrison (2005) indicated that a case study model can be characterized by vigorous research that is authentic, situational, and reliant upon an analysis of a small number of incidents or circumstances. Yin (2009) suggested that, when employing a multiple-case model, the number of cases should be connected by the necessity to satisfy the constructs of the research question. Yin (1994) explained that approximately ten participants could reach a saturation point, whereby redundancy of data will begin to emerge from the analysis of interview data. According to Creswell (2007) saturation is determined as a measure of redundancy of the collected data from participants. Creswell suggested that saturation often occurs is studies limited to 5-25 participants. Creswell, Hanson, Clark, and Morales (2007) explained that 10 to 12 participants is sufficient in a qualitative design involving the examination of the perceptions of participants. According to DeGagne and Walters (2010), determining sample size in qualitative research is "the researcher's judgment call" (p.358). It was anticipated that 12 key informants would be adequate for this study to reach saturation and it was determined that the data possessed a satisfactory level of saturation to address the research question.

Data Collection

At its most fundamental level, qualitative data collection follows an iterative process involving the planning, implementation, and synthesis of data (Denscombe, 2007; Padgett, 2008). According to Mack, Woodsong, MacQueen, Guest, and Namey (2006), the general framework of a qualitative approach seeks to explore a phenomenon using a data collection methodology that is flexible and reactive to potential shifts and trends as collection unfolds. The methodological goal of this study was to examine and describe the variation in relationships, value systems, or individual human experiences through an open ended inquiry that used textual, audio, and field note sources. The strategy assigned to data collection included semistructured interviews and researcher field notes or reflective memos. A good starting point for the analysis attached to the influence of school building conditions on student learning was to focus on the importance attributed to building conditions from the personal constructs of local school stakeholders.

Qualitative Interviews

Interviews provide in depth data regarding participants' perceptions and experiences. Creswell (2007) explained that the use of interviews is "the backbone of qualitative research" (p. 43) and within the domain of a qualitative approach, research literature suggested several modes data gathering that can be employed to obtain relevant and comprehensive data. Within the framework of this study, semistructured interviews were undertaken by means of face-to-face questioning (Janesick, 2004). The importance of interviewing was considered a way of providing participants an opportunity to voice

individual opinions, feelings and perceptions. As Royea and Appl (2009) noted, the "voices behind" (p. 1) the advocacy for change and reform are most important and in the context of a school organization, those voices arise from the personal constructs of those most interested in improvement.

Unlike the quantitative research approach that employs close-ended questions, qualitative interviews can be described in terms of an interview approach that is unstructured, semistructured, or structured (Fontana & Frey, 2005). Rubin and Rubin (2005) asserted that qualitative interviews provide a richness of data that cannot be obtained through quantitative inquiry. Pokinghorne (2005) concluded that a qualitative data collection strategy is best represented by gathering experiential accounts that are cautiously reassembled in order to reach a credible description of human experience and perceptions. The level of control exercised through a particular research design is articulated by what interview strategy best serves to answer the research question (Corbin & Strauss, 2007).

Structured interviews operate within a framework that is closely controlled with predefined questions and are consistently presented to all respondents in the same way (Kvale & Brinkman, 2009) and structured qualitative interviews have also been described as analogous to quantitative oral questionnaires or surveys (Bruga, Bebbington, & Jenkins, 1999). Tight control of how the interview unfolds is not an attribute of an unstructured or semistructured approach. An unstructured interview format permitted a casual face-to-face dialogue allowing for open ended responses to questions. Fisher and Foreit (2002) detailed that unstructured interviews allow the interviewer the opportunity

to employ general interview questions followed by probing questions for clarification. The benefit of a semistructured format allows the interviewer to engage in a conversation initiated by broad open-ended questions from which the interviewee is released into unrestricted dialogue (Srivastava & Thomson, 2009).

Through a semistructured format, I maintained a degree of control and versatility to guide the interview towards a favorable conclusion (Abell, Locke, Condor, Gibson, & Stevenson, 2006). The questions put to each key informant were identical, but the sequence of the questions was changed to better react to the testimony provided by each interviewee. Although the study's design had required a set of interview questions that were orientated towards a particular research agenda, the flexible nature of semistructured interviews allowed for the unexpected responses (Srivastava & Thomson, 2009).

The benefit of a qualitative approach to data collection through interviewing was recognized by the intuitive acknowledgment affecting how interviewees see, feel, and approach the phenomenon under study (Smith & Albaum, 2010). To this end, the gathering of multiple perceptions through dialogue was an important prerequisite to understanding the ultimate truth and reality (Stake, 1995) of the authentic attitudes, perspectives, and awareness of those competent informants selected to participate in this study. The choice of using a format of semistructured interviews provided flexibility in questioning while remaining consistent regarding questions across the various interviewee panels. Semistructured, face-to-face interviews provided the best option to

obtain the data needed for a successful study outcome and the means to satisfactorily answer the research question.

Data Collection Procedure

Subsequent to providing informed written consent, at the start of every interview each participant was asked several questions to assess sociodemographic information pertaining to age, professional role, years of service, and educational background. The interviews followed a single round strategy (Leech & Onwuegbuzie, 2007) that was supported by an interview guide (Appendix A) focused on issues linked to the importance of student learning success, school building conditions, and how school building conditions fit into the larger schema of schooling. Prior to school building-specific questions, the introduction the general definition of the attributes of school building conditions was provided to key informants to create a common point of departure into the interview. Interviews were conducted in locations based on availability, safety, and comfort within a public school in each school district. Interviews were designed to last approximately 45 minutes long, and were audio recorded to obtain an accurate account of the all conversations. The audio files of the interviews and verbatim transcripts remained anonymous and identified only by code numbers. All audio files were protected and were destroyed after transcription and translation.

Case Study Protocol and Interview Guide

The goal of a qualitative framework of interviewing is to convince people to talk about and reveal their deeply held attitudes and perceptions (Rubin & Rubin, 2005). To satisfy that objective, the value of a focused semistructured interview approach, pursued

conversational themes within and across panels and the role orientations of informants. A standardized interview guide of questions was used in all interviews. McNamara (2009) noted that the provision of a flexible degree of consistency among the interviews is achieved through the drafting of an interview guide as a template to maintain focus, while allowing the ability to adapt to differences between the various interviewees. Turner (2010) noted that conducting a standardized, semistructured, and open-ended interview requires adherence to a consistent presentation of questions among all participants. The use of an interview guide was intended and successfully employed to minimize researcher bias through a consistency of questions presented all interviewees (Harrell & Bradley, 2009). This consistency among multiple interviewees allowed comparisons and the interview guide provided the researcher a degree of guidance and efficiency by prioritizing questions and categorizing responses in preparation for coding.

The use of a formal interview protocol was important. Yin (2009) was unequivocal in stating that the process and procedures of a multiple case study investigation should be supported within the framework of a "Case Study Protocol" (p. 79). Yin explained that such a protocol is meant to provide a broad synopsis of the study's objectives and helps to operationalize the research as the data collection methodology unfolds. The use of a Case Study Protocol (CSP), according to Yin, is an operational effort to increase the reliability of the findings. Marshall and Rossman (2006) detailed that as the researcher moves into the data collection and analysis phases of a study, an organized system of note keeping and reflective memos is an imperative to

maintain control over the organization of data. Notes and reflective memos that emerged from this study were maintained within the CSP and used for reference.

Yin (2009) further explained that the CSP allows the researcher to remain focused within the bounds of the investigatory procedures set forth by the study's design. Informed by the constructs of a CSP and following the framework purposed by Yin, this researcher drafted a statement within the protocol for reference purposes containing a short historic perspective of the subject matter under study, an interview guide with copies, an abbreviated restatement of the problem and purpose to the study, a statement on the protection of participant confidentiality and the protection of data, and the general procedural rules that were used to guided the me during the interview process. This information was consistently referred to in preparation for every interview. The CSP became my toolbox from which the data collected was efficiently and safely gathered for analysis.

Use of Field Notes and Member Checking

My field notes, supplemented by reflective journaling, were considered an integral part of the interview process and acted as a diagnostic tool (Denscombe, 2007; Tuckett, 2004). The field notes detailed important nuances recorded during each key informant interview. Marshall and Rossman (2006) explained that field notes or reflective journals composed during the data gathering stage will become invaluable reference during the analytic segment of the research process. Janesick (2004) suggested that keeping field notes compiled during the interview process and reflective journal writing is crucial in qualitative study as a journal serves as a "powerful heuristic" (p. 144) tool.

Janesick also noted that the researcher acts as the "research instrument" (p. 144) and the researcher's journal or field notes becomes an extension of research as well as a means of organizing data. Rubin and Rubin (2005) suggested that field notes act to orient the researcher during the interview and explained that maintaining focus is vital to the credibility of data collected.

Taking notes, according to Fernqvist (2010), provides an added degree of credibility to the gathering of conversational data as the field notes serve as a way for the researcher to revisit particular aspects of an interview that may be noteworthy during the data analysis phase. Thus, a set of field notes and reflective memos was maintained during the data collection and analysis stages of this study. Subsequent to interviews field notes assisted in the analysis of the emerging interview themes and acted to maintain the transparency of the descriptive nature of the conversational data.

To accurately memorialize the experiential viewpoints derived from interviews (Carlson, 2010) and to provide opportunity key informants to verify the accuracy of the transcribed data, member checking of each interview became important. Member checking afforded me a mechanism to provide fairness and precision regarding the reporting of personal conceptual views, opinions, and perceptions of participants (Sandelowski & Barroso, 2007). Creswell (2009) suggested that rather than allowing for an interviewee's review of the entire transcription, review should be limited to the emergent themes that surface from the body of the interview. However, subsequent to the final transcription of the each interview the informants were afforded access to the complete review the interview as transcribed and each interviewee was requested to

redact any details which a key informant might object to or considered personally problematic.

Data Analysis

Analysis of Case Study Interviews

To evaluate data obtained from key informants, this study was framed by a qualitative interpretive approach (Creswell, 2007) and a thematic analysis of each interview was undertaken and later supplemented by a within-case and cross-case analysis (Stake, 2006). Data analysis in case study research is, according to Yin (2009), challenging, time-consuming, and given the volume of data derived from the interviews, difficult to synthesize. Rubin and Rubin (2005) advocated that an interpretive constructivist approach to data analysis should resonate with the idea that reality is circumspect, subjective, and cradled in complex social interactions. The inferential nature of this study includes the need to produce an explanation of rich formative meanings that arise from the constructed realities of key informants who are knowledgeable and credible (Padgett, 2008). Conducting semistructured interviews generated a considerable volume of case notes and transcriptions. Therefore, organization of data was important (Marshall & Rossman, 2006) and a focused coding approach to data became necessary.

To prepare for the final analysis and reporting of findings, a content analysis was employed to condense, categorize, and describe data that effectively answered the research questions (Elo & Kyngas, 2008). From audio recorded interviews, the analysis was shaped to maximize a credible interpretation of all collected data through an iterative process of review (Denscombe, 2007). Lacey and Luff (2007) noted that interview data

should be gathered, organized, and synthesized into thematic strands or categories. Creating thematic categories entailed an interpretation of interview data through a cyclic synthesis of the interview testimony. The cyclic analysis or recursive synthesis of data (Seidel, 1998) is analogous to Creswell's (2007) "spiral analysis" (p. 151) that employed a strategy of cross referencing and repeatedly shifting among interviews and field notes or memos, as part of a consistent looped process of "describing, classifying, and interpreting" (p. 151) data.

In preparation for analyzing the interview data, the audio recorded and transcription of data allowed for a familiarization of the testimony of each key informant (Maxwell, 2005). During this pretranscription stage additional notes regarding the integrity of the entire audio record and particular testimony were made as a preliminary brainstorming exercise linked to the formation of a first round construction of "categories and relationships" (author, year, p. 96).

Analysis of Data by Coding

A content analysis was conducted through the framework of a second round use of open coding to form conceptual categories derived from textual interview data. The emergent categories created from open coding were then subjected to third round or phase of axial coding from which focused themes emerged. Coding of data is an analytical function entailing the review of collected information with an objective of developing patterned themes (Babbie, 2001; Richards, 2009). Strauss and Corbin (1998) considered coding as constructing interconnections among categories and themes being conceptualized from data making links. Saldaña (2009) defined coding as defining data

as, “most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data” (p. 3). The analytic objective of this study was to construct a process of reviewing, re-reviewing, and coding of each interview to establish patterns of themes as they emerged from the interviews (Braun & Clarke, 2006). Strauss and Corbin (1998) advocated for a two-tiered phased transition between open coding and axial coding.

Using an open coding technique (Bogdan & Biklen, 2007; Strauss & Corbin, 1998) the categorization of interview data entailed a strategy whereby a distinction among data was separated and compared. Babbie (2001) noted that the construction of conceptual themes begins during the open coding stage of data analysis and from open coding main themes evolve. Once the open coding was completed, the analysis of data moved to the axial coding (Creswell, 2007) that began with the ordering and refinement of data into an iterative review of all testimony, interview by interview question and the synthesis of testimony began to delineate the conceptual elements among categories.

Analysis Within Cases and Across Cases

Cross-case analysis mobilized themed data from study cases through a contrasting of data that is distributed into clusters of information (Khan & VanWynsbergh, 2008). The cross-case analysis also relied upon a recursive synthesis (Seidel. 1998) of interview data where the similarities and differences across this study’s three panels were evaluated for a shared attitudes, perceptions, and awareness regarding school building conditions. The design of this study also allowed for the analysis of within-case differentiation of stakeholder engagement regarding the constructs of the relationship of school building

conditions and student learning success according to role orientation and district factor grouping.

Credibility and Trustworthiness

Biggs and Büchler (2007) maintained that a core characteristic of research is the level of rigor of the study's collection and analytic design. The methodological differences between quantitative and qualitative study requires different approaches to the requirement of quality (Guba & Lincoln, 1985). According to researchers, qualitative study cannot effectively convey the concepts of validity and reliability using the same metrics applicable to quantitative inquiries and that credibility and trustworthiness are more applicable to qualitative study (Guba & Lincoln, 1985; Shenton, 2004; Zhang & Wildemuth, 2009)

Qualitative research, according to Rolfe (2006), is not dependent upon a unified theory as an operational consensus on the quality indicators linked to a qualitative research design has emerged in previous research literature. Studies that are framed using a qualitative interpretivists' model view the trustworthiness of the data collection and analysis as primary, rather than the quality indicted through the aspects of validity and reliability that are associated with a quantitative notion of research (Zhang &Wildemuth, 2009) . Guba and Lincoln (1985) viewed credibility as an attribute of a research design's rigor. As the study unfolded, the challenge became to increase or enhance trustworthiness of the procedures of data collection and process of data analysis. Thus, the collection and evaluation of source data was accomplished through the principles of scholarship, self-

awareness, and organization regarding the potential external and internal threats to trustworthiness (Onwuegbuzie & Leech, 2007).

Internal rigor, as viewed by Merriam (1998), is linked to the parameters of the study's research question and whether the methodology of the study satisfied the central purpose of the research. Merriam suggested that within the domain of qualitative study, credibility deals with such questions of congruency between the methodology of the research and the research question. Credibility, according to Lincoln and Guba (1985, 1989), also focuses on the internal congruency between the reporting of the perceptions of study participants and the articulation of those perceptions in the study's findings. To demonstrate the credibility of the internal congruency of the data, Lincoln and Guba pointed to *member checking* as important. Bowen (2005) considered member checking as an important analysis tool to increase confidence and credibility attributed to the reported findings and conclusions of a qualitative study. Member checking was employed in this study as a strategy to minimize researcher bias and to increase confidence in the internal authenticity (Tuckett, 2004) or credibility of the analysis of data.

Kuper, Lingard, and Levinson (2008) noted that triangulation of qualitative data can be accomplished through creating contextual diversity among carefully selected participants. The mechanism of data collection using semistructured interviews was consistent among all key informants, but the diversity of the key informants was defined by the contextually different school organizations which each participant works and the role orientations each participant assumed. The methodology and consideration of the credibility of key informants, the dependability of the research process, and the

transferability to other groups of stakeholders were meant to create trustworthy conclusions (Creswell, 2009).

The analysis methods assisted in providing essential themes of data that allowed for summative, credible, and trustworthy conclusions. As evidenced by the review of literature, I depended upon a wide range of research and reports from various scholarly disciplines. All reasonable precautions were undertaken related to the transcription, organization, and storage of data. The credibility and trustworthiness of the study's conclusions were derived, in part, from the unique knowledge derived from the researcher's review of literature, the creation of a defined interview procedure and interview protocol, the selection of diverse key informants, and a measured and careful collection, coding, and analysis of informant responses.

Summary

The primary objective of a qualitative case study design was to provide an alternative view, through research, of the perceived importance of school building conditions and student learning. Although many previous research studies have been dependent upon a quantitative approach to investigation of school building conditions, a gap appeared within the totality of research due to a lack of qualitative investigations of the perceptions, attitudes, and awareness of educationalist and staff. This section included a description of the qualitative methodology and the rationale for the use of a multiple case study case research framework. Further discussion involved the selection of school districts as participant panels and key informants (local school stakeholders) as units of

analysis. Additionally, I highlighted the research design used for data collection and analysis.

This study aimed at bridging that gap in research through the qualitative tradition and a strategy derived from a case study approach. Yin (2009) asserted that as a strategy of research, case study is meant to support the study of "individual, group, organizational, social, political, and related phenomenon" (p.4). Understanding the conceptual perceptions and beliefs of those individuals within a defined social group, like a school organization, regarding a phenomenon like school building conditions, can serve to broaden and enrich the existing body of research. Earthman's (2004) advice that school building conditions are unquestionably linked to student learning achievement, neglects that acknowledge that the core beliefs of those members of the local school community pertaining to a problem facing education can act to actualize school buildings conditions as an important educational policy consideration. Obtaining authentic assessment of the attitudes, perceptions, and awareness of members of the local school organization and community through a framework of a qualitative multiple case study provided a credible and trustworthy alternative investigatory approach.

Section 4: Report of Data and Data Analysis

Introduction

Using a qualitative interpretative approach (Creswell, 1998, 2007; Stake, 2006; Yin, 2009) allowed for the examination of the reported perspectives of the importance of school building conditions. A multiple case study methodology (Creswell, 1998; Stake, 2006; Yin, 2009) was determined to be the best strategy to enable a subjective investigation of the centrality of several perspectives through the authentic testimony from various key stakeholders across multiple school organizations. The findings of this study are shaped by semistructured interviews, researcher-generated field notes and memos produced during collection and analysis of data, and from data gleaned from existing literature before and during the study. The preparation and initiatives of this study were guided by one research question: How do local school stakeholders, recognized as school facility managers, administrators, teachers, and school board members, perceive or acknowledge the relevance and relationship of school building conditions as an influence on student learning in three diverse school districts in coastal New Jersey?

Section 4 presents the rationale underpinning this study and procedural explanations that include a summation of the data collection process and the organization of data. Section 4 also provides findings linked to a descriptive and interpretative synopsis of key informant interviews, as well as a reporting of the inductive analysis of collected data through salient interview excerpts, discrepant data, and a brief summary of the findings. As a narrative, the reporting of data reflected the contrasting attitudes,

perceptions, and awareness of the key informants and the several emerging themes that surfaced. Section 4 also includes a concomitant commentary and discussion.

Rationale for Study

The definition of what counts as an attribute or component of a school building, how the attribute is described, and what would constitute an acceptable solution to mitigate the adverse impact of poorly maintained building attributes, may tend to differ across the professional perspectives of members of a school organization. The centrality of the personal perspectives act to regulate organizational decision-making and ultimately frames the organization's culture (Deal & Patterson, 2006). The constructs of organizational culture are synonymous with an organization's ethos or personality (Brown, 2005; Cherry, 1988) and the organization's ethos is believed to be representative of a continuum of shared values, attitudes, and normative perceptions that are manifested, according to Deal and Patterson (2006), in the policies and practices enacted by a school organization. To capture the richness of attitudes, perceptions, and awareness that underpin organizational culture or ethos required, an interdisciplinary approach derived from an understanding of environmental psychology, social constructivism, and organizational theory shaped the methodology of this study. The investigative framework of this study was oriented towards gaining access and evaluating the prevailing personal constructs underlying the perspectives of school stakeholders and whether the quality of school building conditions resonated within school organizations as a phenomenon that influences student learning. Individual attitudes arise from "a complex combination of things we tend to call personality, beliefs, values, behaviors, and motivations" (Pickens,

2005, p. 44), and these aspects of individual perspective subsequently guide and support an organization's ethos or culture, and ultimately an organization's policies and practices.

Research Procedures

Study Framework and Data Analysis Trajectory

Data were gathered through a multiple case study methodology (Creswell, 1998; Stake, 2006; Yin, 2009) designed to pursue insight into the attitudes, perceptions, and awareness of 12 purposely selected key informants across three separate school organizations. According to Polkinghorne (2005) multiple case studies are used to collect in-depth data from a small group of participants believed to have insight into the topic of study. This study's multiple case study methodology provided an opportunity to obtain descriptive details of each key informant's reported perceptions that were subsequently coded to examine and evaluate emergent themes (Creswell, 2007). Using a semistructured, one-on-one interview format across three separate cohorts allowed for the analysis of a diversity of perspectives.

Researchers have suggested that no scholars have addressed the examination of the attitudes, perceptions, and awareness of multiple local school stakeholders with various role orientations related to school building conditions and student learning. The gap in research necessitated the creation of an original researcher-designed interview protocol (Yin, 2009). Once referenced against the research question, the interview guide (Appendix A) was drafted and subsequently employed to investigate, through semistructured interviews, the underlying personal constructs of 12 key informants believed to possess a unique perspective of school building conditions and student

learning. The context and direction of a common set of interview questions was also derived from a synthesis of the preexisting research that was primarily determined by previous quantitative, survey-based research and analysis as outlined within Section 2.

Semi-structured Interviews and Data Tracking

Data analysis included an iterative (nonlinear) process as well as a cyclical or recursive examination (Seidel, 1998) and analysis of data that continued until cogent themes emerged were achieved. In the context of a constructivist inquiry, the narrative framework of the interviews became as much a vehicle to produce authentic data as it was a way to attain a trustworthy understanding of the data (Holstein & Gubrium, 2008). Collected data were subsequently analyzed to understand how the key local school stakeholders conceptualized the phenomenon (school building conditions) under study. From the interview data, general themes emerged that provided insight into the authentic nature of the perceptions of all participants. In addition, the goal was to use a subjective record of school stakeholders' personal constructs (awareness, attitudes, and perceptions) of school building conditions and student learning.

From August 2011 through February 2012, 12 key local school stakeholders provided data regarding the personal perspectives that act to regulate organizational decision-making that operate to support or hinder the value of school building conditions. One-on-one, semistructured interviews with a teacher, administrator, facility manager, and school board member from three school districts served as the basis for data collection and analysis. Each interview began with a review of the information from the consent letter to ensure that all key informants recognized individual roles and how to

stop the interview if at any time they had questions or felt uncomfortable with the question or interview format. Before beginning the recording, each informant was reminded that the interview would be audio recorded, transcribed, and that any personally identifying information would be removed before being reviewed by anyone other than myself. I also informed each participant the New Jersey's Open Public Records Act (N.J.S.A. 47:1A-1 et seq.) prohibited the public release of personally identifiable information or details from a scholarly and/or academic research records.

The trajectory of data collection was deliberative and unfolded using a interview guide that included a categorical checklist for each participant and school district. The check list was used to track and memorialize the number of contacts; dates of contact; dates of school district consent; dates of participant consent; location, dates, and times of each interview; dates transcripts were sent for member-checking; dates of transcript approval with or without changes; date when any changes where memorialized; and dates of final acceptance of transcripts. A large ringed binder was used to hold and separate by participant code all consent forms, transcripts, notes, and contact information. The materials of the binder were locked in a file cabinet when not in my possession. The electronic data were also maintained on a password-protected laptop computer and in the form of analog audio tapes in a locked file cabinet under my care and custody. The key informant's responses were audio recorded using an analogue tape recorder. Every interview was identified through coded pseudonyms affixed to each analog tape and tape case. The coded pseudonyms were similarly set forth and appropriately logged on the categorical checklist recorded within the interview protocol.

Each key informant appeared comfortable with the location of the interviews and the topic of discussion. Key informants also appeared to be openly responsive and approached his or her responses in a thoughtful, considerate, and deliberate manner. It was my belief that each participant provided authentic insights derived from the retelling of personal experiences. Data gathering evolved into a framework reflecting the organization and coding of responses resulting in several themes that emerged from the interview responses. Journal notes were compiled and reviewed immediately after each interview and specific memos were recorded to further characterize any relevant details of the interview meeting. Interview notes (journaling) were created from a field interview notebook and were used for reference to ensure that verbal and nonverbal cues were observed during the interview. Note-taking and memoing helped avoid overlooking any relevant details not immediately apparent in the individual key informant transcripts. The notations were available to clarify or supplement the recorded interview data. The reported details of each recorded interview were organized and coded, with notations, and recurrent details formed emergent themes that were subsequently categorized for discussion.

Upon transcription of interviews, each key informant was sent by regular mail a copy of the relevant transcript with a cover letter for each key informant's review and approval of the transcript's accuracy. Key informants were instructed to render any corrections to individual transcripts and attest, if necessary, to the changes by his or her signature. In the event no changes or clarifications were found necessary, each key informant had the option to note and return the cover letter or individual transcripts. No

cover letters or transcripts were returned and it is believed that the integrity of the interview transcripts were acceptable to all participants. The transcription of interview data was carefully managed and considered essential to the trustworthiness and credibility and of this study.

The approach to the transcription of interview data can be best described through a continuum of practice requiring absolute accuracy of the record or the accuracy attributed to the meaning of the words within the written record (Oliver, Serovich, & Mason, 2005). Transcription of data in this study was undertaken in a precise, yet "denaturalized" (Oliver, et al, 2005, p.1274) manner whereby grammar was corrected, interview noise (i.e., stutters, extended pauses) were redacted, and meaning of the verbal testimony was produced , as part of the findings, through relevant excerpts from the audio interview record. Oliver et al. suggested that unlike an approach to transcription of data that attempts absolute precision in order to capture even the smallest nuances during the interview and termed "naturalism," the "denaturalism" of an interview seeks to gain, as testimony the, "meanings and perceptions that construct our reality (p. 1274) that allow the editing of colloquialisms from the interviews where necessary.

The methodology associated with the collection, evaluation, and coding of interview data was designed to bring meaning and insight to the study's research question (Rubin & Rubin, 2005). The analysis and sorting of data on a case-by-case basis required the recurrent examination, reexamination, and sorting of collected data (Denscombe, 2007) that is analogous with the recursive synthesis of content suggested by Seidel (1998) or Creswell's (2007) "spiral analysis" (p. 151). Through a recursive analysis of

the interview data that was dependent on the initial codes recorded in the field notebook, additional key words linked to themes emerged. Data were additionally subjected to a supplementary cross-case analysis of data (Stake, 2006) that necessitated a review of interviews across school districts and the role orientation of the key informants.

Creswell (1994) explained, "A qualitative study is defined as an inquiry process of understanding a social or human problem "formed with words, reporting detailed views of informants" (p.15). Moreover, Creswell suggested that the nature of a qualitative research methodology allows for a variety of distinct presentation approaches including, a narrative or extended story format (Creswell, 1998, 2007). Patton (2002) offered that an important aspect of the presentation of findings is the reliance on the "thick, rich description" (p. 437) gained from the gathering of authentic qualitative data. Lincoln and Guba (1995) linked the presentation of data from a deep and insightful description of data as a means to attain a measure of trustworthiness underpinning a study's findings.

The reporting of this study's findings was best suited for a narrative approach to the reporting of the inductive description, analysis, and interpretation of collected data. Sikes and Gale (2006) asserted that the narrative approach to presenting research "is fundamental to human understanding, communication and social interaction" (section 1, para. 5). Moen (2006) described the unfolding of a narrative as a credible method and means to present research findings. In addition, Moen pointed out that the constructs of the narrative approach to reporting data falls within the bounds of Vygotsky's (1978) suggestions regarding the "developmental approach to the study of human beings" (p. 3).

Narratives are considered best to describe the reported experiences and feelings of humans (Barbour, 2001; Lauer, 2004).

According to Kvale (1996), the process of research interviewing is not standardized, nor are the interview techniques drawn from a common template. The process does, however, follow a general framework that includes a critical or interpretive evaluation leading to understanding. As the interviews within this study unfolded, they became an informed dialogue (Kvale, 2005) whereby interviewees (key informants) began to express common or collective ideas that melded into thematic understandings (Kvale, 1996). In the context of a constructivist inquiry, the narrative interview is as much a vehicle to construct authentic data as it is a way to produce a trustworthy understanding of the data collected (Holstein & Gubrium, 2008). The findings of this qualitative study are presented in a narrative format and are derived from the experiential or perceptual viewpoints of key school stakeholders. The interviews are summarized from excerpts in a first-person perspective using the key informants' responses and accompanied by additional commentary.

The gathering of data was dependent upon the use of an interview protocol consisting of nine questions designed to gather qualitative data about local school stakeholder perceptions of the relationship among school building conditions and student learning exists. The focus of the study's methodology was also closely tied to a research question directed towards gaining access to the personal constructs of local school stakeholders. The qualitative analysis of content entailed the categorization of interview data by individual units of analysis (Hsieh & Shannon, 2005). The perceptions and

attitudes of each unit of analysis (key informant) was further distinguished and reported, after coding, in the context of the nine primary interview questions and follow-up questions.

Findings

The findings are produced in a narrative form to provide an in-depth and rich description of conversations recorded during the interviews and are presented in a question by question synthesis across the panels (cases) and categorized according to role orientation. A demographic profile of each local school stakeholder (teacher, administrator, school board member, and facility manager) is provided in Table 2. Key informants are identified by school district code to maintain confidentiality.

To introduce each key informant to a rudimentary definition of school building conditions, the preamble of the interview protocol stated, in relevant part, "For the purposes of our discussion, the physical interior attributes of a school are described as building age, interior lighting, heating, color of interior spaces, noise, and general air quality" (Appendix A). The entire preamble was read into every key informant's recorded interview record.

A preliminary question was posed to each key informant regarding previous experience as a past or present member of a committee or board involved directly with issues of school building conditions or building improvements. The probing question was intended to capture any unique perceptions derived from participation on an advisory body regarding facility projects or building improvements. No teacher, administrator, or facility manager acknowledged serving on an advisory board or committee related to

school building conditions. School Board Member P1, acknowledged participation in an advisory committee on school building improvements.

Table 2

Demographics of Participants

Informant Role Orientation	Identifier	Years of Service
School District P1 (DFG D)		
Teacher	Teacher P-1	17 years
School Board Member	School Board Member P-1	5 years
Facility Manager	Facility Manager P-1	15 years
Administrator	Administrator P-1	7 months
School District P2 (DFG B)		
Teacher	Teacher P-2	3 years
School Board Member	School Board Member P-2	2 years
Facility Manager	Facility Manager P-2	23 years
Administrator	Administrator P-2	11 years
School District P2 (DFG B)		
Teacher	Teacher P-3	9 years
School Board Member	School Board Member P-3	4 years
Facility Manager	Facility Manager P-3	12 years
Administrator	Administrator P-3	14 years

Note: Data derived from Informant semi-structured interviews

Another question was introduced to each key informant, prior to the actual interview, to establish years of service impacted key informant's perceptions for each participant. The professional tenure ranged from less than 1 year to more than 25 years. Looking at the data from the perspective of years of service, the reported perceptions regarding any physical aspect of the school building were not regulated by years of service.

Except for the school facility managers, the teachers, school board members, and administrators commented that they had not participated in training or professional development in school facilities or building conditions. Facility managers from the three participant districts reiterated New Jersey state regulations that required all school facility managers to be certified through professional development coursework at Rutgers University before they can manage a school facilities program.

The analysis of this question revealed that other than school facility managers, teacher, administrators, and school board members have not received formal training or professional development in the area of school facility management. Although training of school facility managers is a mandated part of a statewide certification program for employment, it was revealed in several interviews that school building facility managers are consistently viewed as support personnel and not active decision makers regarding building or facility conditions. Despite having no formal training in school building maintenance and construction, Administrator P1 and Administrator P2 stated that the key decision maker regarding the physical condition of the school building rests initially with the school building principal. The findings are synthesized and presented as an accurate

representation of the perspectives of the three panels of key informants who were uniquely involved in a school organization. A detailed interpretation of the findings is presented in Section 5.

Synthesis of Question 1

The first question was designed obtain insight into the attitudes of key informants regarding the level of expected academic achievement for students. All respondents, except for facility managers, offered the conclusion that personal and professional expectations for student academic achievement were high. The three administrators and school board members recited a general belief that individually and on a school organizational level, expectations of academic achievement were believed to be very high. The administrators did not mention building conditions when providing comments on this particular question; rather, all three administrators approached the question from a view of leadership. Administrator P2 stated that he expected students to come to school ready to learn and acquire the necessary knowledge for success into the future. Administrator P3 pointed out it is the responsibility of the school's administrator to set the benchmark expectations for academic success. Administrator P1 stated, "From the time our students walk through the door, we are giving them messages about our expectations on academic excellence. I have high expectations for my students and teachers." Administrator P2 stated, "My job-one is stressing the expectations of excellence with the kids and teachers." Administrator P3 affirmed, "My expectations are always reinforced when I speak to a student, but sometimes I have to reinforce it with teachers, too."

The three facility managers were somewhat ambiguous regarding academic expectations. All three seemed initially confused that they were being questioned about academics. All three key informants replied with perceptions of the supposed expectations espoused by teachers and administrators, rather than providing personal views on academic expectations. Facility Manager P1 affirmed that the school district was committed to academic excellence by stating, "I think that the teachers and administrators have high expectations and work hard with the kids." Facility Manager P2 responded, "That's not really my area, but I do know… expectations of teachers really mean nothing unless the school is in good shape." Facility Manager P3 provided the observation, "we really aren't asked about academics, but I guess you could say that the administration is interested in having good, I mean, high achievement for the students."

Teacher responses appeared qualified by indicating that teacher expectations were high. However, all teachers interviewed shared a common perception that the veracity of the administration's dedication to academic excellence was dubious when viewed in the context of school building conditions. Teacher P1 commented that his/her personal and professional expectations for academic excellence were high, but he/she also believed that administrative commitment to the notion of academic excellence was not readily apparent when it came to repairing failing school building systems. Teacher P1 stated, in part, that facility attributes can have an adverse impact on teaching, "when the classroom heat is broken in the winter, it will be days till the guys show up to fix the thermostat or radiator. That indicates that the priorities of the district are mixed-up." Teacher P1 continued, "It's a killer when they arrive during a lesson" suggesting that instruction is

disrupted when repairs are made during a lesson. Teacher P1 further suggested that the scheduling of repairs was an administrative function and repairs undertaken during instruction met with the approval of administration.

Teacher P3 said, "Small things can be fixed by the custodians like a broken locker or stuck window, anything major like a cracked window or a broken radiator is a process." Teacher P3 added, "When they get here they usually do a good job." Teacher P2 pointed out that his/her expectations are high, but "when a repair needs to be made, sometimes the guys come during a class period. They try to be quiet… but they just blow the whole lesson…it's frustrating."

From the teacher interviews, a common viewpoint emerged from teachers of a perceived slowness to respond to facilities repairs. This perception indicates that slowness belies the commitment to high academic expectations. Moreover, citing that maintenance accomplished during the instructional day also may be a feeling that indicates a lack of dedication to academic rigor on the part of the school board, administrative team, or facility management. In other words, interrupting or hindering instruction with repairs seemed to contradict the notion of high academic expectations. Teacher P3 did point out that, "Sometimes the repair is an emergency and must be done immediately, what I am talking about is repairs that can be done after school."

School Board Members also confirmed that academic expectations within each school district were high. School Board Member P1 stated, "I think we have high expectations at all levels of our system." School Board Member P2 said, "The board is adamant about maintaining high expectations and our administrative team and teachers

are equally committed. We want to create an atmosphere that tells students and staff that education has value which is all in the message." School Board Member P3 shared, "I think that our expectations are high, at least mine are high as I want our kids to excel. Since you are looking at building conditions, I think our facilities send the message that we are serious about academic excellence."

All three school board members also repeated that they believed expectations were high regarding the conditions of schools and that buildings and grounds crews as well as school building custodial staff were proactive in responding to situations that entailed the safety of students or staff. When asked on follow up, who determines the urgency, all board members cited the head of building and grounds (facility managers) and ultimately the superintendent and administrators made the decisions. "The facilities office is the key to a quick response to a situation that's bigger than the Custodians can handle, the board will not tolerate any condition that might endanger a student, teacher, or other staff member," said Board Member P2. Board Member P1 reiterated this view by stating that the health and safety of the student was a primary concern and Board Member P3 mentioned that safety was a financial concern of the board of education. Board Member P3 stated, "members of the board expect the administrators to react immediately to any situation that exposes the students to physical harm…if a child gets hurt we get sued."

Each school board member admitted that manpower was sometimes an issue when considering the enormity of work orders waiting for action. Board Member P3 said, "Our facility men are really good, but sometimes there are too many jobs within at the

schools and stuff gets backlogged. We get the complaints from the principals when the superintendent makes the monthly report. We try to maintain an aggressive program but budgets are tight and we need to watch expenses." School Board Member P2 admitted, "we may be a little short on manpower" School board members did not relate to the connection between maintenance and repair scheduling and the integrity of an instructional period. Rather school board members conceptualized school building conditions as a matter of student health and safety, and suggested that repairs during the school day as necessary to immediately protect students.

The reported expectations of teachers, administrators, and school board members appeared to be influenced by role orientation. While teachers and administrators, reported high expectations of academic performance, the reported perceptions of school board were qualified by mentioning high academic expectations. However, the remarks seemed to be made in the context that enforcing expectations were the responsibility of teachers and administrators. School board members directed comments towards higher expectations of the connection of facility conditions with student health and safety.

Facility managers were ambiguous regarding the academic expectations. From the interviews emerged a common perception that school facility managers and maintenance staff, who are integral to the quality of school building conditions and seemed to view themselves *outside of the academic circle* and were much more comfortable deferring to other academic oriented stakeholders on the issue of academic expectations. Although facility managers expressed deference regarding academic expectations, all other respondents maintained strong perception of academic

expectations and voiced a belief that the condition of school buildings influenced learning.

Synthesis of Question 2

The second interview question was designed to gain insight into the experiential aspects of school building conditions by having key informant share perceptions of conditions at their respective schools. According Carroll (2004), individual values and beliefs are "filters though which we perceive the world and interpret experience" (p. 8). Those underlying values and beliefs can be examined through the reported experiences of the past. The purpose of the question was to gain insight whether past experiences impacted participant regarding the importance of school building conditions.

Administrator P1 related that from past experience, that it was important from the moment the student enters the school building that the student received the message that there is an expectation connected to proper conduct and academic performance and that expectation is reinforced by "clean hallways, working desks, and technology in the classrooms." Administrator P1 and Administrator P3 referenced their former roles as teachers and related that they remembered instances where the condition of the school was bothersome and adversely impacted what was happening in the classroom. Administrator P3 talked about past experience by saying, "As a classroom teacher, the assigned classroom was too hot in the September and June, and too cold in January and February. Then when I was assigned to a new room… the heat was so high in the winter, that we had the windows open in the winter. The heating was controlled by some computer somewhere and couldn't be changed."

Administrator P1 related a story about an infestation of squirrels in the ceiling, "The squirrels could get in through holes in the soffits and in the spring would have babies, it sounded like a herd. The ceilings were old plaster and there was no way to get to them. We were on the second floor and the principal tried to get them out. It took weeks and the kids were distracted by the running around above them." Administrator P3 said, as a classroom teacher he/she had been assigned classroom that was, "too hot in the September and June, and too cold in January and February. Then when I was assigned to a new room… the heat was so high in the winter, that we had the windows open. The heating was controlled by some computer somewhere and couldn't be changed." Administrator P2 commented, "I just remember that my room was clean and there were no real problems… I was teaching in a brand new school where I eventually became (an administrator). I then transferred here and things have been O.K, I mean with the building." What was missing from the comments gathered was an administrator sharing an anecdote about a failure of the building's infrastructure while serving as administrator.

Teachers provided several stories regarding recollections of problems as students and as teachers. Teacher P1 mentioned that as a new teacher he was told that complaining about rooms was a waste of time. "I really didn't say anything about some conditions, especially when sinks would back up with sewerage. The old principal would just treat people like trouble makers when things went wrong and it just didn't matter…everybody just accepted it. Now things are different because anything that gets in the way of testing... the administrators use it [testing] to get things done. They just tell central office that they need something fixed right away because it might hurt test prep or something."

Teacher P3 related a similar story, “When the principal or vice principal sees something falling apart they just say that it will either hurt a kid or that testing will get hurt. Everybody’s afraid of test scores” Teacher P3 suggested that it seems, “People are more afraid that conditions will hurt the state test and really don’t give much to learning.” Teacher P2 provided, “My experience has been that when rooms are cold or ants and bugs come in the room, or the bathrooms don’t work, learning suffers hurt.”

Facility Manager P1 said he remembers that the school he went to was near a sewer plant, “When the wind shifted the classroom smelled like a toilet.” Facility Manager P2 related, “The nuns in my school would make us sweep the floors when we got detention. I was amazed how much dirt was on the floor after the kids went home.” Facility Manager P3 merely said, “My mother taught us to clean up after ourselves. I never threw stuff around and can’t remember having a dirty school. I know that clean facilities are important from my classes (facility certification training) because the kids could get sick unless things are clean.”

The School Board Members were nearly unanimous in pointing out that past experiences related to keeping the schools clean and safe, and were important to the way students feel about the school. School Board Member P3 had a recollection similar to Administrator P3, explaining from that a recollection from the past was a classroom was, “too hot in June, and too cold in February, the heat was so high when it was cold out and we would have windows and doors open. The teacher couldn’t control the thermostat. I remember it was sometimes uncomfortable.” However, in answering Question 5, Administrator P3 turned attention towards the aesthetic value and symbolism of the

school building as the most important attribute. “Taking care of the building and presenting a pleasing environment instills in the students pride. Hallways and lockers that are freshly painted and classrooms that are clean with no garbage on the floor gives students the sense that we care about them and the school.”

School Board Member P1 also mentioned that the aesthetic nature of the building would help develop positive feelings about the school and student school work and stated, “The building and classrooms should be in a condition that inspires students.” School Board Members P2 added that the cleanliness of the building was also a matter of hygiene; “Having students working in conditions that are generally maintained to reduce germs provide students with better health. If the kids are sick from conditions at school they don’t perform well or are at home.” School Board Member P3 provided a similar perception of the importance of the aesthetic qualities of the building; “When the building looks good, it sends a message to both students and staff that working and learning conditions matter.”

Synthesis of Question 3

The third question dealt with describing the individual perceptions of school building conditions at the participant’s school. Every key informant paused when asked this question and seemed to take a moment to respond in a thoughtful and deliberate way. Teacher P1 confided that the conditions in his/her school had not been good for a numbers of years and attributed it to a lack of leadership; “Listen, when you have administrators that are always under pressure for low test scores, the condition of the building above being clean was a low priority. The school’s culture was, don’t make

waves." Teacher P1 continued, "If something is broken report it and if there's money we can get it fixed…everything goes to testing. It's frustrating when you know learning is what counts, not testing. Now that's changed a little, the principal is more aggressive about kids breaking stuff, like the bathrooms. It's getting better and I think they (the school board) are spending money. I think now I would have to say the building is in good shape, they are doing a lot of painting."

Teacher P2 responded to the question noting that school building conditions seem to be pretty good, but, "I really don't know how the building would really be rated. Teachers aren't really included in a rating system. But, I would say good." Teacher P2 also directed the conversation to the classroom by saying, "Except for the problems with heating, I think my room is in good shape. I do wish I had more outlets (electrical) and I think the walls could use some paint." Teacher P3 said, "The building looked clean and the roof isn't leaking except in the media center. When the cold days come, I hope the heat is working. They don't do a good job of regulating the heat on warmer winter days."

Administrator P1 talked about the age of school building by saying, "The schools in this district are now mostly more than 50 years old and there have been modifications to classrooms especially with new windows. I think my school would get a good rating except in the area of power; there are not enough electrical outlets for the technology coming in." The administrator continued, "My biggest concern is with the bathrooms and keeping the cafeteria kitchen really clean. I think we do a good job in those areas and I don't get complaints from teachers about the classrooms." Administrator P2 and Administrator P3 reiterated, in part, this perception by adding that a priority is keeping

the food service area clean and maintaining sanitary conditions. Administrator P3 stated that, "keeping the bathrooms and the locker rooms clean is a continual struggle for health reasons. Otherwise my building is in very good shape." Administrator P2 mentioned that, "Bathrooms seem to be targeted for damage and create a lot of extra work to keep in working condition."

School Board Member P3 responded with the perception that buildings are in very good shape and that the board is always looking for ways to improve the efficiency of the schools systems; "The schools look clean and we (the board) are undertaking new ways to save money on heat and electric. We just installed a solar panel system that will save the taxpayers thousands. Those type savings keep taxes down." School Board Member P2 provided, "I visit our school(s) a few times a week and would rate them in very good condition. The head custodian always tells me that they are working hard to keep things clean and healthy for the kids." School Board Member P1 said, "I think the schools are adequate to good… I think we are in the 85% range and getting better. The place is spotless." School Board Member P3 also mentioned, "Our schools are in great condition, we have good athletic facilities and we got a new solar panel system." All facility managers provided positive responses indicating that the condition of school buildings was good. Facility Manager P1 paused and asked, "As far as the building conditions? Okay, good." Facility Manager P2 observed, "Our buildings and grounds are worked on all the time, I would say they are in very good condition. Facility Manager P3 echoed the view that conditions were good, "I think our facilities are clean and in good shape. My people put a lot of effort into our facilities."

A within case and cross-case analysis of the data indicated an overall consensus among stakeholders that the general conditions of the school building conditions were adequate. However, a cross-case analysis revealed that role orientation affected the individual priorities and perceived exceptions in adequacy. Teachers cited thermal comfort in classrooms as a general concern regarding the physical integrity of the classroom and consistently implied that the lack of thermal control heating was a problem. Administrators viewed conditions in the classrooms as adequate with an exception for inadequate electrical utility for plug-in technology. Administrators also acknowledged that thermal comfort was probably the biggest problem faced by schools, but did not testify to thermal comfort being a problem at their particular school. Board members characterized adequacy in the form of measures of hygiene (perceived cleanliness) in noninstructional spaces like hallways and food services. Board members also articulated their perception of school building adequacy through initiatives to improve building efficiency with solar energy alternatives.

School Facility Managers appeared to be consistent with the view that building conditions are a result of effort undertaken by the facility personnel. Each made reference to the adequate condition of building and grounds in the context of the time dedicated to facility maintenance and repair. None cited any perceived deficiency in conditions.

Synthesis of Question Four

The fourth question focused on the individual belief regarding the importance of school building conditions as an influence on student academic achievement. The view expressed by facility managers indicated that conditions did influence learning. Facility

Manager P1 said, “I think when the place is dirty and rundown looking, the students react to that, we try to keep things in order. It hurts their learning.” Facility Manager P2 commented, “I would definitely say broken windows and leaking roofs are a problem for the kids... but we don’t have that problem. I think that when the school is kept clean the students feel better and can learn better.” Facility Manager P3 replied, “Making the school look nice and clean, pleasing… I guess, makes everyone feel better. That connects to how the kids do in class.”

School board members expressed different views, but all perceived school building conditions as important to student learning. Board Member P1 alluded to a perception that the feelings of the students were important and the cosmetic features of the building had an impact by stating, “If you have a pleasant environment it’s easier to focus on things that you are trying to learn versus if you’re cold or there’s a draft, or lighting is terrible, at the best end it has a positive effect.” Board Member P2 replied by saying, “I think… the feelings of the student’s, influence how well they do in class, the condition of the school can make them feel comfortable - good. Sitting in a room that’s too hot… or cold, or with garbage on the floor wouldn’t make anyone feel good.” School Board Member P2 stated that the conditions of schools were not a high priority; “I really never noticed that an issue of conditions might impact learning, you really only notice the test grades. Thinking about it, I think that school building conditions have an effect on students. I’m not sure whether any science says so, but yes, I think it’s real.”

Board member P3 agreed that school building conditions are important to the health and well being of students and also discussed conditions as a result of

maintenance; “I think it’s (kind of) obvious that conditions are represented by the cleanliness of schools which is important to the health of our students. Maintenance is key to the effort to keep the bathrooms in working order and keeping the things that make the building run.” The Board Member P3 continued, “Academics are a priority, but I can see that school building conditions play a role.” On follow up, School Board Member P3 admitted that building maintenance is not a top priority in relationship to the other school district objectives; “We have problems with state scores and need to focus our resources on getting those scores up. We also have rising costs of insurance and teacher salaries. I guess the problem is that the influence of school building conditions falls off the radar…sometimes.”

Administrator P1 shared, “Yes, I do, I think when you have…A school building and the classrooms are in good shape, the lighting is good, the temperature of the classroom is not too hot or too cold. Administrator P1 added a story from previous experience, “I have been in cases in my own experience, I was in a classroom where the temperature, the heating system to not calibrated correctly and when you opened up the classroom door in the morning in the morning it was like 85 degrees in the classroom. I don’t think students can learn, students would be distracted by that. Administrator P2 stated, “I have no doubt that building condition influence people and in a school environment influence supports instruction and learning. Anyone that suggests the condition of a building doesn’t impact kids and their behavior just isn’t tuned-in to education.” Administrator P3, concurred by saying, “I don’t have to read in a book the

theory of relationship, I have enough experience to know without proper facilities and conditions the academic success of student is jeopardized. It's kind of obvious."

Synthesis of Question 5

The fifth question was created to solicit a narrative regarding which attributes of the school building had most impact on student learning. Teacher P1 previously pointed out that as an example of a perceived obstruction to the high expectations of academic success, was the control of the temperature of the classroom, or, "when the classroom heat is broken in the winter." Teacher P1 remained consistent in pointing to classroom temperature is the most important attribute of the school building. "I think those days when the heat in the room is to high, it impacts the students… I mean it even starts to make me tired. Then there are those days when the heat isn't working and the kids complain it too cold." In response to a previous question, Teacher P1 explained that along with classroom temperature, the lack of technology, as an aspect of building condition, can impact learning; "The board of education has done a good job of installing new technology."

Teacher P2 responded that it was important that lighting was important and that the windows worked to help mediate the temperature. In response to an earlier question regarding past experiences or perceptions of school building conditions Teacher P2 stated, "Except for the problems with heating… I think my room is in good shape." Teacher P2 reiterated that point by saying, "When the heat in the room becomes a problem, it ruins the lesson and the kids suffer. I think heating is most important." Teacher P3 replied, "The temperature swings during the year are sometimes horrible,

especially in the afternoon, but I think classrooms are drab and dingy looking too. Maybe new lights and paint is needed." When asked to clarify, Teacher P3 added, "Maybe paint the room and hallways with colors that create a happy atmosphere." Throughout the interviews of teachers, the issue of temperature control was mentioned as a consistent failure of the condition of a school building.

School Board Member P1stated, "Probably the most important is temperature control. If a building is too hot or too cold the entire building suffers because you're wasting money, but the students are distracted, they don't have the attention and the focus on what they are doing if they're sweating or too cold. Temperature is the biggest one by far." School Board Member P2 confirmed the belief that school building conditions had a link to student learning success and added, "I think student learning is impacted by the quality of the building. We (the board) spent a lot of money replacing school roofs and windows in an effort to improve facilities and cut costs. I know that heating our schools is a problem as the systems are over 40 years old and the classroom units are noisy." School Board Member P3 responded, "If the condition of the school affects learning, it affects test scores. We need to provide the resources to make sure our facilities don't get in the way. As for the one aspect that may have impact, I would have to say our heating systems and technology." For the school board members interviewed, the heating systems in classrooms were repeatedly identified as an important problem across the three school districts.

Administrators similarly mentioned problems with the temperature of classrooms. Administrator P1 stated, "Heating and cooling of the building is a problem because

individual room thermostats are from the 1960s. Some rooms are too hot and some are too cold in the winter. It's a problem that just seems to be beyond us without a whole new system, including boilers. I feel it's our number one problem." Administrator P2 mentioned, "I think my number one complaint from staff is the heat or lack of it in rooms. We call maintenance, but it's just a continual problem." Administrator P3 shared, "I think heating can be a big problem and is a part of the building that continually costs us money. Year after year we spend a lot of money on inefficient systems. That would go for lights, too. Beside the cost to heat buildings the system is unreliable."

All three facility managers stated that the heating and air conditioning system was a problem. Facility Manager P1 said, "Most time and money is spent on calls to service the heating and air conditioning systems. For big problems we have to call in a heating contractor which is expensive. My people can take care of small problems, but a contractor is needed when an entire radiator or boiler goes down. It's a process." Facility Manager P2 explained, "The heating system is mechanical with parts. When a unit or furnace has a problem we need to take a look and decide whether it can be fixed or whether we call the heating contractor. If we need a part, it needs to be ordered. We don't keep parts." Facility Manager P3 mentioned heating as the most costly problem, but focused attention on bathrooms as a big problem by stating, "The heating system is old and needs constant care which I understand, but many problems deal with problems in our bathrooms with vandalism – some kids just don't get it. My attention is always on maintaining bathrooms."

Several key informants mentioned technology as a suggested important attribute of the building's physical condition. Administrator P1 pointed out, "providing technology in the classroom also gives the students the message that we care about the condition of the building." Administrator P2 commented, "Let's take technology, integrating technology into the classroom and you have the equipment that's part of the building and it the absence of technology might impact outcomes." Administrator P3 concluded in considering what physical elements of a school building influence student learning, "technology is very important."

Synthesis of Question 6

The sixth question was used to investigate the perception by each participant as to who within the school organization is responsible for the physical condition of the participant's school. Administrator P1 pointed out that the day to day responsibility for the condition of the school building was his/her direct responsibility, but the funding of facilities was in the hands of the Business Administrator, "I am the point person who received the repair orders from the custodial staff and the notes from teachers, and then I decide the priority and send them onto the facility manager for action. I guess (the facility manager) then has a priority of jobs." Administrator P2 said that working closely with the facility manager is key, "I'm responsible for conditions, but the reality is the facility manager knows the budget as can arrange the details. The facility manager sets the priorities with my advice." Administrator P3 responded, "I think primarily it's the superintendent working with the facility manager and the business administrator, that's my perception." Administrator P3 added, "The conditions of the school are the

responsibility of the school staff to report problems and then the responsibility of the administration to act. The buildings are really in the hands of the Facilities Department.

Teacher P1 indicated that the responsibility for the condition of the school is with the parents; “I think that the parents are responsible, they really control the money needed for repairs and maintenance. Teacher P2 saw the students and principal as responsible. “The kids do a lot of damage, nothing big…but writing on walls and desks, and damaging lockers mostly by writing on them. The major repairs are done by the maintenance department who is under the facility manager.” Teacher P3 believed that the minor damage that is done is student centered. “We have a problem in those areas, mostly bathrooms when the kids aren’t supervised. It’s mostly cosmetic stuff. The bigger repairs are done by maintenance.”

Facility Manager P1, explained that the facilities department was responsible for undertaking the maintenance and repairs of buildings and grounds and added, “I get the heat when things aren’t fixed right away, but I have to discuss with the business administrator how much is available to be spent. The district is very cost aware and any major repairs need a meeting. I don’t feel I am in charge but just responsible to make things happen.” Facility Manager P2 rationalized that the role of the facility manager is important in getting repairs accomplished quickly and on budget, but admitted, “I am not the boss when it comes to prioritizing, that’s with the (Administrator). I am constantly getting calls about an emergency so instead of planning, I react with my people. The Superintendent is the real boss over facilities.” Facility Manager P3 explained, “Each day we have a list of jobs and we do them. The job list comes through the B.A’s (business

administrator's office). If there is a star next to a job I know it's a priority. I have some input but my mission is to get the list completed." I think it would be fair to say that the business administrator is really in charge of facilities."

School Board Member P1 provided, "typically it's the superintendent that we see as responsible, but in the day to day operation, that would be the manager of buildings and grounds". School Board Member P2, "We get a monthly report from the super [superintendent] and I guess it's the principals reporting to him. We have a business administrator who manages operations". School Board Member P2 stated, "That's the superintendent, he's responsible."

Synthesis of Question 7

The seventh question was designed to gain insight into whether there is a common belief that achievement testing outcomes are influence by building conditions. Administrator P1 supplied the perception that there was a common belief in the notion that school building conditions influenced student learning, but do so indirectly, "Yes, I think everyone agrees that the conditions of a school impacts students and testing results." Administrator P2 and Administrator P3 reiterated a similar perception and shared that they believed the condition of the school building impacts student learning and ultimately student achievement test outcomes. Overall, facility managers had no strong opinions on the issue of test scores. Facility managers expressed the perception that facility conditions impacted student learning and would be translated in the testing outcomes. Facility Manager P1 said, "I guess conditions could affect state tests if the student is taking the test in an uncomfortable room. Overall I think how much they

learned comes out on the tests." Facility Manager P2 stated, "I think that when a roof is leaking or the rooms are full of trash kids' see that as the school doesn't care. So why should the kids' care about state tests. I know that the principals see something broken and that say that unless it's fixed the kids will fail the tests. Facility Manager P3 said, "Yes, there is a connection. The superintendent makes that point every management meeting. Sometimes I get the feeling that when scores don't hit the [benchmark] my people get blamed. One principal blamed a broken bathroom as a reason why his school wasn't doing as well as the others."

Teachers expressed a common perception that standardized testing scores could be impacted by school building conditions. They expressed a conclusion that there is a relationship between the conditions of school facilities and classrooms, and if learning is hindered then so would testing outcomes. Teacher P2 commented, "I can't see where student learning could be separated from testing, if conditions hurt learning they hurt scores". Earlier in the interview the teachers interviewed shared a perception that rather than conditions having an impact on testing, that "testing had an impact in building conditions." Teacher P1 asserted, "Now things are different because anything that gets in the way of testing... the administrators use it (testing) to get things (repairs) done. They just tell central office that they need something fixed right away because it might hurt test prep or something. I think anything that hurts learning will have an impact on testing." Teacher P3 replied, "Kids taking the test could be hurt if the rooms they are testing in are not well maintained like with improper lighting and heating. I think testing in an

environment that is dirty and cold with broken furniture will hurt. You, know when you have the technology in your room for lessons, learning increases and so do scores."

School board members expressed a common perception that preparation of students was a prerequisite to higher achievement test scores. School Board Member P1 stated, in part, "We [the school board] have an obligation to provide every advantage to our students. Testing outcomes are the measure of achievement….You, know how important test our and when students are blocked from learning, that's seen in the testing. We need to make sure nothing is blocking their way. Poor building conditions block their way." School Board Member P2 noted that poor building conditions were analogous with low test result and acknowledged, "When students are sitting in rooms that are dirty with windows that don't work or lighting that's dim, or heating that doesn't work, learning suffers…tests results suffer." School Board Member P3 expressed a similar attitude saying, "Building conditions are connected to learning, and learning is connected to testing. If we [the school board] can't spend the money to keep are schools in good shape, then test scores will suffer."

Synthesis of Question 8

The eighth question was presented to gain an understanding of whether key informants recognized school facility maintenance as a priority of the decisions makers on the local board of education. School Board Member P1 stated that the conditions of buildings have become an important part of the board of education's priorities. School Board Member P2 admitted, "We really focus on the immediate problems that confront the board, like test scores and curriculum. But I do recognize that buildings are beginning

to become a major concern as most of the classrooms are just about 50 years old. We are taking a closer look." School Board Member P3 responded, "We try our best to include school building conditions in every caucus meeting. We know that neglecting the issue will come back as a problem in the future. I know how important good facilities are to our staff and students."

Facility manager's testimony concurred with the perception that school building conditions are an important operational factor at a school. Facility Manager P1 recalled, "I have seen more than a few school boards [here] and it's interesting that when a new member is sworn in, they immediately recognize that operations are a big part of running schools. They think it's all about teaching and learning. They seem surprised that they are talking about buying paint and picking colors." Facility Manager P1 also said, "Yes, I think in the last few years as major components of the school reached a point of removal and replace, conditions or rather the costs for replacement of things like windows and heating systems, push facilities towards the top. But that's a reaction. If things weren't breaking down I am not sure." Facility Manager P2 stated, "From what the superintendent says; school building conditions are being recognized as important because everything that can be done to improve tests should be looked at." Facility Manager P3 gave a short reply and stated, "I think it would be fair to say everyone in power is looking at the condition of our facilities as most equipment is more that 50 years old."

Administrator P3 responded to the question by stating, "The priority is a high priority." Administrator P2 shared that the members of the board of education seemed to

believe that preventative maintenance of facilities was, in the long run, "cheaper to keep things maintained" and referring to structural aspects of the schools Administrator P2 pointed out, "the bones are good" [substructure]. I'm talking about being proactive with the attributes, heating, lighting, and keeping our buildings clean." On follow-up, Administrator P2 admitted that no structural survey had been undertaken to determine the true condition of the substructure of schools in the district and that the comment was offered as a perception. Administrator P1 provided that facility management is minimized by the academic priorities of the school district by saying, "I think facilities are sometimes pushed aside due to the pressures of academic progress across the district. The state lays down a lot of performance mandates that are not supported by additional state funding. To meet those mandates things like buildings and grounds are sacrifice in the budget. They do a good job with the money they [facilities department] gets, but it's probably not enough."

Teacher P3 responded with the perception that the school board regarded school building conditions as important but was largely reactive instead of proactive when it came to facility maintenance and repair; "Things get fixed when there's a danger or when the (administrator) claims it's really bad and will have to move kids to another location." Teacher P1 shared, "I believe they (school board) feel the condition of the school is important, but that has been a change. Facilities were always at the bottom of the budget priority… at least it used to be." Teacher P2 commented, "I think they are on board about conditions, it looks bad when parents come in and see things broken."

Synthesis of Question 9

The ninth question was focused on the perception of the school community's commitment to provide an optimum environment for learning. All key informants expressed similar perspectives affirming the common belief that the school community did recognize the importance of providing an environment for learning. Administrator P3 stated a belief that the district has a strong commitment to providing the best facilities possible, "not only in words, but in actions" and pointed to the ongoing district wide program to upgrade facilities to avoid the problems of aging. Administrator P2 expressed the perception that, "overall conditions of the school are good and getting better. The members of the school board seem to be interested in the long term viability of building conditions and looking at ways to become more efficient." Administrator P2 added, "I don't see that same recognition at the community level. I think the taxpayers might realize the connection with student achievement, but that doesn't appear to be the case when school budgets are consistently defeated." Administrator P1 reasoned, "In the long term, when budgets are defeated in this town, the board [school board] shifts money to cover more urgent expenses. I don't think there are many people in the community that recognize that it takes a tremendous investment to keep school buildings from crumbling." Administrator P1 also concluded, "Many parents just don't have the time or energy to get involved in school issues so support for expensive initiatives just isn't there."

School Board Member P1 pointed out that public support for facilities was weak and suggested that the community is "very concerned about waste and efficiency, and I think they are not aware of the expense of buildings. In our own lives when things are

tight we may not paint the house, or build a new fence. I don't think they [parents] realize that facilities receive a beating and do require constant maintenance." School board Member P2 and School Board Member P3 provide almost identical responses. Both noted that the community is focused on teachers and testing results which have been a priority articulated by state policy makers and state elected officials. School Board Member P2 suggested, "Everything today in education is about short term gain and the messages picked up by the newspapers is all about making short term progress. The politicians in Trenton really don't seem to care about a long term strategy for improvement… at least they don't want to pay for it. School Board Member P3 described the community's view of buildings and limited by stating, "They [the community] like to come to well maintained ball fields to see the teams play, but I bet they have no idea how much it costs to maintain those facilities. The same thing is true for classroom. To install the most up-to-date technology have the added expense of retrofitting older under powered classrooms, it's expensive. And the people in Trenton could care less about buildings, they want test scores."

Teachers approached the question by offering a conclusion that members of the community are struggling with high taxes for years and simply don't want to pay for building upgrades. Teacher P1 said, "Parents want a cutting edge education for their kids, but when it comes to paying for it, they just don't follow through. Look at the number of people who actually vote at election time. They defeat a school budget and then complain when a program it being cut. Trying to get a school budget passed for new facilities becomes a problem." Teacher P2 commented, "I think the community is pretty much out

of the loop when it comes to funding school buildings. Parents don't have the information and I have to admit the administration can't provide it [information about why school buildings are important]. As far as the advantages for having modern facilities, it always comes down to the money and people don't want to spend money when no one can make a good argument for modern facilities." Teacher P3, provided that community involvement in public schools is inadequate and awareness of the importance of well maintained schools is lacking. "I think a lot more can be done to have the voters recognize that without support school buildings will eventually just fall apart. I think that the people really don't understand the importance."

Facility manager's perceptions were aligned with teachers about community commitment to modern facilities. Facility Manager P1 responded, "I think the politicians are to blame when schools are well maintained. They spend a lot of time beating up teachers and saying negative things about our schools. They turn the people against schools. So when it time to provide money to run the schools people are generally against paying." Facility Manager P2 said, "People today and I guess it the same in the past, just don't realize how expensive it is to operate a school. I bet if you were to ask half the parents how much their company spends on buildings they would have no idea and would be shocked if they were told. So it no wonder they have no idea what it really takes to keep building in good working order. Facility Manager P3 stated, "I just think the problem is lack of support and a lack of knowledge. The community doesn't connect good buildings with how the kids learn."

Emergent Themes

From the data collected and analyzed, a synthesis of the reported experiences and perceptions yielded three themes of meanings regarding the relationship of school building conditions and student learning. The interview data encapsulated the themes of technology infrastructure, thermal comfort, and qualified symbolism. Table 3 presents the alignment of the emergent themes developed from the collection and analysis of key informant interviews.

Table 3

Relationship of Emergent Themes and Research Question

Research Question	Theme
How do local school stakeholders, recognized as school facility managers, administrators, teachers, and school board members, perceive or acknowledge the relevance and relationship of school building conditions as an influence on student learning in three diverse school districts in coastal New Jersey?	1. Technology infrastructure 2. Thermal Comfort 3. Qualified Symbolism of School Building Conditions

Discrepant Cases and Nonconforming Data

The data gathered were exclusive to key informant testimony regarding personal attitudes, perceptions, and awareness of the relationship of the physical characteristics of schools and classrooms relative to student learning. The recursive approach to the evaluation of the data (Seidel, 1998) in this study allowed for the reduction of data and the subsequent conformation or denial of nonconforming data. The repeated shifting of focus among the various interviews also permitted the reduction of key informant testimony into categories that revealed marginal discrepancies among the attitudes, perceptions, and awareness of informants. For example, when asked to share past perceptions of school building conditions. Facility Manager P3 related that as a student he could not recall attending a school that was dirty or in disrepair. Additionally, Facility Manager P3 indicated that the importance of clean facilities was recognized through his professional training and not from an earlier perception developed as a student.

Patterns

Guided by the research question, the qualitative analysis of the interview responses began with the completion of the transcription phase and review of interview notes and memos taken during and immediately after each interview. Upon completion of the transcription that allowed and necessitated member checking, a recursive listening and reading of each interview were completed. To advance the analysis, data reduction led to a further transcription that was organized into a spread sheet format so to reveal any distinct thematic patterns across the interview responses. Accordingly, this allowed for the compression of data on a question by question basis whereby coding of recurrent

thematic words or phrases could be identified and displayed from the data. Data reduction allowed me to identify the emergent patterns that were then clustered and further analyzed. Combining the interview panels by school district and role orientation, distinctive similarities or patterns evolved across the nine interview questions. In doing so, recurring themes linked to technology infrastructure, thermal comfort, qualified symbolism of school building conditions were consistently mentioned across all interview panels as well as across all role orientations.

Technology Infrastructure

In this study, key informants repeatedly referred to technology a component of the overall condition of a school and such references appear to be corroborated in previous research. Teachers, administrators, and school board members expressed the view that technology like thermal comfort, lighting, acoustics, and building aesthetics was an important physical attribute representing the material condition of a school that helped or hindered student learning. Administrator P1 explained that using building conditions to reinforce academic expectations with students and could be articulated, in part, by "technology in the classrooms." Administrator P1 also noted that an inadequacy in building conditions can be explained by inadequate power supply and shared a concern that older buildings do not have enough outlets for the technology placed in classrooms and there is a need for improvement. Administrator P2 described the integration of technology as part of the school infrastructure and Administrator P3 concluded in considering what physical elements of a school building influence student learning by noting, "technology is very important."

Teacher P1 explained that technology was an important characteristic of building conditions that impacts instruction and student learning. In explaining the adequacy of school building conditions Teacher P1 also recognized, “The board of education has done a good job of installing new technology.” Teacher P3 then added, “You know, when you have the technology in your room for lessons, learning increases and so do scores.” School Board Member P3 responded what one of the significant physical aspects of school buildings is the, “heating system and technology,” and School Board Member P3 further stated that improving the physical condition of schools entails the installation of modern technology. Of the facility managers interviewed, none acknowledged technology as an important aspect of the condition of school buildings.

Thermal Comfort

In the study findings, thermal comfort was considered by stakeholders across the school districts as a significant problem impacting student learning, except for the perceptions of facility managers. From an experiential perspective, Administrator P3 talked about past recollections of thermal comfort by saying that classroom temperature control was poor or poorly maintained and that classroom control of the heating system was unavailable to teachers except for the opening of windows in the winter when heating was uncomfortable. This sentiment and perception from past experiences was generally reiterated by other informants. The testimony of teachers, administrators, and school board members were in agreement that inadequacies in thermal control and comfort adversely impacted student performance and learning. Administrator P1 explained that thermal control within the classroom have been a problem due to the age

of the thermostat system and added, “Some rooms are too hot and some are too cold in the winter. It’s a problem that just seems to be beyond us without a whole new system, including boilers. I feel it’s our number one problem.” Administrator P2 mentioned, “I think my number one complaint from staff is the heat or lack of it in rooms.” Administrator P2 noted that the basic infrastructure of the buildings is good, but there was a need to be proactive regarding the heating system. Administrator P3 shared, “I think heating can be a big problem and is a part of the building that continually costs us money. Besides the cost to heat buildings, the system is unreliable.”

Teacher P1 explained thermal comfort and control, in terms of a school building’s condition, hinders academic success. In response to the question regarding the primacy of school building conditions, thermal comfort was identified as the single attribute of the school building believed to have the greatest impact on teacher instruction and student learning. Board Member P1 summed up the general perceptions voiced in other interviews that poorly maintained heating systems wasted taxpayer’s money and adversely impacted student learning.

A common notion emerged suggesting that it is important to preserve a physical classroom environment that is comfortable for students and sensitive to their feelings. Having a pleasant physical environment allowed students to learn or in the words of School Board Member P1, “it’s easier to focus on things that you are trying to learn.” School Board Member P2 suggested when a classroom is “too hot or cold…students are distracted.” School Board Member P3 expressed a concern that a classroom that is too cold or hot is individually distressing to students and prevent them from learning.

Teacher P1 pointed out, as an example, of a condition of a school that would obstruct student learning, was "when the classroom heat is broken in the winter." Teacher P1 further explained during the interview, "I think those days when the heat in the room is to high, it impacts the students… I mean it even starts to make me tired." Teacher P2 reiterated that point by saying, "When the heat in the room becomes a problem, it ruins the lesson and the kids suffer. I think heating is most important." Teachers P3 noted that there are wide variations in the temperature of the classroom due to the failure of the heating system to react to outdoor temperatures.

Facility managers viewed heating in the context of the effort to undertake repairs and the pressure on the budget. All three facility managers spoke about care for the facility machinery rather in the context of components of the facility having impact on the occupants of the facility. While all three facility managers identified heating as an important facility system, the testimony did not reflect the recognition of a connection between thermal comfort and student learning. Facility Manager P1 said, "Most time and money is spent on calls to service the heating and air conditioning systems.

Qualified Symbolism of School Building Conditions

From this study arose the notion of symbolism as a relevant aspect of school building conditions. The key informants provided detailed perceptions of school building conditions as retaining a symbolic purpose that instills pride and emotional comfort that is supportive of learning. Administrator P3 turned attention towards the symbolism of the school building as an important aesthetic attribute by stating, "Taking care of the building and presenting a pleasing environment instills in the students pride." Administrator P3

offered the perception, “Hallways and lockers that are freshly painted and classrooms that are clean, with no garbage on the floor, gives students the sense that we care about them and the school.” Administrator P1 pointed out that installing technology in the classroom, “gives the students the message that we care about the condition of the building.” Administrator P1 spoke about the condition of the building in terms of sending a message by further noting, “From the time our students walk through the door, we are giving them messages about our expectations on academic excellence.”

The School Board Members were nearly unanimous in pointing out that past experiences related to keeping the schools clean and safe, and were important to the way students feel about the school. School Board Member P1 shared that observation that, “The building and classrooms should be in a condition that inspire students.” School Board member P2 shared, “We want to create an atmosphere that tells students and staff that education has value which is all in the message.” School Board Member P3 provided a very similar perception by stating, “When the building looks good, it sends a message to both students and staff that working and learning conditions matter.” School Board Member P3 also said, “Since you are looking at building conditions, I think our facilities send the message that we are serious about academic excellence.” Facility Manager P1 expressed the belief that students react to poorly maintained facilities and Facility Manager P2 commented, “I think that when the school is kept clean the students feel better” Facility Manager P3 similarly replied, “Making the school look nice and clean, pleasing… I guess, makes everyone feel better.”

Evidence of Quality

As the study unfolded, the challenge became to successfully activate the procedures outlined within the study's methodology beginning with the approval of the Walden University's IRB under # 06-09-11-0114682. With this in mind, I adhered to the protocols of methodology by carefully conducting semistructured interviews within the bounds of the Interview Protocol and as the researcher; I observed the requirements of confidentiality and respect regarding all key informants who participated in this study. Qualitative research methodology identifies the researcher as the primary instrument of data collection and analysis. Thus, the adherence to procedures became integral to producing findings that are believed reflective of the rigor and integrity of the chosen methodology.

The collection and evaluation of source data was accomplished through a framework of scholarship, self-awareness, and organization regarding the potential external and internal threats to trustworthiness (Onwuegbuzie & Leech, 2007). Furthermore, the credibility of data was enhanced by keeping a private journal of interviews and memos (Appendix D) associated with the data collection process. Also, contextual diversity (Kuper, Lingard, & Levinson, 2008) was accomplished with the purposeful selection of a fusion of qualified local school stakeholders believed to possess unique insight into the subject under study. The level of quality for this multiple case study was also established through an accurate and objective reporting of interview data, member checking (Bowen, 2005) and recursive synthesis of content suggested by Seidel

(1998) or Creswell's (2007) "spiral analysis" (p. 151) leading to the emergence of common themes (Stake, 1995) among key informant panels.

To augment the quality of the research findings, member checking and triangulation of collected data were employed. By member checking, each key informant was provided with the opportunity to review and determined whether any corrections, additions, or revisions were necessary in the testimony. Triangulation included collecting data from multiple key informants with differing role orientations within each school panel. The use of these data allowed for comparisons and corroboration among the various informants and also allowed a review of the degree of congruency with at-large literature.

Upon a "denaturalized" transcription (Oliver et al., 2005, p. 1274) of the interview data, the process of member checking was used to ascertain accuracy of the transcription, but also to allow all key informants to revise any statements made during the interviews. According to Creswell (2007) allowing for a review of transcribed interviews by participants increases the credibility of the collected data leading to trustworthy and valid conclusions. Upon transcription of each interview a copy was sent to each key informant and followed-up through e-mail regarding the review and return of comments. No key informant expressed a need or desire to revise or amend an individual interview.

The interview data were obtained from a diversity of local school stakeholders from different school districts and having differing role orientations. These multiple sources of data were triangulated to ascertain authenticity and congruency of the collected data. Yin (2009) pointed out that the diversity of sources within the framework

of multiple case study is significant to the credible nature of the analysis as diversity among cases allows for corroborative evaluations. By conducting interviews across three panels (Cassell, Buehring, Gilliam, Johnson, & Bishop, 2005) of key informants cases with differing professional role orientations triangulation became possible. Stake (1995) suggested that triangulation or evaluation of data derived from different categories of participants provides for the analysis of various interpretations and leads to credible and trustworthy conclusions.

Summary

The purpose of this qualitative multiple case study was to understand the perceptions of 12 local school stakeholders regarding the importance of school building conditions. This section presented the findings from the interviews beginning with an overview of the procedures associated with study framework and a reporting of the data analysis trajectory. As the analysis of data progressed, cogent themes began to emerge around the perceptions linked to technology infrastructure, thermal comfort, and qualified symbolism of building conditions. A more detailed discussion regarding the interpretation of findings, implications for social change, and recommendations for further action is presented in Section 5.

Section 5: Summary, Conclusions, and Recommendations

Overview of the Study

This study was conducted to investigate potential inadequacies that exist in New Jersey regarding school building conditions. Despite the existence of a robust rationale for school building improvement (Earthman, 2004; Kothari, 2010; Lee, 2006; Schneider, 2004), the inventory of school buildings in New Jersey remains disparate among school districts (Educational Law Center, 2010). Few researchers have addressed the individual conceptions or constructs of school building conditions through the analysis and reporting of individual attitudes, perceptions, and awareness of panels of local school stakeholders. Thus, the central question underpinning the purpose; data collection; and analysis of the reported attitudes, perceptions, and awareness of key members of a school organization are articulated by the following question: How do local school stakeholders, recognized as school facility managers, administrators, teachers, and school board members, perceive or acknowledge the relevance and relationship of school building conditions as an influence on student learning in three diverse school districts in coastal New Jersey?

Many researchers have acknowledged that well maintained school buildings support and enhance student learning (Bishop, 2009; Cash, 1993; Earthman, 2002; Hughes, 2006; Lee, 2006; Patinelli & Verdeny, 2010). Schneider (2002) determined that several attributes of a school building had consistently been determined to influence student learning, including building age, ventilation, indoor air quality, thermal comfort, acoustics, and lighting. In contrast, when school buildings are deteriorating and

inadequate, student learning is adversely impacted and educational equity for students is severely limited (Barbara, 2006; Crampton, 2009; Durán-Narucki, 2008; Kozol, 2005). In an era when school buildings are reported to be integral to the success of education practices, researchers have indicated that the quality of conditions within U.S. school building inventory is continuing to decline (Crampton & Thompson, 2008; Educational Law Center, 2010; Van Roekel, 2008).

Beyond the physical dangers of poorly maintained and deteriorating schools, inadequate conditions have a deleterious impact on instructional practice, academic performance, and student health (Cash, 1993; Mendell & Heath, 2005; Uline & Tschannen-Moran, 2008). Earthman (2004) stated that the relationship between school building conditions and student learning is indisputable. Organizational resolve to adequately provide optimum facilities for learning could be considered, in the context of organizational theory, the core explanation for the conditions of school buildings and facilities. A multiple case study model of research was employed to examine the underlying personal constructs of local school stakeholders and the associated findings of this study are intended to deepen the understanding of the factors of the built environment that either hinder or facilitate student learning.

Section 4 included the presentation of a narrative of the relevant attitudes, perceptions, and awareness from 12 key informants with unique perspective of instructional practice, school building operations and management, and student learning. Data were gathered from semistructured interviews conducted between August 2011 and March 2012 that were recorded and analyzed to produce a synthesis of data in the form of

descriptive narrative. In conjunction with the primary research questions, a total of nine supporting interview questions were drafted and were used to obtain insight into the dimension of perspectives linked to building conditions and student learning.

Section 5 provides an overview and summary of the study, an interpretation of the findings and conclusions, implications for social change, and recommendations for action and further study. The section concludes with my reflection of the study and conclusions.

Interpretation of Findings

The operational goal of this study's methodology was to satisfactorily answer the following question: what do educational facility managers, administrators, teachers, and school board members, as local school stakeholders, perceive to be the importance and relationship of school building conditions as conditions relate to student academic achievement in three diverse school districts in coastal New Jersey? Undertaking a recursive content analysis of the collected interview data allowed for a nascent process from which several salient themes surfaced. According to the data, local school stakeholders, regardless of role orientation or school district locale, perceived school building conditions as a salient influence on student learning. Participant data included common themes, ultimately identifying inadequate technology infrastructure and thermal comfort as well as the symbolic nature of the cosmetic features of the school building as important influences that hinder student learning and performance.

In this study, I developed a conceptual framework that was used to facilitate a "better understanding" (Creswell, 2003, p. 223) of the underlying personal perspectives of key informants linked to the relationship of school building conditions and student

learning. I did not intend to pursue and examine a direct relationship between building conditions and learning; rather, I addressed a research paradigm that is directed towards the evaluation of the antecedents of the ethos or culture of a school organization (Donnelly, 2000) that underlies the policies and practices linked to school building conditions. The constructs of organizational theory, social constructivist theorists and environmental psychologists advance the notion that human reality is a complex construct developed within the physical environment between people, in part, by means of the interpersonal relationships, discourse, and creation of culture (Woolner, McCarter, Wall, & Higgins, 2011). The assertion that the physical condition of school buildings has an impact student learning was examined, and how a school organization's ethos creates meaning of school building conditions became the core premise of this qualitative multiple case study. Key school stakeholders affirmed that connection through interviews and a sharing of important personal perspectives.

A constructivist approach to this inquiry necessitated an investigation of the constructed meanings or value systems that are internalized within a school organization to form the school's ethos. Donnelly (2000) explained that a school's ethos is a product of the interaction among members that creates the values and behaviors promoted by the school organization and shaped into a particular culture. The assertion that the physical condition of school buildings has a direct and indirect impact on student learning, and how a school organization's ethos creates meaning of school building conditions became the core premise of this qualitative multiple case study.

The quality and condition of school facilities has a transactional impact on students (Graetz, 2006). Researchers have identified acoustics, building age, lighting, the aesthetic affect of color, and thermal comfort as key physical attributes of school buildings (Cash, 1993; Chan, 1979) and have employed a variety of subjective survey instruments to quantitatively evaluate the influence of the physical conditions of school buildings on student performance and learning (e.g., Crook, 2006; Harrison, 2011; Mendell & Heath, 2005; O'Sullivan, 2006; Tanner, 2007). Additionally, some researchers have approached the topic of school building conditions through a qualitative framework of interviews involving the perceptions of the influence conditions on student learning (e.g., Barbra, 2006; Edwards, 2006). The conceptual model for this study was used to examine the underlying ethos of the school organization that can be represented, in part, by the attitudes, perceptions, and awareness of key members of the organization described as local school stakeholders.

Technology Infrastructure

Several researchers have highlighted the importance of technology infrastructure as an important aspect of school buildings. Smith (2008) asserted that there is little doubt among educators that technology infrastructure has a "profound impact" (p. 25) on student learning. Chan (1996) determined that the infrastructure of older schools could not accommodate the technological systems needed for contemporary instructional practice that required the use of technology that required access to electric power. Lemasters (1997) investigated the relationship between school building conditions and

student learning. Lemasters referred to several attributes of school facilities including the available technology within the building.

Tanner (2007) noted that one of the important indicators of student learning success was the availability of technology as part of a school buildings infrastructure. Lyons (2001) asserted that inadequate or "limited technology" (p. 6) is an attribute of the inadequacies of older, obsolete school buildings. Both these researchers suggest that school building planners should acknowledge renovation or construction trends for schools include the provision of adequate electrical services and technology. In an investigation of parental perceptions of the relationship of school building conditions and student learning, Harrison (2010) reported that the availability of technology was perceived to be important physical characteristic of school buildings. Horswill (2011) pointed out that the integration of technology for learning is just one factor that impacts the adequacy of school facilities.

In this study, key informants repeatedly referred to technology as a component of the overall condition of a school and such references appear to be corroborated in previous research. Teachers, administrators, and school board members expressed the view that technology like thermal comfort, lighting, acoustics, and building aesthetics was an important physical attribute representing the material condition of a school that helped or hindered student learning. Administrator P1 explained that using building conditions to reinforce academic expectations with students and could be articulated, in part, by "technology in the classrooms." Administrator P1 also noted that an inadequacy in building conditions can be explained by inadequate power supply and technology.

AdministratorP2 described the integration of technology as part of the school infrastructure and Administrator P3 concluded that, in considering what physical elements of a school building influence student learning, "technology is very important."

Teacher P1 explained that while thermal comfort was a primary concern and attribute of a school building, technology was also an important characteristic of building conditions that impact learning. In explaining the adequacy of school building conditions Teacher P1 also noted, "The board of education has done a good job of installing new technology." Teacher P3 expressed that improper lighting, thermal comfort, dirty classrooms, and broken furniture hurts student learning. Teacher P3 then added, "You know, when you have the technology in your room for lessons, learning increases and so do scores."

School Board Member P3 responded that one of the significant physical aspects of school buildings is the, "heating system and technology," School Board Member P3 further stated, "As for the one aspect that may have impact, I would have to say our heating systems and technology" and that improving the physical condition of schools entails the installation of modern technology. Of the facility manager interviewed, none acknowledged technology as an important aspect of the condition of school buildings.

Thermal Comfort

Lyons (2001) asserted, "Faulty classroom temperature and air circulation are two of the worst problems in schools today" (p. 2). Fisk and Seppanen (2007) noted that there is a general belief that properly maintaining heating and cooling is an important aspect of adequate school building conditions. According to the Institute of Health (2011), indoor

thermal comfort impacts human performance whether it is in the workplace or schools. Consistently over time, researchers have concluded that the thermal comfort of classrooms impacts student performance and learning (Earthman, 2004; Helwig et al., 2008; Mendell & Heath 2005; Schneider, 2002; Wargocki et al., 2005) . Reporting on the perceptions of students, administrators, teachers, and security guards in four New Jersey high schools, Durán-Narucki (2011) found that teacher interviews yielded a common conclusion that thermal comfort and control was a primary problem in classrooms. In addition about the relationship between thermal comfort and learning, some researchers have pointed out the significance thermal control has in supporting teaching (Lowe, 1990; Planty & DeVoe, 2005; Schneider, 2002).

Thermal comfort was considered by stakeholders across the school districts as a significant problem impacting student learning, except for the perceptions of facility managers. From an experiential perspective, Administrator P3 talked about past recollections of thermal comfort by saying that classroom temperature control was poor or poorly maintained and that classroom control of the heating system was unavailable to teachers except for the opening of windows in the winter when heating was uncomfortable. This sentiment and perception from past experiences was generally reiterated by other informants. The testimony of teachers, administrators, and school board members were in agreement that inadequacies in thermal control and comfort adversely impacted student performance and learning. Administrator P1 explained that thermal control within the classroom had been a problem due to the age of the thermostat system and added, “Some rooms are too hot and some are too cold in the winter. It’s a

problem that just seems to be beyond us without a whole new system, including boilers. I feel it's our number one problem." Administrator P2 mentioned, "I think my number one complaint from staff is the heat or lack of it in rooms." Administrator P2 noted that the basic infrastructure of the buildings is good, but there was a need to be proactive regarding the heating system. Administrator P3 shared, "I think heating can be a big problem and is a part of the building that continually costs us money. Besides the cost to heat buildings, the system is unreliable."

Teacher P1 explained thermal comfort and control in terms of a building condition that hinders academic success. In response to the question regarding the primacy of school building conditions, thermal comfort was identified as the single attribute of the school building believed to have the greatest impact on teacher instruction and student learning. Board Member P1 summed up the general perceptions voiced in other interviews that poorly maintained heating systems wasted taxpayer's money and adversely impacted student learning.

A common notion emerged suggesting that it is important to preserve a physical classroom environment that was comfortable for students and was sensitive to their feelings. Having a pleasant physical environment allowed students to learn or in the words of School Board Member P1, "it's easier to focus on things that you are trying to learn." School Board Member P2 suggested when a classroom is "too hot or cold…students are distracted." School Board Member P3 expressed a concern that a classroom that is too cold or hot is individually distressing to students and prevent them from learning.

Teacher P1 pointed out, as an example, of a condition of a school that would obstruct student learning: “when the classroom heat is broken in the winter.” Teacher P1 further explained during the interview, “I think those days when the heat in the room is to high, it impacts the students… I mean it even starts to make me tired.” Teacher P2 reiterated that point by saying, “When the heat in the room becomes a problem, it ruins the lesson and the kids suffer. I think heating is most important.” Teachers P3 noted that there are wide variations in the temperature of the classroom due to the failure of the heating system to react to outdoor temperatures.

Facility managers viewed heating in the context of the effort to undertake repairs and the pressure on the budget. All three facility managers spoke about care for the facility machinery rather in the context of components of the facility having an impact on the occupants of the facility. While all three facility managers identified heating as an important facility system, the testimony did not reflect a recognition of a connection between thermal comfort and student learning. Facility Manager P1 said, “Most time and money is spent on calls to service the heating and air conditioning systems.”

Qualified Symbolism of School Building Conditions

Daily experiences of students act to construct attitudes and perceptions of conditions of learning and supporting positive perceptions is important to educational achievement (Strom, Strom, & Beckert, 2011). Duyar (2010) asserted that the aesthetic aspects of school buildings have a greater impact on students than structural characteristics. Although a growing body of researchers have connected the quality of building conditions to student learning, several scholars have suggested that the

conditions of school buildings can convey symbolic importance regarding the significance the local school community places on students, teachers, and academic excellence (Cleveland, 2009; Duyar, 2010; Poplin & Weeres, 1992).

According to Silverman (1970), the underlying perspectives of school stakeholders are also articulated in the symbols created by the organization and those symbols can be represented by the quality and conditions of school buildings (Berner, 1993; Cash, 1993; Noguera, 2008). According to theorists interested in organizational change and culture, the values of an organization are embodied in the symbols communicated to employees and others involved in the organizational mission (Mitchell & Willower, 1992). Dillon (1991) described the architectural design of schools as acting as a "silent moral influence" within a community impressing on the virtues of student good character (p.113). Vischer (2007) explained that the "architectonic details" (p. 179) or the aesthetic aspects of the physical decoration of space, symbolically convey meaning and can impact emotions. Silverman noted that understanding an organization's ethos or culture requires the acknowledgement that the perspectives of an organization's members can be articulated through the symbols and artifacts that define the character and complexion of the organization.

In an effort to explain the school building phenomenon, Poplin and Weeres (1992) concluded that the conditions of school buildings are illustrative of the worth a community attaches to student learning and Berner (1993) noted that students require the reassurances that their education is valued by society and school building conditions are symbolic of that value. Cash (1993) concluded that the quality and condition of school

facilities is symbolized by organizational culture, and the symbolic nature of school building conditions further impacts the perception of parents and teachers producing an influence on student learning achievement and behavior. Noguera (2008) suggested that aesthetic character of school building signifies the normative ethos of the school community and that ethos can be recognized by the quality of school building conditions. Important to shaping perspective towards school building conditions is the acknowledgment among members of the local school community that school buildings reflect both genuine and symbolic values that represent community expectations of academic excellence (Duyar, 2010).

From this study arose the notion of symbolism as a relevant aspect of school building conditions that has rarely emerged in the literature associated with school building conditions. The school stakeholders interviewed provided detailed perceptions of school building conditions can symbolically act upon students by the inspire pride and emotional comfort leading to learning success. Administrator P3 turned attention towards the aesthetic value and symbolism of the school building as an important attribute by stating, “Taking care of the building and presenting a pleasing environment instills in the students pride.” Administrator P3 also revealed the perception that, “Hallways and lockers that are freshly painted and classrooms that are clean with no garbage on the floor gives students the sense that we care about them and the school.” Administrator P1 pointed out that installing technology in the classroom, “gives the students the message that we care about the condition of the building.”Administrator P1 spoke about the condition of the building in terms of sending a message by noting, “From the time our

students walk through the door, we are giving them messages about our expectations on academic excellence."

The School Board Members were nearly unanimous in pointing out that the physical condition of school facilities were important to the way students feel about the school. School board members spoke of conditions as a catalyst creating an atmosphere that acts to inspire staff and students towards academic excellences and achievement. School Board Member P1 shared that observation that "The building and classrooms should be in a condition that inspire students." School Board member P2 shared, "We want to create an atmosphere that tells students and staff that education has value which is all in the message." School Board Member P3 provided a similar perception by stating, "When the building looks good, it sends a message to both students and staff that working and learning conditions matter" and "Since you are looking at building conditions, I think our facilities send the message that we are serious about academic excellence." Facility Manager P1 expressed the belief that students react to poorly maintained facilities and Facility Manager P2 commented, "I think that when the school is kept clean the students feel better" Facility Manager P3 similarly replied, "Making the school look nice and clean, pleasing… I guess, makes everyone feel better."

Implications for Social Change

A school is not merely a capital asset rather it is an object of moral concern (Freire, 1971; Kozol, 2005) and intended to function as a support for instructional practice and student academic achievement (Chaney & Lewis, 2007). Beyond the physical dangers of poorly maintained and deteriorating schools, inadequate conditions

have a deleterious effect on instructional practice, academic performance, and student health (Cash, 1993; Mendell & Heath, 2005; Ruszala, 2008; Uline & Tschannen-Moran, 2008). Likewise, Earthman (2004) characterized the research conclusions sustaining a relationship between school building conditions and student learning as *undeniable*. The mandates of federal regulations set forth within the NCLB (2001) legislation requires academic proficiency of all public school students by 2014 and the New Jersey General Assembly and Senate have responded with various laws and regulations intended to create educational equity and opportunity for all children. Thus, at the local level, school boards and educational staff are accountable for implementing policies and engaging in practices designed to improve academic instruction and learning (Ponessa, 2004).

The importance attached to academic achievement as a result of the mandates of federal and state regulations obliges all local school stakeholders to adopt data driven strategies to maintain facilities at optimum levels. However, school building conditions remain problematic across New Jersey (Educational Law Center, 2010) and if educators are to be held accountable to student performance, New Jersey lawmakers must have available the data to shape provisions that afford schools the ability adequately fund preventative and sustainable initiatives for school building improvements.

This study's contribution to social change is articulated by the gathering and analysis of real-life and personal perspectives of local school stakeholders regarding a potential obstruction to student learning. The ultimate reason for understanding school building conditions and its influence on student learning and health is to provide school district superintendents, boards of education, teachers, facility management professionals,

and lawmakers involved in the funding of school facilities an informed course of prevention that will help ensure optimum facilities for all students.

For Freire (1971), educational improvement and innovation is a continual process involving an collective advocacy that enables those individuals with a vested interest in education to acquire the necessary knowledge that bring positive changes to schools and classrooms. The role of the educator and teacher leader is to identify problems like inadequate school building conditions and to encourage participatory social action through advocacy. In the context of an organization, that advocacy can be articulated through the collective perspectives of the members of a school organization that become effective new policies and practices.

The results of this study add to the body of research that acts as an overall advocacy for sustainable school building improvements across New Jersey as well as the nation. In addition, the my research findings can assist local school stakeholders and other decision makers in addressing the social inequities and marginalization of student learning needs created by the inadequate condition of schools and classrooms. This qualitative study supports the existence of a significant awareness among school stakeholders of the importance of school building conditions to student academic success. Thus, such awareness is a necessary prerequisite for positive approaches and organizational practices that enhance student learning through integrating research into the dialogue regarding school buildings and facilities. Also, this study departs from previous research as the operational design included assembling the personal perspectives of separate panels of teachers, school administrators, facility managers, and school board

members. In contrast to research that examined perceptions of teachers, principals, school board members, and school district residents (Barbra, 2006, Durán-Narucki, 2011; Edwards, 2006; Schultz, 2011), this study approached school building conditions through a multiple case study of local school stakeholders, including facility managers who been ignored in the research.

Recommendations for Action

In recent years, public schools have come under increasing pressure to improve the quality of instruction and learning at all academic levels. Working as an educator and former elected official involved in school finance, I recognize that change in public school policies and practices require both internal and external advocacy that is collaborative and collegial. As this study unfolded, it became increasingly apparent that integral to organizational policies promoting optimum school building conditions is a knowledgeable advocacy that is data-driven. Although local school stakeholders are not professional architects, engineers, or builders, all have a vested professional and moral interest in creating and sustaining a physical environment that is supportive of instructional practice as well as student learning achievement. If educators are to improve and enhance education for our students, we need to bring into focus the importance of optimal facilities for instruction and learning. The finding of a positive and recognized relationship between school building conditions and student learning from among local school stakeholders in this study, underpins the following recommendations.

Where suitable, the personal perspectives of the entire school organization including parents and students should be obtained annually regarding the conditions of

school facilities that might include suggestions for improvement of particular facilities. This would necessitate a fundamental shift in the way educational decision-makers approach school building conditions and would require the physical condition of school facilities to be recognized as an integral part of curriculum design and school building conditions an important topic of professional development. The creation of a school facility committee at the school level and of an annual school building condition inventory could serve to highlight the educational benefits of optimum school building facilities. From the data provided annually by teachers, administrators, school facility managers, and school board members, a successful strategy derived from current perspectives can be used to mitigate the developing failures of school infrastructure and support the implementation of effective school building management policies.

Considering a variety of previous research conclusions supporting the notion that the condition of school facilities influences the health, welfare, and learning achievement of students, the data derived from this study suggests that school facility managers feel that the importance and impact of school facilities has been marginalized aspect of school improvement. To change this perception, school leaders and professional development committees must begin to create opportunities for educators and facility personnel to articulate and discuss the importance of school building conditions.

Although experts maintain that the United State's school building infrastructure is in a state of disrepair and that school facilities are primarily a function of school building administrators (Lunenburg, 2010), this study produced similar conclusions found in Schneider (2004) that school administrators feel professionally ill-prepared to manage

facilities. As with the need to provide teachers and facility managers with data driven opportunities to learn about the importance school building facilities and student learning, school administrators should be afforded similar opportunities to improve school building management skills and proficiency. It is recommended, through professional development, that facility management professional development courses be extended to include school building administrators.

When appropriate, the findings of this study will be disseminated to other educators who are involved in school facility management as well as those state officials focused on statewide programs of school construction and rehabilitation. Moreover, my doctoral work in the area of school building conditions will allow me the opportunity to advocate and enlighten the appropriate members of the New Jersey General Assembly and Senate regarding the importance of the relationship between school building condition and student learning.

In recent years, public schools have come under increasing pressure from legislatures, policy makers, community members, and local school stakeholders to improve the quality of instruction and the academic success of students. As an educator and former elected official, I recognize that change in public school policies and practices require both internal and external advocacy that is collaborative and collegial. As this study unfolded, it became increasingly apparent that the key to sustained and effective policies to promote optimum school building conditions and to prevent the growth of deterioration of the attributes that impact teaching and learning is advocacy. Underpinned by credible data driven conclusions supported by reliable and trustworthy analysis,

advocacy for changes in school facility policies and practices can succeed in support of instructional and learning success. The qualitative finding of a positive relationship between school building conditions and student learning has led to the following cogent recommendations. Although local school stakeholders are not professional architects, engineers, or builders, all have a vested professional and moral interest in producing and sustaining a physical environment that is supportive of instructional practice and student learning achievement. Where suitable, the personal perspectives of the entire school organization including parents and students should be obtained annually. Such data could become an invaluable ingredient in the shaping and implementation of policies and practices that pertain to school buildings.

Recommendations for Further Study

This study explored the personal perspectives of local school stakeholders regarding the influence of school building conditions on student learning. The qualitative exploration of the relationship between school building conditions and student learning would benefit from further qualitative study in other school districts especially in the wealthiest and poorest districts across New Jersey. Having an in-depth and broad data base of the personal perspectives of school stakeholders would provide further necessary credibility to the advocacy seeking to improve school building conditions. The results of the study were shaped by several cogent themes connected to the symbolism and specific relevant attributes of school building conditions that surfaced as most important to local school stakeholders in three different school districts in New Jersey. The following key

recommendation is bounded by the evidence and could prove to be beneficial as other research moves forward:

1. As school building conditions continue to move to the forefront of important issues facing educators in New Jersey, it will become increasing important to extend qualitative investigations to many other school communities from across the socioeconomic spectrum. This will allow educators and decision makers the necessary quantitative and qualitative data to initiate informed policies and practice;

2. As local school boards and state education agencies investigate changes that may lead to statewide teacher compensation regulations regarding the link between instructional performance and standardized test scores, these same local school boards and state agencies have an obligation to rely on the volume of data sustaining a relationship between school building conditions and student learning. The present disparity that exists among school districts in New Jersey suggests that unless parity in school building conditions can be achieved on a statewide scale, fairness in any proposed teacher compensation regulations will be challenged by the existing research literature. In the case of New Jersey, such important reform requires further quantitative and qualitative research.

3. Commonsense dictates that instructional success is as much influenced by school buildings as by instructional competency. Conceptually, it is recommended that further research be undertaken on the relationship of school building conditions and instructional practice from bother a qualitative, quantitative, and mixed methods

approach. Questions should be directed to answering how do school building conditions hinder or help instruction in the classroom and teacher efficacy.

Reflection

Prior to entering education as a teacher, I had been employed in the merchant marine industry and was keenly aware of the costs associated with poorly maintained facilities aboard merchant vessels and landside machine and vehicles. Later, having management responsibility for substantial capital assets requiring constant preventative maintenance and replacement, it became apparent that failures of infrastructure had tremendous impact upon work efficiency and adversely impacted profits. I had assumed a perception that the quality of facilities reflected corporate success.

Upon entering education, I realized the mechanisms of leadership and shaping organizational culture were similar but the focus pertaining to condition of plant and material were different. I presumed in an organization without a profit motive, school stakeholders would have little awareness of the importance of school building conditions. This presumption proved misguided as the interviews yielded much different perspectives then my original intuition suggested. The participant school stakeholders were very aware of school building conditions as part of their professional practice and each provide insight into the issues of building conditions.

As this qualitative study unfolded, I immediately recognized the challenge of obtaining access to potential participants due to trying to coordinate schedules. These problems cause a delay in conducting interviews convenient to participant. Also, attempting to gain access to participants was delayed to the difficulty in obtaining final

approvals through superintendents was slow due to the necessity to obtain school board approvals. In one case, a school district chosen was unresponsive to repeated requests for approvals. However, as a contingency, another school district superintendent had agreed to participate in the event of a problem with a primary school district withdrawing or declining participation Qualitative research is a tedious process requiring large amount of time interviewing and repeatedly reviewing data for reporting. The constructs of qualitative research requires a deliberate and careful accounting of interviews that reflects credibility and trustworthiness of findings.

While a large participant pool of key informants would have permitted generalization of the findings, the size of the participant group of 12 key informers dispersed across three school district panels did not allow generalization of these findings. The interviews provided significant insight into the personal perspectives of professional school officials that included teachers, administrators, school board members, facility managers. These key informants provided many valuable perceptions that served to deepen my appreciation of the importance of school building conditions and the additional need to advocate for optimum facilities.

Summary Statement and Conclusions

This qualitative multiple case study involved the 12 key school stakeholders and an examination of shared perceptions and experiences about how each viewed the connection of school building conditions and student learning. All participants expressed a distinct awareness and agreement of a significant impact of building conditions has on students and learning success. Themes that merged from these shared experiences were

important will serve to enlighten educators to another aspect of student learning success that is often times overlooked or marginalized due the various pressures placed on school budgets and priorities. This study suggested that the attributes of thermal comfort and technology infrastructure as well as the symbolism of facilities are important to student learning and academic achievement.

Kofman and Senges (1995) explained that many of the problems facing the United State today are a result of our own behaviors and attitudes, and the solutions to the problems that confront our nation are merely found in a change in perspective and mindset. Daggett and Pedinotti (2005) noted that the goals of social equity and economic prosperity have been largely dependent upon the opportunities created in U.S. classrooms where all children, rich or poor, might academically thrive and mature.

Inadequate school building conditions are a problem that confronts most every school in the U. S. and the existence of poorly maintained facilities represents an attack on the principles of social and educational equity for all children. The remedy to substandard school facilities is a change in normative attitudes, perceptions, and awareness of those stakeholders who have a vested interest in maintaining an American school system that is globally unrivalled.

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Appendix A: Interview Guide

I'd like to begin by thanking you for taking the time to help us with our research study. Our discussion should take about 30 minutes. As I mentioned in my call, the objective of our interview is to discuss perceptions regarding school building conditions and they might relate to student learning. I will be focusing on your knowledge and experience of whether and to what extent building condition may have either positive or negative impact.

For our discussion, the physical interior attributes of a school are described as building age, interior lighting, heating, color of interior spaces, noise, and general air quality. I would like to audio tape our discussion may make some note to myself. I will be the only person who will listen to the audio tape recording, and it will only be used to help me write my dissertation. Confidentiality is extremely important to me and is a requirement of Walden University. No one will be advised of your specific comments. Your comments will be combined with the comments from other participants.

As soon as I am finished with transcribing this interview, I will provide you with a copy for your review and comment. If there is anything contained in the transcription that you believe to be inaccurate you may request to have it removed and/or provide an additional clarification.

Do you have any questions before we begin?

Preliminary Questions

1. Could you please state your first name only and whether you are a school board member, teacher, principal, or school facility manager?

2. How long have you been associated with this school?

3. Have you before this interview been a member of any board or committee regarding school building conditions? Explain.

Main Questions

1. What are your academic expectations for students attending your school?

2. How have your experiences influenced or not influenced you regarding the conditions of facilities or buildings such as schools?

3. Can you describe your perceptions of the school building conditions at your school?

4. Do you believe school building conditions are important to student learning and achievement? Why?

5. Of the interior physical attributes of your school; what would you believe is the most important attribute connected to student learning? Why?

6. Who do you believe is the most responsible for the physical conditions of your school and why?

7. Do you believe student standardized test scores are influenced by the quality and condition of your school?

8. Do you feel as though school facilities maintenance is important priority of the local Board of Education? Explain.

9. Do you feel that the school district has a commitment to providing students at your school the very best environment to support learning? Why?

Appendix B.

Letter of Invitation and Consent Form

Dear:

It would be my great honor if you would agree to participate in a study I am conducting for the purposes of research for my dissertation in Educational Leadership at the Walden University. (The research will involve a short interview at your office, or at a location of your convenience, and last approximately one half hour. Participation is confidential and private and your name will not be used in any manner in the results.

The purpose of this study is to examine and evaluate you perceptions and experiences regarding school building conditions and its influence in student learning. The goals are to determine the degree of congruence between the conditions of school building and classroom, and student learning. The study will explore congruencies in terms of the condition of lighting, heating, air conditioning, and ventilation, acoustics and noise, the aesthetic use of colors, and building age. The results from this study are expected to add insight and a research dimension presently lacking in the overall school building condition – student learning paradigm.

If you would like to participate please let me know by sending me an email at [redacted]bagpipernj@hotmail.com[redacted] a letter to my above address (address to be provided, or a phone call at [redacted].

If you have any questions at any time prior to or during the research you may contact me at ([redacted]bagpipernj@hotmail.com[redacted] Your participation is entirely voluntary and you can withdraw at any time. You may contact Dr. Leilani Endicott Chair of Institutional Review Board at Walden University, and/or Dr. Michael Brophy, Chair of the dissertation committee at Michael.brophy@waldenu.edu.

I greatly appreciate your willingness to participate. There is little research available about educational facilities managers perceptions and experiences relating to school building conditions, and this research study will add new insights into the body of knowledge that have potential use to educators including facility managers and those involved in decisions pertaining to educational school facilities.

Thank you for your participation.

CONSENT FORM

Dear_____,

I am a student at the Walden University working toward a Doctor of Education in Educational Leadership (EdD). I am conducting a research study entitled School Building Conditions and Student Learning: The Perspectives and Experiences of Educational Facilities Managers. The purpose of the research study is to explore the practices of school district facilities managers, and to find techniques, methods, and skills that can be used in education to foster accountability and assist students achieve their maximum potential.

Your participation will involve a taped interview process where you will be asked open-ended questions. Participation is voluntary. If you choose to withdraw from the study at any time your interview or interviews will be excluded from the study and there will be no loss of benefit or penalty to you. The results of the study will be published but no participants will be identified by name. The researcher will maintain a list of names but use codes to identify subjects to maintain anonymity.

This research poses no foreseeable risk to any of the participants in the study.

By signing this form I acknowledge that I understand the nature of the study, the potential risks to me as a participant, and the means by which my identity will be kept confidential. My signature on this form also indicates that I am 18 years old or older, and that I give my permission to voluntarily serve as a participant in the study described.

Signature of participant_____Date_____

Signature of researcher_____Date_____

Appendix C

Sample Interview

August 16, 2011

Interview of Administrator P1

Preliminary Question 1: Could you please state your first name only and whether you are a school board member, teacher, principal, or school facility manager?

Administrator P1: My name is [redacted], I am a [redacted]

Preliminary Question 2: How long have you been associated with this school?

Administrator P1: "Seven months".

Preliminary Question 3: Have you before this interview been a member of any board or committee regarding school building conditions? Explain.

Administrator P1: "No, I have not."

Question 1: What are your academic expectations for students attending your school?

Administrator P1: "From the time our students walk through the door, we are giving them messages about our expectations on academic excellence. My expectations for our students are that they be successful, that they learning lifelong skills, take an active role in their learning, and that they become lifelong learners. They need to recognize that knowledge is the way to success. I have high expectations for my students and teachers."

Question 2: Can you describe your perceptions of the school building conditions at your school?

Administrator P1: "It's important from the start of school that students are given the right messages that the school is serious about learning. I think clean hallways, working desks, and technology in the classrooms send that message. Um, Yes I have. When I was in the classroom as a teacher, I noticed that there were cabinets that were open and unlocked or the locks were broken, in effective storage space, the lights were dim. The squirrels could get in through holes in the soffits and in the spring would have babies, it sounded like a herd. The ceilings were old plaster and there was no way to get to them. We were on the second floor and the principal tried to get them out. It took weeks and the kids were distracted by the running around above them."

Question 3: How have your experiences influenced or not influenced you regarding the conditions of facilities or buildings such as schools?

Administrator P1: "The schools in this district are now mostly more than 50 years old and there have been modifications to classrooms especially with new windows. I would have to say that the building condition here and at the other schools I am at are good. I think my school would get a good rating except in the area of power; there are not enough electrical outlets for the technology coming in. The lighting is better the classroom renovated actually all the science rooms have been renovated. My biggest concern is with the bathrooms and keeping the cafeteria kitchen really clean. So by doing that I think we made great strides, the building is very clean and neat, the message is being sent to the public, the staff, and students that we care about our facilities. I think we do a good job in

those areas and I don't get complaints from teachers about the classrooms. We have been proactive."

Researcher: Would you call the improvements a kind of symbolism?

Administrator P1: "Yes, I would (agree)."

Question 4: Can you describe your perceptions of the school building conditions at your school?

Administrator P1: "Yes, I do, I think when you have…A school building and the classrooms are in good shape, the lighting is good, the temperature of the classroom is not too hot or too cold. I have been in cases in my own experience, I was in a classroom where the temperature, the heating system to not calibrated correctly and when you opened up the classroom door in the morning in the morning it was like 85 degrees in the classroom. I don't think students can learn, students would be distracted by that."

Question 5: Do you believe school building conditions are important to student learning and achievement? Why?

Administrator P1: "I would say that heating, climate control, and lighting would be your two most important things, because that sets the stage for everything else. If you go down deeper, you know you can say those are overarching aspects, but then you can go to specifics, technology integration, safety in the labs, anything that's a hazard is secure. I think that air quality, I hear comments that allergens in the air. I would agree that student safety and health are, my own feeling, I have never thought much about hygiene, but I do see it as an issue. I think also it also goes back to that message thing, the whole idea of the broken window, if allow a broken window, that your sending a message that

when the building is deteriorating we really don't care about our building or the students and that will led to the increase of vandalism. Another attribute is the availability of computers and other equipment, technology is very important."

Question 6: Of the interior physical attributes of your school; what would you believe is the most important attribute connected to student learning? Why?

Administrator P1: "I would say overall, on a day to day basis the custodians, the principal. I you are looking at the big picture…the central office, the board. I heard comments at board meeting from members that after visiting schools the building are well kept. They are sending a good message, hey this is what we value."

Question 7: Who do you believe is the most responsible for the physical conditions of your school and why?

Administrator P1: "I think yes to a certain extent. Yes, I think everyone agrees that the conditions of a school impacts students and testing results. Let's take technology, integrating technology into the classroom and you have the equipment that's part of the building and it the absence of technology that might impact outcomes. I think that technology meaning cabled and powered is a support. I do agree that technology is an attribute that impacts learning and doing testing."

Question 8: Do you feel as though school facilities maintenance is important priority of the local Board of Education? Explain.

Administrator P1: "The priority is a high priority, I have heard this at board meetings that it cheaper to keep things maintained. The board of education appears to believe that preventative maintenance is, in the long run cheaper to keep things maintained rather than

replace down the road because of neglect. What we have is good we need to maintain it…The bones are good. I'm talking about preventative maintenance and being proactive."

Question 9: Do you feel that the school district has a commitment to providing students at your school the very best environment to support learning? Why?

Administrator P1: "Yes, I think so, not only in words but in actions. During the summer every school is being worked on and had a project going. In the long term, when budgets are defeated in this town, the board [school board] shifts money to cover more urgent expenses. I think the priority is set by the Superintendent. It's a system from staff to principals who advocate to the superintendent to the board. In the long term, when budgets are defeated in this town, the board [school board] shifts money to cover more urgent expenses. I don't think there are many people in the community that recognize that it takes a tremendous investment to keep school buildings from crumbling. Many parents just don't have the time or energy to get involved in school issues so support for expensive initiatives just isn't there."

Appendix D

Researcher Notes

August 12, 2011

Received Super approval to conduct interviews.

August 13, 2011

Confirmed meeting for interview with [redacted] Public Schools. Interviewing Principal and teacher at [redacted]

August 16, 2011

Interview of [redacted]

Interview started on time. [redacted] relatively new to school district and appeared eager to participate. Use executive conference room to conduct interview. School was undergoing repair and painting of front foyer. Interview began at 10:25AM

[redacted] emphasized that the cosmetic attributes serve as a way to manipulate socio-emotional levels of students stating, pleasing surrounding is a positive for learning. He feel facilities send a message to the students.

Emphasizing his management expectations and the expectations for academic achievement. Using building condition to make a statement. Is aware of past the was poor regarding facilities.

Careful not to be critical of school board… protecting new job. Somewhat nervous and careful when it came to BOE commitment.

[redacted] talked about commitment of BOE to improve school building and facilities. Said bathrooms get wear and tear, but control of heating is biggest problem

Interview transcribed interview August 16, 2011

Taken from handwritten notes made on August 16, 2011 at [redacted] High School

Curriculum Vitae

JAMES T. WHITE

CAREER SUMMARY

Accomplished educator with demonstrated ability a provide optimum instructional environment in support of instructional excellence and academic achievement. Articulate professional with extensive experience in interpersonal interaction among a diverse population of students at a variety of academic levels. Self motivated with strong educational planning, organizational, and leadership skills.

EDUCATION

Ed.D., Educational Leadership – Teacher Leadership
Walden University (expected May 2012)

M.Ed., Teaching
Monmouth University, West Long Branch, NJ (1996)

B.S. Criminal Justice
St. John's University, New York, NY (1978)

CERTIFICATIONS

Elementary Education (N-8)

Secondary Social Studies

TEACHING EXPERIENCE

Raritan Valley School, Hazlet NJ — September –June 1997
3rd Grade

Hazlet Middle School, Hazlet, NJ — September-Present
7th Grade Social Studies, Math, Science
Team Leader 1999-2005
Soccer Coach 1999-2007

RESEARCH SKILLS

Competency in quantitative and qualitative research methodologies.