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A Qualitative Study Investigating Facility Managers' Perceptions of the Classroom Learning Environment

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by

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Dr. Rhonda Bishop, Dissertation Chair — 8-15-17 Date

Dr. Sherry DeMore, Committee Member — 8-15-17 Date

Dr. Terry Reid, Committee Member — 8-15-17 Date

Declaration of Originality

I do hereby declare and attest that this is an original study based solely on my own scholarly work at Lindenwood University and that I have not submitted it for any other college or university course or degree.

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This doctoral research would not have been feasible without the understanding and availability of the facility managers located throughout the state of Missouri. Their insight and wisdom provided unique insights into the role of facility managers in community colleges. Overall, perceptions and feedback of classroom aesthetics gleaned from interviewees proved invaluable to this process.

Thanks be to God, for He is the reason for all that I am and all I will become. To my loved ones, family, and friends, thank you for standing by my side with unwavering love, support, and encouragement. This dissertation and my EdD is dedicated to my late mother.

Abstract

Facility managers have the challenge of adhering to community college policies and procedures while fulfilling requirements of administration, students, and teachers concerning specific needs of classroom aesthetics. The role of facility manager and how specific entities affect perceptions of the design and implementation of classroom aesthetics were presented in this study in an attempt to further clarify present classroom design practices and future aesthetic possibilities. The purpose of this study was to explore and compare a facility manager's perceptions of classroom learning environments, and a student's learning environment aesthetic needs. A qualitative research design was utilized within the theoretical framework of the human ecological theory. Six research participants were selected from Missouri community colleges to participate in this study based on job description. Interviews were conducted and four themes emerged: (1) finance, (2) flexibility, (3) foundational belief, and (4) focus. The findings revealed were reinforced by research previously performed on facility management. Implications for the study include community college facility managers researching and collaborating to increase their knowledge of aesthetics in college classrooms. In future research, the insight of college presidents, students, and teachers could be explored. Students may be asked about their perceptions of building facilities in regards to their learning, wellness, comfort and the desire to stay and complete their courses of study. Controlled variables such as participant areas in different classrooms settings may also be considered as a quantitative research study (Fraenkel, Wallen, & Hyun, 2015; Maxwell, 2013).

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Chapter One: Introduction

Every detail in a classroom learning environment may lead to the success of college students. Because a gap exists between the requirements for a facility manager and students concerning classroom aesthetics, further exploration is required (Painter et al., 2013). Students need an accommodating, innovative learning environment in which to thrive and increase their learning outcomes (Brooks, 2012). In viewing campus-wide duties of facility managers, however, attention to the infrastructure of the college was limited to air conditioning, lighting, safety, and general maintenance practices (Mohamed, 2013). In this study, the facility managers' psychological motivations, apart from general maintenance requirements, were explored. By gathering information in this area, a better understanding of the decisions facility managers make concerning classroom aesthetics can be understood.

In this chapter, the background of the study is presented. Next, the theoretical framework which guided the research is introduced. The problem and purpose of this study are presented. Then the research questions are identified, and key definitions are presented along with the limitations and assumptions of this study.

Background of the Study

The scope of facility managers' responsibilities is vast. Facility managers of corporations and educational institutions maintain stakeholder interests, corporate values, client relations, and operational readiness (Coenen, Alexander, & Kok, 2013). College facility managers specifically maintain operational and maintenance readiness, campus-wide sustainability, mechanical and architectural integrity, and the outfitting of classroom environments (Krizek, Newport, White, & Townsend, 2012). Classroom

aesthetics, for which facility managers are responsible, include furniture arrangement, lighting, heating and air systems, learning space arrangements, wall and room colors, curtains and window coverings, surface textures, soundproofing, heating and air conditioning, and electronic access (Harvey & Kenyon, 2013).

However, while keeping in line with campus-wide requirements, the centrality of students' needs and the impact of classroom interior design have often been disregarded by facility managers (Kelly, Serginson, Lockley, Dawood, & Kassem, 2013). Ill-designed classrooms are known to cause uneasiness and lack of motivation in students (Veltri, Banning, & Davis, 2006) Discomfort, reduced classroom enjoyment in the learning and achievement process, and well-being of students are noted (Veltri et al., 2006).

The importance of appropriate learning facilities is viewed through the lens of a psychological phenomenon (Choi, Guerin, Kim, Brigham, & Bauer, 2014). A psychological phenomenon occurs when aesthetics affect students' perceptions, thoughts, and learning outcomes (Choi et al., 2014). Therefore, classroom arrangement, motivation for classroom design, reasoning behind classroom development and arrangement, and perceptions of students' specific needs for classroom layout by facility managers are not clearly defined and appear to need further exploration (Todhunter, 2015).

Theoretical Framework

Bronfenbrenner's (1977, 1979) human ecology theory was the framework used in this study. Neal and Neal (2013) explained the human ecology theory as being composed of five parts; the Chronosystem, Macrosystem, Exosystem, Mesosystem, and the Mi-

crosystem. At its inception, the human ecology theory addressed the relationships between environmental conditions and how these conditions affected the development of a child (Bronfenbrenner, 1979). The human ecology theory is vast, expanding into sociology, psychology, and behaviorism (Alexander, 2013; Greenfield, 2013; Raiola, 2014; Stokols, Lejano, Hipp, 2013; Wu, 2013). Environmental effects on the individual are reciprocal in nature, as the student influences the learning environment, and vice-versa (Wu, 2013). Bronfenbrenner's theory is presented in Figure 1.

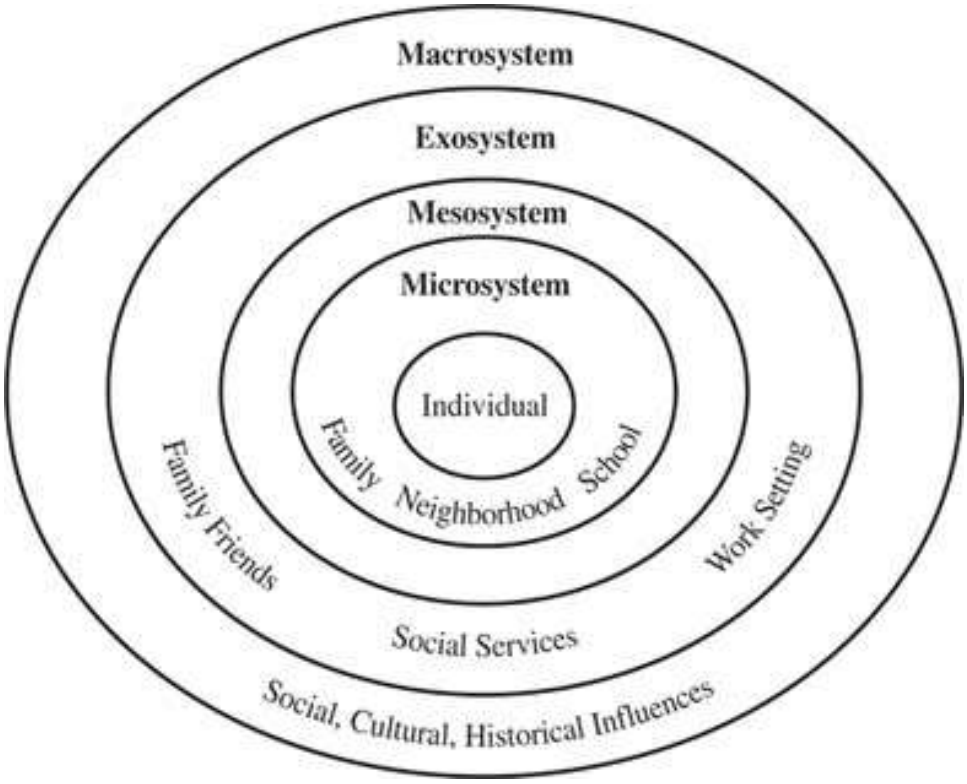

Figure 1. The five concentric systems of the human ecology theory (Bronfenbrenner 1989, p. 213).

The Chronosystem reflects historical time as an effective variable on changes in people and their environment (Bronfenbrenner, 1977). In the next layer, the Macrosystem contains environmental ideologies, beliefs, and values (Bronfenbrenner, 1979). The

Exosystem expands to other influences including administrative and policy influences such as economic, political, and educational organizations (Bronfenbrenner, 1979; Neal & Neal, 2013). The Mesosystem includes interactive student and environmental relationships such as family, school, peers, and religion (Horton, 2016). Finally, the Microsystem defines the student's immediate influences such as academic, home, workplace, peers, community effects, and relationships (Arnold, Lu, & Armstrong, 2012; Horton, 2016; Neal & Neal, 2013).

In this study, the Chronosystem represented changes in a student's learning environment and personal changes as the learning environment evolved (Bronfenbrenner, 1979, Neal & Neal, 2013). The Macrosystem level was used to view the well-being, recruitment and retention, and learning of college students (Bronfenbrenner, 1979; Horton, 2016). The facility managers who were interviewed and played a pivotal role in classroom aesthetic development, and administrators such as presidents and board members represented the Exosystem (Horton, 2016; Neal & Neal, 2013). The Mesosystem level of this study contained interactions and perceptions of community college students reacting from effects caused by specific classroom aesthetics (Arnold et al., 2012). Finally, first-hand experiences by facility managers in designing classroom aesthetics were documented to understand how facility managers comprehend and relate at the Microsystem level (Bronfenbrenner, 1977).

Statement of the Problem

A knowledge gap exists between a facility manager's design requirements and a student's need of classroom aesthetics (Adeyeye, Piroozfar, Rosenkind, Winstanley, & Pegg, 2013; Painter et al., 2013). Muhammed, Sapri, and Sipan (2012) interviewed

undergraduate students, and furniture comfort was found to be a priority. Cox (2011) researched students' classroom needs and realized students had no place for personal items such as water bottles and pencil cases. Additionally, in Thoring, Luippold, and Mueller's research (2012), students were found to prefer tactile stimulation from furniture, decorative structures, and wall surfaces. Above all, learning spaces needed to fit physical, virtual, and organizational necessities for students, which increased the overall satisfaction of the learning environment (McLaughlin & Faulkner, 2012).

According to Painter et al. (2013) and Muhammed et al. (2012), facility managers and students viewed appropriate classroom learning spaces differently. Facility managers felt that maintaining existing facilities, incorporating safety practices, and increasing productivity of the campus were paramount (Widener, 2012). College classrooms were designed, built, and outfitted to be multi-purpose spaces (Widener, 2012). A facility manager also limited his or her attention to broken locks and windows, upkeep of existing structures, and prioritized saving money over needed building construction (Xaba, 2012).

There is an apparent disconnect between the needs and perceptions of students as educational customers and facility managers concerning the aesthetics of the classroom learning environment (Foropon, Seipal, & Kerbache, 2013). This difference in needs and perceptions between facility managers and students prompts delving into the thought process of a facility manager (Foropon et al., 2013). Exploring the knowledge gap between the facility manager and students provides a more effective and comprehensive classroom design.

Purpose of the Study

The purpose of this study was to explore the psychological motivations of facility managers when they make decisions about how a classroom is outfitted to produce a more holistic learning environment. Data were gathered and assimilated from interviewing facility managers to understand further psychological motivations in this decision making process. The data generated may help administration develop ways to increase college student recruitment and retention, engagement, and well-being (Muhammed et al., 2012).

In this study, it was important to obtain a picture of personal motivations of facility managers as related to how they understood the modern-day student's needs of a holistically pleasing and comfortable classroom environment (Roehl, Reddy, & Shannon, 2013). Students' needs have evolved from requiring basic materials like paper and pencil into requiring a classroom environment that entices and comforts. Facility managers, therefore, need to understand the various holistic aesthetic and design needs of students as stakeholders and end users of education (Coenen et al., 2013). Understanding the learning environment needs of students requires knowing how these details help students stay engaged and challenged to excel academically and personally (Roeh et al., 2013).

Electronic access allows students to feel more connected to their learning environment. Students have immediate access to social media tools and the internet on their laptops and smart phones (Venkatesh et al., 2016). The availability of computers paves the way to smart phones, laptops, mobile devices, and other electronic access (Fox, 2013). Consequently, electronic availability of technology such as laptops and the internet in classrooms is necessary for students to access information quickly and

efficiently (Rockinson-Szapkiw, Courduff, Carter, & Bennett, 2013). Students also have both textbooks, and online availability for research and study which can provide for a comprehensive research and learning experience (Rockinson-Szapkiw et al., 2013).

Twenty-first century students require classrooms designed to engage the senses through adaptability, variety, flexibility, and comfort of work spaces (Yildirim, Capanoglu, & Cagatay, 2011). Classrooms should be provided with furniture which increases maneuverability and flexibility and removable stationary walls in collaborative areas (Baker, 2012). Adjustable working surfaces should be provided for various needs of students and required classroom activities (Yildirim et al., 2011).

In accordance with research performed by Veltri, Banning, and Davies (2006), the modern classroom environment should be designed in a way that positively affects a student's behavior and psychological attitude. A classroom should be fun, adaptable, integrative, relaxing, and increase comfort and performance (Obeidat & Al-Share, 2012). Lighting, color, design and colored textures, visual attractiveness, temperature, patterns of flooring and wall coverings, and heating and air add to the comfort and holistic beauty of classroom interior design (Obeidat & Al-Share, 2012). Therefore, examining a facility manager's influences, processes, resources, and perception of students' feelings on classroom aesthetic design, a holistic learning environment may be obtained.

Research questions. The following research questions guided this study:

1. What influences inspire facility managers to design specific classroom aesthetics?
2. What processes do facility managers engage in when designing classroom aesthetics?

3. What resources do facility managers rely on to support them in creating an appropriate aesthetic design in classroom learning environments?
4. How does the facility manager believe his or her aesthetic designs impact students?

Definition of Key Terms

For the purposes of this study, the following terms were defined:

Aesthetics. The philosophical concern of taste, beauty, and art pertaining to sensory values of all that was vital and alive in the environment (Tanner, 2013).

Classroom aesthetic. The classroom aesthetic includes wall color, heating and air, lighting, furniture, desks, chairs, learning aids, decorations, and other objects within the classroom environment (Muhammad, Mehmood, & Muhammed, 2015). The classroom space contains "...various types of equipment, physical settings, and instructional components" (Muhammad et al., 2015).

Community college. A two-year institution offering one and two-year degrees in liberal and general studies, post-secondary interests, job training and placement in health care, computers, and construction, and offer educational progression to four-year institutions (Mullin & Phillippe, 2013). Surrounding communities prosper and are enriched by community colleges' summer programs, resources, and economic increase (Mullin & Phillippe, 2013).

Facility manager. A maintenance administrator at a college who oversees hard and soft services (Arayici, Onyenobi, & Egbu, 2012). Hard services included fabric and machine maintenance, air conditioning, and painting (Barlow, Roehrich, & Wright, 2013). Soft services involve cleaning and recycling, security, and grounds maintenance

(International Facility Management Association, 2015). The facility manager prepares for emergencies, maintains environmental-friendly campuses, oversees financial processes and property acquisition and development, strategizes campus-wide sustainability and quality, maintains campus operations, and conducts project management (International Facility Management Association, 2015).

Resources. As pertaining to facility management in this study, college resources are feedback and input from students, administration, and staff (Kok, 2015). Prior peer facility management experience is a resource. (Kok, 2015). Additionally, resources include experience in implementation of policy and practice in facility maintenance management (Ruiz, Foguem, & Grabot, 2013).

Limitations and Assumptions

The following limitations were identified in the study:

Research instrument. Development and design of the original interview questions may not have covered all aspects, thoughts, or perspectives of the research conducted (Williams, 2014). Questions of this study's original interview instrument were novel and have not been presented in other research (Elo et al., 2014). The potential existed for participants to approach the study in a less-than-engaged manner. Some interviewees may have preferred a different approach such as a written response rather than a one-to-one interview. (Williams, 2014).

Demographics. This research study was limited by the demographic location of the facility managers. The community college facility managers in this study were located in the state of Missouri. Specifically, the study demographic was limited by the sample consisting of community college facility managers, taken from the population of

all facility managers from all two- and four-year colleges and universities. Finally, Missouri is a mid-west state and may not reflect two- or four-year institutions across the United States.

The following assumptions were accepted:

1. The demographics of the sample satisfactorily reflected the demographics of the population.

2. Participant responses were offered honestly, without bias, and reasonably represented the data the researcher attempted to collect.

3. The presumptions of the researcher of the facility managers'perceptions of classroom aesthetics did not significantly influence the outcome of the research.

4. The researcher's role in the gathering and assimilation of data reflected accurate and thorough practices of qualitative research (Fraenkel, Wallen, & Hyun, 2015; Maxwell, 2013).

Summary

In Chapter One, the background of the study was explained, including the facility manager's position, responsibility, and practice (Arayici et al., 2012; Barlow et al., 2013; International Facility Management Association, 2015). The human ecology theoretical framework was presented and related to the study (Arnold et al., 2012; Bronfenbrenner, 1979; Horton, 2016; Neal et al., 2013). The statement of the problem, that is, the gap between the facility manager's requirements and a student's need for classroom aesthetics, was identified. The purpose of exploring the facility managers' psychological motivations for designing classroom interiors was clarified. Research

questions were presented, and key terms of this research were defined. Research limitations and assumptions were explained.

In Chapter Two, the theoretical framework is reviewed. Topics for discussion are presented. The history and application of research between aesthetics, K-12 classroom aesthetics, college classroom aesthetics, and facility management are explored.

Chapter Two: Review of Literature

The gap in the perception of needs concerning classroom aesthetics between a community college facility manager and a student need to be explored and clarified (Adeyeye et al., 2013; Painter et al., 2013). Students want a pleasant, holistic learning environment (Brooks, 2012). Students also desire to thrive and increase their learning outcomes while participating in classroom activities and collaboration between students and teachers (Brooks, 2012; Harrop & Turpin, 2013; Yang, Becerik-Gerber, & Mino, 2013).

College facility managers, however, are focused on the technical components of the college campus and learning spaces (Mohamed, 2013). Mechanical aesthetics such as air conditioning, lighting, and electronics are mandated (Kelly et al., 2013). Generic furniture installation and the maintenance of campus grounds and buildings are priorities (Kelly et al., 2013; Mohamed, 2013; Parsons, 2015).

The purpose of this study was to unveil psychological motivations of facility managers' decisions when addressing classroom aesthetic design from a holistic perspective. In this chapter, the theoretical framework is reviewed. A history and application of aesthetics, K-12 classroom aesthetics, college classroom aesthetics, and facility management are discussed. Connections between aesthetics, classroom aesthetics, and community college are also explained.

Theoretical Framework

The human ecology theory was originally derived from Kurt Lewin's 1935 classical field theory, where Lewin stated any specific human behavior was the result of an interaction, whether direct or indirect, between a person and the environment. Lewin

(1935) placed environmental influences into the context of the family dynamic that stated the father influences the child. Lewin (1935) disregarded, however, the possibility of both the actions of the father and responses of the child were influenced by the mother, creating a reciprocal, interactive phenomenon (Bronfenbrenner, 1977; Lewin, 1935).

In the 1960s, Bronfenbrenner, a developmental psychologist, extensively studied children's behaviors and cross-contextualized unique cultural environments from the United States, China, Eastern Europe, Israel, and USSR (Derksen, 2010). Bronfenbrenner (1977) noticed that previous studies on the social contexts of children were limited to the characteristics of individuals rather than incorporating the environment as a changing variable (Bronfenbrenner, 1977). Bronfenbrenner (1979) surmised that society's influence was the deciding effect on children which creates and affects personalities and experiences of children in specific ways.

In the 1970s, Bronfenbrenner (1977) amended Lewin's theory, stating a child's behavior is the result of the interaction between an individual child and his or her multi-layered environment. As the child comes in contact with the environment, certain behavior begins developing and changing over time (Bronfenbrenner, 1989; Espelage, 2014; Rosa & Tudge, 2013). Bronfenbrenner (1977) defined the ecological basis of human development as the scientific study of the progressive mutual accommodation, throughout the life span, between a growing, human organism and the changing, immediate environment.

Drawing from the Greek word *oikos,* meaning house and environment, and *logos,* meaning knowledge, Bronfenbrenner (1979) incorporated ecology and biology to express how human organisms are dependent upon, and gain wisdom from, their environment

Additionally, Bronfenbrenner (1979) explored how children's reactions to encounters with social, psychological, and physical variables in the surrounding environment lead to the development of the Macrosystem, Exosystem, Mesosystem, and Microsystem levels. The Chronosystem level which is described as the time element of physical, emotional, and psychological change between the environment and a child, was later added (Bronfenbrenner, 1979).

The psychological and sociological contexts of the environment in a dynamic Setting, as related to people and vice-versa, set the foundation for Bronfenbrenner's human ecology theory (Bronfenbrenner, 1977; Lewin, 1935). In 1979, Bronfenbrenner (1979) wrote, *The Ecology of Human Development*, and renamed his theory after his writings. In the 1980s, The *Ecology of Human Development* was renamed the human ecology theory (Bronfenbrenner, 1989).

The Chronosystem, Macrosystem, Exosystem, Mesosystem, and the Microsystem constitutes the five levels of the human ecology theory, and are situated in a concentric arrangement ranging from a broad observance of community interactions to immediate connections such as family and friends (Neal & Neal, 2013). These five parts of the human ecology theory are interrelated and affect behavior and levels of psychological, social, and behavioral growth (Bronfenbrenner, 1977, 1979).

How the environment and circumstances change, affecting people in various ways over time, constitutes the Chronosystem. As a child experiences different situations such as different grade levels of school, death, divorce, moving, spiritual growth, long-term friendships, or developing beliefs and values, his or her perceptions and ideologies evolve

(Bronfenbrenner, 1977, 1979; Rosa & Tudge, 2013). Time is an abstract, ever-changing catalytic piece of the human ecology theory, but is pertinent to the processes and effects of the individual in the situation to which it is applied (Bronfenbrenner, 1977, 1979; Rosa & Tudge, 2013).

A student's evolving environmental beliefs, values, and impressions of political, religious, legal, educational, social, and other institutions are represented by the Mesosystem (Bronfenbrenner, 1977, 1989). The Mesosystem contains the effects of experiences between a child and his or her influential environment and is a culmination of microsystems (Horton, 2016). As a child relates to personal effects of influences in significant settings, the development of personal, age-specific growth during these experiences occur at the Mesosystem level. Peer groups, summer camps, first job, and church camp are a few significantly impacting environments which occur at specific points in one's life (Bronfenbrenner, 1977; Horton, 2016).

Personal explicit and implicit meanings of community are developed in the Chronosystem (Bronfenbrenner, 1979). Chronosystem aspects of community meaning manifest in the Microsystem, Exosystem, and Mesosystem levels (Bronfenbrenner, 1977). A person's roles, activity levels, and interests in community organizations are a result of the Macrosystem (Bronfenbrenner, 1977, 1979).

An extension of the Mesosystem, the Exosystem includes influences on the student as pertaining to those in administrative positions, such as those who create and implement policy, and business entities (Horton, 2016). Both formal and informal social structures including the work place, neighborhood, television and radio, governmental entities, and types of transportation are in the Exosystem (Bronfenbrenner, 1979). The

individual holds a spontaneous influence at this level, and an indirect action occurs when an action is performed (Bronfenbrenner, 1977).

The inner most personal level of the human ecology theory that displays the first-hand, specific, effectual experiences of a student's classroom, peer, and community relationships is the Microsystem (Bronfenbrenner, 1979). At this level, the student participates in activities that require specific roles. The home and school atmosphere, social places, and activities shape and define the student's characteristics (Bronfenbrenner, 1977).

The human ecology theory has expanded from addressing reciprocal, impactful relationships between a child and the environment to many disciplines (Alexander, 2013). Known as a versatile theory, the human ecology theory has been applied in numerous fields and research (Hong & Espelage, 2012). Many branches of science, medicine, biodiversity, anthropology, evolution, and human adaptation of environmental influences have been explained and clarified using the human ecology theory. (Bronfenbrenner, 1979; Costello, Stagaman, Dethlefsen, Bohannan, & Relman, 2012).

In the field of medicine, the human microbial ecosystem is a tiny molecular entity within the human body that is effected by its surroundings (Costello et al., 2012). The human ecology theory was applied to show and support changes at the cellular level (Bronfenbrenner, 1989; Costello et al., 2012). Effects of the microbial system at a cellular level are affected by its surroundings and system within the human body, and the human ecology theory provides a lens to understand these happenings (Bronfenbrenner, 1977; Costello et al., 2012).

Wu (2013) investigated landscape science, or the science of where people work,

live and play. Observing weak and strong designs of landscapes which sustain humans globally in urban and rural environments revealed both effective and ineffective societal designs (Bryan, Crossman, King, & Meyer, 2011). By applying the human ecology theory, the sustainability of the environment and the well being of humans were either hindered or helped by the location of specific ecosystems (Wu, 2013). The well-being of people and non-human entities such as animals was found to be affected by societal demands as humans and animals evolve in their environment over time (Wu, 2013).

In studying the environment, Mace, Norris, and Fitter (2012) observed how native and foreign animal groups interact and are affected by what is seen, heard, and felt in the environment, and vice-versa (Mace et al., 2012). Societal variables at the Exosystem level of the human ecology theory such as hunting and fishing were observed as having a significantly negative effect on animal population and sustainability (Bronfenbrenner, 1989; Mace et al., 2012). Characteristics such as resilience and sustainability of the environment were also studied at the Microsystem level of the human ecology theory to observe how streams and rivers affect and are affected by, the surrounding terrain and ecosystems (Bronfenbrenner, 1977, 1979; McCluney et al., 2014).

In the field of evolution, as it related to anthropology, the human ecology theory has been applied to the study of how chimpanzees and humans differ in adaptation and growth based on specific dietary and environmental intake (Bronfenbrenner, 1989; Kaplan, Hill, Lancaster, & Hurtado, 2000). Hunters, gatherers, and chimpanzees were compared at various levels of the human ecology theory, and changes were documented over time (Bronfenbrenner, 1977; Kaplan et al., 2000). Changes in mortality rates,

life-histories, male versus female bonding, and success of sustainability and thriving in the respective environments were noted by applying the human ecology theory (Bronfenbrenner, 1977, 1979, 1989; Kaplan et al., 2000).

The study of marriage and family dynamics has also been viewed through the lens of the human ecology theory (Bronfenbrenner, 1977, 1979; Mancini & Bowen, 2013). Immediate to extended family interactions, newly settled to long-term relationships and types of connections were compared. Closeness and well-being of family members, sustainability of the family unit as a whole, and life cycles within the family dynamic short-term and long-term marriages were also observed (Bronfenbrenner, 1989; Mancini & Bowen, 2013). Religion, health, social factors, and cultural influences were noted as environmental factors which influenced families over time (Bronfenbrenner, 1977, 1989; Mancini & Bowen, 2013).

In the field of education, bioecological models and ecocultural theory were partnered with the human ecology theory (Bronfenbrenner, 1979; Bempechat & Shernoff, 2012). Parental influences such as socioeconomic status and ethnicity were connected to students' academic engagement and collaboration. Microlevel influences including a student's peers, teachers, parents, and academic setting were noted, and Macrolevel influences, such as society, were noted to cause fundamental behavioral changes of students as they attended school (Bempechat & Shernoff, 2012).

Cross and Hong (2012) adapted the human ecology theory to the interior of a K-12 classroom setting, observing how emotions and emotional reactions to students play a role in teaching styles and deliberation of curriculum. Teacher to teacher, teacher to student, and teacher to colleague relationships at the Microsystem level were presented

within the Macrosystem, Exosystem, Mesosystem, and Microsystem levels of the human ecology theory (Bronfenbrenner, 1977, 1979, 1989). Psychological and sociological factors of teachers were then assessed within the ecology of a classroom learning environment, and emotional change was seen as affected by the environment (Cross & Hong, 2012). Teacher interactions and professional conduct as teachers, coping mechanisms of teachers, and psychological makeup of teachers were found to effect job satisfaction and retention of teachers in schools (Cross & Hong, 2012). Cross and Hong (2012) further noted when applying the human ecology theory to teachers' professional development, teachers who accommodated various ethnic and cultural backgrounds of students appeared to have a better overall emotional teaching experience (Bronfenbrenner, 1989).

Because this study represented the connections between aesthetics, classroom aesthetics as applied to all levels of education, and facility management, the history and application of aesthetics are presented. Kindergarten through grade twelve, college classroom aesthetics, and facility management will be presented to clarify these connections. In a study by both teachers and students, Türel & Johnson (2012) reported an increase in engagement of classroom exercises, academic achievement, motivation, attention span, well-being, and positive feedback reflected in student participation from using interactive SMART boards.

There were also negative aspects of the whiteboards in the classroom (Sad, 2012). Students and teachers reported dimmed and foggy images from projected images onto the SMART board. Computer hardware for the SMART boards needed constant software updates (Sad, 2012). Teachers noted initial and follow-up training time on the

SMART board system was too extensive. (Stoica, Jipa, Miron, Ferener-Vari, & Toma, 2014; Yang et al., 2013).

Broad college campus sustainability strategies, such as environmentally friendly campuses, student services programs, and improving student gathering places on campus were implemented to increase students' learning outcomes, well-being, and classroom comfortability factors (Anderson et al., 2013; Krizek et al., 2012; Müller-Christ et al., 2014; Pusser & Levin, 2009). Yildirim et al., (2011) observed that growth, success, and sustainability of the community college campus was paramount, yet classroom design was not an apparent remedy for this concern. According to desires of students, user-friendly campuses and classrooms that promote well-being were not acknowledged (Yildirim et al., 2011). Colleges focused on economic stability and financial gains of the campus, and while interior design of classrooms was not a stated priority, it was a mandatory requirement for students (Wang et al., 2013).

Aesthetics

The nature of aesthetics relating to everything one sees, hears, touches, feels, and experiences are some of the oldest aspects of psychology and philosophy and are recognized as affecting many facets of society (Palmer, Schloss, & Sammartino, 2013; Shimamura & Palmer, 2012). The term aesthetics is used in conjunction with, and holds an interconnectivity with, art and psychology (Palmer et al., 2013). The very essence of aesthetics draws its roots from color synergism, ecological arousal factors, spatial structure, and the conceptual acceptance of everything in the environment (Palmer et al., 2013).

The philosophical observances of beauty and art that became aesthetics were

originally derived from the observance of wall paintings, architecture, and sculpture by Greek philosophers Plato and Aristotle (Wang et al., 2013). Grecian art, and Plato and Aristotle's teachings, created a participative point of view, allowing an emotional and holistic effect (Knight, 2013; Wang et al., 2013). The Greeks originally conceived the idea of aesthetics from the Grecian verb *aisthanomai,* meaning *I perceive,* and *aisthetike,* meaning *sense perception* (Wang et al., 2013). Greek philosopher Aristotle combined *aisthanomai* and *aisthetike* to create the phrase *I perceive through my senses* (Knight, 2013).

Aristotle deemed the senses were a significant way of perceiving the environment by placing value on what one experiences through sight, smell, hearing, tasting, and feeling in a hierarchy of importance (Knight, 2013; Wang et al., 2013). Gaining knowledge as a person experienced specific environmental stimuli from aesthetic influence was paramount to Aristotle and Greek philosophers as a whole (Knight, 2013). Drawing from Greek philosophical influencers, Plato and Aristotle, German philosopher Alexander Baumgarten wrote his 1735 philosophical text, *Reflections on Poetry* (Nannini, 2015). Baumgarten expanded Aristotle's work on philosophical perceptions of people and developed the aesthetic ideology how humans perceive through hearing, taste, touch, feel, and smell (Knight, 2013; Nannini, 2015). Baumgarten's work was written from contemplation of the Latin word, *Aestheticus,* and was the forefront of his 1750 theory of aesthetic perception, *Aesthetica* (Knight, 2013; Nannini, 2015).

In 1789, Immanuel Kant, in direct opposition to Baumgarten's theory of aesthetics, wrote, *The Critique of Pure Reason* (Kant & Guyer, 1998). Kant explained

environmental aesthetics as it pertains to art and decorative objects were one of a personal, metaphysical experience in nature (Wang et al., 2013). Kant believed a sensory experience must be purely participative in nature, apart from deceptive, empirical thought, enveloped in the aspects of the expanses of time and space (Kant & Guyer, 1998).

Kant also defended the notion of staying objective about an aesthetic experience and maintained proper aesthetic value, the prior seen, felt, heard, tasted, and smelled Environment, must be held at bay (Wang et al., 2013). Personal preferences, emotional reactions, cultural influences, and personal experiences should not be part of the aesthetic experience (Wang et al., 2013). Aesthetics must be sensed as a pure happening apart from science or prior experiences (Kant & Guyer, 1998).

Over the next several decades, the impact concerning aesthetics in the environment expanded from artistry, paintings, and wall art, to a general awareness of taste and beauty (Kohlke, 2013; Tanner, 2013). The usability and functionality of space, placement, and the dramatic effect of art, styles and shapes, and dimensions of objects in the environment became significant factors in designing rooms and places where people occupied (Tanner, 2013). Everything that was impressionable and alive in the environment was added to the concept of aesthetic interpretation and perception (Tanner, 2013).

The Aesthetic Movement which occurred from 1860-1900, exemplified an era of placing importance on gross ornateness rather than the practicality of furniture and accessories, incorporating Victorian beauty and Revival tastes in furniture and

decorations (Jones, Maoret, Massa, & Svejenova, 2012; Kohlke, 2013). Gothic tastes and impractical examples of the Aesthetic Movement included sewing foxes, deer, dogs, and other types of taxidermy into the backs and other areas of wing-backed, overstuffed furniture (Jones et al., 2012). Puffy, flamboyant chairs were oversized and heavy, made to show off one's status and aesthetic taste (Kohlke, 2013). Neo-modern sculpture of wood, brass, metal, and other material, and insect-themes of hanging art dotted the living quarters and businesses of the era (Kohlke, 2013).

During the Aesthetic Movement, psychologist Gustav Fechner, the father of psychophysics, researched both positive and negative psychological effects of the environment and human perception, while merging art and aesthetics (Wang et al., 2013). Fechner, in his book, 1876, *Vorschule der € Asthetik*, explained how levels of an aesthetic experiences can be viewed from a sensory perspective, while still relating from an empirical standpoint where size, weight, and dimensions of objects are considered (Graf & Landwehr, 2015). Fechner also utilized inductive reasoning to explain how methods to conduct scientific investigations on the effects of aesthetics could be performed (Graf & Landwehr, 2015; Wang et al., 2013).

Ongoing scientific research has been conducted about the brain and how it interprets aesthetic experiences. Hanich, Wagner, Shah, Jacobsen, and Menninghaus (2014) stated specific emotions are invoked and heightened from visual aesthetic effects. Bergeron and Lopes (2012) suggested when an object observed in the environment holds value to an individual, a phenomenological effect is present which holds attention, and the experience is one of feeling and meaning. However, according to Brieber, Nadal, Leder, and Rosenberg (2014), perception of aesthetics in artistic and creative

presentations of objects should be more than an external emotional or phenomenological experience or response. Perceptions of aesthetics should also be viewed as an internal emotional experience (Brieber et al., 2014).

Neurological effects register in a person's brain while experiencing environmental aesthetics. Chatterjee and Vartanian (2014) proposed aesthetic experiences result from the interaction between meaning-knowledge, sensory-motor, and emotion-valuation processes in the brain. When a person obtains personal revelatory meaning from an object observed in the environment, he or she gains knowledge about the object witnessed and develops understanding of the experience (Chatterjee & Vartanian, 2014; Ferri, Meini, Guiot, Tagliafico, Gilli, & Di Dio, 2014).

Neuroaesthetics is a branch of neuropsychology used to identify specific psychologically-triggering responses to environmental aesthetics in the human brain (Wang et al., 2013). Magnetic Resonance Imaging (MRI) performed on the human brain displayed the sense of vision as highly effective in triggering emotion through measured brain waves (Wang et al., 2013). Ongoing experimental neuroaesthetic research has identified varying colors and textures evoke brain activity associated with affective and cognitive reactions (Ferri et al., 2014).

The five senses of the human body are engaged as the process of understanding aesthetics takes place, and a reactionary process of touching, smelling, tasting, seeing, or hearing the object follows (Ferri et al., 2014) An emotional connection in the brain is then registered within the brain, and personal value is attached to the experience of the individual (Chatterjee & Vartanian, 2014). Cortical and sub-cortical regions of the brain

are involved in predictions of the aesthetic experience, emotional response of aesthetics, and pleasure generation of an aesthetic experience (Chatterjee & Vartanian, 2013). Cortical sections in the brain also play an important part in aesthetic interpretation and emotional assimilation in the brain, solidifying the fact an aesthetic experience is more than just an abstract, feel-good process (Chatterjee & Vartanian, 2013; Wang et al., 2013).

K-12 classroom aesthetics. To further grasp the exhaustiveness of aesthetics, one must also consider the historical perspective of primary through secondary classrooms (Baker, 2012). Nineteenth-century classrooms were archaic, dark, and very restricting (Baker, 2012; Wang et al., 2013). Students sat in cramped and dusty classrooms with bare wooden walls, chairs, and desks butted end to end, restricting collaboration and interaction with the teacher (Baker, 2012).

Fechner acknowledged the psychological effects of aesthetics on humans as a whole, yet this realization did not prompt changes to classroom design until the turn of the century (Nadal & Gomez-Puerto, 2014; Wang et al., 2014). Classrooms of the early twentieth century had up to three walls completely covered with dark black chalkboards from the floor to the ceiling so teachers could write out the curriculum on the walls, so students could see the examples (Baker, 2012). Some classrooms were required to have two small windows installed to allow for more light (Baker, 2012). According to Baker (2012), windows were strategically placed in the classroom so students would have natural light located over their left shoulder and shining onto their desks. These lighting changes created a better atmosphere for better grades and increased well-being (Baker, 2012; Hill & Epps, 2009).

Candle-lit fixtures were hung from classroom ceilings (Baker, 2012). Desks and chairs made from wood and metal were stacked in tight, narrow rows (Hill & Epps, 2009). The feet of the desks were bolted to the floor to ensure immobility of furniture. Having permanent, immovable furniture was thought to keep students from moving around and collaborating, as it was not allowed between teachers and students (Baker, 2012; Hill & Epps, 2011).

Child labor laws developed after the Industrial Revolution prevented children from working in dangerous factories and mills (Baker, 2012; Friedman, 2016). Thousands of children were no longer able to work in the factories and were placed into the school system, causing immediate over-crowding of classrooms (Baker, 2012). The sudden increase in student populations leaving the factories and entering the classrooms resulted in increased cramped learning spaces with no leg room at students' desks, and a smothering environment (Baker, 2012). A utilitarian atmosphere modeled after the strict factory conditions of the industrial revolution was implemented. Strict discipline in the overcrowded classroom atmosphere was required to maintain a conducive learning environment (Baker, 2012; Hill & Epps, 2011).

The conditions of the cramped classrooms with stale air prompted the open air movement of the early 1900s (Kingsley & Dresslar, 1916). Air was mechanically heated up to 70 degrees in the winter and pumped through vents (Baker, 2012). Vents were installed in the walls of classrooms to provide circulated air from the outside; however, the fumes and smells from the outside made for a horrible learning environment (Baker, 2012). Some students would not attend school because of the dank and odorous conditions (Hamlin, 1910).

The crude, wooden classroom walls and floors of the early 1900s were bare and colorless; there were no decorative accents, pictures, or aesthetically pleasing textures (Baker, 2012). Function and practicality of classrooms were paramount in the early 1900s, and anything not for the use of learning was disregarded (Baker, 2012). However, learning aids such as crude photographs and slides helped students to learn through visualization (Lamb, 2015).

The Great Depression halted any classroom improvements until heating, ventilation, and air conditioning were reevaluated in the early 1940s (Ward, 2015). The American Society of Heating and Ventilation Engineers decided, building on the open-air movement of the early 1900s, that alertness, well-being, and attentiveness were affected by air quality (Baker, 2012). The adjusted air quality and the new standardized measure of 10 cubic feet per minute requirement of air mechanically pumped into classrooms were found to have increased comfortability and well-being of students (Obralić, 2016).

In the 1950s, the invention of fluorescent lighting provided an artificial lighting scheme in the evenings when class was taken at night, and students could still take classes during the day with natural light from the outdoors (McLaughlin, 2014). However innovative, fluorescent lighting was both positive and negative with regard to the effects on students in class (McLaughlin, 2014). Fluorescent lighting increased students' well-being and provided anti-depressive benefits, but diminished cortisol levels and hindered concentration (Lemoine, Mense, & Richardson, 2014; McLaughlin, 2014). The glare of natural lighting on metal and laminate furniture inside classrooms, however, negatively affected students' well-being (Lemoine et al., 2014).

The sharp glare and distracting natural lighting from outside reflecting onto the laminated wood classroom furniture required a more balanced approach between classroom lighting schemes and interior design (Lemoine et al., 2014). Therefore, designers began contemplating lighting solutions that increased students' focus and created a more pleasant learning environment (Singel, 1969). Additionally, for 1950s classrooms, a popular aesthetic choice was to have a paint scheme of white ceilings, pale-blue and peach walls, and pearl gray, to help increase learning potential and relax students (Ogata, 2008).

During the open classroom movement of the late 1960s, classroom furniture was rearranged, full-length windows were installed, and movable soundproofing walls were installed. These modifications reduced noise distraction and added flexibility of classroom space (Myers, 2013). Air conditioning kept the classroom environment cool and comfortable (Hansen, 1966). However, administrators and facility planners did not see this open classroom plan as financially beneficial for the stakeholders and school districts (Hansen, 1966).

Developers became aware of conserving energy in the late 1970s. Windowless classrooms with closed vents and windows were the result of trying to save money for school districts. Student wellness decreased, and student disconnectedness increased (Schneider, 2002). Acoustics were eventually redesigned to minimize classroom noise, vents were opened, and additional vents were added to classrooms to increase air circulation in classrooms (Shield, Greenland, & Dockrell, 2010).

Computers were added to classrooms in the 1980s and increased the learning

capability of students through broadening their learning resources beyond hardback books and magazines (Perrin, 2015). Accessibility of electronic learning aids such as slide machines, projectors, and recording machines allowed students to have a visually stimulating experience and a broader knowledge base from which to glean information (Perrin, 2015). The internet, introduced in the 1990s, allowed students to broaden their learning capability through faster research and more effective collaboration (Mostmans, Vleugels, & Bannier, 2012). Humidity, carbon dioxide levels, odor, and temperature of classrooms became a priority, prompting specialized air conditioning and heating units designed for primary and secondary classrooms (Choi et al., 2014).

The K-12 classrooms of the new millennium have been designed to be more comfortable and flexible, aiding in the well-being and learning potential of primary and secondary students (Veltri et al., 2006). Ergonomic furniture designs, interactive SMART boards, and at-desk laptops have been made available to increase well-being, relaxation, comfortability, and productivity of students (Duncan & Barczyk, 2013; Kennedy & Archambault, 2013; McElroy, Ulmer, & Ollison, 2012; Muhammed et al., 2014).

College classroom aesthetics. The American Association of Community Colleges projected technology as mandatory to campus-wide success of colleges in the twenty-first century (Ryland, 2016). A 1995 summit of community college presidents proposed updated electronic software learning programs, kiosks, online tutoring and learning programs to increase college students' academic outcomes and well-being (Johnson & Lobello, 1996). Furthermore, Johnson and Lobello (1996) also observed to increase academic performance and accessibility to information, technology in the classroom was needed (Johnson & Lobello, 1996).

Over the last decade and a half, college administration has focused primarily on electronic accessibility as a primer to recruitment and retention, academic achievement, and the well-being of students (Pusser & Levin, 2009). Microcomputers were introduced to college classrooms to increase learning efficiency (Pusser & Levin, 2009; Ryland, 2016). Technological integration in the community college classroom included voice and visual contextualized lessons (Ryland, 2016). Mobile and multiple computing stations, laptops, virtual labs, and social media access in the last 10 years provide instant access to the information superhighway (Ryland, 2016).

Along with social media access and mobile computing stations, electronic aesthetic devices of the new millennia such as netbooks, iPads, and Touch pads introduced into the classroom have been a factor to increase access to information, collaboration, and integration of student ideas (Barbour, 2012). Convenience and instant access to information for assignment completion increased student academic achievement, well-being, and comfortability (Diemer, Fernandez, & Streepey, 2013). Students completed online assignments without having to reserve specific lab times (Diemer et al., 2013).

When students work together in groups or pairs to complete assignments with electronic access at desks, efficiency increases and school work is completed more expediently (Barbour, 2012; Diemer et al., 2013). Electronic access in the classroom noted by Davies, Dean, and Ball (2013) and Yang et al. (2013) included downloadable software for iPads, laptops, and netbooks, cellular and smart phones, interactive SMART boards for homework and tests, and conference video chatting. Portable laptops and computer stations in classrooms have provided faster access to information to

students (Ravizza, Hambrick, & Fenn, 2014).

Immediate electronic access, however, has been found to have a negative effect on test scores due to students' assumptions of available study materials via the internet (Ravizza et al., 2014). Students who access Facebook and other media sites during required in-class assignment times via laptops and computer stations hinder academic progress and grade completion (Rosen, Carrier & Cheever, 2013). Regardless of students' intelligence levels, the availability of computers in the classroom has a direct connection with lowered test scores, test participation, and the assumption by students of the immediacy of knowledge (Alzahabi & Becker, 2013; Rosen et al., 2013).

Students who were involved in flipped classrooms worked at their own pace apart from a teacher's regimented relay of information and felt in-control of their learning (Davies et al., 2013). Well-being in students was increased, and students felt less pressure during test taking and classroom assignments (Davies et al., 2013; Yang et al., 2013). Eye strain from computer monitors, lack of understanding of electronic application, and lack of accessibility to electronics in the classroom were also noticeable issues in class (Ravizza et al., 2014; Yang et al., 2013).

Texting, sharing pictures, searching the internet, and receiving cellphone calls during class hindered the focus of students in the learning environment (Tindell & Bohlander, 2012). Ringing and texting noise further prevented listening to the instructor or performing classroom tasks (Yang et al., 2013). Interactive white boards have replaced dusty, slate black chalk boards and brittle chalk previously found in classrooms of

decades past (Muttappallymyalil et al., 2016; Türel & Johnson, 2012). The white boards have multiple capabilities and are used to engage in sense-triggering interactive exercises, songs, homework, in-class assignments, instructions, and announcements (Türel & Johnson, 2012).

Classroom learning environments have been found to have the ability to enhance academic achievement and increase college students' positive perceptions of the teacher's instruction, as well as increase collaboration between the teacher and student, and student to student (Hill & Epps, 2009; Perks, Orr, & Al- Omari, 2016). Research in the past five years has indicated college students require specific environmental classroom aesthetics including interior lighting, ambient air quality and temperature, acoustics, classroom layout including furniture placement and design, natural environmental elements, and electronics and software (Benfield, Rainbolt, Bell, & Donovan, 2015; Yang et al., 2013). Students' level of academic performance and behavior is related to the comfortability and user friendliness of the classroom (Roessler, 2012; Yang et al., 2013). Zandvliet and Frasier (2005) indicated specific environment attributes that can hinder or encourage academic performance and social interaction within the classroom environment.

An inefficient or inappropriate use of artificial and natural window lighting has been found to distract students and diminish well-being and academic performance of college students (Cheryan, Ziegler, Plaut, & Meltzoff, 2014). Cheryan et al. (2014) reported lighting may have had psychological and biological effects on students. Natural lighting has been documented to improve concentration, focus, and improve behavior (Cheryan et al., 2014). Appropriately placed artificial lighting, and the color and degree of intensity of artificial lighting, can improve academic performance and comfortability

through the availability of study time (Cheryan et al., 2014; Winterbottom & Wilkins, 2009). However, it has been reported that students experience headaches and fatigue from inappropriate levels of lighting (Cheryan et al., 2014).

Sound control within the college classroom through acoustic design and placement was found to enhance or impede a student's well-being, academic achievement, and comfort levels (Cheryan et al., 2014). The level of noise air conditioning and heating fans project, student interactions and conversations both inside and outside the classroom, and external noise sources such as the sound of traffic and people in the halls of school buildings contribute to the level of student satisfaction within the classroom learning environment (Cheryan et al., 2014). Poor classroom acoustics have a negative effect on students (Marchand, Nardi, Reynolds, & Pamoukov, 2014). Excessive noise contributes to a student's annoyance and distraction from optimum academic performance, material retention, and collaboration (Marchand et al., 2014).

The classroom layout includes the furniture arrangement, electrical outlet accessibility, decorative items, and learning aids to increase comfortability, accessibility and ergonomic feasibility of the learning environment (Cheryan et al., 2014). Work stations and chairs should be comfortable and ergonomically adaptable for all sizes of students, functional, and provide an excitability factor for students (Taifa, & Desai, 2015). Leg room and walkways between desks and furniture should be ample for each student, and places for personal school supplies must be made available to students (Baker, 2012).

Baker (2012) indicated the need for personalized storage spaces for students. Whether at desks or somewhere else in the classroom, storage space was found to be a priority to make sure students were provided accessible places to store pens, pencils, and other school supplies at desks or somewhere in the classroom (Baker, 2012). In addition, Cheryan et al. (2014) noted adjustable furniture should be made available for students to increase comfortability and focus on classroom assignments and exercises. Classroom placement of teacher tools, such as a podium should be placed in a non-distractive place so each student can see the white board, SMART board, and information sent through the overhead projector onto the whiteboard (Cheryan et al., 2014).

Lighting can cause distractive elements within the classroom (Marchand et al., 2014). Computer screens, furniture, and other reflective surfaces have glare from lighting, and the glare factor should be considered during placement of these electronic learning aids (Marchand et al., 2014). Electrical outlets and ports need to be installed in walls, readily available to plug in electronic devices, laptops, desktop computers, and other devices requiring electricity (Benfield et al., 2016). When the layout of the classroom wall architecture incorporated full window materials to allow natural elements of the outdoors into the classroom environment, students were more positive and had better grades (Benfield et al., 2016; Marchand et al., 2014).

Marchand et al. (2014) noted heating, ventilation, and air conditioning helped control the environment, so college students could focus on their academic performance. Faulty, ill equipped mechanical equipment has a negative impact on the heated or cooled ambient air (Baker, 2012). Classrooms incorporating a split-system, where both outside air and air mechanically pumped into the classroom are utilized, kept the potential of

airborne infectious diseases out of classrooms densely packed with students (Pereira, Vilain, Tribess, & Morawska, 2015). Independent thermostatic controls were installed in college classrooms so the temperature of classrooms could be adjusted for all seasons of the year to provide an optimum learning atmosphere (Park, Lumpkin, Laurent, & Peart, 2015).

Facility Management

Facility management was first created in the 1950s as a general maintenance office in businesses, limited to janitorial duties and basic maintenance such as fixing locks and repairs (Mangano & De Marco, 2014; Reece, 1952). During the 1950s, universities across the United States began recognizing the need for lighter and varied, colored materials for classroom furniture, storage spaces for books and materials, areas for student interaction and collaboration, color schemes, updated lighting requirements, and better research areas (Reece, 1952). In the 1960s, facility management developed into a main mechanical and maintenance hub for businesses but not an office to address aesthetic needs of colleges (De Marcoco & Narbaev, 2013).

From the 1960s to the 1970s, the office of facility management became a mainstay in the United States and grew to maintain extensive businesses maintenance and logistics operations departments (Mangano & De Marco, 2014; Taschner & Clayton, 2015). With the introduction of classroom computers in the 1970s, facility management needed to adapt to the growing technology, while maintaining efficiency and operational safety (Mangano & De Marco, 2014). In the late 1970s, a growing need to strategically integrate expanding technology on campuses and increase maintenance efficiency prompted the development and formation of the National Facilities Management

Association (NFMA) (Mohamed, 2013). Recognizing the office of the facility manager as a viable, necessary office for business, the NFMA was changed to the International Facilities Management Association in the 1980s (Mohamed, 2013).

Facility types. Over the next several decades, facility management grew to become a pertinent resource for businesses and corporations of all genres, spanning 104 countries (International Facilities Management Association, 2016; Mangano & De Marco, 2014). Facility maintenance was found in many types of settings (Brinkø, & Nielsen, 2015). Hospitals incorporated hospitality management with facility management to help integrate patient care and maintenance requirements and provided crucial healthcare practices (Le Roux & Dongelmans, 2013)

Hospitals and healthcare organizations incorporated risk and safety management, upkeep and maintenance of hospital equipment, and infectious disease control as part of the facility management office (Lahou, Jacxsens, Verbunt, & Uyttendaele, 2015). Many healthcare departments require specialized maintenance practices within hospitals including neonatal intensive care units, autopsy units, intensive care units, and emergency rooms (Lahou et al., 2015; McIntosh, Grabowski, Jack, Nkabane-Nkholongo, & Vian, 2015). Waste disposal and control, blood handling facilities, and hazardous material handling are areas of responsibility for the facility management office and requires specific practices to ensure the health of the healthcare organization's patients and employees (Lahou et al., 2015).

Municipal, athletic, and sports facilities share common exercise, equipment, and rehabilitation spaces. Facility maintenance practices cover routine upkeep of pools, weight training equipment, running track maintenance and repair, and cleaning of general

personnel gathering areas (Brinkø & Nielsen, 2015). Facility managers of stadiums maintain and adjust construction requirements and soundproofing (Navvab, 2016).

Facility managers who oversee the care and upkeep of municipal facilities have been found to install electronic equipment and implement noise-leveling procedures to control decibel levels, noise pollution, and to distribute sound evenly (Navvab, 2016). Multipurpose spaces such as arenas and convention centers which host concerts, corporate meetings, plays, and other social gatherings require routine maintenance (Navvab, 2016). Upkeep of public access areas such as baseball fields, outdoor theatrical performance theaters and drive-in theaters of old includes constant landscaping, upgrading, routine maintenance, cleaning, and painting (Xaba, 2012). Retrofitting older components with new machinery; replacing worn or outdated machinery with modern models; and installing modern seats, flooring, sound equipment, lighting, and heating are constants for all venues, whether inside or outside (Navvab, 2016). Ventilation, air conditioning, and budgetary guidelines of all maintenance actions needed for public access areas and arenas require specific direction through the facility management office (Navvab, 2016; Xaba, 2012).

Types of facility management jobs. According to the International Facility Management Association (2015), facility management encompasses many disciplines. Facility management integrates offices, personnel, various locations, and modern technologies and equipment to help ensure fluid and efficient operations of a business (Taschner & Clayton, 2015). Emergency preparation and campus-wide protection help ensure the safety of faculty, staff, and students (Taschner & Clayton, 2015). From real estate development to finance and human resources, facility management addresses many

different campus needs and requirements (Taschner & Clayton, 2015).

The goal of facility management is to maintain efficiency and streamline operating expenses through preventative practices (Lind & Muyingo, 2012). Facility management performs preventative maintenance when there is a conditional time element affixed to the schedule of the usage of mechanical equipment or aesthetic hardware of facilities (Wang et al., 2013). Specific inspections of each piece of campus mechanical equipment are performed at regular annual and quarterly intervals, and routine maintenance is performed to keep equipment running optimally (Lind & Muyingo, 2012). The maintenance of existing classroom structures and spaces, repairing broken classroom accessories, and keeping existing classroom machinery and property in running order is a priority over replacing them with new or innovative products and accessories (Xaba, 2012).

Facility management in higher education. Facility management in the twenty-first century has been tasked, as in the roles of businesses and corporations over the last several decades, to maintain campus overall sustainability and attractiveness (Parsons, 2015). In addition, stakeholder and client interest, student retention, and satisfaction of college students, teachers, and administration have become a pertinent need of facility managers (Parsons, 2015). Maintaining overall campus productivity, satisfaction, and efficiency is the primary focus of facility managers (Kelly et al., 2013). In addition, redesigning spaces outside of classrooms are prioritized to increase student academic progress and holistic satisfaction of the learning environment (Henning, 2015).

Programs, such as Business Information Modeling, have also been suggested as a key tool in facility management (Wang et al., 2013). Business Information Modeling can increase campus sustainability and efficiency (Wang et al., 2013). Business Information Modeling software implements 3-D computer assisted drawings of the campus and maintenance schematics, increasing maintenance efficiency (Sue, Lee, & Lin, 2011). Response time of campus-wide maintenance issues is reduced with the aid of Business Information Modeling (Wang et al., 2013). By aiding facility management in identifying, controlling, tracking and managing facility assets and problems, maintenance requirements and campus-wide sustainability issues have been found to be addressed more efficiently through Business Information Modeling (Su, Lee, & Lin, 2011).

Although a very modern alert system for maintenance delivery and upkeep, Business Information Modeling is problematic due to difficulty with integration of updated software with outdated computer systems (Miettinen, & Paavola, 2014; Sue et al., 2011). A full schematic of a college campus could not be stored as a complete model in the software and indicated a need to be completed with varied approaches (Sue et al., 2011). Facility maintenance operational needs cannot be updated or addressed properly due to facility management's lagging in adaptation to Business Informational Modeling (Liu & Issa, 2013) In addition, administrative hesitation is imminent while attempting to contact departments in which maintenance is performed (Liu & Issa, 2013; Su et al., 2011).

A facility manager's priority is to improve and maintain a college's overall sustainability (Parsons, 2015). Efficiency and appearance of the college are a steady

responsibility which requires vigilant maintenance practices from facility management on a daily basis (Mohamed et al., 2013). Student satisfaction and comfortability levels with learning spaces need to be provided and enhanced (Parsons, 2015).

Developing standardized rooms void of specialized participant assignment or flexibility of spaces which impede student satisfaction and comfortability is common (Mohamed et al., 2013). Learning space requirements deemed necessary by facility managers who act on behalf of stakeholders of colleges, administration, teachers, and students, however, differ from students' needs (Jepsen, Troske, & Coomes, 2014; Parsons, 2015). Due to the lack of connection between college students' needs and facility managers addressing these needs, further exploration into the requirements of college students as it pertains to their academic environment is required.

Summary

In Chapter Two, the theoretical framework consisting of the human ecology theory was discussed in depth (Bronfenbrenner, 1977, 1979). The human ecology theory was presented as it pertains to this study in areas of a college student's well-being, recruitment, and retention, and academic achievement. The historical background of the human ecology theory including the origin, evolution, adaptation, and application was explained (Bronfenbrenner, 1979; Lewin, 1935; Rosa & Tudge, 2012).

The connection and relevancy between aesthetics, K-12 classroom aesthetics, and college aesthetics were defined. The historical development and origin of the concepts of aesthetics were identified (Baker, 2012; Wang et al. 2013). The improvements, application, and limitations of K-12 classroom aesthetics were also explained. College classroom aesthetic limitations, applications, and focus were presented.

Facility management's historical origin, evolution, and how it has been applied was revealed. Types of facilities utilizing facility management were described. Specific jobs performed by facility managers were explained. Requirements, priorities, and how facility management has been applied in colleges to help improve recruitment and retention, well-being, and learning outcomes were clarified.

In Chapter Three, the methodology is explained. The problems and purpose of the study are discussed. Research questions are presented as relating to the study. The population and sample of the study are presented and defined. The origin, type, and justification of the research instrument are explained. The process and execution of data collection is presented. The ethical considerations used in this study is defined. Data analysis and the steps taken in the research process are revealed.

Chapter Three: Methodology

When reviewing literature in regards to classroom space in higher education, a gap was found between facility managers' requirements of classroom component installations and student needs for specific classroom aesthetic space (Painter et al., 2013). Students need specific classroom accessory placement for a more entreating learning environment where they can thrive and learn (Brooks, 2012). Contrary to Painter, Mohamed (2013) found college facility managers' primary focus is on campus budgets, maintaining stakeholder interests, and complying with administrative directives.

In this chapter, the problem and purpose of this study are restated. The research questions are discussed. The qualitative research design is presented, defined, and supported which served as the guide for this study. A discussion on both population and the purposive sample of this study is presented. An introduction reasons and rationale, and reliability and validity of this study's original interview instrument are presented. Methods of data collection are explained. Ethical considerations are discussed along with safeguards, benefits to participants, research steps, and parameters. Finally, the data analysis procedures are relayed.

Problem and Purpose Overview

There appears to be a disconnect between a facility manager's role in maintaining community college classrooms and a student's psychological need for a positive learning environment (Adeyeye et al., 2013). Students also require tactile and sensory

stimulation from comfortable furniture, natural and artificial lighting, temperature, and quality of air (Yang et al., 2013). Learning space requirements deemed necessary by facility managers, acting on behalf of stakeholders of colleges, differ from what students need and want (Parsons, 2015). Maintaining overall campus productivity and efficiency is the primary focus of facility managers (Kelly et al., 2013). Developing generic rooms void of specialized participant assignment and providing flexibility of spaces is a common practice of facility managers (Mohamed, 2013).

The gap between the needs and perceptions of students, or educational customers, and a facility manager concerning the aesthetics of the classroom learning environment provoked delving into the thought process of a facility manager (Foropon et al., 2013). The purpose of this study was to discover the psychological motivations of the classroom aesthetic choices made by facility managers.

Research Questions

The following research questions guided this study:

1. What influences inspire facility managers to design specific classroom aesthetics?
2. What processes do facility managers engage in when designing classroom aesthetics?
3. What resources do facility managers rely on to support them in creating an appropriate aesthetic design in classroom learning environments?
4. How does the facility manager believe his or her aesthetic designs impact students?

Research Design

This study was qualitative in nature. In qualitative research, study participants' physical reactions and answers to the interview questions were observed and recorded in first person (Maxwell, 2013). Qualitative research design allows for perceptions, thoughts, and emotions of research participants to be revealed (Ciemins, Brant, Kersten, Mullette, & Dickerson, 2015; Maxwell et al., 2013). Emotional reactions and reflective, verbal thoughts of participants are revealed (Fraenkel, et al., 2015). Flexibility is key to qualitative research because it allows the adjustments to sample size and type of interview questions (Fraenkel et al., 2015). Variables are not controlled, and participants react naturally to the research process in their natural environment (Lim, Morris, & Kupritz, 2014; Petty, Thomson, & Stew, 2012).

A quantitative research design, however, was not chosen for this study for several reasons. Participants are restricted and controlled in their environment during the research process (Asdrubali, Baldinelli, & Bianchi, 2012). An artificial, preset testing environment is presented in quantitative research, and participants are not allowed to interact with exterior influences in the real world (Asdrubali et al., 2012). An original interview instrument is uncharacteristic in quantitative analysis, as proven techniques and instruments are preferred and used (Maxwell et al., 2013). Perceptions, thoughts, and feelings are irrelevant in quantitative research and are not a crucial part of the data retrieval (Fraenkel et al., 2015).

Specific empirical data are retrieved from quantitative test participants which and are void of thought processes or feelings that were presented during the data retrieval (Maxwell et al., 2013). The final data of quantitative analysis are statistical and composed

of raw, statistical scores and either supports or is a null hypothesis (Creswell, 2015; Fraenkel et al., 2015). In other words, the outcome is known one way or the other in quantitative research, whereas in qualitative research, the outcome can be any number of things based on the exploration of thoughts, feelings, and perceptions of the interview test participants (Fraenkel et al., 2015).

Population and Sample

Fraenkel et al. (2015) stated the target population of a study is the people in the group to be studied. The population of this study was community college facility managers in the state of Missouri. A sample is defined as research participants who are members of the population and can be directly accessed (Creswell, 2014). For this study, six facility managers from community colleges in Missouri agreed to participate. Baker, Edwards, and Doidge (2012) indicated an ideal sample size of 12 in a qualitative study is suggested to generate pinpointed notes, structure in-depth interviews, and generate quotes specific to the study. However, in studies utilizing interviews, Marshall, Cardon, Poddar, and Fontenot (2013) suggested as little as five or six participants are acceptable to ensure adequate saturation of the material studied. Thus, it was determined the sample size of 5-15 for this study was appropriate size.

A purposive sampling technique was used. Purposive sampling helped to gain perspectives from a specific section of the college population, gathering perceptions and opinions (Baker, 2012; Fraenkel et al., 2015; Robinson, 2014). Six college facility managers were interviewed because they had the knowledge, perspective, and opinion to answer the interview questions that can enhance or impede recruitment and retention, well-being, and academic performance of students (Tierno, 2013).

Instrumentation

Because perceptions were the intent of the data retrieved, there was no known research instrument which could be used to explore the philosophical motivations between a facility manager's and students' classroom aesthetic needs. Therefore, an original instrument was needed for this study, to discover the intent, perceptions, feelings, background, understanding, and thought processes of facility managers (see Appendix A). In developing an original instrument capable of gathering pertinent information to this study, many areas concerning a facility manager's role in aesthetic design and implementation were considered.

A facility manager's role was explored by gathering information about personal motivations, feelings, other learning environments, administration influences, and career choices. Information on methods of aesthetic design patterns, learning aids, furniture design, type, and placement was also gathered (Baker, 2012). In addition, aspects of sensory integration including sight, sound, taste, touch, hearing, and smell which affect the aesthetic design and implementation were compiled.

Reliability. Reliability pertains to the consistency of inferences researchers make of data received over time, location, and circumstances (Fraenkel et al., 2015). Although, by using an original instrument in this qualitative research, reliability was increased since each participant was posed the same question (Fraenkel et al., 2015). With qualitative research, bias exists with the researcher because one may see and perceive questions and answers of participants differently than another, affecting the reliability of data received. (Fraenkel et al., 2015; Maxwell, 2013).

Validity. In research, validity is the "appropriateness, meaningfulness, and

usefulness of the inferences researchers make when conducting research" (Fraenkel et al., 2015, p. 456). In qualitative research, what the researcher sees and hears is of pertinent importance as it pertains to validity. Understanding how and why research participants articulate their experiences help clarify responses to the interview questions and help prevent misleading (Fraenkel et al., 2015).

Triangulation was performed in this study to help validate the research participants' information given (Creswell, et al., 2014). There are three parts to the triangulation method used in this study. The first part of the triangulation method included keeping thoughts and notes in alignment by writing down answers to the interview questions, to help the researcher remember information received from the research participant (Creswell et al., 2014). Secondly, the transcriptions were reviewed and checked by the researcher against the recorded interview questions. Member checking was the third part of the triangulation method, and was implemented by emailing transcribed answers back to the research subjects to further ensure responses taken by the researcher were transcribed accurately and reflected the answers given by the research subjects (Creswell et al., 2014; Fraenkel et al., 2015).

The original instrument of this study was designed to address the facility managers' thoughts and feelings of how classroom aesthetics are designed to accommodate different participant areas (Henning, 2015). Interview questions were developed to elicit responses about campus-wide needs versus the specific needs of classroom aesthetic for students (Adeyeye et al., 2013). Lastly, questions were created to gather facility managers' perspectives of students' comfort, effectiveness of activity engagement, and level of well-being needed to be explored (Adeyeye et al., 2013).

Once the initial questions were developed from all addressed areas aforementioned, the questions were field-tested with a pilot sample consisting of three colleagues not included in the study. (Tong, Flemming, McInnes, Oliver, & Craig, 2012). A pilot study was useful and intended to perfect the questions that were in the final research process (Fraenkel et al., 2015). The pilot allowed for measurement and adjustment of the interview length (Fraenkel et al., 2015). An appropriate range of responses was scrutinized, and unclear questions were revised or removed, ensuring the questions reflected the intended information (Williams, 2014). The pilot study confirmed the thoroughness and completeness of the interview instrument (Fraenkel et al., 2015).

Data Collection

Upon receipt of IRB approval from Lindenwood University (see Appendix B), potential participants from each community college were contacted via phone (see Appendix C) or email (see Appendix D). If initial interest to participate in the study was noted, the consent form (see Appendix E), and interview questions were emailed to the facility manager. The action of the facility manager signing and returning the consent form via email signified interest to participate in the study (Hunter, Corcoran, Leeder, & Phelps, 2013).

Once the consent form was received, the willing study participants were emailed or called to set an in-person or phone interview. In-person interviews required traveling to participating community colleges. Each in-person interview was recorded to capture the perceptions and experiences of research participants (Wahyuni, 2012). After each in-person interview was performed, data from answers to interview questions were transcribed, and notes taken by the researcher were assimilated (Maxwell, 2013).

If required, the process of phone interviews was performed. Research participants were first called to set an over-the-phone interview. The research participants were asked the original interview questions, and notes were taken during the interview process (Irvine, Drew, & Sainsbury, 2013). Answers were also recorded (Irvine et al., 2013). After each phone interview was performed, data from notes taken and recorded information were then transcribed (Irvine et al., 2013; Maxwell, 2013).

Ethical Considerations

Each participant received an adult consent form describing the purpose, risks, and opportunity for the study (Fraenkel et al., 2015). Because this study was voluntary, the adult consent form gave the facility manager of each college an opportunity to opt out of the study with no ill effects or recourse (Maxwell, 2013). Participants may or may not have answered all of the questions presented to them during the interview process. There were no direct benefits or compensation for participating in this study.

The data in the final version of the study were de-identified and participants were assigned a pseudonym. Due to the small sample size, answers may be recognized even after steps were taken to preserve confidentiality and was communicated to the participants (Sabharwal, Holve, Rein, & Segal, 2012; Traianou, & Hammersley, 2012). A transcript of each interview was presented to each interviewed research participant, providing an opportunity for his or her feedback and clarification (Fraenkel et al., 2015). There was no deception used in the study, and every effort was taken to prevent harm to research participants (Aluwihare-Samaranayake, 2012).

Facility managers in this study were assured confidentiality. Interview transcripts were protected via firewall and internet security on a personal laptop, with a password

that was occasionally changed (Huth, Orlando, & Pesante, 2012; Seo & Park, 2013). All recordings, hard copies of participant records, and codes of common themes were locked in a secure cabinet (Wolf, Patel, Williams, Austin, & Dame, 2013; Yens, Brannan, & Dumsha, 2014) Recordings, records, and all documents will be destroyed three years after the research.

Data Analysis

In the data analysis process, responses to interview questions were aligned to the research questions (Elo et al., 2014).) Data from the interview questions were reflected upon, categorized, and contextualized by the researcher (Maxwell et al., 2013). Some answers that did not relate to the interview questions were removed (Montague, 2012).

After placing answers into specific categories from the transcribed interviews, open, axial, and selective coded relationships of interview answers revealed larger themes of the research (Maxwell et al., 2013). Open coding was utilized to assign specific meanings relative to each research question (Maxwell et al., 2013). Axial coding provided comparisons of answers and the relating of subcategories to a specific category through inductive and deductive reasoning (Wang, Kung, Wang, & Cegielski, 2017). Then, selective coding was used to reveal a core category, validating similarities and relationships of research answers and provided room for further refinement and specificity of themes (Wang, 2017). Following open, axial, and selective coding, the findings were used to answer the research questions (Maxwell et al., 2013).

Summary

In Chapter Three, a detailed explanation of the methodology used in this study was presented. The choice of qualitative methodology was justified and explained. and

ethical considerations were identified. The size and scope of the test sample were noted. The development and implementation of the test instrument were explained. The interview process and plan for assimilation of information received were presented. The analysis of data and ethical considerations were also presented.

In Chapter Four, the purpose and problem of the study are reviewed. Data themes and commonalities of research participants' interview questions concerning classroom aesthetics are revealed from the data collected, compiled, and assimilated through coding. Results from the data may serve to enlighten community college facility managers on personal, psychological motivations of aesthetic design and implementation.

Chapter Four: Analysis of Data

This study was performed to provide insight into perceptions of facility managers' practices of developing and implementing classroom aesthetics at community colleges. Existing research on perceptions of well-being, recruitment and retention, and academic achievement was found to be limited regarding facility management. Scholarly research related to this study focused on curriculum augmentation, teaching modification, improving spaces outside of the classroom, campus programs, support services, and environmental practices (Anderson et al., 2012; Barbour, 2012; Davies et al., 2013; Diemer et al., 2013; Krizek et al., 2012; Müller-Christ et al; Pusser & Levin, 2009; Ryland et al., 2016).

Facility management over the last 60 years has grown to encompass many responsibilities for colleges (Brinkø & Neilson, 2015; DeMarco & Narbaev, 2013; Mangano & DeMarco, 2014; Mohamed, 2013; Navvab, 2016; Parsons, 2015; Reece, 1952; Taschner & Clayton, 2015; Wang et al., 2013). Roles are constantly growing for facility managers, and according to literature cited in Chapter Two, students require sensory stimulation, collaborative workspaces, and a comfortable atmosphere (Adeyeye et al., 2013). Therefore, insight into the processes and psychological points of view concerning the development and implementation of interior classroom design needs to be explored.

This study focused on four areas of inquiry. The interview questions created to collect data to answer the research questions were original in nature, and were designed by the researcher. The questions were designed to gather unique, insightful, pertinent information which would broaden the amount of knowledge in this field of study.

In the literature review presented in Chapter Two, gaps were identified in previous research between facility management processes and students' needs concerning classroom aesthetics in college classrooms. A human ecology theoretical construct was implemented to create a foundation of understanding for this study (Bempechat & Shernoff, 2012; Bronfenbrenner, 1977, 1979; Lewin, 1935; Rosa & Tudge, 2013). The human ecology theory was used due to its many prior multi-faceted applications in the areas of science and scholarly literature, thus solidifying its application in the research and interview questions of this study (Alexander, 2013; Bronfenbrenner, 1979; Bryan et al., 2011; Costello, Stagaman, Dethlefsen, Bohannan, & Relman, 2012; Mace et al., 2012; Mancini & Bowen, 2013; Wu, 2013).

Data Analysis

In this section, the findings from the data collected are presented. First, an overview of the individuals who participated in the study is offered in the demographic portion of the paper. In the segment that follows the demographic information is an extensive report of the findings from the individual interviews.

Demographic analysis. A total of 14 community colleges were located via public website access, but only 13 community college facility managers could be located for possible participation in this study. Potential research participants for the interviews were identified through each college's public employee directory published on each institution's website. An invitation letter and adult consent form to participate in this study were emailed to 13 community college facility managers. Five facility managers and one assistant facility manager returned the adult consent form, signifying willingness to participate in this research study.

To ensure confidentiality and anonymity of the study participants and the community colleges they represented, each response to the interview questions was protected from being individually identified. Participant names were changed to pseudonyms for each research participant. This method of coding guaranteed no personal or institutional information appeared in the data provided through this research presentation (Maxwell et al., 2013; Sabharwal et al., 2012; Traianou, & Hammersley, 2012).

Participant responses to interview questions. In the following section are the interview questions and analysis of responses for each query. The questions were asked in the order presented in this chapter. Each interview question was assigned a category. The Influence (I) category includes personal influences, classroom aesthetic steps, and decorative classroom procedures in this study listed.

Classroom design by facility management, sensory integration effects, and specific designs of classrooms, according to participant areas taught, are listed as Processes (P). Administrative directives' impact and recruitment and retention are listed under Resources (R). Lastly, as scholarly research indicated, students are affected by the classroom environment, and these factors are listed under Student Impact (SI) covering areas of well-being increased, academic success, and engagement in classroom activity.

Interview question 1 *(I). What are your thought processes when designing classroom aesthetics?* When responding to this question, facility managers' responses could be categorized into four areas; financial, classroom comfort, shared governance, and flexibility and functionality of classroom spaces. Each area is discussed in the following sections.

Financial. Several of the interviewees noted finances played a large role in limiting the creation and maintenance of classroom aesthetics. Most procedures began with the cost to design classroom aesthetics. In addition, cost and economic responsibility were foremost on the mind of a few interviewees.

In some cases, facility managers found themselves caught in the middle between maintaining fiscal responsibility and creating environments the faculty wanted. Interviewee #3 said, "My job is to try and keep a balance between keeping the budget under control, yet [allowing] the instructors to have the freedom to decorate the classrooms." A precarious balance between maintaining the classroom budget allocated for classroom aesthetics and fulfilling the needs of instructors to properly decorate classrooms was evident. Interviewee #2 stressed, "…things are expensive, and because we're a small college, the first thing we think to do is look at [needs versus funds, and] what is going to be most economical."

According to a few of the interviewees in the study, a certain amount of financial allowance was given to design a room to either add or maintain learning spaces or integrate accessories for effective learning. Interviewee #5 stated "… a small space needs to make a bigger impact." Purchased accessories needed to work within the budget that was presented and provide effective teaching elements. There appeared to be a struggle to maintain a cohesiveness between innovation and cost-effectiveness when considering aesthetic features. For example, Interviewee #2 was resistant to installing light fixtures because of the overall cost outlay at the beginning of lighting installation and the unknown upkeep cost of replacement parts.

Painting classrooms within budgetary guidelines presented various limitations for

three facility managers. Updated paint schemes were reported by some interviewees as too expensive because external contractors hired to paint classrooms charged in excess. Interviewee #2 stated, “When I hire a contractor to paint certain colors, the price goes up a couple thousand dollars.” Innovative lighting was dismissed by Interviewee #3 because, “Administration keeps a strict eye on the budget when maintenance is required in class room aesthetics.”

Interviewees in the study indicated an understanding that when students enrolled in classes, monies from registration generate finances to apply towards projects. Interviewee #3 stressed the importance of having enough enrolled students to support the expansion of the facility management office and aesthetic augmentation. Interviewee #3 also claimed a need to expand the facility management staff. The facility managers in the study also understood if the student enrollment was not maintained or expanded, that recommendation of increases staff would be denied.

The responses from the facility managers to spend money maintaining current spaces and create new areas varied. The community college where Interviewee #4 was employed had restrictions because the college as a whole was “…fairly conservative, some of it by design, and some of it because of the taxpayer and budgetary constraints.” Contrary to previously restricted allowances of expansion and design of classroom aesthetics by management offices, Interviewee #6 had more economical resources than others.

A considerable amount of financial support to overhaul mechanical systems in classrooms was donated to the community college of Interviewee #6. The initial spending

on modern equipment saved energy, and money saved from diminished energy costs was applied to other maintenance areas on campus, such as lighting. However, Interviewee #6 cautioned the extra monies received did not dismiss frugalness, saying, "It's a fine balance to create a pleasant yet economically feasible environment. Mandates are from the budget."

Classroom comfort. The importance of making a classroom environment where students can experience a good learning experience, are comfortable, and where they can engage in various activities was stressed by three interviewees. A primary goal of one facility manager was to make the classroom as relaxing as possible, and the size of the classroom contributed to this factor. Interviewee #4 stated, "Our number one goal is to make the class room comfortable to students, to keep them fully engaged. We don't want them [the students] to feel like they're closed in a box. We want the room to be appealing,"

Some facility managers spoke of an increase in a need for furniture to support students with special needs and comply with the American Disabilities Act [ADA] requirements. For some students with special needs, accessibility to seating areas in the classroom had become significant. Thus, desktops that move up and down with a push of a button allowed wheel chairs to fit under the desks were installed in a few classrooms.

Shared governance. There was a general sense of cooperation among faculty, staff, and administration in the development of classroom aesthetics. Interviewees in this study encouraged faculty and staff to become a part of the development and design of classrooms. All parties, as noted by all facility managers, whether actively or indirectly involved with the classroom environment, were a part of the creative process, and

included information technology (IT), paint, and construction departments, among others.

Several facility managers shared how teachers played a pertinent part in sharing their needs and wants for their respective classrooms. Representation from media services, engineers, and architects also aided in developing a positive classroom learning environment. Interviewee #4 purported, “Primarily, how we approach classroom design, first and foremost, is to get faculty involved in it…It’s usually a collaborative exercise.”

Interviewee #6 discussed classroom technological needs that were presented by instructors and how the facility management office works to facilitate the needs of the instructors. The instructors discussed electronic needs with the IT staff, then the instructional technology staff took the requests of instructors and installed updated electronic learning aids. Interviewee #6 stated, “IT, faculty, the library team, academic representatives…everyone is involved in the process.”

Interviewee #5 shared some instructors requested specific furniture to be placed in the classrooms. As requests were received into the facility management office, specific furniture placement was given as needed in classrooms. In addition, Interviewee #5 noted many administrators at this community college were instructors at one time, and they understood the need to make create a positive classroom environment. Thus, the requests for different furniture in classrooms were supported.

Flexibility and functionality of classroom spaces. Flexibility of furniture and the functionality of the space within the classroom were paramount for four of six interviewees. Movable tables with wheels were one way which allowed for different seating configurations to intentionally increase collaboration among students.

Interviewee #3 stated, “You can have either a more [traditional] lecture style, or move the tables around, or have one big table.”

Instructors had the capacity to set up various classroom seating positions for better collaboration between students. An example given by one facility manager concerning set up of furniture to increase student collaboration was the outfitting of a new industrial trades building which houses construction and welding classes. Within this new classroom design, equipment can be switched out immediately for different classes, and machinery can be moved from one part of the classroom to another.

Furniture that can be moved around the classroom freely that increased collaboration between students in the classroom was previously mentioned in this study. In general, facility maintenance departments were just beginning to look at how to balance practicality of furniture needs, yet still, maintain flexibility of furniture integration in classrooms for students with special needs. Interviewee #5 reported, “… [We are] trying to get desks that are adjustable and comply with the American Disabilities Act [ADA].” Complying with the ADA meant that these adjustable desks would have to accommodate students in wheelchairs.

Wireless adaptivity within the classroom to improve the flexibility of accessing information and studying was noted by two facility managers. Specifically, Interviewee # 6 had been “…beefing up Wi-Fi in the classrooms due to students bringing their own devices and needing availability to use their electronic devices wherever they are on campus.” A few of the facility managers’ also mentioned having electronic teaching aids built into the instructor stations in the classrooms.

Interview question 2 *(I). What professional influences do you rely on when*

designing classroom aesthetics? Facility managers' responses can be reflected upon from two different positions: In-house faculty and staff and campus outsourcing. Each area is discussed in the following sections.

In-house faculty and staff. When working to design aesthetics for classrooms, most facility management in this study relied on in-house professional resources. One facility manager had faculty support to generate ideas and feedback on what aesthetical touches looked good in a classroom and how the room could be configured for better learning. Interviewee #6 said, "We work with IT, faculty, the library team, academics; everyone is involved in the process." The president's assistants and in-house architects also had direct input on many types of aesthetic installations of one facility manager's college classrooms. Three facility managers collaborated extensively with their IT departments.

Holding occasional meetings between facility management and the IT department has been beneficial when designing classroom space, specifically for electronic learning aids for classrooms, including projectors and presentation tables. Interviewee #3 stated, "The budgetary committee, inspectors, division chairs, deans, facilities committee, [and] executive leadership team…[were] included." As indicated, designing classroom aesthetics is a mutual process between all parties involved when it came to decisions made.

Campus outsourcing. Three facility managers described having three different resources they used outside of the campus for designing classroom aesthetics. One of those resources, consultants, were hired to develop interior design concepts within a

classroom. Engineers were another connection hired to develop mechanical and structural ideas. Architects were also brought in to plan sound or functional applications. Interviewee #4 said, “They [architects] …all play their part in the overall process.”

One of the participants reported the institution where they were employed had created a design and construction department with the specific goal of pursuing the development and creation of classroom environments. One facility manager in the study had to get approval for aesthetic implementation from many levels of administration. Another interviewee noted using professional publications for references of what colleges had done conceptually for classroom aesthetics.

Interview question 3 (I). *What classroom aesthetics procedures do you consider when placing accessories in a classroom?* Facility managers’ responses could be categorized into two main areas: assessing classroom usability and accessing teacher usability of classrooms. Each area is discussed in the following sections.

*Assessing classroom usability***.** A consensus of the participants indicated classrooms needed to be multipurpose. One facility manager had to reorganize desks and chairs of classrooms for gifted and traditional students because different academic levels required varied access to certain classroom learning aids. Interviewee #5’s community college hosted annual meetings, so some classrooms were considered and outfitted accordingly to “...provide meeting space for outside entities from time to time throughout the year.”

Hosting events at the college created the need for rooms that can function with volatility. Having flexible classroom space allowed some facility managers to

accommodate various events. In addition, one facility manager divulged the requirements of a course may change throughout the year, and the changes in curriculum within the subject area caused one facility manager to consider interchanging electronic equipment at desks and upgrading chairs. By having quick-change electronic equipment and furniture, various participant areas' curricula could be taught in the same room without trying to find several different classrooms to use for teaching different classes.

Assessing teacher usability of classrooms. Access to classroom aids for teachers was noted to be strategically placed. One facility manager volunteered that the teaching station the instructor used, such as white boards and motorized projector screens, were placed at the front of the classroom to lessen distraction for students. Interviewee #6 stated, "We have whiteboards at the front of the classrooms…the doorway is [also] an important placement, so it doesn't disrupt the teaching. It's in the front of the room usually…to have students come into the front of the classroom."

Interview question 4 (P). *How do you design a classroom? Consider specific styles of furniture, lighting and paint schemes, heating, ventilation, and air conditioning systems, electronic access, and other aesthetics*. Facility managers' responses were reflective of the aesthetic areas mentioned in the previous question. Each area is discussed in these following sections.

Classroom furniture. Many types of furniture aesthetics were used in classrooms. One of the main goals of Interviewee #5 was to "…not only create an aesthetically pleasing classroom, but also a room that could be easily reconfigured." Several facility managers reported tables, desks, and chairs were arranged to provide comfort and space to students.

A few facility managers were given requests by teachers to have different kinds of furniture, as opposed to the existing individual tables and chairs. According to Interviewee #6:

> We have spaces that have fixed chairs, but we see that changing in the not too distant future…we are going to put the desks and chairs on rollers and monitor to observe how students and teachers react to them. With the next class rooms, we'll learn and grow from…these experiences and evolve to what works.

One facility manager's latest campus classroom additions included modular seating and more flexible, modular desks for classrooms. In a few of Interviewee #3's classrooms, brightly colored chairs were installed with casters on the bottom of tables for better maneuverability.

Classroom lighting schemes. Five of the six facility managers revealed classroom lighting schemes, and the methods of classroom illumination had undergone changes over the years. Interviewee #4 revealed classroom lighting fixtures were installed at a time when the administration thought a brighter classroom improved academic performance. In addition, Interviewee #4 noted lab-type classrooms were changed to a specified lighting intensity for detailed classroom activity.

Not only do science classrooms need specific lighting, but art classrooms as well. The art classrooms required specific lighting accents as opposed to other classrooms. Interviewee #4 stated, "You need to have maximum luminous flexibility to create specific lighting effects...in art studios. Typically, the art studio wants their walls to be white with very neutral lighting."

Interviewee #1 stressed the importance of varied lighting. Interviewee #1 shared how "…different types of classrooms such as a history or computer lab [require] specific lighting…" Interviewee #1 also discussed adjusting the lighting through removing or adding light fixtures and adding LED bulbs.

LED and sensory-controlled lighting were important factors of classroom aesthetics. For Interviewee #6, "Lighting is a consideration…we're moving towards more LED lights..." Another facility manager used T8 fluorescent bulbs that provided brighter, more efficient lighting.

Classroom paint schemes. Facility managers limited use of classroom colors to neutral shades, medium color tones, a white base color, or painted classrooms according to how the rooms were painted decades earlier. Grey classroom paint colors were used by Interviewee #6. In addition, no other colors were used to paint accent walls in classrooms.

One facility manager had painted with the same color because instructors desired no other colors. Interviewee #1 stated, "I've talked to a few of the instructors, and the school of thought is that the standard color is white in the classrooms. There's no deviation from it. Maybe an off-white." White walls in classrooms seemed to be the recurring theme. Interview #4 stated, "We've stuck with pretty much off-white for hallways and classrooms… we have had Dover white on the walls for years and years."

Because the color white was a constant color used for decades in classrooms, one facility manager realized the need for changing the color palette. However, white was still used as the base color from which to choose other paints. Interviewee #3 shared, "We want to try and break out of the institutional look of all white all over the campus, so

I worked with the instructors and deans to develop a color palette with white as our base colors…"

Veering away from the color white to incorporate various color tones was the practice of one facility manager, yet the color choices were still restricted. Interviewee #5 said there was "…a limited number of colors. We developed a limited color palette that we found fit a wider range of students and employees." Interviewee #5 added that in-between colors that were not the traditional shades on the color wheel were painted on the walls. Interviewee #5 explained they "…[used] different substrates of colors in the classrooms. We use medium color tones that everyone can enjoy."

Three of the facility managers noted cost as having a significant effect on what colors are used in painting classrooms, the type of paint scheme is used in classrooms, and how much inventory of paint is kept in the facility management warehouses. One participant only kept 5-6 different colors of paint in the warehouse due to it being costly to have more. One participant noted having too much paint stored also keeps the paint from being effectively delved out for classroom projects because there could be waste from not knowing all the colors on the shelves.

Having a focal point in the classroom by painting one wall a different color was a practice for one facility manager. Keeping within the limits of spending, however, was the main idea even when accenting classroom walls. Interviewee #2 noted how designers implement different paint schemes of classrooms with more than one color. Interviewee #2 stated:

> One of the things the designers look at is having an accent wall that is painted a different color than the other three walls to give the room a focal point. I'm ok

with that, but I'm cost-minded even on that too. I try to keep one wall painted, and it's usually the back wall.

*Heating, ventilation, and air conditioning (HVAC)***.** Five of the six facility managers mentioned maintenance operations of existing and upgraded classroom HVAC systems. Interviewee #3 said, "We did an energy audit several years ago…we have control systems all over campus to keep temperatures pretty even. [We] try to stay within the range of 72-74 degrees." In a similar vein, Interviewee #4 also had HVAC systems that regulated the temperature of classrooms, so students felt cooler while listening to the lecture. He said, "With the HVAC, we have an automated system that controls the classroom air…plus or minus two degrees." Interviewee #4 added some classrooms had wall fans to increase circulation of air and increase comfortability of students.

Variable refrigerant volume (VRV) and variable refrigerant flow (VRF) systems were integrated into existing HVAC configurations in buildings Interviewee #5 oversaw. The VRV and VRF systems allowed for more efficient temperature control within the classrooms. In addition, the merging of the new and older HVAC components allowed the facility maintenance department "…to greatly reduce the need for…boiler system[s] for heating classrooms."

Students need an entreating learning environment, but if the classroom was too hot or too cold, then learning could be impeded. Interviewee #1 revealed existing HVAC units at their campus were outdated and difficult to maintain because new components had not been integrated with existing HVAC systems. Interviewee #1 stated, "We have old boiler [and] chiller units with air handler…We [also] have [variable refrigerant technology] VRT units that were new 10 years ago…"

Electronic access. Participants in this study mentioned electronics in the classroom in various capacities. Interviewee #6 had worked for years to dramatically improve electronic capability in classrooms. The college of Interviewee #6 "…(strives) to be on the forefront of technology…we do have a very strong IT department." In this community college, birthing simulation labs were complete with mannequins that simulated real-human traits such as crying, bleeding, and speaking in a hospital environment. The classrooms were dramatically improved, and having electronic aids such as these state-of-the-art simulators allowed the students to learn how to respond to emergency situations as experienced in real hospital settings.

Interviewee #5 had state-of-the-art multipurpose student desks in some of the classrooms. The computer monitor was located below the top of the desk. The computer monitor raised and lowered out of the top of the desk so students could have a clean surface on their desk after the monitor lowers. Interviewee #2 shared, "…cameras, video, and TV's that can project back and forth to the main campus so the students can talk to the instructor…" were utilized during class time. These electronic updates had been implemented over the last eight years (Interviewee #2). Interviewee #1 mentioned having electronic aesthetics in classrooms, but was limited to overhead projectors. Interviewee #4 stated "We haven't done much in classroom design… [other than] teachers' podiums had a DVD player, video projector, computer, [and] document scanner…"

Other aesthetics. In addition to previously mentioned classroom aesthetics, facility managers briefly noted other classroom accessories. Other aesthetics mentioned during the interviews were windows, pull-down projector screens, sound panels, and flooring. Flooring aesthetics were important to interviewees with regards to regular

cleaning and upkeep.

Vinyl composition tile (VCT) was favored by both Interviewee #4 and #6, but Interviewee #4 found difficulty in keeping VCT floors clean with students, thereby causing a shift back to easier to clean surfaces. Interviewee #6 thought VCT flooring was a better overall option for flooring due to cleaning and scrubbing capability. Interviewee #6 also attempted to minimize environmental distractions through window treatments. Interviewee #5 tried to prevent students from looking out the windows to the campus. Interviewee #5 "… considered putting up blinds and limiting the amount of environment the students see to prevent distractions." In addition, due to most of the classrooms having windows, students were seated to either the right or left of the windows to allow for proper lighting.

Interviewee #3 mentioned sound effects and the limited application of soundproofing. Minimizing room noise was paramount when specific rooms such as welding shops were next to general studies classrooms, due to the welding equipment being so loud. In fact, Interviewee #3 stated, "It's been a challenge to bring in things that aren't typical like sound panels. It's not typical to have sound panels in an educational environment."

***Interview question 5* (P).** *How do the aspects of sensory integration such as sight, taste, touch, smell, and feel affect your designs and implementations of classroom aesthetics?* Facility managers' responses could be categorized into one main area, sensory integration awareness. This area of sensory integration is discussed in the following section.

Sensory integration awareness. The sense of sight and touch was slightly

addressed by three facility managers in areas of painting and HVAC. Interviewee #3 mentioned sight is one sense taken into consideration the most through colors seen in the classroom. In addition, Interviewee #5 used different substrates of colors to catch the eyes of students, utilizing the sense of seeing. In addition, Interviewee #2 stated, "…designers…have an accent wall that is painted another color than the other three walls..." to catch the eyes of students in classrooms. A facility manager noted that the sense of feel in the classroom was directly connected to how the students liked or disliked temperature of the classroom.

In contrast to slight sensory awareness, a few facility managers were not aware of the knowledge of implementing the senses into classroom aesthetics. Interviewee #4 was not "…sure [senses] would enter into the classroom much, but if they are it's being included at a different level than what I'm being included in." Interviewee #1 admitted not using sensory integration in design and integration of classroom aesthetics.

Interview question 6 (P). *How does the specific participant area that will be taught in a classroom affect the design of classroom aesthetics in that particular classroom?* Due to similarities in facility managers' previous responses, answers were categorized into one main area; general and participant-specific classrooms. This area is discussed in the following section.

General and participant-specific classrooms. There are many kinds of general education rooms which are designated for specific participant areas. Interviewee #5 reinforced the specific subject area need of classrooms because many different subjects would be taught. He stated, "Whether science science, literature, or a business class [is taught in the same classroom] for example, then we put different equipment in there as

needed to perform the various operations." Interviewee #4 oversaw the implementation of classrooms that were outfitted for any participant area throughout the year.

One example given of participant-specific classrooms focused on areas was in the allied health field. Interviewee #2 and Interviewee #6 mentioned nursing classrooms with laboratory settings for birthing and medical exercises mimicking real-life career settings. The mannequins in the classrooms also mimicked real-life human medical issues. The classroom was set up like a hospital, so students receive hospital experience while learning health practices. The mannequins also had the capability to emulate symptoms of various illnesses so students can learn to treat patients in a safe learning environment as students transition from learners to employees at medical facilities.

Interview question 7 (R). *Describe the impact of administrative directives and priorities on designing and implementing classroom aesthetics.* Facility managers' responses could be categorized into two main areas: limited administrative budgets and collaborative administration. Each area is discussed in the following sections.

Limited administrative budgets. Five of the six facility managers mentioned being limited by finance. Interviewee #2 had administration that required specific codes and building materials. Because the budget was so limited at this community college while implementing these regulations, it caused financial problems. In fact, Interviewee #2 shared how finances were limited by the chancellor of the community college.

Most administrators were perceived as directly limiting the budget. Interviewee #1's administration communicated to the facility management department how much money was allowed for classrooms, and the department had to purchase and install all classroom aesthetics within this budget. Interviewee #5 had an administration who

directed project start-ups. He stated, "…our board of directors have final say-so on our… projects..." Interviewee #6 and Interviewee #4 shared similar experiences about financial allocation being the driving force behind classroom decoration. Interviewee #4 said, "Administrators decide on a budget, and we decide what we can do with this budget."

For Interviewee #3, the interaction and installation of classroom aesthetics were not driven by finances but rather by a mutual collaboration and understanding of what classrooms require. Interviewee #3 shared his administration is "…absolutely wonderful." For example, a color palate was mutually developed between administration and facility management, and "…the administration is flexible to let [facility management] make the [budgetary] judgment calls…"

Interview question 8 (R). *Explain how the implementation of classroom aesthetics supports recruitment and retention of students.* Facility managers' responses could be categorized into four main areas: future strategies, classroom comfortability, electronics, and campus-wide attractiveness. Each area is discussed in the following sections.

Future strategies. One of the instructors from the recruitment and retention committee of Interviewee #1's community college was planning a strategy to make sure classrooms were adequately set up, but this plan had not been implemented yet. The exact definition of what "adequately set up" meant was not revealed during the interview. Interviewee #3 stated, "Do we have a definite solution to maintaining recruitment and retention? No, we don't. But we're talking about it…" Interviewee #4 saw the needs of students and realized that if recruiting students was to become a priority, then an update to classrooms was mandatory.

*Comfortability***.** Interviewee #2 and Interviewee #5 shared similar points of view as it pertained to retention. Interviewee #2 believed to keep students in the community college long enough to complete the degree, certification, or branch of study, students need to feel good in their classroom environment. Interviewee #5 stated, "You need to provide students with a classroom environment that makes them comfortable and relaxed." Interviewee #5 also believed to have adequate student retention, classrooms had to be arranged to promote collaboration for students. Interviewee #5 stressed, "Having enough [adequate] workspace within the classroom, [and] these simple elements can increase recruitment and retention of students."

*Electronics***.** Interviewee #6's philosophy of recruitment and retention hinged upon having modern equipment and technology in the classrooms. He said, "Bottom line, it's the latest in technology and systems that supports recruitment and retention." The electronic calibration and diagnostic automotive and diesel mechanical equipment in that classroom were also mentioned in terms of classroom electronics.

Campus-wide attractiveness. According to the interviewees, campus tour guides take students to the more attractive parts of campuses. Interviewee #4's campus tours of the community college do not include classrooms, and he explained, "… we show them the better stuff. That's how we get students to come here." A new modern admissions building being built is one such campus attraction designed to get students looking for a college home to be recruited, according to Interviewee #4.

Interview question 9 (SI). *What role does classroom aesthetics play in increasing the well-being of students?* Facility managers' responses could be categorized into two main areas: maintained environment and novel concept. Each area is discussed in the

following sections.

Maintained environment. According to the interviews, the classroom environment affects how a student feels and reacts. Interviewee 4 noted the classroom's organization, maintenance, and overall presentation added to a student's well-being. In addition, Interviewee #4 revealed classroom lighting and ventilation play a part in a student's well-being. However, Interviewee #4 admitted "…trying to get better at [designing classrooms for well-being of students]." Adding to the concept of well-being through organization and overall presentation, Interviewee #5 desired an open floor concept in the classrooms. The way this concept was implemented was to remove floor space heaters that increased room safety and comfortability of students.

Comfortability of the classroom atmosphere was a common factor with Interviewee #4 and Interviewee #5. According to Interviewee #1, visual appeal was equated with well-being. The philosophy of Interviewee #1 was, "…if students have a clean environment, it promotes learning. It keeps people excited."

Earlier, electronics were mentioned in reference to aiding in recruitment and retention. According to Interviewee #6, electronics in the classroom also aids in the increase of well-being, because "…computers are mounted on the outside perimeter of the inside of the room..." giving students more room to collaborate. According to Interviewee #6, having a moveable classroom where students can get together and work through moving furniture around is also a good way to promote well-being.

Interview question 10 (SI). *How are classroom aesthetics designed and implemented to increase the academic success of students?* Facility managers' responses could be categorized into one main area: cleanliness. This area is discussed in the

following section.

Cleanliness. Increasing grade performance through clean classrooms was paramount to most facility managers. Interviewee #1's admitted goal was to have clean classrooms that increased academic achievement and productivity. Interviewee #5 shared how a room that was nice and smelled nice appealed to students and allowed focus on what the instructor was teaching. Interviewee #2 believed clean classrooms included routinely painted walls. Interviewee #4 was aware of the needs of the classrooms to enhance academic achievement but stated "…I am not sure I am qualified to answer that question." Interviewee #6 was unaware how to increase academic performance due to not having been in the classrooms.

Interview question 11 (SI). *How do the designs of classroom aesthetics enable students to engage in classroom activity more effectively?* Facility managers' responses could be categorized into three main areas: modular furniture placement, traditional aesthetic placement, and lack of student engagement knowledge. Each area is discussed in the following sections.

Modular furniture placement. A few facility managers placed modular furniture in classrooms to observe how effective learning would increase through maneuverability of furniture. Interviewee #6 shared, "… we continue to test out desks chairs on rollers in classrooms." Interviewee #6's classrooms contained desks with computers on them that were hardwired into the walls, preventing furniture from being moved. However, Interviewee #6 stated his campus was going to test out the classrooms with more adjustable with desks and chairs on rollers and augment as needed. Interviewee #6 will integrate modular furniture into classrooms, and learn and grow from that. Interviewee #2

had already shifted from stationary to moveable chairs to increase collaboration, and they are "…starting to implement chairs with rollers so people can move around and collaborate."

Traditional aesthetic placement. Interviewee #5 commented traditional furniture was utilized and allowed to move but needed to be returned to the original place to preserve the traditional seating style of the classrooms. Interviewee #5 said, "We utilize desks and chairs that are not too heavy or bulky, that can be moved, but we ask that the students and instructors put them back when class ends." In fact, the traditional desks were designed to stay in one place in the classrooms since the original classrooms were first developed for this community college.

Interviewee #1 thought overhead projectors aided in the increase of academic achievement, but Interviewee #4 claimed if students felt good about the classroom then they would have a heightened level of excitement and engagement about learning. Interviewee #1 added, "They'll be more active in classroom activities, and get more out of their classroom activities." Interviewee #3 had no experience of the learning process in the classroom. This facility manager had a lack of understanding in how students behave, or what students need to increase interaction. This caused Interviewee 3 to state, "I can't answer that question, because I haven't been in the classroom to see how kids act…"

Emerging Themes

Qualitative research yields raw data which are categorized into themes (Creswell, 2014). In this study, themes from the interview information emerged that revealed

categories. Four themes emerged from this study are presented in the following section. Each theme contained the essence of the responses to the interview questions in this study.

Emerging theme: Finance. Several of the interviewees noted finances played a significant role in limiting and regulating the development and outfitting of classroom aesthetics. Most facility management admitted being limited by monies to develop classroom aesthetics. Cost effectiveness, economic feasibility, budgetary requirements, and administrative restrictions were the overarching areas in this theme.

Classroom aesthetics were noted as having to be cost-effective in many areas. Updated classroom lighting for some interviewees was shunned because of the initial cost to purchase and cost for follow-up maintenance. According to facility managers, modernized paint schemes were limited in classrooms because hiring outside contractors was too expensive, and stock-piling many colors in warehouses was not cost-effective. However, on some campuses, HVAC systems were retrofitted with modern systems that allowed better cost efficiency, smoother operation, maintenance, and usability within the classroom environment.

There was a connection between finances and student enrollment. Monies generated through student enrollment defined how much budget money was available to update classrooms. One facility manager expressed needing staff expansion, but hiring more staff also depended on adequate funds generated through student enrollment.

Emerging theme: Flexibility. Classrooms were noted by the interviewees to be provided with flexibility through the arrangement of classroom furniture for students of all learning requirements and levels. Most facility managers realized the need for

classrooms with moveable and interchangeable furniture and classrooms that were multipurpose. A few facility managers mentioned the necessity to have flexible classroom desks that raised and lowered to accommodate students with special needs for wheelchair access. Tables with rollers and casters on the bottom of the legs of desks and chairs allowed for flexible seating arrangements.

One facility manager noted having flexible electronic equipment that was interchangeable for different classroom settings and levels of the curriculum. Some ideas expressed were computer monitors which raised and lowered from the front of some desk tops, and easy to maneuver mechanical equipment with changeout capabilities had been installed in a few colleges' classrooms. Wireless access in classrooms allowed students to use personal electronic devices. Classroom teaching lecterns containing immediate electronic access for teachers increased flexibility in teaching various curriculum on interactive monitors.

Emerging theme: Foundational belief. The underlying, foundational beliefs of facility managers concerning classroom aesthetics presented in this study were academic performance, comfortability, recruitment, and retention, and wellness of students depended upon the proper execution of classroom aesthetics. Altering and improving natural and artificial lighting, HVAC, paint, furniture, and sound control aesthetics were mentioned by the majority of the study participants as having had a significant effect on the comfortability and performance of students. Several facility managers in this study and previous studies disclosed if a student felt at ease in the classroom environment through the ability to collaborate, academic performance, well-being, and student retention would increase (Fontaine, 2014). Five facility managers believed clean and

well-maintained classrooms promoted retention, well-being, and comfortability. Two facility managers, however, were unaware of strategies to increase academic achievement through classroom aesthetics.

Emerging theme: Focus. A broad collaborative focus existed between all facility management pertaining to the design, development, and implementation of classroom aesthetics. Drawing from faculty, staff, administration, and resources outside of the respective community colleges, this comprehensive knowledge pool provided resources for gathering information about the needs, requirements, and innovative concepts of classroom aesthetics. Architects, the IT department, painters, engineers, teachers, administrators, community college presidents, and others played crucial roles in aesthetic implementation.

An extensive collaboration was reported amongst all parties aforementioned to address technological needs and furniture placement in classrooms. Three facility managers worked extensively with their respective IT departments to get appropriate learning aids installed in classrooms. Architects, both in-house and outside the community college campus, developed aesthetic concepts. Publications were used to establish ideas from other higher educational institutions to apply to future design concepts of community colleges. Several facility managers worked with faculty to develop paint concepts for classrooms. The administration was noted by one facility manager as being very collaborative in the classroom aesthetic process.

Summary

In Chapter Four, findings from the data collected were revealed. The demographic section presented processes of participant selection, and overarching anonymity and

confidentiality practices were implemented for facility managers who participated in the study. Findings from the individual interviews were presented. An analysis of the study participants' answers to interview questions was conducted, and themes were categorized.

In Chapter Five, findings are explained by connecting the research questions to specific interview questions. Conclusions to the study are presented by specific themes revealed in Chapter Four and connected to historical research in Chapter Two and the theoretical framework previously presented. Implications identify knowledge gained through conducting this research project, and future possibilities of aesthetic applications. Future research is explained through various methodologies that could be used to conduct this research by using various populations and samples.

Chapter Five: Conclusions and Recommendations

This qualitative study was designed to explore the disconnect between a facility manager's role in developing classroom aesthetics and the psychological need of students in Missouri community colleges (Adeyeye et al., 2013). Data gathered and assimilated from interviewing facility managers were utilized to understand further psychological motivations in the process of the decision-making process of designing classrooms. The data produced in this study may aid community college administration in realizing strategies to further college student recruitment and retention, engagement, and well-being (Choi et al., 2014; Kelly et al., 2013).

In the following sections of Chapter Five, the findings from this study are summarized. In the conclusions portion, research from Chapter Two is presented. Implications based on the findings from this study are revealed with suggestions for future research. Finally, a brief, conclusive summarization of the study is presented.

Findings

In this research study, facility managers who worked in higher education were interviewed about practices and philosophical perceptions of classroom aesthetic implementation. Data gathered and assimilated from the interviews were used to answer the research questions from this study. Each research question is presented in conjunction with the relevant interview questions.

Research question one. *What influences inspire facility managers to design specific classroom aesthetics?* Interview questions 1, 2, and 3 specifically addressed this research question. Several facility managers found a limited creative learning space was the direct result of a restricted number of funds available for routine maintenance and

aesthetic upgrades. However, one facility manager's budget was extended through grants allotted to the community college. According to several interviewees, students' comfort levels were an influence in creating learning spaces. A relaxing environment was paramount to one of the facility managers interviewed while another facility manager aided in helping students with special needs through installing easily accessible furniture.

Shared governance inspired all facility managers in this study to design and implement various classroom accessories. Teachers, administration, and key people outside the community college campus were stakeholders consulted to implement updated classroom environments. In terms of the aforementioned accessible furniture, classrooms were designed to evolve and change for specific needs of all students. All research participants shared the necessity to have furniture and learning aids that were moved easily and accessible for any type of participant area taught in classrooms and for every type of student.

Half of the research participants interviewed did not deem classroom aesthetics as a necessity. In addition, addressing strategies for recruitment and retention was not a forethought for several facility managers when they were designing classrooms. However, for some of the interviewees, comfortability of students was a factor mentioned, and these facility managers had a desire to design classrooms specifically to increase recruitment and retention. The consensus of all facility management was to implement routine cleaning, maintenance, and updated accessories in classrooms to increase comfortability, well-being, and academic achievement.

Research question two. *What processes do facility managers engage in when designing classroom aesthetics?* Interview questions 4, 5, and 6 specifically addressed

facility management processes in designing classrooms. Procedures for deciding on specific types of aesthetics for specifically placed classrooms was an ongoing practice for all facility managers.

Students' comfortability, well-being, and teachers' needs for certain teaching aids were considered by most facility managers to be a significant process to be addressed while designing classroom aesthetics. Balancing the needs of certain classrooms based on the participant area taught was constantly considered. For some facility managers, adherence to existing campus guidelines while keeping up with aesthetic requirements, was mutually concerning. Addressing the needs of student populations during the process of classroom development was standard practice for the majority of interviewees.

Due to the effort of trying to balance noise levels and reduce hindering noise pollution in classrooms, separating quieter general education classrooms from technical classrooms with machines was necessary. Reducing distractions and increasing focus in all types of classroom environments were considerations by all interviewees. Some of the priorities for facility managers included making aesthetics easily repairable or replaceable.

Carpet squares that could be cleaned when slightly soiled or changed out when non-cleanable were strategic to the daily maintenance operations of the college. The procedure for deciding on types of wall paint in classrooms had to be planned in every detail. Classroom walls are exposed to daily wear and tear from students and teachers. Because of this exposure, paint had to be chosen for its durability, washability, and repairability. Therefore, specified paint sheen, color, durability, and longevity of paint had to be considered by facility managers. The wall had to be easily paintable, first by

patching the damaged part on the wall, then matching the original paint. If the walls had paint that was not peeling or fading but scratches were apparent, a simple repaint would be adequate to restore the classroom to an environment that would entreat students.

Classroom aesthetics have been shown in research to affect students' sight, sound, hearing, taste, and smell, and this process of aesthetic sensory integration was acknowledged in various ways by most facility managers. Answers from participants ranged from being slightly addressed to some of the facility managers stating they did not address this area at all. Two facility managers were unaware of students' need for sensory integration and procedures to implement various types of aesthetics. Most facility managers followed a process of creating classrooms that catered to participant-specific requirements. Facility managers worked with different departments within the college institution to address specific needs in the college classrooms.

Research question three. *What resources do facility managers rely on to support them in creating an appropriate aesthetic design in classroom learning environments?* Research question three was most adequately supported by information gathered from interview questions 7 and 8, relaying information on facility management resources. In-house resources and outsourced contractors were considered and utilized as classroom aesthetics were being designed for the majority of facility managers. The participants in the study also collaborated with members of the faculty and staff during the aesthetic development stage.

Needs of teachers, administrative directives, and the facility management office maintenance requirements were all considered during aesthetic development meetings.

The IT department, architects, teachers, budgetary committees, and administration were included in varying degrees to help decide on needs for classroom decoration and outfitting. Specific building guidelines and safety requirements were noted by a few facility managers and were considered an important aspect of classroom development.

From responses from the interviews, recruitment, as perceived by interviewees, is the process of students being showed around campus, and then enrolled in classes and programs. Retention follows recruitment, and at this point, the monetary flow of resources are generated through tuition, books, and other products bought in the bookstore and other entities on a community college campus as students pursue their studies and remain until graduation. There was an understanding among the interviewees the more students who attended and stayed to graduate, the greater the funds available for updating and maintaining classroom aesthetics. Half of facility managers in this study engaged in practices to support recruitment and retention and included as examples installing modern electronic learning aids as well as planning future classroom modifications. Several of the interviewees did not understand improving all campus facilities, including classroom spaces, could possibly increase enrollment of students, and student satisfaction with their surroundings could play a role in keeping students until graduation.

Research question four. *How does the facility manager believe his or her aesthetic designs impact students?* Interview questions 9, 10, and 11 specifically reflected how classroom aesthetics impacted students. According to most facility managers, well-being, academic success, as well as classroom activity and collaboration improved students' classroom experience. Three interviewees shared how classroom lighting,

ventilation, electronic learning aids, modular furniture, and flexible learning environments positively impacted the well-being of students. A few of the facility managers believed comfortability was affected solely by increasing the visual appeal of the classroom.

Generally, all facility managers believed cleanliness was the single most impactful practice of general maintenance affecting a student's overall success in the classroom. However, not all facility managers believed clean classrooms produced academic success. Most of the interviewees believed a routinely cleaned learning environment impacted students' focus on a teacher's lecture and students' productivity. A few interviewees were not aware of the effect of classroom aesthetics on students or did not feel qualified to answer this interview question.

Several research participants felt implementing classroom aesthetics in varying degrees and levels impacted a student's effectiveness in classroom activity and academic success. A few of the facility managers had no knowledge or understanding of how to increase levels of student interaction and collaboration. A few of the interviewees were just beginning to explore the impact of furniture placement that included adjustable, moveable desks and chairs and modern furniture. Only one facility manager had not considered the effects of classroom aesthetics on students' behavior nor identified the connection between a student behavior and increased academic performance.

Conclusions

It is extremely important to discuss findings from this study utilizing research in the field. In this section, findings are connected to the content presented in Chapter Two.

The emerging themes, first discussed in Chapter Four, are used as the framework to examine the connections to the research. The literature reviewed in Chapter Two is presented in positions of support or contradiction to the themes generated in this study. In addition, the themes are tied to the theoretical framework of the study.

Financial. The interviewees in this study revealed budgets restricted free reign on developing classrooms or enhancing the learning environments for students. As was the case in prior research, this study's interviewees' community college administration prioritized budget parameters for facility maintenance, renovation, and expansion (Yildirim et al., 2011). Design restrictions through limited funding as well as maintaining and increasing adequate enrollment levels to generate funds were constant concerns for some of the interviewees. Facility management in this study occasionally received extra grant monies, but administration emphasized frugal budgetary practices concerning extra funds received for classroom aesthetics.

Classroom aesthetics reflected budgetary trends through the decades. Windows and vents in classrooms were opened and installed for air circulation, then closed due to perceived energy waste, thereby diminishing students' performance (Schneider, 2002). Interviewees in this study noted when systems such as HVAC were updated, the action of increased air circulation increased student performance and well-being. Most of the facility managers acknowledged updating these systems took a significant amount of money out of their budget. However, the overall cost would be recouped in other areas, ultimately helping the institution as a whole.

The Chronosystem in this study was represented by the time factor that changes a student's learning environment (Bronfenbrenner, 1989; Neal & Neal, 2013). Since the five levels of the ecology theory are concentric and affect each other as they affect the student, finances mentioned previously hinder the development of aesthetics over time. Therefore, as explained in Chapter Two, there were evolutionary changes in classroom aesthetics throughout the decades that affected students and their environment.

In Chapter Two, a historical progression of research performed in the past was presented, and it should be noted changes in perceptions and comfort levels of classrooms for students change as well, due to augmentation of aesthetics over time (Baker et al., 2012; Taifa & Desai, 2015). The open-air movement of the 1960s included having more "open-air" classrooms through installing vents and windows to allow ventilation during class time (Cheryan et al., 2014; Muhammad et al., 2014). However, through the next decade, economic strains restricted schools' budgets, which in turn limited aesthetic implementation by closing vents and windows (Baker et al., 2012). Hence, the element of time played a part in both the expansion and limitation of classroom aesthetic changes (Baker et al., 2012).

At the Exosystem level, administrative directives and economics affected facility managements' practices in educational organizations (Arnold & Armstrong, 2012; Horton, 2016). In the theme of Finance, administrations such as presidents and budgetary committees were significant influences which ultimately affected aesthetic design by restricting the economic machine, or the budget, of facility management. Interviewees shared how limited monies available for classroom design options were due to administrative, budgetary directives (Bronfenbrenner 1989).

Flexibility. The ability to change or remove classroom equipment quickly whenever a classroom required immediate modification for different participant areas, events, or upgrades of aesthetics displayed flexibility on the part of facility management. For example, interviewees collectively shared having the ability to adjust and move electronics to fit learning requirements of traditional students and student with special needs. Examples were also communicated in the interviews when facility managers mentioned installing modular mobile furniture that contained tables and chairs with casters that could be moved to form different seating arrangements.

Other examples given were proper variated lighting and adjustable ranges of lighting intensity for different classrooms. Versatility, maintenance flexibility, and the ability to prioritize immediate needs of classroom aesthetics were mandatory for Interviewees #4 and #6. From carpeting to tile, many types of flooring were tested by a few of the facility managers to reach the optimum balance between routine maintenance cleaning and ease of replacement.

Positive and negative effects of aesthetic installment on students in classrooms were noted in previous research (Baker et al., 2012; Cheryan et al., 2014; Muhammad et al., 2014; Taifa & Desai, 2015). Early classrooms had chairs and desks bolted to the classroom floor to increase focus on the curriculum in students, but these permanent fixtures hindered student collaboration and interaction with each other and the teacher (Taifa & Desai, 2015). Vents were installed in classrooms to increase air circulation, but fumes and odors hindered student comfortability, causing some students not to attend class. (Hamlin, 1910). Even modern classroom technology has simultaneous positive and negative impacts where the internet and cell phones for information are available to

students, but calls and surfing the web during class are a distraction (Tindell & Bohlander, 2012).

Representing historical changes in people and the environment as classroom environments are modified over time was representative of the Chronosystem. As classroom aesthetics developed and changed through the decades, implementation practices and methods of developing updated aesthetics changes were flexible as well. Windows that equaled half of classroom wall space were installed in the early part of the twentieth century providing brighter classrooms that helped increase well-being and academic potential of students (Baker et al., 2012; Hamlin, 1910; Marks & Woodwell, 1914).

Fast-forward to the 1980s when computers and software were presented in the college classroom as an experimental method to increase a student's learning potential (Mostmans et al., 2012; Perrin, 2015). In the 1990s, the AACC considered computers a beneficial learning aid and implemented strict policies concerning timely installations of electronics in classrooms and on college campuses (Ryland, 2016). Access to the internet was also installed in classrooms in the 1990s and allowed students to increase learning through more efficient research (Mostmans et al., 2012).

Foundational belief. In this study, most interviewees to some extent, overtly or indirectly, believed academic performance, recruitment and retention, well-being, and comfortability of students were fundamentally dependent on proper installation and application of various kinds of aesthetics. In 1789, German philosopher Alexander Baumgarten wrote, *Aesthetica* (Knight, 2013; Nannini, 2015). In his writings,

Baumgarten discussed human perception through the senses and how different aesthetics affect people in different ways (Knight, 2013; Nannini, 2015). The theme of sensory engagement through the environment carries through to modern times with research in Neuroaesthetics (Brieber et al., 2014; Wang et al., 2013).

Facility management who participated in this study emphasized when installing electronics in classrooms that versatility, modular potential, and increased enhancement of learning by students had to be a standard practice. Paint schemes were also mentioned during interviews and were described as needing to be pleasing and appealing in order to enhance the fundamental well-being of students. When students found classrooms to be appealing, they felt better about the classroom learning environment.

Prior research indicated facility management strategically designed venting, lighting, paint schemes, noise control, furniture type and mobility, and electronic classroom aesthetics to improve students' overall classroom experience. (Baker et al., 2012; Benfield et al., 2015, Cheryan et al., 2014; Hamlin, 1910; Kennedy & Archambault, 2013; Marks & Woodwell, 1914; Ogata, 2008; Yang et al., 2013). Neuropsychological phenomena discussed in researched studies reinforce the active engagement of brain-based triggers (Bergeron & Lopez, 2012). Classroom aesthetics enhances sensory experiences of people in the environment, or in this case, students (Bergeron & Lopez, 2012; Lichten et al., 2016).

In this study, students' values represented in the Macrosystem were well-being, academic achievement, and recruitment and retention. The Macrosystem of the human ecology theory represents beliefs and values (Bronfenbrenner, 1989). Proper design and application of aesthetics in community colleges' classroom and facilities were believed

by most interviewees to potentially increase a student's positive classroom experience. In addition, any updates to furniture, electronic access, and rooms were seen as ways to increase academic achievement and curriculum delivery to students.

The foundational beliefs theme represented the Microsystem in Bronfenbrenner's (1977, 1979) human ecology theory. Most interviewees in some capacity believed by changing the classroom environment, a fundamental change in student's behaviors could be developed and possibly sustained. Classroom furniture installed in classrooms had to be fundamentally versatile and taken apart to fit into various shapes of tables to accommodate different class sizes to enhance the learning of students. If hardware such as electronics and HVAC was not upgraded or if there was not a pleasing paint palate, most of the facility managers believed learning would diminish.

Focus. A broad collaborative focus amongst the facility management interviewed was apparent when designing classrooms. Pertaining to the design, development, and implementation of classroom aesthetics, facility management presented in previous research did not work collaboratively with other stakeholders to gain different perspectives while developing classrooms (Benfield et al., 2015; Yang et al., 2013). Most of this study's participants agreed collaboration with others inside and outside of their institution occurred on a regular basis. A majority of the facility managers agreed that teams work together throughout all phases of any changes made to the facilities.

Stakeholders, administration, teachers, and students' classroom needs as described in prior research were observed as facility management developed classroom aesthetics (Mohamed, 2013; Parsons, 2015). As needs around facilities were observed, facility managers gathered information from departments on which classroom aesthetics

were needed. Not surprisingly, facility managers in previous historical research did not discuss the collaborative process (Mohamed, 2013).

Implications for Practice

The information from this study was timely. The voices of facility managers were heard in the process of collecting data for this study. The findings can be used to consider several implications for practice. Since financial implications were one of the first themes to emerge, strategies to support this area need to be addressed.

Budgetary meetings should include facility managers who spend community college monies for classroom design, and remodeling of classrooms. Prior to official gatherings, facility managers must be proactive and make exhaustive lists of needs for each classroom and be available to present it to administration, especially for areas due for routine maintenance or aesthetic updates. Parts and maintenance supplies should be annotated and listed for administration availability. Questions, concerns, and feedback can be performed between facility management and administration as needed to ensure accountability of funds in the facility maintenance office. Facility management should create a fluid list of classroom aesthetics. As updates, improvements, and upgrades occur throughout the year, this list can be presented to the administration in real time.

A minimum to no direct knowledge of integrating sensory triggering classroom aesthetics was noted by facility management in this study. Heads of departments and administration can be trained in the integration of sensory-specific aesthetics and the effects of classroom aesthetics on students. Explaining how a student is affected by his or her surroundings in a classroom will help all parties understand how pertinent and influencing classroom aesthetics can be on students and teachers.

Recruitment and retention strategy enhancement by incorporating classroom aesthetics was unknown by some of the interviewees. Facility management needs to be trained in recruitment and retention strategies including upgrades to classrooms, reading professional magazines and pamphlets of modern aesthetics, branding information, and emphasizing team-building among all administration and facility management. Prior proven facility management practices concerning aesthetics should be presented to educate facility managers who are unaware of the influence facilities have on student recruitment (Baker, 2012). Pros and cons of ineffective and effective recruitment and retention strategies need to be presented to maintenance staff during training.

Specific strategies on how classroom aesthetics can impact a student's level of learning activity or engagement in classrooms were not mentioned throughout the interview process. Surveys, student governments, and other clubs and associations should be involved in shaping ideas of classroom aesthetics. Facility managers need to speak with students to make note of personal needs and desires that are pertinent to students' academic improvement.

Facility management needs to be educated through online resources, professional development meetings, and collaboration with other college facility managers who have implemented classroom aesthetics to increase student learning. According to some interviewees in this study, clean classrooms are necessary for a positive classroom experience for students. However, the same interviewees who thought well-being was enhanced through a well-maintained classroom did not believe clean classrooms affected academic success.

Recommendations for Future Research

In consideration of the research conducted in this study, future recommendations in various areas are given. Various research participants may be used in the research process to gain understanding from different points of view. The methodology could be changed to gain insight into the aesthetic process through statistical data. Populations can vary to grasp an understanding of different groups. The recommendations are explained in the following section.

Research participants. Future research participants may include interviewing students to see how they are affected by existing classroom aesthetics. According to this study, and previous research mentioned on Chapter Two, students are exposed to many types of lighting, HVAC, furniture, accessories, and other aesthetics within many types of classroom environments, and these features may be affecting students in varying ways (Baker, 2012). Insight into perceptions and thoughts of students' personal experiences as they attend classes could help gain further understanding of what is needed to support increased well-being, academic potential, and academic retention.

College presidents could be interviewed to grasp a better understanding of their perceptions and understanding of the facility manager's balance between working with the restricted budget given by the administration and designing aesthetics with monies given. Perceptions of aesthetic development, design, and implementation from the president's point of view could also be obtained. Teachers in classrooms that either have been upgraded or remained traditionally outfitted with standard equipment may aid in revealing teachers' needs, wants, and suggestions concerning aesthetic upgrades.

Classroom equipment placement such as podiums, classroom seating arrangements, door access, painting accents, and acoustical effects which affect student learning from a teacher's perspective can aid awareness to facility management so appropriate classroom décor can be created. Actions and reactions of students of various classroom environments and participant areas as perceived by teachers could be explored to reveal students' perceived thoughts and feelings of traditional and upgraded learning environments.

Methodology. Qualitative research, as utilized in this study, reveals reactions, thoughts feelings, perspectives, and psychological motivations of research participants (Bronfenbrenner, 1977). Qualitative research also has flexibility of participant size, and personal perceptions of participants (Fraenken et al., 2015; Maxwell, 2013). If this research was performed using quantitative methodology, facility managers could be considered test participants (Asdrubali et al., 2012). The quantitative study would then be an experimental research design to measure how facility managers influence a variable, namely students, in a classroom environment (Asdrubali et al., 2012; Fraenkel et al., 2015; Petty et al., 2012).

A quantitative study could be conducted to determine if aesthetics in a classroom have an impact on student learning. Variables would be controlled such as instructor and participant area. One difference could be the classroom in which the course took place (Fraenkel et al., 2015; Maxwell, 2013). Quantitative data retrieved from the final analysis would yield strictly statistical results and scores to support or nullify the hypothesis consisting of whether or not students were affected by varying the aesthetics of the two classroom learning environments (Creswell, 2011). In addition, surveying students

about their classrooms and assimilating data from students' answers may provide researchers definitive statistics in areas of well-being, recruitment and retention, and academic

success of students.

Different populations. The population interviewed in this study were Missouri community college facility managers. The target population of a study is the individuals in the group to be studied (Fraenkel et al., 2015). Therefore, studying different populations for future qualitative research such as various populations from other geographical areas should be considered. Facilities managers at colleges and universities in different areas of the United States could be included in future studies. Private, public, two-year and four-year institutions could be included to gain a greater perspective of aesthetics in higher education classrooms.

Summary

In Chapter One, the background of this study was described, and facility managers' roles and responsibilities within their respective community colleges were explained (Arayici et al., 2012; Barlow et al., 2013). The human ecological theory was presented and connected to this study. (Arnold et al., 2012; Bronfenbrenner et al., 1979). The problem was presented as a gap between a community college facility manager's classroom aesthetic requirements and a student's classroom aesthetic needs. The purpose of the study, exploring facility managers' philosophical and psychological motivations for developing learning environments, was clarified. Research questions were presented, and key terms of this research were defined. Limitations and assumptions of this research were explained.

In Chapter Two, the human ecology theory was extensively discussed as it related to community college students' well-being, academic potential, and recruitment and retention (Bronfenbrenner, 1979; Lewin, 1935). Relevant connections, improvements, and applications between K-12 and college aesthetics as defined in previous research were also explained (Baker, 2012). Facility management in relation to origin, history, and application was relayed, and various entities utilizing facility management practices were described. Outcomes of recruitment and retention, well-being, and, academic improvement in relation to facility management were presented.

In Chapter Three, an explanation and justification of this study's qualitative methodology were presented. Considerations of ethical practices of this study were explained, and the size of the testing sample was noted. The development and execution of the interview instrument used in this study were explained. How interviews were to be conducted, processes and steps to relay assimilated research were defined.

In Chapter Four, findings from the data which were collected and assimilated were revealed. Participant selection, anonymity, and confidentiality practices of research participants were described. Overall findings from interviews were reported. An analysis of facility managers' interview responses were categorized, and developing themes were revealed.

In Chapter Five, the findings of this study were explained through identified research questions linked to this study's interview questions. Conclusions were presented through the themes that emerged. Historical research in Chapter Two was connected to the themes which were revealed and to the theoretical framework. Implications for practice included revelations, knowledge, and future applications of aesthetic

applications. Future research that may be performed was explained using alternate methodology, various populations, and samples.

Appendix A

Interview Questions

1. What are your thought processes when designing classroom aesthetics?
2. What professional influences do you rely on when designing classroom aesthetics?
3. What classroom aesthetics procedures do you consider when placing accessories in a classroom?
4. How do you design a classroom? Consider specific styles of furniture, learning aids, lighting and paint schemes, heating, ventilation, air conditioning systems, electronic access, and other aesthetics.
5. How do the aspects of sensory integration such as sight, taste, touch, smell, and feel affect your designs and implementations of classroom aesthetics?
6. How does the specific participant area that will be taught in a classroom affect the design of classroom aesthetics in that particular classroom?
7. Describe the impact of administrative directives and priorities on designing and implementing classroom aesthetic design.
8. Explain how the implementation of classroom aesthetics supports recruitment and retention of students.
9. What role does classroom aesthetics play in increasing the well-being of students?
10. How are classroom aesthetics designed and implemented to increase the academic success of students?
11. How do the designs of classroom aesthetics enable students to engage in classroom activity more effectively?

Appendix B

IRB Approval Letter

LINDENWOOD

LINDENWOOD UNIVERSITY ST. CHARLES, MISSOURI

DATE: October 25, 2016

TO: Eric Parr
FROM: Lindenwood University Institutional Review Board

STUDY TITLE: [961092-1] A Qualitative Study Investigating Facility Managers' Perceptions of the Classroom Learning Environment

IRB REFERENCE #:
SUBMISSION TYPE: New Project

ACTION: APPROVED
APPROVAL DATE: October 25, 2016
EXPIRATION DATE: October 24, 2017
REVIEW TYPE: Expedited Review

Thank you for your submission of New Project materials for this research project. Lindenwood University Institutional Review Board has APPROVED your submission.

This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review (Category 7) based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to the IRB.

This project has been determined to be a Minimal Risk project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the completion/amendment form for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of October 24, 2017.

Please note that all research records must be retained for a minimum of three years.

If you have any questions, please contact Michael Leary at 636-949-4730 or mleary@lindenwood.edu. Please include your study title and reference number in all correspondence with this office.

If you have any questions, please send them to IRB@lindenwood.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Lindenwood University Institutional Review Board's records.

Appendix C

Phone Script

Hello Mr./Ms._____. My name is Eric Parr. I am conducting qualitative research on facility managers' perceptions of classroom aesthetics. I am calling you because I would like to invite you to participate in this research study conducted by myself. I am exploring the philosophical motivations of the classroom aesthetic choices made by a facility manager.

If you decide to participate in an in-person interview, I will send you an introductory letter, consent form, and interview questions that will be used during the interview process. You will then email the consent form back to me. The interview questions are yours for review prior to the interview. After setting an interview time and date, I will travel to your community college and conduct an in-person interview. I will record the answers via recorder. My hope is to obtain a comprehensive overview of your purposes and motivations of classroom aesthetic design.

The amount of time involved in your participation will be approximately one hour for the interview and any follow up needed for clarification of interview questions. There are no anticipated risks associated with this research and no benefits for your voluntary participation. However, your participation will contribute to the knowledge about the role of a facility manager in conceiving and designing of the aesthetics of classroom learning environments.

Your participation is voluntary in this research. You can also withdraw your consensus to participate in this research at any time. You may also not answer any or all of the questions, with no penalty. Your identity will not be revealed. Please know that we

will do everything possible to protect your privacy. This study has a small sample size between 10 and 20 participants. The possibility exists that readers of the study may be able to identify participants even if identifying information is omitted. Information received will be kept in a safe and secure location.

In the next few days, I will send you an email with the adult consent form for you to read and decide if you would like to participate in this research study. If, after this phone call, you have any questions, you can contact me at [redacted]

Thank you very much.

Appendix D

Email Introductory Letter

Hello Mr./Ms._____. My name is Eric Parr. I am conducting qualitative research on facility managers' perceptions of classroom aesthetics. I am emailing you because I would like to invite you to participate in this research study. I am exploring the philosophical motivations of the classroom aesthetic choices made by a facility manager.

If you decide to participate in an in-person interview, please fill out the attached adult consent form to confirm your participation in this study and email it back to me. The attached interview questions are yours for reviewing prior to the interview. After setting an interview time and date, I will travel to your community college and conduct an in-person interview. I will record the answers. My hope is to obtain a comprehensive overview of your purposes and motivations of classroom aesthetic design.

The amount of time involved in your participation will be approximately one hour for the interview and any follow up needed for clarification of interview questions. There are no anticipated risks associated with this research and no benefits for your voluntary participation. However, your participation will contribute to the knowledge about the role of a facility manager in conceiving and designing of the aesthetics of classroom learning environments.

Your participation is voluntary in this research. You may also not answer any or all of the questions, with no penalty. Your identity will not be revealed. Please know that we will do everything possible to protect your privacy. This study has a small sample size between 10 and 20 participants. The possibility exists that readers of the study may be

able to identify participants even if identifying information is omitted. Information received will be kept in a safe and secure location.

If you have any questions, after reading this email, you can contact me at [redacted]. Thank you very much.

Eric S. Parr

Appendix E

Informed Consent

LINDENWOOD

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES

"A Qualitative Study Investigating Facility

Managers' Perceptions of the Classroom

Learning Environment"

Principal Investigator: Eric S Parr

Telephone: [redacted] E-mail: [redacted]

Participant_____ Contact info _____

_____

1. You are invited to participate in a research study conducted by Eric S. Parr under the guidance of Dr. Rhonda Bishop. The purpose of this research is to explore the philosophical motivations of the classroom aesthetic choices made by a facility manager.

2. a) Your participation will involve:

- Being interviewed in-person through open-ended questions by the primary investigator. Answers given to the open-ended questions will be recorded by the primary investigator with a micro-cassette recorder and contextualized for research.
- Your participation in this interview will provide a comprehensive view of purposes and motivations of classroom aesthetic design.

b) The amount of time involved in your participation will be one hour, and there will be no remuneration for your time.

Approximately 10-15 participants will be involved in this research. There will be approximately 10-14 research sites participating in this research.

3. There are no anticipated risks associated with this research.
4. There are no direct benefits for you participating in this study. However, your participation will contribute to the knowledge about facility management.
5. Your participation is voluntary, and you may choose not to participate in this research study or to withdraw your consent at any time. You may choose not to answer any questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.
6. Please know that we will do everything possible to protect your privacy. This interview is voluntary, and you have the right to stop participating at any time or not answer any question(s) you are not comfortable answering. This study has a small sample size between 10 and 20 participants. The possibility exists that readers of the study may be able to identify participants even if identifying information is omitted.
7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Eric S. Parr at [redacted]. You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Marilyn Abbott, Provost at mabbott@lindenwood.edu or 636-949-4912. You may also contact Dr. Rhonda Bishop, Adjunct Faculty, Lindenwood University School of Education, at [redacted].

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

_____	_____
Participant's Signature Date	Participant's Printed Name
_____	_____
Signature of Principal Investigator Date	Investigator Printed Name

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Vita

Eric Parr served four years in the United States Navy as part of Antarctic Development Squadron Six (VXE-6), a duty chosen due to superior Class “A” PR Technical School grades, individually and as a class. VXE-6 was a Naval squadron that assisted and performed scientific exploration and discovery of the Antarctic continent. Eric received numerous letters of appreciation and unit commendations during his tour, including the Antarctic Service Medal two times, the Sea Service Medal four times, and the National Defense Service Medal.

After serving in the Navy, Eric started a contractor business where he was the Chief Executive Operator (CEO) and Chief Operations Officer (COO) of Parr’s Painting Services (PPS), a company which specialized in custom interior and exterior residential painting and remodeling. While conducting business and overseeing daily operations of PPS, Eric went to school and earned an Associates of Science in University Studies, Bachelors of Science in Psychology with a minor in both Gerontological Sociology and Speech and Theater, and a Master’s Degree in K-12 Guidance Counseling.

Eric has performed multiple speaking engagements including Veteran’s Day assemblies, character building events, and motivational topics. Eric has developed student programs and academically-enhancing aesthetics for study rooms and classrooms. Eric has a passion for helping others see their potential and achieve far beyond presently seen in oneself, realizing success through difficulties. Eric loves tinkering with old cars and motorcycles. He loves the outdoors, athletics, adventures, and traveling. Lastly, advocacy for kidney donation, healthy lifestyle, and Autism are strong passions of Eric.