A Qualitative Perspective of the Impact of School Facility Improvements on Students

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Dedication

I dedicate my Doctoral Capstone Project work to all of the individuals who have supported me throughout this journey as well as throughout my career and personal life. To my wife of almost 20 years, Andrea, you have been by my side through all of the good and bad and for that, I am forever grateful. To my kids Addison and Charley, thank you for always being there for me and bringing a smile to my face on a daily basis. During the overwhelming feelings and frustrations associated with this journey, as my family, you all have always been behind me every step of the way. As this journey comes to an end, I appreciate all of the love and support you all have shown me during this time. No one knows what the future holds, but I am happy to have a support system that encourages me to accomplish things I never thought was possible. For that, I say Thank You and I Love You!!!

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Table of Contents

List of Tables

List of Figures

ABSTRACT

This qualitative study examined the perceptions of K-12 school staff in buildings that have recently performed facility upgrades or renovations in the past five years. The purpose of this study was to get an understanding of staff perceptions related to the impact of school facility improvements on students. The main questions that guided this research were:

1.) What is the perception of staff on facility upgrades/improvements and its impact on student engagement?

2.) What is the perception of staff on facility upgrades/improvements and its impact on student and staff safety?

Data collection consisted of surveys and interviews within the Cumberland Valley School District and the Mechanicsburg Area School District, both located in Mechanicsburg, Pennsylvania. These surveys and interviews proved to be invaluable because perceptions were being considered from individuals that work daily in the day-to-day operations of a building, its professional staff, support staff, and administrators. This process allowed those individuals to reflect on their students and themselves in regards to the school districts commitment to facility upgrades and improvements.

CHAPTER I

School facilities are essential for learning throughout the various levels of education. School facilities can help to establish a positive culture fostering learning at many levels impacting learning and teaching. The school facility itself should be student and staff friendly, clean, and have adequate lighting to ensure the best possible learning environment is achieved. Along with this, school safety should be a top priority and a safe learning environment allows students and staff to learn and teach without additional worries. Quality of school facilities and student achievement are linked to student success in English and Math (Uline & Tschannen-Moran, 2008).

Background

As Superintendent of the Steelton-Highspire School District, an urban school district in central Pennsylvania, it is imperative to look for equitable ways to level the playing field for students to learn and staff to teach. Students in my district face daily challenges and barriers impacting their education. I currently work in a small school district with a population of roughly 1350 students from a background of roughly 95% poverty. My district has an elementary school constructed in 2006 and serves students in grades K-6. It also has a Jr./Sr. High School constructed in 1955 and serves students in grades 7-12. Even though one building is newer, both buildings have their drawbacks when it comes to affecting education and promoting a positive school culture. The school district also has an outdated athletic complex constructed in 1894.

From the outside, the elementary school looks newer and is aesthetically pleasing to the eye. A small portion of the elementary school was constructed on land that was part of a landfill. The school district maintenance team and subcontractors are constantly

working to remedy issues related to the original construction. Malfunctioning HVAC units, restroom repairs, and structure issues lead to constant room closures and shuffling of classrooms on a regular basis. Improving simple school facility issues will have a positive impact on students and teachers daily lives. Schools should be warm and inviting while ensuring a level of safety for everyone who enters. A secure entrance was established for visitors to ensure safety for all students and staff. Ensuring safety for students and staff are a necessity when looking to improve facilities, even one as new as this one.

From the outside, the Jr./Sr. High School has an institutional or prison look to is as many school buildings constructed during the 1950's did. The costs associated with upgrades to such an outdated facility are astounding. Original infrastructure like plumbing make it almost impossible for school district maintenance personnel to make repairs. Renovations have taken place over the years resulting in new LED lighting throughout the entire school, updated auditorium seating, air conditioning, etc., but the majority of the school remains from its original construction. Recent projects focused on priorities and compliance have resulted in new gymnasium bleachers to ensure the Americans with Disabilities Act is being adhered to. When this building was constructed, the need for drastic safety measures were not needed. Ensuring safety for students and staff led to the main office renovation ensuring a secure entrance be installed for visitors. Allowing students and staff to feel safe while learning and teaching is occurring will have a positive effect on school culture for years to come.

Capstone Focus

Facility upgrades and improvements are essential to ensure students have an equitable educational experience similar to all other students in the state of Pennsylvania. Equitable experiences related to student engagement and safety will help to strengthen a positive school culture. This qualitative study will examine the perceptions of K-12 school staff in buildings recently undergoing facility upgrades or renovations in the past five years. The purpose of this study is to get an understanding of staff perceptions related to the impact of school facility improvements on student engagement. It will also get an understanding of staff perceptions related to the impact of school facility improvements on safety as it relates to students and staff. Data collection will consist of surveys and interviews within the Cumberland Valley School District and the Mechanicsburg Area School District, both located in Mechanicsburg, Pennsylvania. These surveys and interviews will prove to be invaluable because perceptions are being considered from individuals working daily in the day-to-day operations of a building, its teachers, staff, and administrators. This process will allow those individuals to reflect on their students and themselves in regards to the school districts commitment to facility upgrades and improvements.

Research Questions

The impact of facility upgrades/improvements on students will be essential for growth of individual students as well as the entire school district. A survey and interviews will be utilized to gain information pertaining to the following research questions:

1.) What is the perception of staff on facility upgrades/improvements and its impact on student engagement?
2.) What is the perception of staff on facility upgrades/improvements and its impact on student and staff safety?

Expected Outcomes

Over the years, the Steelton-Highspire School District has performed minimal upgrades to their school buildings, which has led to deteriorating facilities. The Jr./Sr. High School was built in 1955 and has minimal renovations since its construction, including the most recent with a focus on safety and security. The Elementary School was built in 2006 and the only updates it has received were in the areas of safety and security. The school district also has an outdated athletic complex constructed in 1894.

Being able to show the impact facility upgrades/renovations potentially have on student engagement and school safety to the stakeholders within the Steelton-Highspire School District will allow them to make informed decisions regarding future renovation or new construction projects.

Fiscal Implications

The researcher will be creating surveys utilizing Google Forms, which will be sent to participating school districts teachers and staff. This survey will be voluntary and will be no cost for any participant. An indirect cost would be the time and effort of the researcher and the survey participants. The researcher will utilize the anonymous responses from the survey and compile them to share with school district stakeholders to review when considering any facility upgrades/improvements.

In conjunction with the research, the Steelton-Highspire School District has contracted with an architectural firm to conduct a feasibility study. This feasibility study will look at the current state of district facilities and options will be presented as a result of the study. The cost of the feasibility study is $2500.00 and will be completed over a 1-2 year period.

Summary

Qualitative data will help me get a better understanding of the impacts of facility improvements various districts had performed within the last five years and the perceptions staff have toward the impact on students related to student engagement and school safety. Qualitative research data will be able to give a good perspective of the opinions and feelings of staff to potentially provide data to stakeholders within my own organization. Through a semi-structured interview with staff, I will have a set of predetermined questions given leading to a more meaningful discussion around the impact facility upgrades/improvements had specifically on students. Specific data related to student engagement and school safety with specific schools during the pre-construction and post-construction timeframes will be collected and analyzed. The goal of this research is to gather relevant data and utilize to make informed decisions related to facility upgrades/improvements.

CHAPTER II

Literature Review

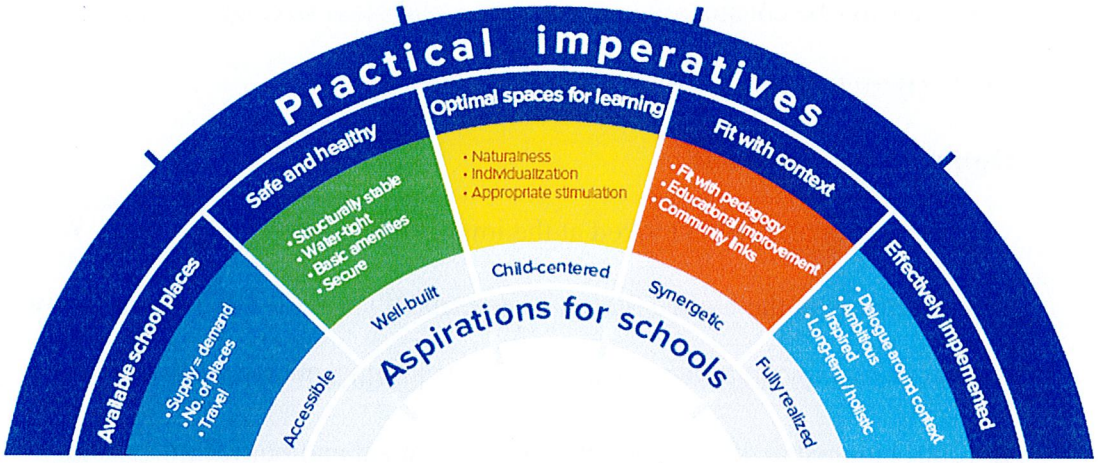
Introduction

Barrett et al. (2019) provides a perspective related to school facilities and the potential impact on students. As suggested by World Bank Group (2018), educational facilities need to be designed in a way that promotes accessibility and effectiveness of the education that is being offered. The World Development Report realizes that more attention must be paid to measuring and improving the quality of learning because the recent expansion of education does not guarantee achievement of learning outcomes (World Bank Group, 2018). Dumont et al. (2010) states to enable students to meet the demands of teachers in the future, it is important to develop skills of both the students and teachers. Keeping in line with the Organization of Economic Cooperation and Development's learner-centered principles, there is an emphasis on future-oriented skills (Dumont et al., 2010).

When searching for optimal designs for school infrastructure, policymakers and planners need to consider the relationship between school infrastructure and academic outcomes. Barrett et al. (2019) found that this relationship focuses on several key categories that will be addressed throughout the report. Figure 1 describes various learning environments that can lead to better educational outcomes.

Figure 1

Learning environments for better educational outcomes



Note. Figure 1 shows the analysis of the key categories of this report in the areas of available school places, safe and healthy, optimal spaces for learning, fit with context, and effectively implemented. From "The Impact Of School Infrastructure On Learning: A Synthesis of the Evidence," by P. Barrett, A. Treves, T. Shmis, and D. Ambasz, 2019, *World Bank Publications.*

Access to Education Infrastructure

Barrett et al. (2019) continues to provide perspectives related to school facilities and the many factors that may have an impact on students. Educational facilities infrastructure focuses on many disciplines. Barrett et al. (2019) suggests that to have a positive effect on education, facilities need to be accessible, safe and healthy, optimal learning spaces, and fit with the educational mission and vision of the school district. As reviewed by Barrett et al. (2019) expectations for all stakeholders needs to be developed

and there should be a clear path for all stakeholders to meet those expectations. School facility planners need to have an understanding of these and they are charged with coming up with solutions that meet both current and long-term needs. Some needs that should always be considered are school size and class size, options for space use, and equity (Barrett et al., 2019).

Optimal Size of Schools

Barrett et al. (2019) looked at the impact of the size of the school. When looking at size of schools in the United States, larger schools provide education at a lower cost per student. Research suggests that small schools produce better academic results. Bingler et al. (2001) looked at 489 schools that were designed and built from 1990 to 2001. It concluded that small schools can be built and operated cost-effectively. It mentioned that small schools are not totally effective due to being small, they work best when they take advantage of being small. Small schools offer an environment that is home-like and offers students, parents, and teachers a space where they feel a part of the community. The most common drawbacks to larger schools are higher transportation costs, higher administrative overhead, lower graduation rates, higher absenteeism, higher rates of vandalism, and lower teacher satisfaction

In 2001, the evaluation of high school grants program provided to small schools in New York City aimed to prepare low-income, African-American and Hispanic youths for higher education and the workplace (American Institutes for Research, 2005). The evaluation found that these students felt more interested in their work and more supported by their teachers. This evaluation found that students had attitudes that are more positive and a 60% higher attendance rate. Students also reported that they planned to graduate

from high school and apply to post-secondary education. Bloom et al. (2010) found that students in small schools made academic progress significantly in their first year, but the success carried into their senior year. Hence, increasing graduation rates.

Leithwood and Jantzi (2009) looked back over 45 years of research related to school size, Looking specifically at the last nine years of their research, they concluded that smaller schools contribute to positive outcomes. Leithwood and Jantzi (2009) determined that higher student achievement, increased attendance, increased graduation rates, and more engagement in extracurricular activities were some of their findings. It was determined that these findings are more powerful in relation to disadvantaged students (Leithwood & Jantzi, 2009).

Class Size and Density

Barrett et al. (2019) looked at the impact of class size within various schools. According to the Program for International Student Achievement (PISA), Finland has one of the highest education scores in the world. Schools have an average of 195 students in them with class sizes averaging 19 students (Finnish National Board of Education, 2016, as cited in Barrett et al., 2019). The current thinking of the Ministry of Education is that a student's potential should be maximized by teaching them in small groups and providing them with strong educational guidance (Finnish Ministry of Education, 2012, as cited in Barrett et al., 2019). This principle fosters closer relationships between teacher and students, students and students, and between community and school. Ultimately strengthening the commitment to education from all stakeholders. There is evidence from around the world showing better academic results benefitting from smaller class sizes (Blackmore et al., 2011; Brühwiler & Blatchford, 2011).

Finn and Krueger (2001) researched class size as another factor that can impact student success in a positive way. Finn and Krueger (2001) conducted The Tennessee STAR (Student Teacher Achievement Research) This was a randomized study of students from Kindergarten to third grade who were randomly placed in either small or large classes. The students placed in the smaller classes, roughly 13-17 students per class, scored about 5% higher than students in the larger classes (Finn & Krueger, 2001). Another study published by the Los Angeles Unified School District (Fidler, 2001) in which parameters were equal, found that when students are taught in smaller classes, the higher their achievement is in reading and language. Larger gains were also seen in mathematics, except for students with limited English proficiency.

In 1990, California's Classroom Size Reduction (CSR) Initiative was initiated as a state-wide effort to reduce class size. The National Assessment of Educational Progress (NAEP) conducted a study which included a review of test scores prior to CSR and afterwards for California and other states. It was concluded that CSR had a positive, significant influence on achievement scores for California students (Unlu, 2005, as cited in Barrett et al., 2019).

Overcrowded conditions hinder students' academic performance. A 1995 study by the New York Board of Education collected data from 213 teachers and 599 students (Rivera-Batiz & Marti, 1995, as cited in Barrett et al., 2019). Teachers and students from this study indicated negative sentiments towards school overcrowding such as being overwhelmed, discouraged, and disgusted. Some teachers and students felt this was the most serious issue facing schools. These sentiments were found to be stronger in schools with higher proportions of students from low socioeconomic backgrounds where

overcrowding was linked directly with lower achievement. One limitation of the study is a classroom being a fixed space and a class being assigned to one teacher. Many countries are moving toward flexible spaces, team teaching, and small group work that directly benefits students. Flexibility can make teaching more efficient and make more efficient use of school facilities (Rivera-Batiz & Marti, 1995, as cited in Barrett et al., 2019).

Learning Spaces and Educational Technology

Barrett et al. (2019) investigated the impact on students related to learning spaces and technology. Barrett et al. (2019) suggests the increase in educational technology can influence learning spaces within a school. This increase in educational technology allows students to spend more time potentially learning outside of the classroom. In primary grades, students are relegated to their "home" classroom where most of their activities occur. Students may go elsewhere for art, music, physical education, and outside learning but they always return to their "home" classroom. In a majority of secondary classrooms, students often rotate through various subject classrooms as well as science labs, art workshops, library, athletic fields or gyms. Throughout this concept, a fixed schedule allows different groups of students to utilize classrooms the same way they would use labs or music rooms. By establishing a rotation, for more specialized classrooms to be used more frequently and efficiently, overcrowding situations in schools may be alleviated. Barrett et al. (2019) stated that when space is limited, flexible furniture and equipment allow students to work through collaboration, teamwork, and additional interpersonal skills. These concepts can enhance the quality of education through

appropriate planning, design, and patterns of operations within the school settings (Barrett et al., 2019).

Barrett et al. (2019) explained educational technology allows students to spend more time outside of the classroom and the potential to learn at their own pace in various settings. Repurposed areas within school settings have become popular learning spaces. Some of those areas are purposely designed breakout spaces, outside learning areas, corridors, staircases, and even cafeterias. The design of formal and informal learning spaces are created with flexibility and adaptability in mind. Barrett et al. (2019) further explains that creating these types of learning spaces give students more diverse learning opportunities and experiences, but also opportunities to develop non-cognitive skills. The Organization for Economic Co-operation and Development (OECD) completed and investigation into school settings that made a major investment in technology (OECD, 2015). They came away with mixed feelings finding that moderate use of computers in classrooms assisted learning outcomes, but also learned some negative effects of heavy computer use. The OECD found that conceptual understanding and higher-order thinking requires intensive teacher-student interaction. Technology sometimes distracts from this valuable human engagement element. The use of technology should be aligned with pedagogies used in schools. School buildings need to be planned and designed with educational requirements in mind to ensure its utilization as a "third teacher" (Barrett et al., 2019).

While this review is primarily focused on physical spaces influencing education, it should be noted there are other factors that could be investigated further related to impacting education for students. The number of seats in a school and how they are set

up are important to education, although the length of the school day can be important factor to investigate. Around the world, this concept varies from country to country. An example of this is in Romania where students attend school half a day as part of a two-shift system (Barrett et al., 2016). There is also evidence that starting the school day later, especially for adolescents, is beneficial because it fits with their natural cycle of daytime alertness (Lockley, 2015, as cited in Barrett et al., 2019).

Implications for Equity

Barrett et al (2019) investigated the factor of equity in education that ensures that individuals are offered the same opportunities. The Center for Public Education (2016) suggested that equity in education is achieved when all students receive the resources that they need to graduate fully equipped for success after high school. Policymakers need to ensure that resources that students need to achieve their goals are distributed equally and fairly. This includes adequate school facilities so that students of all ages have the opportunity to attend school. Equity is a universal goal that includes all genders, students with special education needs and disabilities, urban, rural, and marginal populations, populations in transition, and works with children and youths.

When looking across the world, achieving equity ensures that all schools are safe from natural disasters as well as any other outside concerns. Barrett et al. (2019) suggested that schools should also have all of the spaces, furniture, and equipment needed to deliver and effective curriculum. Cotton (1996) referenced the fact that many poor students and those of racial and ethnic minorities have to attend larger schools than other students which can produce inequity. Cotton (1996) suggests that inequity can

mean the lack of or insufficient bathroom facilities, inadequate separation between boys and girls, and long or dangerous walking distances to school.

Another form of inequity is the discrimination against students with disabilities. Cotton (1996) explained examples of discrimination against students with disabilities are lack of ramps, inadequate bathroom facilities, poor signage, and a lack of support from specialized teachers. This type of discrimination should be an easy problem to solve by updating facilities to meet current code and design standards existing in many countries.

Schady and Paxson (1999) suggests that inequitable educational resources creates frustration and resentment among students, families, and teachers. This can result in increased student dropout rates and increased teacher absenteeism. Subsequently, ensuring that schools have adequate facilities can have a major positive effect and impact on students and staff. It could also play a definitive role in improving equity, increasing attendance, and encouraging student retention. World Bank professional study (Schady & Paxson, 1999) conducted in Peru, that building and renovating school facilities had a positive effect on attendance rates.

Safe and Healthy School Buildings

Barrett et al. (2019) reviewed various elements associated with safe and healthy school buildings. Safe and healthy school buildings are essential for the educational success of all students as well as the teachers that deliver the education. Threats to the safety of schools can come from inside and outside of the school buildings.

Impact on Students

Barrett et al. (2019) looked at the impact on students that safe and healthy school buildings can have. According to Earthman (2004), the most important elements related

to health and safety in schools are potable water, fire safety, adequate lavatories, security systems, and a good communication system for use in emergencies. Many building-related factors influence the well-being of its occupants. Water and moisture can have a major impact on public health. Poor air quality has been identified as a source of health problems (US National Research Council, 2006). Dampness was the main cause for student and teacher absences from schools (Issa et al., 2011; Kielb et al., 2015; Mendell & Heath, 2005). In closed environments, respiratory problems are the main cause of absenteeism in schools. An estimated more than 10 million days of schooling are lost in the United States due to asthma attacks among students (U.S. Environmental Protection Agency, 2000). Simons et al., (2009) found that the growth of mold and the proliferation of dust mites can be caused from moisture and dampness. Mold and dust mites can foster infections and produce allergic respiratory symptoms. Inadequate airflow can increase the transmission of respiratory infections. According to Shendell et al. (2004), poor ventilation enables pollutants and allergens to accumulate inside school buildings and led to an increase in student absences from 10%-20%.

Impact on Teachers

Barrett et al. (2019) looked at the impact on teachers that safe and healthy school buildings can have. Teachers are affected by health and safety concerns that impact them as they perform their job duties. Studies in 2004 and 2016 found a relationship amongst United States and United Kingdom teachers regarding the maintenance and condition of school buildings and the teachers desire to stay or leave the profession. The state of the school infrastructure was more significant than their salary levels (Buckley et al., 2004; Thomas & Pasquale, 2016, as cited in Barrett et al., 2019).

Significance of the Impact

According to the American Federation of Teachers (2006), teachers, staff, and students believe that conventional school construction often falls short of expectations. This is due to having to work in buildings with leaking roofs, inadequate ventilation, and other problems. The World Health Organization (2015) explained that deplorable building conditions have caused students, teachers, and staff to pay the price over the years in the form of lower educational achievement, lost income, and health problems. The United States and United Kingdom are wealthy countries. Due to this, problems associated with school infrastructure are much worse in many other regions around the world (World Health Organization, 2015).

Significance of Equity

Barrett et al. (2019) reviewed the concept of equity as it pertains to infrastructure. Earthman (2004) highlighted the important factor of inequity when looking at the relationship between school building conditions and student achievement. Earthman (2004) explained that older school buildings in the poorest condition were located in the poorest areas of school districts within both urban and rural areas. Earthman (2004) continued that students from poor areas perform lower than students from more affluent areas. Low-income students are disadvantaged when they attend school in buildings that do not even meet basic safety and health standards. When the educational system chooses not to make improvements to old, failing facilities, students view the educational system as valuing them less than their counterparts in more affluent areas (Earthman, 2004).

Baseline Conditions for Learning

Barrett et al. (2019) has shown that many researchers have investigated the positive and negative effects of school design on academic outcomes. Specific aspect of school facilities, such as air quality, are gaining attention when it comes to improving school infrastructure. Barrett et al. (2019) described that Baseline Indoor Environmental Quality factors as well as other factors related to infrastructure are reviewed related to their individual impacts on learning (Barrett et al., 2019).

The Impact of Particular Factors on Learning

Barrett et al. (2019) looks at various factors that impact learning. Barrett et al. (2019) suggests Indoor Environmental Quality factors of school buildings that influence learning are light, air quality, temperature, and acoustics. These factors, known as the "big four", have an effect of academic outcomes in schools (Barrett et al., 2019). The US National Research Council (2006) found that daytime lighting is good to see well enough to read. In addition, the non-visual impact of light of people's circadian rhythm and alertness has positive effects. Poor air quality that is measured as having high levels of carbon dioxide can reduce a student's ability to concentrate and perform well on tests (Shaughnessy et al., 2006; Wargocki & Wyon, 2007). Two recent studies performed in Scandinavia have reinforced the educational value of good air quality (Toftum et al., 2015; Toyinbo et al., 2016). There is a comfortable temperature range that is acceptable for humans. There is evidence that maintaining a comfortable temperature range is important for teachers well-being (Sadick & Issa, 2017) and students' academic Performance (Goodman et al., 2018; Haverinen-Shaughnessy et al., 2015). Research has confirmed that children, especially boys, prefer cooler temperatures than adults do (Roaf,

et al., 2015; Teli et al., 2013). Standards are generally written based on the framework for adults. Conditions that allow clear communication to take place and good acoustics are important. External noise can be an issue that negatively affects academic progress (Lukas et al., 1981). Examples of external noise are traffic, airplanes, and children playing nearby.

These problems can have a cumulative effect on outcomes. Earthman (2004) describes a "poor" school as one that does not have adequate health and safety conditions as noted previously. Health and safety conditions that may be lacking are adequate ventilation and temperature, lighting, acoustics, or functional furniture. It may include some variation or combination of these conditions. His research has found that students who went to school in poor buildings scored between 5-10 percentile rank points lower on academic tests than students in good functioning buildings did.

The Holistic Impact of School Spaces on Learning

Barrett et al. (2019) also looked at holistic impacts that school spaces have on learning. A holistic approach to studying the effects of school buildings on academic outcomes of students has been used by some researchers when assessing the characteristics of schools as a whole (Tanner, 2009). Utilizing this approach has offered some insights, but it cannot control for individual pupil and teacher effects which account for 50% and 30% of pupil progress respectively (Hattie, 2008; Nye et al., 2004). Multi-level modeling may be a possible solution to this problem (US National Research Council, 2006).

Loisos (1999) found a positive strong connection between learning rates and high natural light levels. The group repeated the study in 2003 and the results were not

replicated when the study was repeated (Heschong, 2003) in another part of the United States that had a climate that was much hotter and drier. Heschong (2003) describes that this led the researchers to make further investigations that found that in this second location, views from windows were a positive influence, although glare and overheating had a negative influence. Heschong (2003) also found other factors such as acoustic reverberation problems enhanced due to the availability of breakout spaces for one-to-one sessions. It was concluded that the reverberation issues might be occurring due to the lack of acoustic planning or isolation materials like special ceiling, carpeting, or wall panels for those spaces. During the researcher's observations, many other factors were observed such as teachers opening windows to let cooler air in to attempt to cool the classrooms. This allowed noise to enter the classroom from outside sources and caused air quality problems. This study showed that there are many factors to consider that affect classrooms at the same time that may have an effect that alters student learning (Heschong, 2003).

Barrett et al. (2019) took a deeper dive into The Holistic Evidence and Design (HEAD) Project. The HEAD Project took place within primary schools in England. Three geographic locations were included in this study, but the climatic conditions were all rather temperate by world standards. The study avoided the problem of hidden cofounding factors implicit in any partial analysis; it factored in as wide a range of factors as possible within a new neuroscience-informed conceptual model. It also used multi-level modeling at the individual pupil level, classroom level, and whole school level, it addressed the issue of inadequate granularity. This study explored the connection between the characteristics of physical school design and nationally

recognized teacher assessments of pupil's academic progress (the core educational measure in the United Kingdom); it went beyond the students subjective preferences. It also generated practical findings relevant to existing buildings as well as new designs by assessing the actual characteristics of real schools (Barrett et al., 2019).

Barrett et al. (2019) explained that the HEAD study suggested that users were expected to experience particular spaces via multiple sensory inputs. Looking at the effects of these sensory inputs can show how the environmental factors influence academic progress and other "emergent properties" (Checkland, 1999). The environmental factors studied can be selected on measurability as well as how the brain functions. Utilizing Roll's (Rolls, 2005) description of the brains implicit systems, the HEAD project team developed the Environment-Behavior (E-B) model (Barrett & Barrett, 2010). This model reflects humans "hard wired" response to the availability of healthy, natural elements in their environments, their desire to interact with spaces according to our individual preferences, and the various levels of visual stimulation appropriate to users engaged in different activities. The team established three broad categories of design elements that are naturalness, individualization, and stimulation. Naturalness is described as light, sound, temperature, air quality, and links to nature. Individualization is described as ownership, flexibility, and connection. Stimulation is described as visual complexity and color.

The HEAD project team researched the elements that might be of a good design for schools. They reviewed 144 papers, which resulted in a clear and balanced set of factors to be tested (Barrett & Zhang, 2009). A brief summarization of the research findings according to the three categories of design elements showed that naturalness

utilized research that looked at optimal lighting levels (Loisos, 1999; Heschong, 2003), optimal acoustics (Canning & James, 2012; Shield & Dockrell, 2003), optimal learning temperatures (Szokolay, 2003, as cited in Barrett et al., 2019), and optimal air quality (Bakó-Biró et al., 2012; Mumovic et al., 2009). Individualization described elements of flexibility and ownership showing how well the classroom is adapted to a child's needs. Aiming to create a child-centered environment that has been proven to facilitate learning, ownership expresses how much the class is organized for both the class as a whole as well as the individual student (Killeen et al., 2003; Skinner et al., 1990). Both flexibility and ownership have been found in research as being important aspects of the physical classroom environment (Higgins et al., 2005). A third parameter of individualization is connection. Connection is looking at the width and direction of corridors so that navigation throughout the school is easy (Alexander et al., 1977; Tanner, 2009). Stimulation is described as the degree of visual stimulation within a classroom is measured in terms of color and complexity. There is extensive research that has shown that color can affect children's moods, mental clarity, and energy levels (Engelbrecht, 2003). Measuring complexity relates to the visual impact of both display and architectural elements in the classroom. A 2014 study found more distraction and off-task behavior in children in more visually complex environments (Fisher et al., 2014, as cited in Barrett et al., 2019).

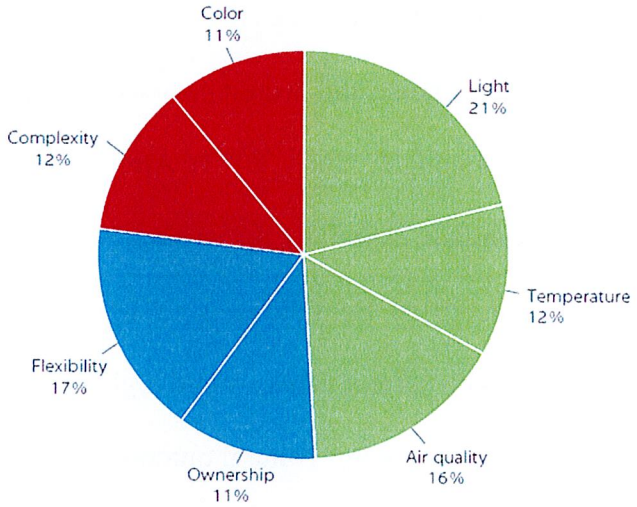
All of these factors are likely to have an effect on how students learn. The HEAD study (Barrett et al., 2015) investigated academic progress of students in 153 classrooms in 27 primary grade schools in three United Kingdom regions. Primary students spend the majority of their time in one classroom, so detecting if the space had any impact on their

learning will be noticeable. The study recorded each students starting and finishing scores in the subjects of reading, writing, and mathematics as well as the characteristics of each classroom. The HEAD study confirmed that variations in physical design aspects of their learning environments explained 16% of the variation in the learning progress made by the students over one year's time. This also averaged across the three subjects, showing a very significant scale of impact.

Barrett et al. (2019) suggests all of the factors considered in the study were significant towards learning progress. Once the pupil effects had been controlled, seven key design factors were identified. They were light, temperature, air quality, ownership, flexibility, visual complexity, and color. Figure 2 describes all of these design factors.

Figure 2

Contribution of each classroom measure



Note. Figure 2 shows the analysis of the key seven key design factors were identified. They are light, temperature, air quality, ownership, flexibility, visual complexity, and color. From "The Impact Of School Infrastructure On Learning: A Synthesis of the Evidence," by P. Barrett, A. Treves, T. Shmis, and D. Ambasz, 2019, *World Bank Publications.*

Barrett et al. (2019) explained that the findings from the HEAD study show the importance of physical design of schools to support both the students' health as well as supporting their learning. The findings also show the impact on learning is driven by students' multidimensional experience of classroom spaces. The classroom space planning process will have to consider solutions for maximizing the beneficial effects of all of these factors. The impact of these factors is even greater for students with special needs.

The HEAD study findings found the acoustics to not be a significant influence. The majority of the classrooms observed were large in size and were fitted with carpeting and acoustic ceiling tiles. If the acoustics in a classroom were poor due to the rooms design or other sources of noise, this would have clearly had a negative impact on the educational process (Canning & James, 2012). After data was reanalyzed, links to nature emerged as being important, especially for writing, which emphasizes individual creativity (Barrett et al., 2016). Benfield et al. (2013) found that students who were housed in classrooms with natural views scored higher in a college writing course than students in windowless classrooms. Natural outdoor spaces have been found to encourage more creative play (Campbell & Frost, 1985; O'Brien & Murray, 2005, as cited in Barrett et al., 2019). Connection was another factor that was not a significant influence. This was mainly due to the study's focus were on students who utilized a single classroom for all subjects. It is determined that connections spaces would have more of an impact in secondary schools and universities where students circulate amongst different classrooms.

School-level factors were some elements that did not emerge as significant from this study (Benfield et al., 2013). School-level factors were outside play facilities, the external appearance of the school building, and the layout of the school. This was initially surprising, but became relevant when it became apparent that it was a result of a higher level of variation related to the learning effectiveness of the classrooms rather than between schools. Any analysis for designing a new school or improving an older school needs to analyze each classroom first. This process is known as the "inside-out design."

(Franck & Lepora, 2007). Figure 3 describes classroom characteristics that increase learning.

Figure 3

Classroom characteristics that increase pupil's ability to learn

AUTHOR/DATE	TITLE	METHOD	MAIN FINDINGS/FUTURE WORK
Schneider 2002	*Do School Facilities Affect Academic Outcomes?*	Literature review of 137 sources	The review found that spatial configuration, noise, heat, cold, light, and air quality all affect learning. However, more definitive findings are needed.
Woolner et al. 2007	*A Sound Foundation? What We Know About the Impact of Environments on Learning and the Implications for Building Schools for the Future*	Team literature review of 200+ sources	The review found clear evidence that extremes of environmental elements affect learning but not as much once the elements are raised above minimum standards. It strongly recommended to involve users in the process of change. However, overall, there was not enough empirical evidence to inform the design of future infrastructure projects.
US National Research Council Committee 2006	*Green Schools: Attributes for Health and Learning*	Team literature review of 392 sources (general—applied to green design).	Generally, the review found that pupils' health and learning were positively affected by good indoor air quality, thermal comfort, good acoustics, well-maintained systems, and clean surfaces. The study's main focus on health highlighted problems associated with excessive moisture. More research is needed at the individual level of analysis.
Blackmore et al. 2011	*Research into the Connection between Built Learning Spaces and Student Outcomes*	Literature review of 700+ varied sources	The review found very little empirical evidence specifically linking design elements of learning spaces to student outcomes. The review found that studies tended to over-emphasize the design stage and not pay enough attention to how it interacts with users, to the dynamics of implementation, or to the relevance of the design to types of educational practice.
UNESCO Institute for Statistics 2012	*A Place to Learn: Lessons from Research on Learning Environments*	Literature review of 91+ sources	The basics of IEQ are well known, but the "learning environments research" field is developing rapidly. However, its conclusions are hard to apply in practice outside the developed world.
Davies et al. 2013	*Creative Learning Environments in Education: A Systematic Literature Review*	Literature review of 210 sources (including how the physical environment affects creativity)	The review highlighted the importance of light, color, sound, and micro-climate in engendering creativity but also space, flexibility, the availability of resources, and links to outside actors. It stresses the link between design elements and pedagogical issues such as how to strike the right balance between freedom and structure in learning.
Bluyssen 2016	*Health, Comfort, and Performance of Children in Classrooms*	Literature review of 100+ sources	The review found evidence that design elements have affected learning, absenteeism, and, mainly, health. It concluded that there is a need for more experimental and/or longitudinal research with parameters for children.

Note: IEQ = Indoor Environmental Quality.

Note. Figure 3 describes the many characteristics of classrooms that have been shown to improve student learning. The importance of each factor in the classroom will vary depending on the context. From "The Impact Of School Infrastructure On Learning: A Synthesis of the Evidence," by P. Barrett, A. Treves, T. Shmis, and D. Ambasz, 2019, *World Bank Publications.*

Barrett et al. (2019) outlines that there is solid evidence of the factors highlighted in the table above to have a positive impact on learning. Factors such as natural conditions pertaining to lighting, air quality, temperature control, acoustics, and links to

nature. Also, learning spaces offering flexible learning opportunities that are age-appropriate that students can adapt and personalize. Another factor is connections between learning spaces that may provide additional learning opportunities as well as be easy to navigate. Color and visual complexity are used to produce mid-level ambient stimulation. Each learning space needs to meet its students, so schools are designed with inside out mentality (classroom to school). Finally, local climatic and cultural conditions are taken into account when designing spaces.

The HEAD study revealed the combined impact of these factors. These factors can translate well into other educational situations around the world, with the appropriate adjustments related to geography and culture as needed. A sense of ownership, an appropriate level of visual stimulation, the right amount of natural light, and plentiful fresh air are all factors that are likely to be consistently important. How these factors are achieved and which ones have the most impact will depend on local climatic and cultural circumstances (Barrett et al., 2016).

Linking School Design to Pedagogy and Community

Schools need to be safe and healthy and be designed to foster learning. Student interactions with their teachers fostered by the pedagogy being used will also determine how well they learn. The implications of pedagogy for school layout and design are important and need to be thought out throughout any discussions related to improving or constructing facilities for learning. Schools also need to be designed in a manner that fosters complimentary relationships between schools and their communities.

Pedagogy and Space

Barrett et al. (2019) found that many schools around the world are still educating students in a traditional way using pedagogy where the teacher is located at the front of the classroom and students are seated in rows. Teachers were taught this way of teaching as an effective way to deliver facts.

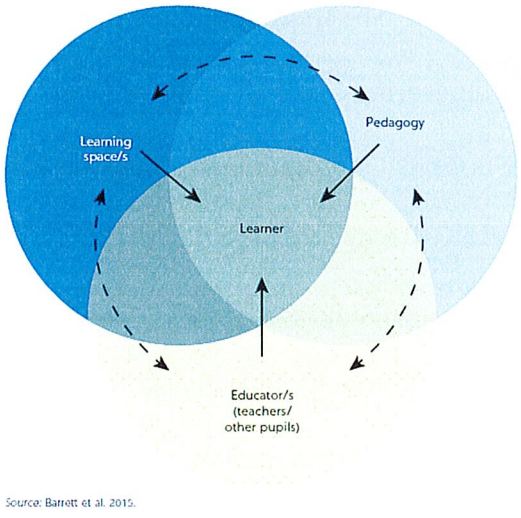
OECD (2013) broke down seven principles that should guide creating learning environments for students. The first principle is recognizing learners as the core participants, encouraging their active engagement, and developing in them an understanding of their own activity as learners ("self-regulation"). The second principle is being founded on the social nature of learning and actively encouraging group work and well-organized co-operative learning. The third principle is employing learning professionals who are highly attuned to learners' motivations and the key role played by emotions in achievement. The fourth principle is being acutely sensitive to individual differences among the learners, including the type and extent of their prior knowledge. The fifth principle is devising programs that demand hard work and that challenge everyone without excessive overloading them. The sixth principle is operating with clarity of expectations and using assessment strategies consistent with these expectations, with a strong emphasis on formative feedback to support learning. The final principle is strongly promoting "horizontal connectedness" across areas of knowledge and subjects as well as with the community and the wider world (Dumont et al., 2010).

There are a wide range of theoretical frameworks and models that influence learning. Pedagogies can stretch from a purely didactic model, to a blended approach, to a full student centered model. The blended approach typically consists of groups of tables

with small groups of four to six students with various ranges of learning zones (Barrett et al., 2015). This model allows occasional teaching to take place in the front of the classroom, but it enables students work in small groups or pairs. It also allows students to engage in self-directed activities in various learning zones, but still be able to get one-on-one interventions from teachers. These approaches require different space configuration (Guney & Selda, 2012). This also has been clearly illustrated in Russian Federation (Shmis et al., 2014) where didactic approaches through "institutional typologies" and more open and flexible spaces or "educational landscapes" to support student-centered pedagogies. Figure 4 illustrates how teacher, space, and pedagogy support learning.

Figure 4

Learning Interactions: Teacher, space, and pedagogy



Note. Figure 4 illustrates the teacher, the spaces, and the pedagogy all support the student in going beyond their current developmental stage and obtaining a higher skill level. From "The Impact Of School Infrastructure On Learning: A Synthesis of the Evidence," by P. Barrett, A. Treves, T. Shmis, and D. Ambasz, 2019, *World Bank Publications.*

As explained by Barrett et al. (2019), there is a global trend toward towards a more student-centered approach. This philosophy aligns with concept of considering the learning environment as being more than just a physical environment as indicated within the OECD ILE principals. Higgins et al. (2005) found that the many interacting pedagogical, socio-cultural, curricular, motivational, and socioeconomic factors that operate within schools are influenced by changes in the physical environment on cognitive and affective measures. It is much more than just simple architectural design.

Barrett et al. (2019) describes the relationship between pedagogy and space is determined by layout, specifically traditional classrooms versus flexible/open layouts. A study conducted in four universities within the United Sates (Scott-Webber et al., 2013) used an instrument called the Active Learning Post Occupancy Evaluation Tool. The research asked participants to compare their experiences in a traditional classroom with rows of seating versus an active learning classroom where seating was situated in small groups fostering collaboration. The tool was made up of 12 factors including collaboration, focus, active involvement, opportunity to engage, repeated exposure to material through multiple means, in-class feedback, real-life scenarios, ability to engage ways of learning best, physical movement, stimulation, feeling comfortable to participate, and creation of an enriching experience.

Scott-Webber et al. (2013) determined four key findings came from the survey. The first finding reported that participants felt that active learning classrooms had a more positive impact on engagement compared to the traditional classroom. Scott-Webber et al. (2013) suggested that on each of the 12 factors above, each participant the active learning classroom better than the traditional classroom. Active learning practices and the

impact on physical space improved greatly in the active learning classrooms for both students and faculty. Finally, Scott-Webber et al. (2013) reported that both students and faculty within the active learning classrooms experienced higher engagement, expectations for better grades, encouragement for more motivation and creativity. The main goal should be to ensure an appropriate connection between space and the pedagogy used within that space. Shifting from traditional classroom models to active learning spaces will involve change that will need teacher support. Pedagogy and spaces will adjust to ensure the active learning classrooms are a success and supported by the teachers as they evolve (Scott-Webber et al., 2013).

Improving Schools and Increasing Community Wellbeing

Barrett et al. (2019) described that schools need to connect with the communities that support them. Urban communities rely on the school to support their needs. School buildings are connected to the communities they serve. Community engagement is a necessity where students and teachers need to interact with the environment that makes up each school. School buildings are typically the largest capital asset in a residential neighborhood. Filardo (2008) stated that the key to economic prosperity of American communities and the United States used to be public schools. She noted that management and investment in school buildings pays off in three ways. They are providing skilled jobs in local communities, improving quality of life through healthy, safe, and educationally appropriate buildings create for students and teachers, and increased benefits that quality education provides for future generations.

Communities may lack large spaces for gathering and school buildings can fill that void. Providing communities members access to these large spaces can yield many

benefits (Seydel, 2016). It may create issues related to security, but it can easily be resolved by allowing use after school hours. Renting spaces within school buildings can also be a source of revenue for school districts.

Barrett et al. (2019) states that the effects of an attractive school facility go further than just the students. Students being educated in a good quality school building will have a major effect on parents, especially parents who are relatively uneducated. Parents want more for their children, so having access to exciting educational resources and gaining more skills and knowledge than the parents themselves will be met with little resistance. If parents are included in their child's education and feel a part of the opportunities an attractive school provides, then this will increase the development impact of the school on the community as a whole. When schools embrace the concept of lifelong learning, this opens the reach of education to a wider range of potential users (World Bank Group, 2003 & World Bank Group, 2011) and, at the same time, brings community members to the school and closer to decisions about what, where, and how. The relationship between schools and communities are an integral part to each other's success. Walden (2015) stated that the key to providing school facilities that meet current and future needs in a given community is to constantly scan the environment, communicate regularly with educators, community leaders, businesses, and policymakers and to stay aware of current, educational, design, and environmental issues.

Effective Planning and Implementation

The improvements of school facilities, through new construction or renovation, involves many people along the way. Planners need to take into account the issues described throughout this review. Barrett et al. (2019) suggests that the implementation

process brings a multitude of things together to ensure the school facility is constructed in an innovative manner. Barrett et al. (2019) suggests that school facilities need to be effective for both students and teachers.

Barrett et al. (2019) shares that effective communication will be key to the success of any project. Ongoing communication between educators, administrators, and facility planners will allow for flexibility to deal with challenges along the way. Communication will be necessary to consider findings from similar projects and for reviewing, reassessing, and combining them into solutions that fit a schools specific climate, culture, and resources (Lillrank, 1995) of the project being developed.

Summary

School facility as well as school facility improvements can have a major impact on student learning. The literature review shows that there are many factors that need to be considered when reviewing the impact that school facilities provide related to students and teachers.

In examining the research questions of this Doctoral Capstone Project, the literature review provides a justification for each research question as well as provides supportive research for each research question. The research questions for this Doctoral Capstone Project are:

Research Question 1

What is the perception of staff on facility upgrades/improvements and its impact on student engagement?

The research within the literature review describes the effects of particular elements within school facilities that impact student engagement and learning.

Descriptions of optimal learning spaces that include various characteristics that contribute to the outcomes of a student's academic success. Further research is provided that shows the impact of the benefits of pedagogy and a relationship between school and community to directly benefit students.

Research Question 2

What is the perception of staff on facility upgrades/improvements and its impact on student and staff safety?

The research within this literature review details the need for safe and healthy schools. Students and staff absences may be reduced if there is a sense of safety and security related to the school facility. School facilities must also be maintained properly to ensure they are in good physical condition for students, staff, and visitors.

As this doctoral capstone project progresses into Methodology Chapter III, utilizing both a survey and an informal interview process, it expands on how school building facility upgrades and improvements have an impact on student engagement as well as student and staff safety. In particular, these research instruments will provide a perceptual understanding of staff related to the research questions.

CHAPTER III

Methodology

This chapter will connect the literature reviewed throughout Chapter II to the methods used to answer the research questions of this doctoral capstone project. As written throughout Chapter II, student learning is impacted greatly from school facilities. The Literature Review provided a direct justification for each research question. It also provided supportive research for each research question. This chapter will explain the methodology to answer the research questions. The perception of school staff on facility upgrades and its impact on student engagement was studied. The research within the Literature Review describes the effects of particular elements within school facilities that affect student engagement and learning. Descriptions of optimal learning spaces that include various characteristics that contribute to the outcomes of a student's academic success. Further research is provided that show the impact of the benefits of pedagogy and a relationship between school and community to directly benefit students. The perception of staff on facility upgrades/improvements and its impact on student and staff safety was studied. The research details the need for safe and healthy schools. Students and staff absences may be reduced if there is a sense of safety and security related to the school facility. School facilities must also be maintained properly to ensure they are in good physical condition for students, staff, and visitors.

The first section of this chapter will explain the purpose of the study, describing the research questions and the rationale behind them. The second section of this chapter will describe the setting and participants, so the context of the educational environment can be understood. The third section of this chapter will provide the researcher an

opportunity to explain the research plan as it pertains to the needs of the research problem. The fourth section of this chapter will describe the research design used. It will also give a breakdown of the timeline followed as well as the data tools used including surveys and interviews. The final section of this chapter will describe the validity of the action-research study related to the research methods.

Purpose

The research suggests that having new or updated school facilities, schools experience an increase in student engagement as well as student and staff safety. This study will utilize surveys and interviews to gather information related to impact new or updated school facilities have on student engagement as well as student and staff safety.

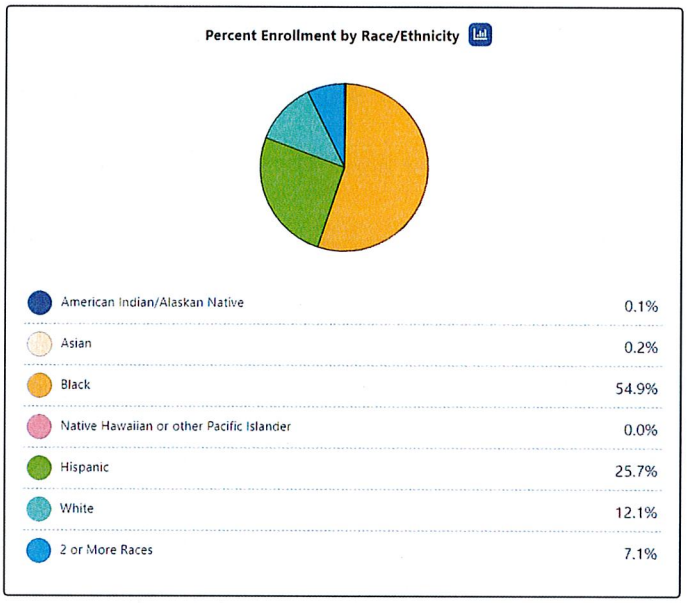
This study is relevant to the researcher because they are the Superintendent of the Steelton-Highspire School District and he wants to see what the impact on student engagement and student and staff safety may have if the district was to renovate its existing Jr./Sr. High School or even construct a new school building. Over the years, the Steelton-Highspire School District has performed minimal upgrades to their school buildings that has led to deteriorating facilities. The Jr./Sr. High School was built in 1955 and has minimal renovations since its construction. The Elementary School was built in 2006 and the only updates it has received were in the areas of safety and security. The school district has an athletic complex that was first constructed in 1894. If facility upgrades or renovations were to be proposed, demonstrating the potential effects they could have on student engagement, school safety, and reduced behaviors to the stakeholders in the Steelton-Highspire School District would enable them to make well-informed decisions.

The Steelton-Highspire School District is located in Dauphin County, Pennsylvania, just 4 miles south of the state capitol of Harrisburg. The school district is made up of two communities, the Borough of Steelton and the Borough of Highspire and cover an area of approximately 2.64 square miles.

With a student population of approximately 1323, the Steelton-Highspire School District is the fourth smallest school district out of ten school districts within Dauphin County. The school district enrollment has remained steady throughout the last ten years. Figure 5 illustrates the demographics for the Steelton-Highspire School District.

Figure 5

Steelton-Highspire School District Demographics



Note. Figure 5 shows the racial diversity of students enrolled in the Steelton-Highspire School District to be 54.9% Black; 25.7% Hispanic or Latino of any race; 12.1% White;7.1% Multi Racial; 0.2% Asian; and 0.1% American Indian/Alaskan Native. From"Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

Gender breakdown is 48.4% female, 51.6%male. The school district has 82.1% of the students identified as economically disadvantaged, 19% of the students are identified as special education, 1.5% of the students are connected to the military, 6.6% of the students are English language learners, 6.1% of students are identified as homeless, and 1.2% of students are listed within a foster care. The Steelton-Highspire School District is a Community Eligibility Provision (CEP) school district and 100% of the student population receives free breakfast and lunch.

The Steelton-Highspire School District is made up of the Boroughs of Steelton and Highspire. Steelton Borough is approximately 1.9 square miles and has a population of 6,263 residents. Highspire Borough is approximately 0.72 square miles and has a population of 2,736 residents. The school district is unique because no school district classroom buildings sit in either borough; instead, all buildings are a part of Swatara Township. The Steelton-Highspire School District has two buildings located on one campus.

The Steelton-Highspire Jr./Sr. High School consists of 7th through 12th grade and has approximately 593 students. The student population is made up of 52.6% male students and 47.4% female students. The Steelton-Highspire Jr./Sr. High School's demographics regarding Race/Ethnicity are 54.8% Black, 25.6% Hispanic, 14% White, and 5.6% two (2) or More Races. The school has 87.9% of the students identified as economically disadvantaged, 24.5% of the students are identified as special education, 1.5% of the students are connected to the military, 6.4% of the students are English language learners, 8.3% of students are identified as homeless, and 0.8% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

The Steelton-Highspire Elementary School consists of Kindergarten through 6th grade and has approximately 730 students. The student population is made up of 50.3% male students and 49.7% female students. The Steelton-Highspire Jr./Sr. High School's demographics regarding Race/Ethnicity are 54.7% Black, 25.8% Hispanic, 10.7% White, 8.5% two(2) or More Races, 0.3% Asian, and 0.1% American Indian/Alaskan Native. The school has 76.9% of the students identified as economically disadvantaged, 13.2% of the students are identified as special education, 1.5% of the students are connected to the

military, 6.9% of the students are English language learners, 4.1% of students are identified as homeless, and 0.8% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

The focus of this research is to analyze the perceptions of staff that work in school buildings that were newly constructed or recently renovated within the past five years. The study examines their perception as it relates to the impact of newly constructed or recently renovated facilities on student engagement through surveys and interviews. The study will also examine their perception as it relates to the impact of newly constructed or recently renovated facilities on student and staff safety through surveys and interviews.

Based on staff perception surveys and interviews, the following research questions will be used:

Research Question 1

What is the perception of staff on facility upgrades/improvements and its impact on student engagement?

Research Question 2

What is the perception of staff on facility upgrades/improvements and its impact on student and staff safety?

Setting and Participants

Research was completed within five different schools that were newly constructed or renovated within the past five years. These schools were located within two different school districts; the Cumberland Valley School District and Mechanicsburg Area School District. Staff made up of Building Administrators, Professional Staff, and Support Staff were the subject of this doctoral capstone project. The researcher submitted a plan to

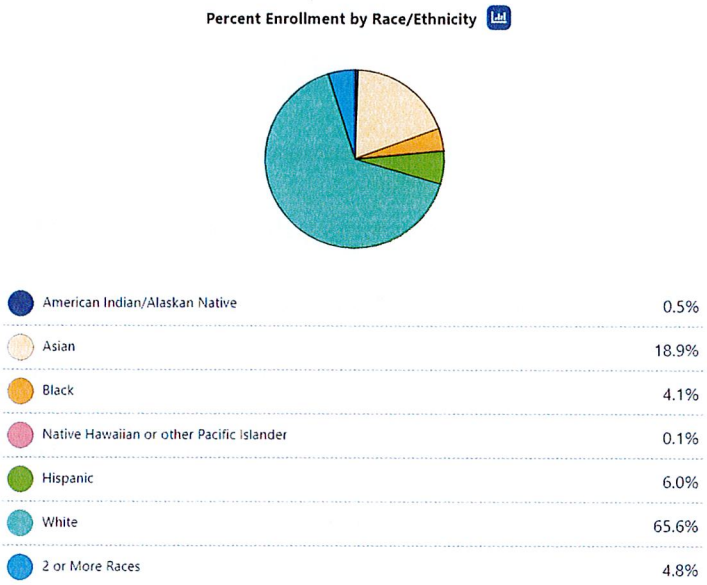
utilize the staff of CCHS to the Internal Review Board (IRB) of PennWest University; this plan was accepted and approved for research on October 4, 2022 (Appendix A). The researcher submitted a plan and petitioned the Assistant Superintendent of the Cumberland Valley School District to ensure the research could be completed within Middlesex Elementary School, Sporting Hill Elementary School, Winding Creek Elementary School, Mountain View Middle School, and Cumberland Valley High School. Cumberland Valley School District's Assistant Superintendent, Dr. Mark Blanchard, on September 20, 2022 (Appendix B), approved the submitted plan, which indicated the research would survey the Building Administrators, Professional Staff, and Support Staff and conduct semi-formal interviews on a voluntary basis. Additionally, the researcher submitted a plan and petitioned the Superintendent of the Mechanicsburg Area School District to ensure the research could be completed within Kindergarten Academy School, Broad Street Elementary School, Northside Elementary School, Shepherdstown Elementary School, Upper Allen Elementary School, and Elmwood Academy School. Mechanicsburg Area School District's Superintendent, Dr. Mark Leidy, on September 15, 2022 (Appendix C), approved the submitted plan, which indicated the research would survey the Building Administrators, Professional Staff, and Support Staff and conduct semi-formal interviews on a voluntary basis.

The Cumberland Valley School District is located 12 miles west of the state capitol of Harrisburg. The school district is a large, rural and suburban public school district located in Mechanicsburg, Pennsylvania, that covers approximately 106 square miles. It covers Hampden Township, Monroe Township, Middlesex Township and Silver Spring Township in Cumberland County, Pennsylvania. With a student population of

approximately 9,787, the Cumberland Valley School District is the largest school district out of eight school districts within Cumberland County. Figure 6 illustrates the demographics for the Cumberland Valley School District.

Figure 6

Cumberland Valley School District Demographics



Note. Figure 6 shows the racial diversity of students enrolled in the Cumberland Valley School District to be 65.6% White; 18.9% Asian; 6% Hispanic or Latino of any race; 4.8% 2 or More Races; 4.1% Black; 0.1% Native Hawaiian or other Pacific Islander; and 0.1% American Indian/Alaskan Native. From "Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

Gender breakdown is 51.3% male and 48.7% female. The school district has 21.7% of the students identified as economically disadvantaged, 12.1% of the students are identified as special education, 3% of the students are connected to the military, 4.7%

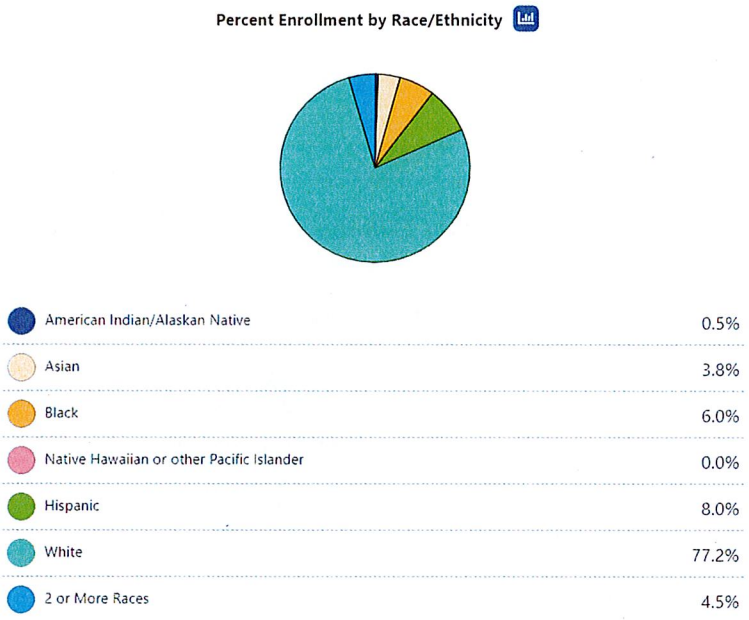
of the students are English language learners, 0.9% of students are identified as homeless, and 0.2% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

The Cumberland Valley School District encompasses Hampden Township, Monroe Township, Middlesex Township and Silver Spring Township in Cumberland County, Pennsylvania. The resident population has been steadily increasing over the last ten years and is currently at 61,867 residents. The school district is made up of eleven school buildings. There are eight elementary schools serving grades K-5, two middle school serving grades 6-8 and a high school serving grades 9-12. For purposes of this study, participants will be from three of the eight elementary schools, one of the two middle schools, and the high school. Those elementary schools are Middlesex Elementary School, Sporting Hill Elementary School and Winding Creek Elementary School. The survey will also take place within Mountain View Middle School and Cumberland Valley High School.

The Middlesex Elementary School consists of Kindergarten through 5th grade and has approximately 399 students. Figure 7 illustrates the demographics for Middlesex Elementary School.

Figure 7

Middlesex Elementary School Demographics



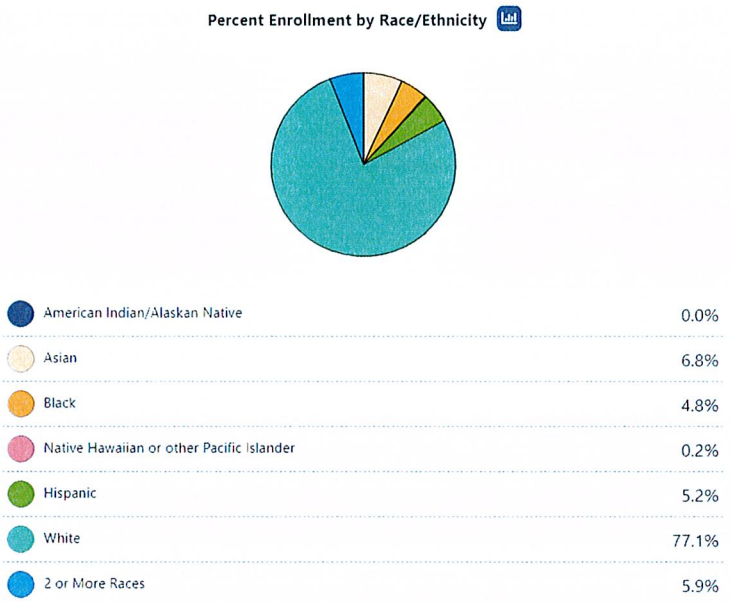
Note. Figure 7 shows demographics regarding Race/Ethnicity of Middlesex Elementary School to be 77.2% White, 8% Hispanic, 6% Black, 4.5% two(2) or More Races, 3.8% Asian, 0.5% American Indian/Alaskan Native, and 0% Native Hawaiian or other Pacific Islander. From "Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

Gender breakdown is 53.6% male and 46.4% female. The school has 41.9% of the students identified as economically disadvantaged, 18.6% of the students are identified as special education, 4% of the students are connected to the military, 7.3% of the students are English language learners, 2% of students are identified as homeless, and 1% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

The Sporting Hill Elementary School consists of Kindergarten through 5th grade and has approximately 558 students. Figure 8 illustrates the demographics for Sporting Hill Elementary School.

Figure 8

Sporting Hill Elementary School Demographics



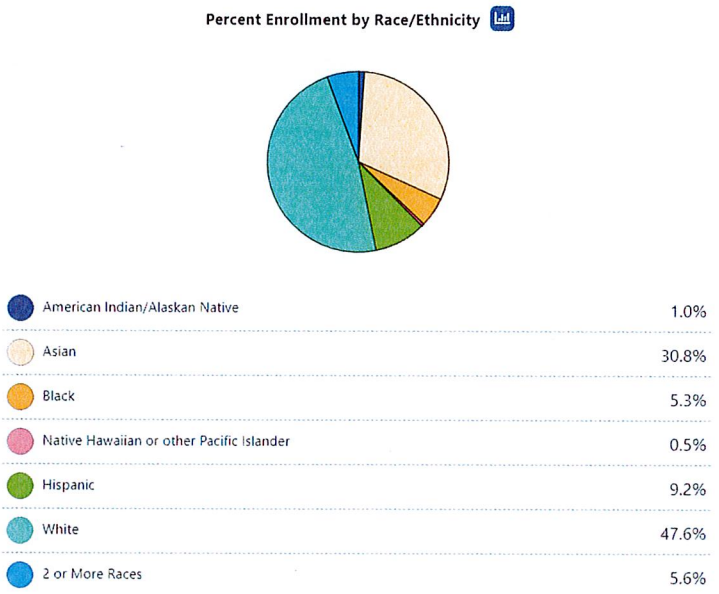
Note. Figure 8 shows demographics regarding Race/Ethnicity of Sporting Hill Elementary School to be 77.1% White, 6.8% Asian, 5.9% two(2) or More Races, 5.2% Hispanic, 4.8% Black, 0% American Indian/Alaskan Native, and 0% Native Hawaiian or other Pacific Islander. From "Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

Gender breakdown is 51.6% male and 48.4% female. The school has 28.1% of the students identified as economically disadvantaged, 9.9% of the students are identified as

special education, 3.8% of the students are connected to the military, 6.6% of the students are English language learners, 1.8% of students are identified as homeless, and 0.4% of students are listed within a foster care (Pennsylvania Department of Education, 2022). The Winding Creek Elementary School consists of Kindergarten through 5th grade and has approximately 966 students. Figure 9 illustrates the demographics for Winding Creek Elementary School.

Figure 9

Winding Creek Elementary School Demographics



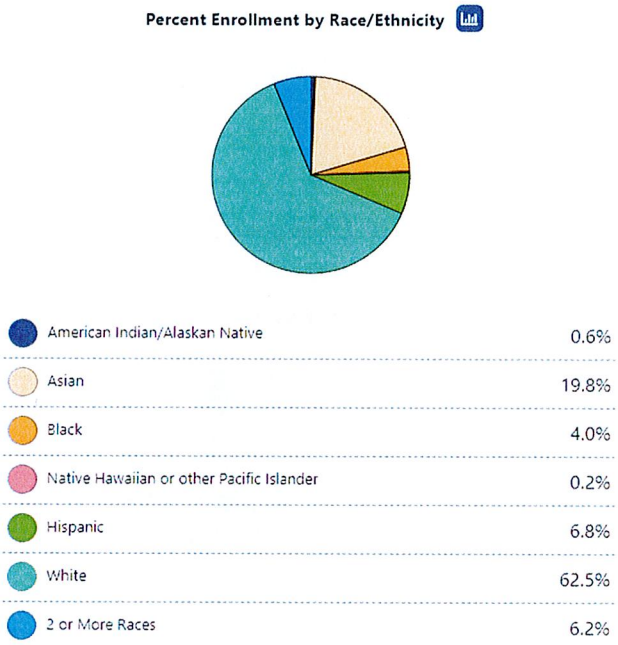
Note. Figure 9 shows demographics regarding Race/Ethnicity of Winding Creek Elementary School to be 47.6% White, 30.8% Asian, 9.2% Hispanic, 5.6% two(2) or More Races, 5.3% Black, 1% American Indian/Alaskan Native, and 0% Native Hawaiian or other Pacific Islander. From "Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

Gender breakdown is 52.2% male and 47.8% female. The school has 21.4% of the students identified as economically disadvantaged, 9% of the students are identified as special education, 3.8% of the students are connected to the military, 6.9% of the students are English language learners, 0.5% of students are identified as homeless, and 0.2% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

The Mountain View Middle School consists of 6th through 8th grade and has approximately 1348 students. Figure 10 illustrates the demographics for Mountain View Middle School.

Figure 10

Mountain View Middle School Demographics



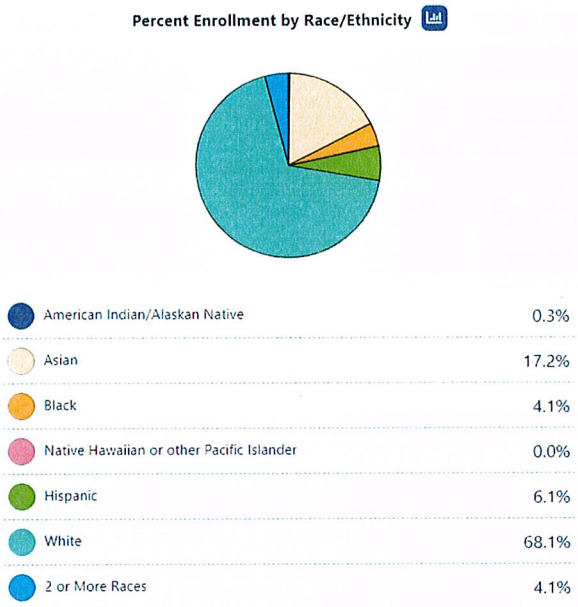
Note. Figure 10 shows demographics regarding Race/Ethnicity of Mountain View Middle School to be 62.5% White, 6.8% Hispanic, 4% Black, 6.2% two(2) or More Races, 19.8% Asian, 0.6% American Indian/Alaskan Native, and 0.2% Native Hawaiian or other Pacific Islander. From "Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

Gender breakdown is 51% male and 49% female. The school has 20% of the students identified as economically disadvantaged, 12.1% of the students are identified as special education, 3.3% of the students are connected to the military, 3.5% of the students are English language learners, 1.2% of students are identified as homeless, and 0% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

The Cumberland Valley High School consists of 9th through 12th grade and has approximately 2946 students. Figure 11 illustrates the demographics for Cumberland Valley High School.

Figure 11

Cumberland Valley High School Demographics



Note. Figure 11 shows demographics regarding Race/Ethnicity of Cumberland Valley High School to be 68.1% White, 6.1% Hispanic, 4.1% Black, 4.1% two(2) or More Races, 17.2% Asian, 0.3% American Indian/Alaskan Native, and 0.0% Native Hawaiian or other Pacific Islander. From "Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

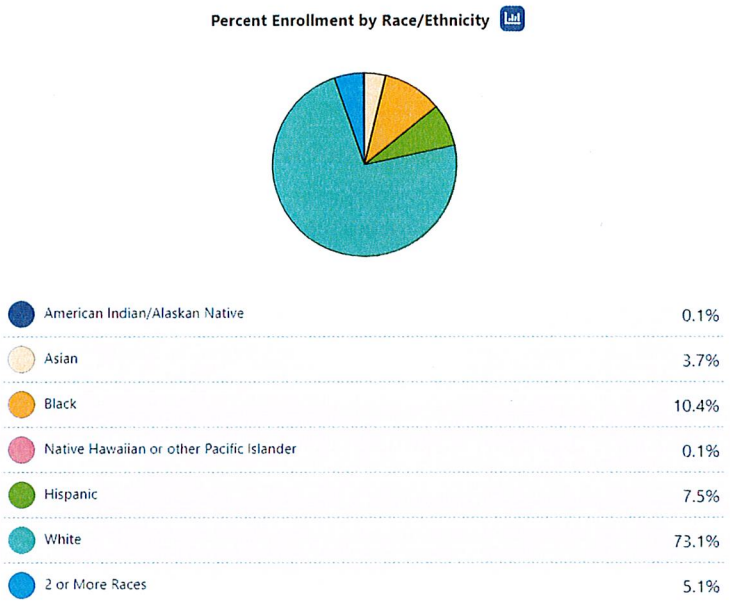
Gender breakdown is 51% male and 49.1% female. The school has 19.9% of the students identified as economically disadvantaged, 12.9% of the students are identified

as special education, 3% of the students are connected to the military, 3.2% of the students are English language learners, 1% of students are identified as homeless, and 0.1% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

The Mechanicsburg Area School District is located 9 miles west of the state capitol of Harrisburg. The school district is a midsized, suburban, public school district serving the boroughs of Mechanicsburg and Shiremanstown as well as Upper Allen Township in Cumberland County, Pennsylvania. The Mechanicsburg Area School District encompasses approximately 16 square miles. With a student population of approximately 4,420, the Mechanicsburg Area School District is the third largest school district out of eight school districts within Cumberland County. Figure 12 illustrates the demographics for Mechanicsburg Area School District.

Figure 12

Mechanicsburg Area School District Demographics



Note. Figure 12 shows the racial diversity of students enrolled in the Mechanicsburg Area School District to be 73.1% White; 10.4% Black; 7.5% Hispanic or Latino of any race; 5.1% 2 or More Races; 3.7% Asian; 0.1% Native Hawaiian or other Pacific Islander; and 0.1% American Indian/Alaskan Native. From "Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

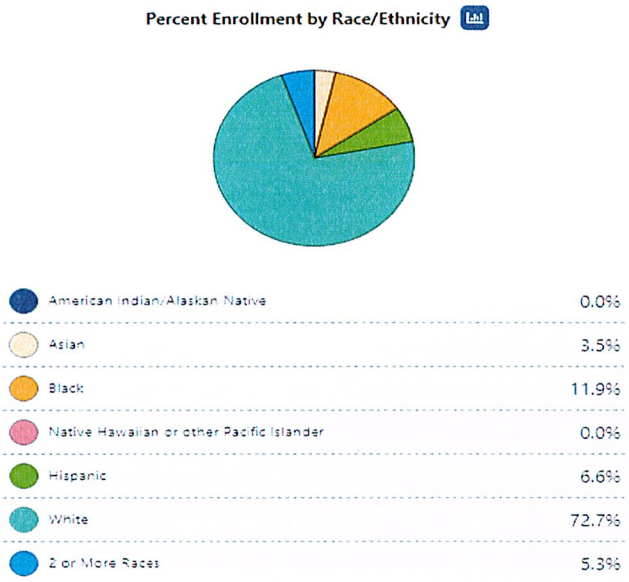
Gender breakdown is 51.1% male and 48.9% female. The school has 34% of the students identified as economically disadvantaged, 15.1% of the students are identified as special education, 0.6% of the students are connected to the military, 5.4% of the students are English language learners, 1% of students are identified as homeless, and 0.4% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

The Mechanicsburg Area School District has a resident population that has been steadily increasing over the last ten years and is currently at 30,860 residents. The school district is made up of eight school buildings. There are six elementary schools in the school district. There is a kindergarten academy, four schools serving 1st through 3rd grade, and an academy serving 4th and 5th grade. There is also a middle school serving 6th through 8th grade and a high school serving 9th through 12th grade. For purposes of this study, participants will be from three of the eight elementary schools within the school district. For purposes of this study, participants will be from all six elementary schools within the school district. Those elementary schools are Kindergarten Academy School (Kindergarten only), Broad Street Elementary School (1st through 3rd grade), Northside Elementary School (1st through 3rd grade), Shepherdstown Elementary School (1st through 3rd grade), Upper Allen Elementary School (1st through 3rd grade), and Elmwood Academy School (4th through 5th grade).

The Kindergarten Academy School consists of Kindergarten only and has approximately 319 students. Figure 13 illustrates the demographics for Kindergarten Academy School.

Figure 13

Kindergarten Academy School Demographics



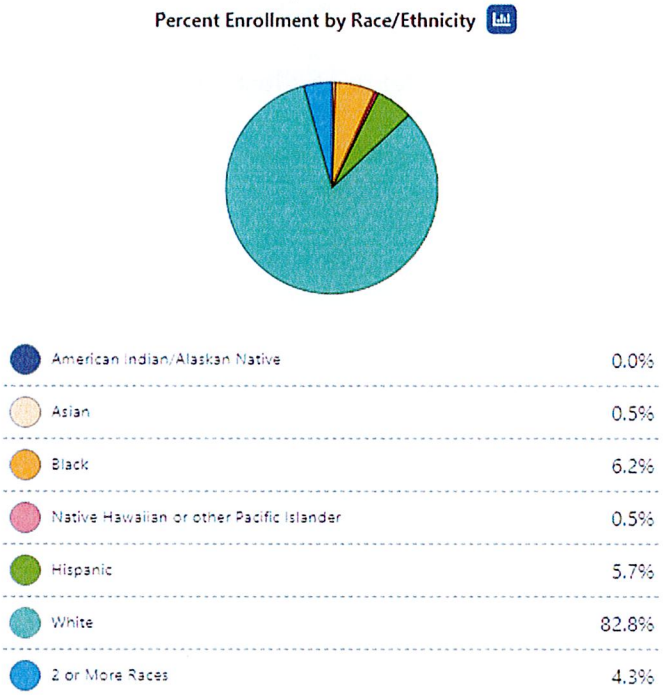
Note. Figure 13 shows demographics regarding Race/Ethnicity of Kindergarten Academy School to be 72.7% White, 11.9% Black, 6.6% Hispanic, 5.3% two(2) or More Races, 3.5% Asian, 0% Native Hawaiian or other Pacific Islander, and 0% American Indian/Alaskan Native. From "Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

Gender breakdown is 53.9% male and 46.1% female. The school has 34.2% of the students identified as economically disadvantaged, 7.2% of the students are identified as special education, 1.6% of the students are connected to the military, 8.5% of the students are English language learners, 1.3% of students are identified as homeless, and 0.9% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

The Broad Street Elementary School consists of 1st through 3rd grade and has approximately 209 students. Figure 14 illustrates the demographics for Broad Street Elementary School.

Figure 14

Broad Street Elementary School Demographics



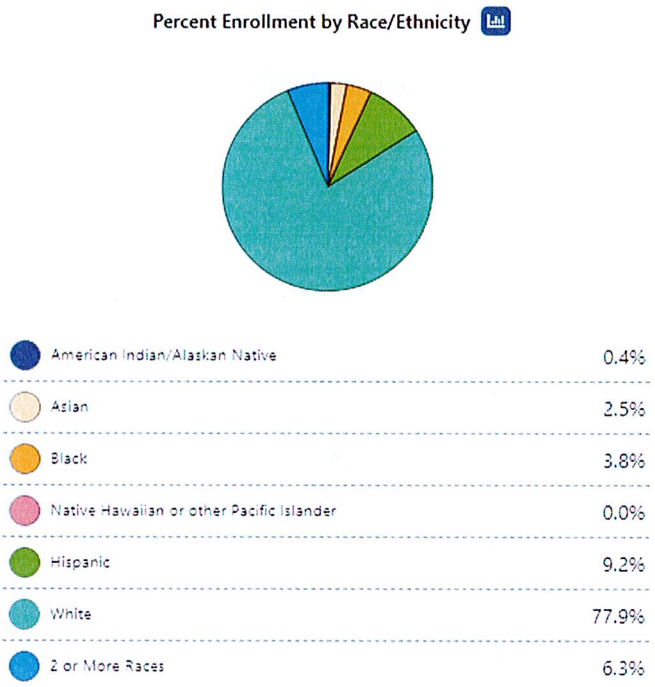
Note. Figure 14 shows demographics regarding Race/Ethnicity of Broad Street Elementary School to be 82.8% White, 6.2% Black, 5.7% Hispanic, 4.3% two(2) or More Races, 0.5% Asian, 0.5% Native Hawaiian or other Pacific Islander, and 0% American Indian/Alaskan Native. From "Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

Gender breakdown is 52.2% male and 47.9% female. The school has 34% of the students identified as economically disadvantaged, 8.1% of the students are identified as special education, 0.5% of the students are connected to the military, 0.5% of the students are English language learners, 1.9% of students are identified as homeless, and 0.5% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

The Northside Elementary School consists of 1st through 3rd grade and has approximately 240 students. Figure 15 illustrates the demographics for Northside Elementary School.

Figure 15

Northside Elementary School Demographics



Note. Figure 15 shows demographics regarding Race/Ethnicity of Northside Elementary School to be 77.9% White, 3.8% Black, 9.2% Hispanic, 6.3% two(2) or More Races, 2.5% Asian, 0% Native Hawaiian or other Pacific Islander, and 0.4% American Indian/Alaskan Native. From "Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

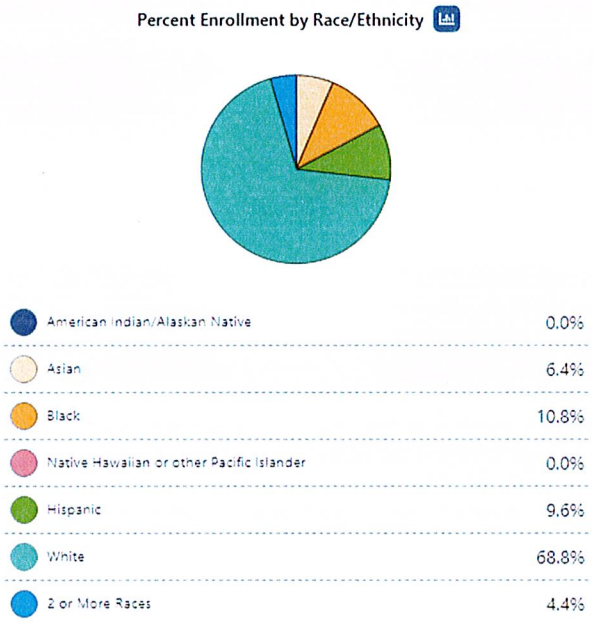
Gender breakdown is 50.4% male and 49.6% female. The school has 41.7% of the students identified as economically disadvantaged, 11.7% of the students are identified as special education, 0% of the students are connected to the military, 0% of the students are English language learners, 2.5% of students are identified as homeless,

and 0.4% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

The Shepherdstown Elementary School consists of 1st through 3rd grade and has approximately 250 students. Figure 16 illustrates the demographics for Shepherdstown Elementary School.

Figure 16

Shepherdstown Elementary School Demographics



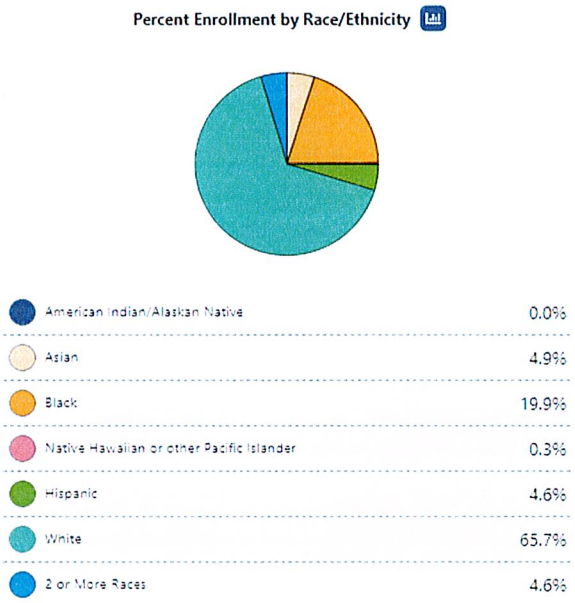
Note. Figure 16 shows demographics regarding Race/Ethnicity of Shepherdstown Elementary School to be 68.8% White, 10.8% Black, 9.6% Hispanic, 4.4% two(2) or More Races, 6.4% Asian, 0% Native Hawaiian or other Pacific Islander, and 0% American Indian/Alaskan Native. From "Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

Gender breakdown is 53.2% male and 46.8% female. The school has 36.4% of the students identified as economically disadvantaged, 14% of the students are identified as special education, 0.8% of the students are connected to the military, 16.4% of the students are English language learners, 0.8% of students are identified as homeless, and 0% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

The Upper Allen Elementary School consists of 1st through 3rd grade and has approximately 306 students. Figure 17 illustrates the demographics for Upper Allen Elementary School.

Figure 17

Upper Allen Elementary School Demographics



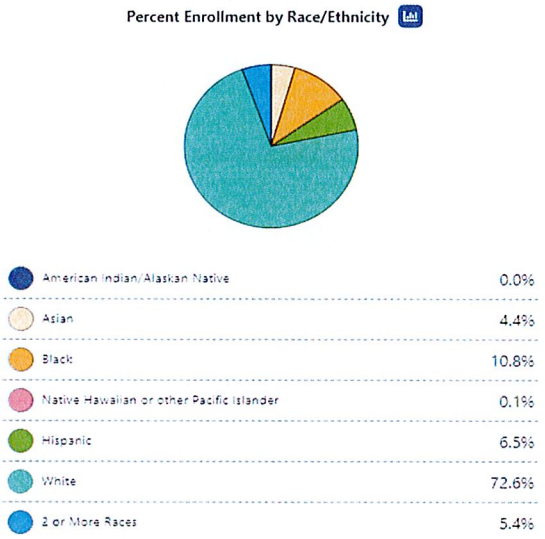
Note. Figure 17 shows demographics regarding Race/Ethnicity of Upper Allen Elementary School to be 65.7% White, 19.9% Black, 4.6% Hispanic, 4.6% two(2) or More Races, 4.9% Asian, 0.3% Native Hawaiian or other Pacific Islander, and 0% American Indian/Alaskan Native. From "Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

Gender breakdown is 44.8% male and 55.2% female. The school has 32.4% of the students identified as economically disadvantaged, 8.2% of the students are identified as special education, 0.7% of the students are connected to the military, 12.4% of the students are English language learners, 1% of students are identified as homeless, and 0% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

The Elmwood Academy Elementary School consists of 4th through 5th grade and has approximately 720 students. Figure 18 illustrates the demographics for Elmwood Academy Elementary School.

Figure 18

Elmwood Academy Elementary School Demographics



Note. Figure 18 shows demographics regarding Race/Ethnicity of Elmwood Academy Elementary School to be 72.6% White, 10.8% Black, 6.5% Hispanic, 5.4% two(2) or More Races, 4.4% Asian, 0.1% Native Hawaiian or other Pacific Islander, and 0% American Indian/Alaskan Native. From "Find a School" by Pennsylvania Department of Education, 2022, (https://futurereadypa.org).

Gender breakdown is 51.3% male and 48.8% female. The school has 34.3% of the students identified as economically disadvantaged, 18.9% of the students are

identified as special education, 0.6% of the students are connected to the military, 5.8% of the students are English language learners, 1.1% of students are identified as homeless, and 0.3% of students are listed within a foster care (Pennsylvania Department of Education, 2022).

Research Plan

On September 8, 2022, the researcher communicated with the Assistant Superintendent of the Cumberland Valley School District requesting approval to conduct research. On September 20, 2022, the researcher was granted approval to conduct research within the Cumberland Valley School District (Appendix B). On September 8, 2022, the researcher communicated with the Superintendent of the Mechanicsburg Area School District requesting approval to conduct research. On September 15, 2022, the researcher was granted approval to conduct research within the Mechanicsburg Area School District (Appendix C). On February 15, 2023, the researcher communicated with both school districts requesting that a survey (Appendix E) be sent to all school staff within school buildings that were recently renovated or constructed within the last five years. This email communication included a brief description of the survey, the district approval letter (Appendix B & C), staff consent form (Appendix D) and IRB approval letter (Appendix A). The survey was developed using Google Forms and a link was included for the staff to complete it. The staff indicated their consent by selecting "yes" to the first question. The survey recorded participant's names and email addresses for consent purposes only. The survey had 43 questions for participants to answer to gather staff perspective related to current school building facilities and the impact on student engagement and student and staff safety. The survey included eight questions to gather

background on the participants. The survey included nine questions specific to facility upgrades/improvements. The survey included seventeen questions specific to student engagement. The survey included seven questions specific to student and staff safety. The survey included two open-ended questions related to student engagement and student and staff safety.

The survey was sent to 775 staff members within the Cumberland Valley School District and the Mechanicsburg Area School District. The staff members for participation in this study consisted of 18 administrators, 474 professional staff, and 283 support staff. 45 of those staff members responded and all 45 agreed to participate in the study. Of the participants, 32 (73 %) of the participants worked in Elementary School, 7 (16 %) of the participants worked in Middle School/Jr. High School, and 6 (14 %) of the participants worked in High School. Of the participants, 3 (7 %) of the participants were administrators, 34 (76 %) of the participants were professional staff, and 8 (18 %) of the participants were support staff. In reviewing the survey question regarding years of experience in education, of the 45 participants, 5 (11 %) of them had 1 to 3 years of experience. Of the 45 participants, 9 (20 %) of them had 4 to 10 years of experience. Of the 45 participants, 7 (16 %) of them had 11 to 15 years of experience. Of the 45 participants, 24 (55 %) of them had more than 15 years of experience. In reviewing the survey question regarding years of experience in the participants current district, of the 45 participants, 10 (23 %) of them had 1 to 3 years of experience. Of the 45 participants, 11 (25 %) of them had 4 to 10 years of experience. Of the 45 participants, 7 (16 %) of them had 11 to 15 years of experience. Of the 45 participants, 19 (43 %) of them had more than 15 years of experience.

Table 1 lists the demographics for administrators participating in the survey.

Table 1

Building Administrator Demographics

Characteristics	Number of Building Administrators (N= 3)	% Participants
Years in Education		
1 to 3 years	0	0.00%
4 to 10 years	1	33.33%
11 to 15 years	0	0.00%
More than 15 years	2	66.67%
Years in District		
1 to 3 years	0	0.00%
4 to 10 years	1	33.33%
11 to 15 years	0	0.00%
More than 15 years	2	66.67%
Building Classification		
Elementary	1	33.33%
Middle School/Jr HS	2	66.67%
High School	0	0.00%

Note. Table 1 lists the demographics for the survey participants who are building administrators.

Table 2 lists the demographics for professional staff participating in the survey.

Table 2

Professional Staff Demographics

Characteristics	Number of Professional Staff (N= 34)	% Participants
Years in Education		
1 to 3 years	4	12.12%
4 to 10 years	6	18.18%
11 to 15 years	5	15.15%
More than 15 years	19	57.58%
Years in District		
1 to 3 years	9	27.27%
4 to 10 years	8	24.24%
11 to 15 years	3	9.09%
More than 15 years	14	42.42%
Building Classification		
Elementary	24	72.73%
Middle School/Jr HS	4	12.12%
High School	6	18.18%

Note. Table 2 lists the demographics for the survey participants who are professional staff.

Table 3 lists the demographics for support staff participating in the survey.

Table 3

Support Staff Demographics

Characteristics	Number of Support Staff (N= 8)	% Participants
Years in Education		
1 to 3 years	1	12.50%
4 to 10 years	2	25.00%
11 to 15 years	2	25.00%
More than 15 years	3	37.50%
Years in District		
1 to 3 years	1	12.50%
4 to 10 years	2	25.00%
11 to 15 years	2	25.00%
More than 15 years	3	37.50%
Building Classification		
Elementary	7	87.50%
Middle School/Jr HS	1	12.50%
High School	0	0.00%

Note. Table 3 defines the demographics for the survey participants who are support staff.

Table 4 defines the demographics for all participants that participated in the survey.

Table 4

Total Participants Demographics

Characteristics	Number of Total Participants (N= 45)	% Participants
Years in Education		
1 to 3 years	5	11.36%
4 to 10 years	9	20.45%
11 to 15 years	7	15.91%
More than 15 years	24	54.55%
Years in District		
1 to 3 years	10	22.73%
4 to 10 years	11	25.00%
11 to 15 years	5	11.36%
More than 15 years	19	43.18%
Building Classification		
Elementary	32	72.73%
Middle School/Jr HS	7	15.91%
High School	6	13.64%

Note. Table 4 defines the demographics for all of the survey participants.

When formulating the research plan for this study, the Literature Review shows that there are many factors that need to be considered when reviewing the impact that school facilities provide related to students and teachers. In examining the research

questions of this Doctoral Capstone Project, the provided a justification for each research question as well as provided supportive research for each research question. The research within the Literature Review describes the effects of particular elements within school facilities that impact student engagement and learning. Descriptions of optimal learning spaces that include various characteristics that contribute to the outcomes of a student's academic success. Further research showed the impact of the benefits of pedagogy and a relationship between school and community to directly benefit students. The research within this Literature Review detailed the need for safe and healthy schools. Students and staff absences may be reduced if there is a sense of safety and security related to the school facility. School facilities must also be maintained properly to ensure they are in good physical condition for students, staff, and visitors.

This research plan has minimal to zero fiscal implications. The researcher will be creating surveys utilizing Google Forms, which will be sent to participating school districts teachers and staff. This survey will be voluntary and will be no cost for any participant. An indirect cost would be the time and effort of the researcher and the survey participants. The researcher will utilize the anonymous responses from the survey and compile them to share with school district stakeholders to review when considering any facility upgrades/improvements.

In conjunction with the research, the Steelton-Highspire School District has contracted with an architectural firm to conduct a feasibility study. This feasibility study will look at the current state of district facilities and options will be presented as a result of the study. The cost of the feasibility study is $2500.00 and will be completed over a 1-2 year period.

Research Methods & Data Collection

The Researcher utilized a qualitative data collection method to complete this doctoral capstone research and assess the research questions. The qualitative data collection approach was utilized to gain enough data for this research. The researcher submitted a plan to the Internal Review Board (IRB) of PennWest University; this plan was accepted and approved for research on October 4, 2022 (Appendix A). Qualitative data will give a better understanding of the impacts of facility improvements that the various districts had performed within the last five years and the perceptions staff have toward the impact on students related to student engagement and school safety. Qualitative research data will be able to give a good perspective of the opinions and feelings of staff to potentially provide data to stakeholders within my own organization. Through a semi-structured interview with staff, I will have a set of predetermined questions that will be given that will hopefully lead to a more meaningful discussion around the impact facility upgrades/improvements had specifically on students. Specific data related to student engagement and school safety with specific schools during the pre-construction and post-construction timeframes will be collected and analyzed. Qualitative research involves collecting and analyzing non-numerical data (e.g., text, video, or audio) to understand concepts, opinions, or experiences. It can be used to gather in-depth insights into a problem or generate new ideas for research (Bhandari, 2022). The qualitative research method was selected for this study to gather perceptions of staff related to the impacts of facility improvements that the various districts had performed within the last five years and the perceptions staff have toward the impact on students

related to student engagement and school safety. The data collected will address each research question.

On September 8, 2022, the researcher communicated with the Assistant Superintendent of the Cumberland Valley School District requesting approval to conduct research. On September 20, 2023, the researcher was granted approval to conduct research within the Cumberland Valley School District (Appendix B). On September 8, 2022, the researcher communicated with the Superintendent of the Mechanicsburg Area School District requesting approval to conduct research. On September 15, 2023, the researcher was granted approval to conduct research within the Mechanicsburg Area School District (Appendix C). On February 15, 2023, the researcher communicated with both school districts requesting that a survey be sent to all school staff within school buildings that were recently renovated or constructed within the last five years. This email communication included a brief description of the survey, the district approval letter, staff consent form and IRB approval letter. The survey was developed using Google Forms and a link was included for the staff to complete it. The staff indicated their consent by selecting "yes" to the first question. The survey recorded participant's names and email addresses for consent purposes only. The survey had 43 questions for participants to answer to gather staff perspective related to current school building facilities and the impact on student engagement and student and staff safety. Table 5 outlines research question 1, data collection, and the timeline of the data collection. Data was analyzed throughout the collection timeline. The data collection instrument utilized (Appendix E) will provide appropriate data for this study.

Table 5

Data Collection Timeline – Research Question 1

Research Question(s)	Data Sources	Data Collection Date
What is the perception of staff on facility upgrades/improvements and its impact on student engagement?	A survey will be utilized to analyze perceptions of staff who have recently experienced renovations or new construction specific to their school and the overall impact it had on student engagement. Student engagement could be described as class attendance, discussion/activity participation, motivation, enthusiasm, and curiosity towards learning. Survey questions will gather responses to these specifics.	February/March 2023
	Survey participants will be asked at the end of the survey to participate in a semi-structured interview if they choose. These interviews will have questions that will generate conversation around participant perceptions.	March/April 2023

Note. Table 5 illustrates the Data Collection Timeline aligned with Research Question 1.

Table 6 outlines research question 2, data collection, and the timeline of the data collection.

Table 6

Data Collection Timeline – Research Question 2

Research Question(s)	Data Sources	Data Collection Date
What is the perception of staff on facility upgrades/improvements and its impact on student and staff safety?	A survey will be utilized to analyze perceptions of staff who have recently experienced renovations or new construction specific to their school and the overall impact it had on student and staff safety. Student and staff safety could be described as secure entrances and exterior doors, student and staff identification, and proper safety drills being held. Survey questions will gather responses to these specifics.	February/March 2023
	Survey participants will be asked at the end of the survey to participate in a semi-structured interview if they choose. These interviews will have questions that will generate conversation around participant perceptions.	March/April 2023

Note. Table 6 illustrates the Data Collection Timeline aligned with Research Question 2

Validity

The purpose of this section is to ensure the validity of the action research. Hendricks (2017) mentions credibility, transferability, dependability, and conformability

as four criteria for validity. The researcher ensured validity by following these four criteria throughout his research.

First, credibility refers to the accuracy of facts, findings, interpretations, and conclusions (Hendricks, 2017). The validity of the research was maintained by ensuring that no participants in the surveys were ever mentioned by name. Every participant was given informed consent prior to participation and all data collected by the researcher was unidentifiable. The survey was developed using Google Forms and a link was included for the staff to complete it. The staff indicated their consent by selecting "yes" to the first question. The survey recorded participant's names and email addresses for consent purposes only.

Another factor of validity is the ability to generalize results across different settings, contexts, and individuals, also known as transferability (Hendricks, 2017). The demographic data collected was part of the survey to provide the context of years in education, years in their district, and building classification. The participants worked at various educational levels and had varying experience levels associated with their years within the district as well as education in general. All of these factors could contribute to their knowledge and perceptions related to the study.

Dependability was also used in the research plan and design. This is the replicability of findings to other groups or settings (Hendricks, 2017). The researcher triangulated the data by using multiple measures of data. Survey responses and open-ended questions along with a semi-structured interview gave the researcher multiple data sources. This increased the credibility of the findings for the action research project.

The final factor of validity used considers accuracy of results concerning potential researcher bias, motivation, or interest. This is known as confirmability (Hendricks, 2017). This action research was conducted using an internal committee chair of PennWest University and an external committee chair for support and guidance. The internal committee chair was Dr. Peter Aiken and the external committee chair was Dr. Travis Waters. The supporter's assisted in eliminating bias towards the study by giving feedback and guidance through editing and revision of the Doctoral Capstone Project process.

A potential limitation of this study was that it was voluntary. The survey was offered to all staff in eleven different school buildings within two different school districts, but not all participated. The survey received 43 responses and three staff members volunteered to participate in a semi-structured interview. Further studies with more staff participation can provide a more focused conclusion and recommendation based on a greater pool of data.

Summary

The purpose of this chapter was to look at the purpose of the study in general and a deeper understanding of participants and setting, research plan, including methods and data collection. This chapter also explained the methods used to ensure validity throughout the action research study. This focus is all directed to answer the two research questions, which relate to staff perception on the impact of school facilities on student engagement and student and staff safety. The methods used in this study to collect data will be analyzed and communicated in Chapter IV, Data Analysis and Results. It will review the qualitative data results associated with the two research questions.

CHAPTER IV

Data Analysis and Findings

Facility upgrades and improvements are essential to ensure students have an equitable educational experience similar to all other students in the state of Pennsylvania. Equitable experiences related to student engagement and safety will help to strengthen a positive school culture. This qualitative study examined the perceptive data of K-12 school staff in buildings that recently underwent facility upgrades or renovations within the past five years. The purpose of this study was to get an understanding of staff perceptions related to the impact of school facility improvements on student engagement. It will also get an understanding of staff perceptions related to the impact of school facility improvements on safety as it relates to students and staff. Data collection consisted of surveys and interviews within the Cumberland Valley School District and the Mechanicsburg Area School District, both located in Mechanicsburg, Pennsylvania. These surveys and interviews proved to be invaluable because perceptions are being considered from individuals working daily in the day-to-day operations of a building, its teachers, staff, and administrators. This process allowed those individuals to reflect on their students and themselves in regards to the school districts commitment to facility upgrades and improvements.

The information in Chapter IV highlights the analysis and findings of the data collected from two different evaluation tools. These evaluation tools aligned directly to the research questions identified in the previous chapters. The findings include qualitative data collected from the staff from eleven different schools within the Cumberland Valley School District and Mechanicsburg Area School District who voluntarily participated in

the study. A perceptive data survey and semi-formal interviews took place to collect data to meet the needs of the research questions.

Data Analysis and Findings

To address the first research question, data was obtained through a staff perceptive data survey and semi-formal interviews. This survey consisted of 41 survey questions and two open-ended questions. The survey gathered perceptive data data related to facility upgrades/improvements and their impact on student engagement. A semi-formal interview was given to three individuals who volunteered to participate. This led to in depth conversations related to facility upgrades/improvements and impact on student engagement.

To address the second research question, data was obtained through a staff perceptive data survey and semi-formal interviews. This survey consisted of 41 survey questions and two open-ended questions. The survey gathered perceptive data related to facility upgrades/improvements and their impact on student and staff safety. Six questions gathered demographic information from participants. Eight survey questions and one open-ended question were given to participants directly linked to facility upgrades/improvements and student engagement. Four survey questions and one open-ended question were given to participants directly linked to facility upgrades/improvements and student and staff safety. A semi-formal interview was given to three individuals who volunteered to participate. This led to in depth conversations related to facility upgrades/improvements and impact on student and staff safety.

At the end of the survey, there was a conclusion section where the researcher asked for volunteers to participate in a semi-structured interview. It was explained that

the volunteers would remain anonymous and if they were willing to participate, they should contact the researcher separately. A semi-formal interview was given to three individuals who volunteered to participate. The semi-formal interview consisted of ten questions total. Five questions focused on facility upgrades/improvements and their impact on student engagement and five questions focused on facility upgrades/improvements and their impact on student and staff safety. To respect the anonymity of the volunteers who participated in the semi-formal interviews, the participants will be referenced as Staff Member #1, Staff Member #2, and Staff Member #3.

Data Analysis and Findings of the Research Questions

Research Question 1

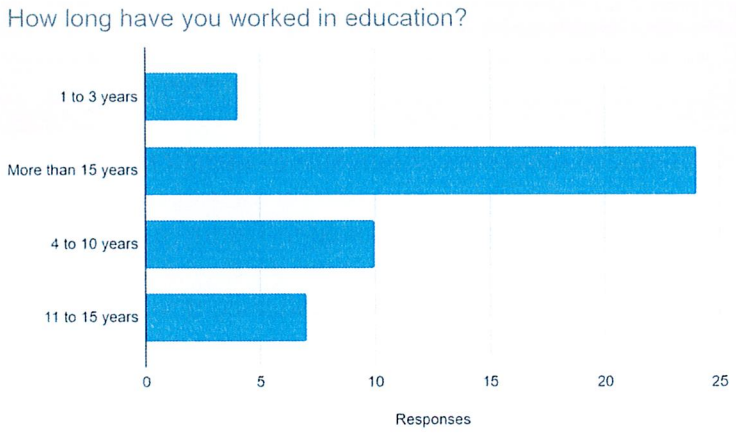
To address the first research question "What is the perception of staff on facility upgrades/improvements and its impact on student engagement?", qualitative data was collected through the use of a survey titled "School Building Staff Survey related to Facility Upgrades/Improvements". This total survey consisted of 41 survey questions and two open-ended questions. Eight survey questions and one open-ended question were given to participants directly linked to facility upgrades/improvements and student engagement. Qualitative data was also collected through a semi-formal interview including five questions related to facility upgrades/improvements and student engagement.

School Building Staff Survey related to Facility Upgrades/Improvements (Demographics)

In February of 2023, the survey was sent to 775 staff members within the Cumberland Valley School District and the Mechanicsburg Area School District. The potential staff members for participation in this study consisted of 18 administrators, 474 professional staff, and 283 support staff. 45 of those staff members responded and all 45 agreed to participate in the study. Figures 19, 20, 21, 22, 23, and 24 break down the demographics associated with the staff members who participated in this study and the level of education they are employed. Each figure breaks down a specific question within the survey.

Figure 19

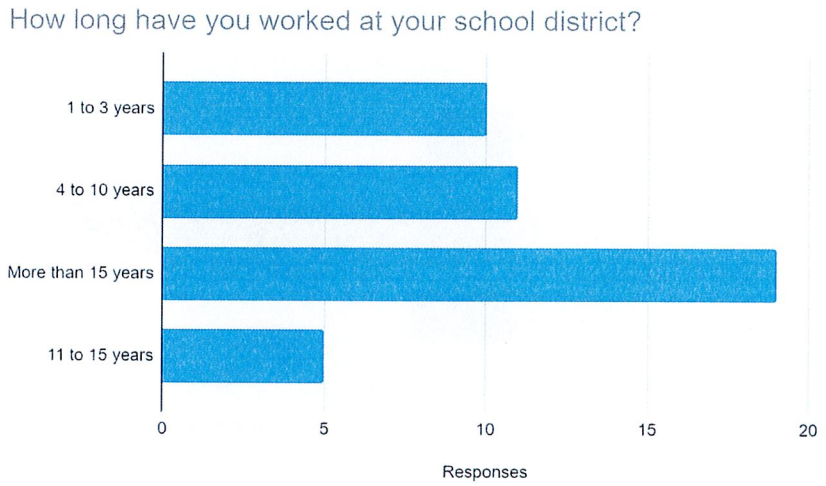
Survey question #5: How long have you worked in education?



Note. Figure 19 depicts that of the 45 participants in this study, 4 (9%) had 1 to 3 years' experience in education, 10 (22%) had 4 to 10 years' experience in education, 7 (16%) had 11 to 15 years' experience in education, and 24 (53%) had more than 15 years' experience in education.

Figure 20

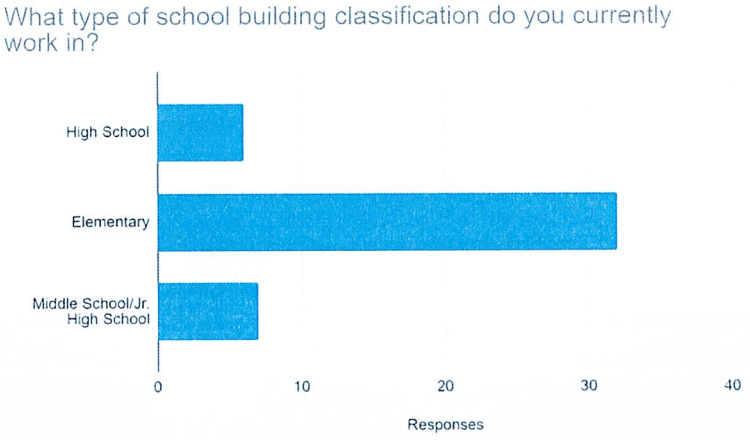
Survey question #6: How long have you worked at your school district?



Note. Figure 20 depicts that of the 45 participants in this study, 10 (22%) had 1 to 3 years' experience in their current school district, 11 (24%) had 4 to 10 years' experience in their current school district, 5 (11%) had 11 to 15 years' experience in their current school district, and 19 (42%) had more than 15 years' experience in their current school district.

Figure 21

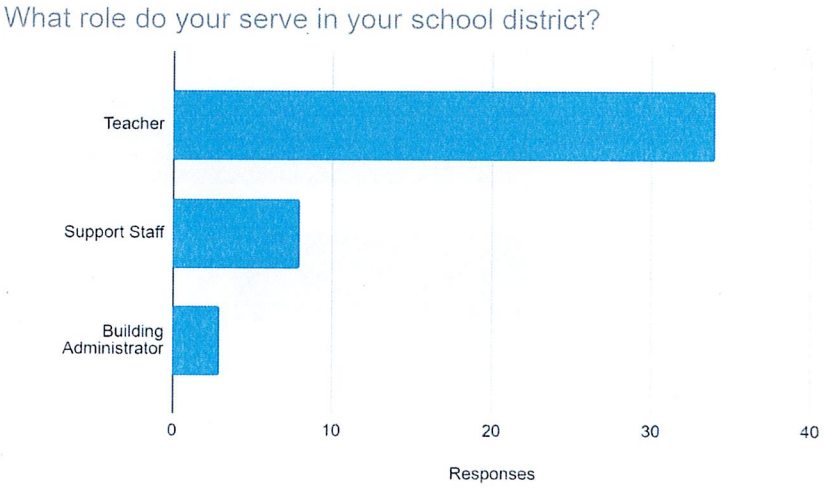
Survey question #7: What type of school building classification do you currently work in?



Note. Figure 21 depicts that of the 45 participants in this study, 32 (71%) worked in an Elementary School setting, 7 (16%) worked in a Middle School/Jr. High School setting, and 6 (13%) worked in a High School setting.

Figure 22

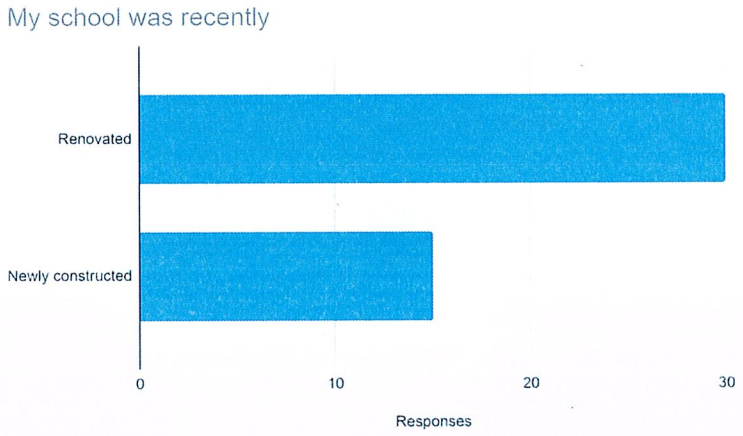
Survey question #8: What role do your serve in your school district?



Note. Figure 22 depicts that of the 45 participants in this study, 3 (7%) work currently as an Administrator, 34 (76%) work as a Teacher/Professional Staff, and 8 (18%) work as a Paraprofessional/Support Staff.

Figure 23

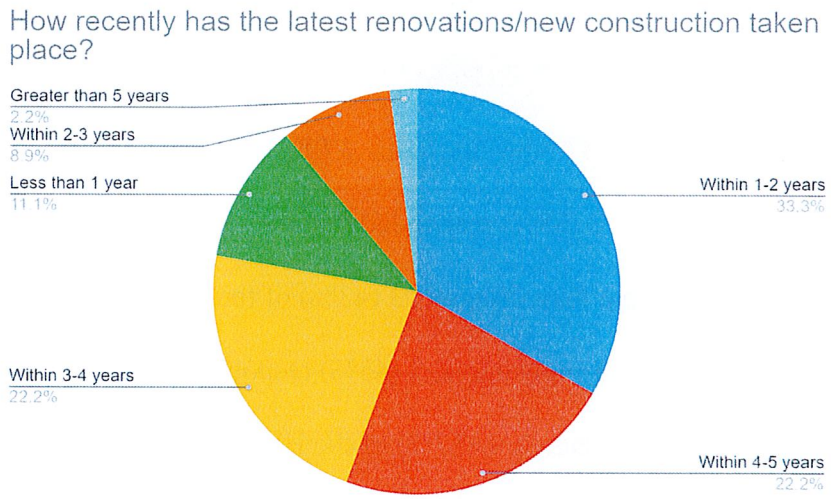
Survey question #9: My school was recently



Note. Figure 23 depicts that of the 45 participants in this study, 30 (67%) work in a school setting that was recently renovated and 15 (33%) work in a school setting that was recently newly constructed.

Figure 24

Survey question #10: How recently has the latest renovations/new construction taken place?



Note. Figure 24 depicts that of the 45 participants in this study, 5 (1%) indicated that the latest renovation/construction took place within the last year, 15 (33%) indicated that the latest renovation/construction took place within 1-2 years, 4 (9%) indicated that the latest renovation/construction took place within 2-3 years, 10 (22%) indicated that the latest renovation/construction took place within 3-4 years, 10 (22%) indicated that the latest renovation/construction took place within 4-5 years, and 1 (2%) indicated that the latest renovation/construction took place greater than 5 years.

Figures 25, 26, 27, 28, 29, 30, 31 and 32 show the responses related to the survey questions related to facility upgrades/improvements and their association to student engagement. Each figure breaks down a specific question within the survey.

Research Question 1 Findings

Figure 25 reflects the complete responses to survey question #27 *"With the recent updated and improved facilities, I feel students have more of a sense of pride within the school"*. Looking at responses from various educational levels, out of the 45 participants, 32 (71%) Elementary Staff, 7 (16%) Middle School/Jr. High School, and 6 (13%) High School Staff responded to this question. 3 (9%) of the Elementary Staff responded that they strongly agree, 12 (38%) responded that they agree, 16 (50%) responded neutral, and 1 (3%) responded that they disagree. 3 (43%) of the Middle School/Jr. High School staff responded that they strongly agree, 3 (43%) responded that they agree, and 1 (14%) responded that they disagree. 1 (17%) of the High School staff responded that they strongly agree, 2 (33%) responded that they agree, 2 (33%) responded neutral and 1 (17%) responded that they disagree.

Figure 25

Survey question #27: With the recent updated and improved facilities, I feel students have more of a sense of pride within the school.

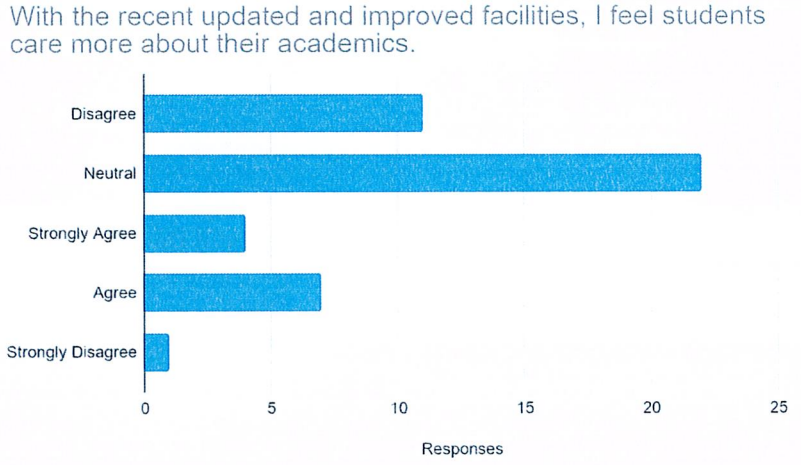
Note. Figure 25 depicts that of the 45 participants in this study, 7 (16%) responded that they strongly agree, 17 (38%) responded that they agree, 18 (40%) responded neutral, and 3 (7%) responded that they disagree.

Figure 26 reflects the complete responses to survey question #28 *"With the recent updated and improved facilities, I feel students care more about their academics".* Looking at responses from various educational levels, out of the 45 participants, 32 (71%) Elementary Staff, 7 (16%) Middle School/Jr. High School, and 6 (13%) High School Staff responded to this question. 1 (3%) of the Elementary Staff responded that they strongly agree, 5 (16%) responded that they agree, 18 (56%) responded neutral, 7 (22%) responded that they disagree and 1 (3%) responded that they strongly disagree. 2 (29%) of the Middle School/Jr. High School staff responded that they strongly agree, 1 (14%) responded that they agree, 2 (29%) responded neutral, and 2 (29%) responded that

they disagree. 1 (17%) of the High School staff responded that they strongly agree, 1 (17%) responded that they agree, 2 (33%) responded neutral and 2 (33%) responded that they disagree.

Figure 26

Survey question #28: With the recent updated and improved facilities, I feel students care more about their academics.



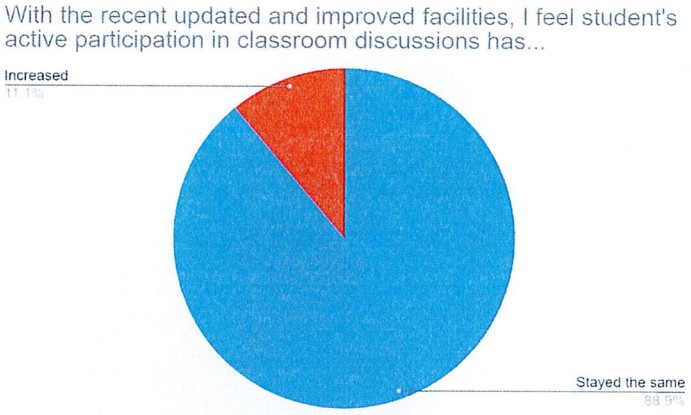
Note. Figure 26 depicts that of the 45 participants in this study, 4 (9%) responded that they strongly agree, 7 (16%) responded that they agree, 22 (49%) responded neutral, 11 (24%) responded that they disagree, and 1 (2%) responded that they strongly disagree.

Figure 27 reflects the complete responses to survey question #29 *"With the recent updated and improved facilities, I feel student's active participation in classroom discussions has..."*. Looking at responses from various educational levels, out of the 45 participants, 32 (71%) Elementary Staff, 7 (16%) Middle School/Jr. High School, and 6 (13%) High School Staff responded to this question. 4 (13%) of the Elementary Staff

responded that student's active participation has increased and 28 (88%) responded that student's active participation has stayed the same. 7 (100%) of the Middle School/Jr. High School staff responded that student's active participation has stayed the same. 1 (17%) of the High School staff responded that student's active participation has increased and 5 (83%) responded that student's active participation has stayed the same.

Figure 27

Survey question #29: With the recent updated and improved facilities, I feel student's active participation in classroom discussions has...



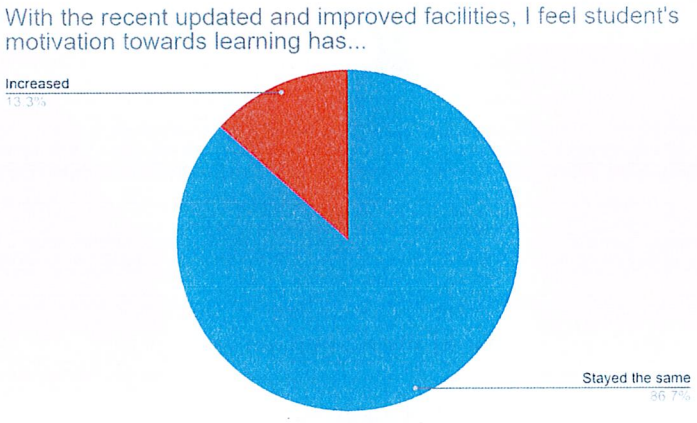
Note. Figure 27 depicts that of the 45 participants in this study, 5 (11%) responded that student's active participation has increased and 40 (89%) responded that student's active participation has stayed the same.

Figure 28 reflects the complete responses to survey question #30 *"With the recent updated and improved facilities, I feel student's motivation towards learning has..."*. Looking at responses from various educational levels, out of the 45 participants, 32 (71%) Elementary Staff, 7 (16%) Middle School/Jr. High School, and 6 (13%) High

School Staff responded to this question. 5 (16%) of the Elementary Staff responded that student's motivation towards learning has increased and 27 (84%) responded that student's motivation towards learning has stayed the same. 7 (100%) of the Middle School/Jr. High School staff responded that student's motivation towards learning has stayed the same. 1 (17%) of the High School staff responded that student's motivation towards learning has increased and 5 (83%) responded that student's motivation towards learning has stayed the same.

Figure 28

Survey question #30: With the recent updated and improved facilities, I feel student's motivation towards learning has...



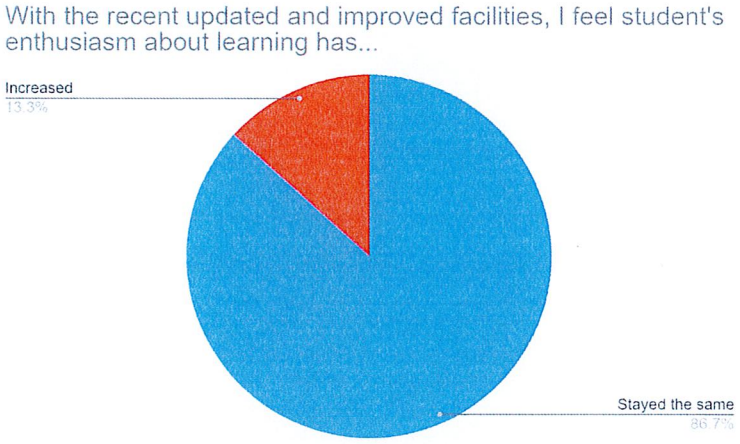
Note. Figure 28 depicts that of the 45 participants in this study, 6 (13%) responded that student's motivation towards learning has increased and 39 (87%) responded that student's motivation toward learning has stayed the same.

Figure 29 reflects the complete responses to survey question #31 "*With the recent updated and improved facilities, I feel student's enthusiasm about learning has...*".

Looking at responses from various educational levels, out of the 45 participants, 32 (71%) Elementary Staff, 7 (16%) Middle School/Jr. High School, and 6 (13%) High School Staff responded to this question. 4 (13%) of the Elementary Staff responded that student's enthusiasm about learning has increased and 28 (88%) responded that student's enthusiasm about learning has stayed the same. 7 (100%) of the Middle School/Jr. High School staff responded that student's enthusiasm about learning has stayed the same. 2 (33%) of the High School staff responded that student's enthusiasm about learning has increased and 4 (67%) responded that student's enthusiasm about learning has stayed the same.

Figure 29

Survey question #31: With the recent updated and improved facilities, I feel student's enthusiasm about learning has...

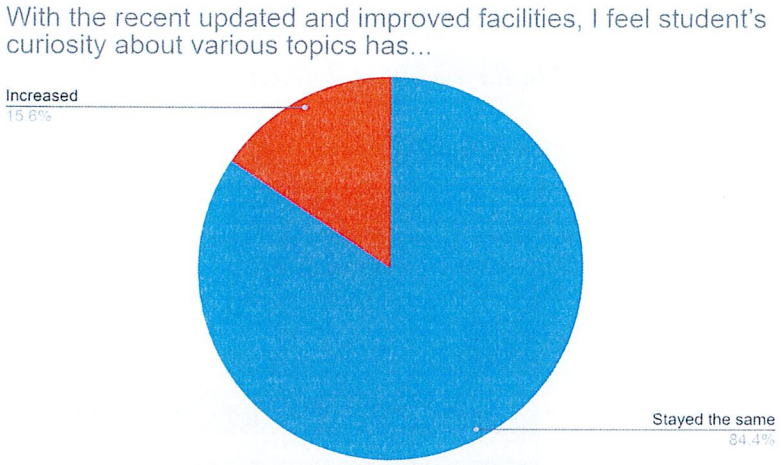


Note. Figure 29 depicts that of the 45 participants in this study, 6 (13%) responded that student's enthusiasm about learning has increased and 39 (87%) responded that student's enthusiasm about learning has stayed the same.

Figure 30 reflects the complete responses to survey question #32 "*With the recent updated and improved facilities, I feel student's curiosity about various topics has...*". Looking at responses from various educational levels, out of the 45 participants, 32 (71%) Elementary Staff, 7 (16%) Middle School/Jr. High School, and 6 (13%) High School Staff responded to this question. 5 (16%) of the Elementary Staff responded that student's curiosity about various topics has increased and 27 (84%) responded that student's curiosity about various topics has stayed the same. 7 (100%) of the Middle School/Jr. High School staff responded that student's curiosity about various topics has stayed the same. 2 (33%) of the High School staff responded that student's curiosity about various topics has increased and 4 (67%) responded that student's curiosity about various topics has stayed the same.

Figure 30

Survey question #32: With the recent updated and improved facilities, I feel student's curiosity about various topics has...



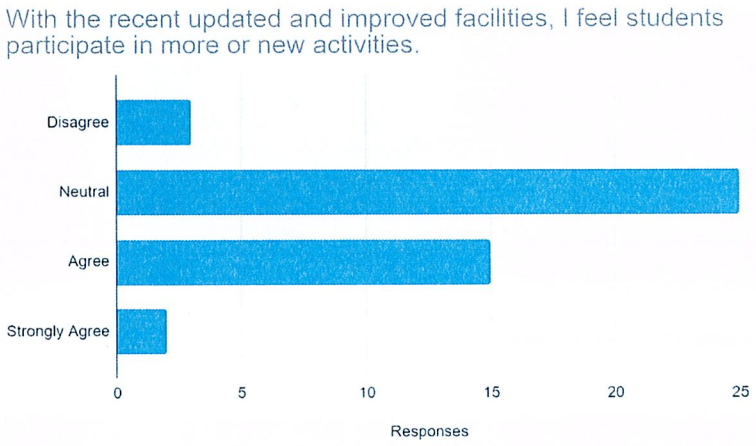
Note. Figure 30 depicts that of the 45 participants in this study, 7 (16%) responded that student's curiosity about various topics has increased and 38 (84%) responded that student's curiosity about various topics has stayed the same.

Figure 31 reflects the complete responses to survey question #33 *"With the recent updated and improved facilities, I feel students participate in more or new activities"*. Looking at responses from various educational levels, out of the 45 participants, 32 (71%) Elementary Staff, 7 (16%) Middle School/Jr. High School, and 6 (13%) High School Staff responded to this question. 1 (3%) of the Elementary Staff responded that they strongly agree, 10 (31%) responded that they agree, 19 (59%) responded neutral, and 2 (6%) responded that they disagree. 1 (14%) of the Middle School/Jr. High School staff responded that they strongly agree, 4 (57%) responded that they agree, and 2 (29%)

responded neutral. 1 (17%) of the High School staff responded that they agree, 4 (67%) responded neutral, and 1 (17%) responded that they disagree.

Figure 31

Survey question #33: With the recent updated and improved facilities, I feel students participate in more or new activities.



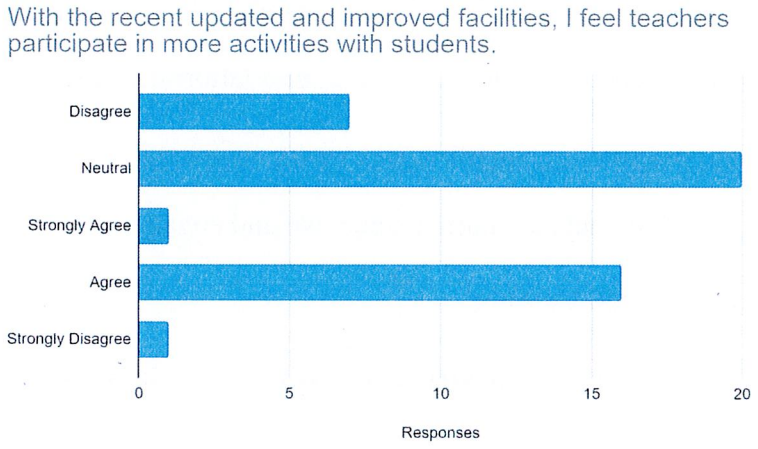
Note. Figure 31 depicts that of the 45 participants in this study, 2 (4%) responded that they strongly agree, 15 (33%) responded that they agree, 25 (56%) responded neutral, and 3 (7%) responded that they disagree.

Figure 32 reflects the complete responses to survey question #34 *"With the recent updated and improved facilities, I feel teachers participate in more activities with students"*. Looking at responses from various educational levels, out of the 45 participants, 32 (71%) Elementary Staff, 7 (16%) Middle School/Jr. High School, and 6 (13%) High School Staff responded to this question. 1 (3%) of the Elementary Staff responded that they strongly agree, 10 (31%) responded that they agree, 17 (53%)

responded neutral, and 4 (13%) responded that they disagree. 3 (43%) of the Middle School/Jr. High School staff responded that they agree, 2 (29%) responded neutral, 1 (14%) responded that they disagree, and 1 (14%) responded that they strongly disagree. 3 (50%) of the High School staff responded that they agree, 1 (17%) responded neutral, and 2 (33%) responded that they disagree.

Figure 32

Survey question #34: With the recent updated and improved facilities, I feel teachers participate in more activities with students.



Note. Figure 32 depicts that of the 45 participants in this study, 1 (2%) responded that they strongly agree, 16 (36%) responded that they agree, 20 (44%) responded neutral, 7 (16%) responded that they disagree and 1 (2%) responded that they strongly disagree.

Research Question 1 Open-ended Responses

When reviewing the open-ended question, "In your perspective, do you think that improving/updating facilities have increased student engagement? Please explain.", 26

(58%) of respondents did not feel student engagement was impacted by updated and improved facilities while 10 (22%) of respondents felt student engagement was impacted by updated and improved facilities. The remaining 9 (20%) of respondents were unsure if student engagement was impacted by updated and improved facilities.

A more depth analysis of the findings from the respondents did not feel student engagement was impacted by updated and improved facilities indicated most respondents felt student engagement increased because of teachers and instructional strategies. Some of the direct answers supporting this perspective were "I do not believe the facility is what impacts student engagement. I believe that is the expectation of the teacher", "I think engaged teachers improve student engagement", and "Their engagement is more tied to content and presentation, building of relationships between teacher and students, and a positive classroom environment where students feel safe". Reviewing these findings show students are more responsive and engaged due to the humanistic approach behind teaching and learning.

Research Question 1 Semi-Structured Interview Findings

In April of 2023, semi-formal interviews were conducted with three voluntary participants from the Cumberland Valley School District and the Mechanicsburg Area School District. To respect the anonymity of the volunteers who participated in the semi-formal interviews, the participants will be referenced as Staff Member #1, Staff Member #2, and Staff Member #3. Staff Member #1 is a Classroom Teacher at the Middle School Level. Staff Member #2 is a Building Administrator at the Elementary Level. Staff Member #3 is a Classroom Teacher at the Elementary Level. Five interview questions

were asked of the volunteers in reference to facility upgrades/improvements and their impact on student achievement.

To get an understanding of the school environment each interview volunteer works, semi-structured interview question #1 asked the volunteers "Can you describe the recent upgrades or improvements that have been made to the school facilities?"

Staff Member #1 stated:

"We have a recently built school. This is our fourth year in the building. Since the build, we have had to work on airflow issues. The intake was close to the venting of the restroom gasses and we would get an awful smell. The lockers in the locker room had combination locks and had to be replaced with lockers from our old school."

Staff Member #2 stated:

"In the last 5 years, we have renovated the following spaces: library, cafeteria, offices, main hallway, and playground. We have also added on new stairwells and classrooms. We also converted former office space that held district offices back to classrooms."

Staff Member #3 stated:

"Complete renovation to convert a 4/5 elementary into a primary 1 - 3 elementary building. Updates include the addition of several classmates in each of three wings, the renovation and expansion of the lobby area, the addition of open space classrooms in each of three wings, a new library, gym, cafeteria, administrative wing, playground, and blacktop area."

To get an understanding of facility upgrades/improvements impact on student engagement, semi-structured interview question #2 asked the volunteers "In your opinion, how do these upgrades or improvements contribute to the overall learning environment for students? Can you share an example of how you have seen facilities positively impact student engagement?"

Staff Member #1 stated:

"The biggest improvement to engagement in my class is the furniture. In the new location, I have flexible seating. I have 3 types of desk/tables and 2 of them can be pushed together for a large boardroom type table. I can seat students individually or in teams. Being a language teacher, teaming is important to communication, so this really helps my students engage with the language. I am able to have them discuss in teams and then ask even the most introverted student to share the team's ideas. This helps build confidence and I see students who never interact coming together with their team and working."

Staff Member #2 stated:

"Overall, there is pride in the new building and renovations. Our newly renovated spaces bring in so much more natural light and it's neat to see teachers open up their blinds to let it flood in. I think natural light has a positive effect on people, but I can't quantify it. One new design element has been to create collaborative spaces. These classrooms can fit 2 homerooms comfortably and teachers have used these spaces to increase student engagement and cooperation by hosting joint events in them."

Staff Member #3 stated:

"Space is designed for movement, flexibility, grade level coordination. Wings include all staff at a grade level to facilitate interaction, grade level enfranchisement, and collaboration. Open space is utilized for grade level activities giving students the opportunity to connect and collaborate with others outside of their homerooms."

To get an understanding of student motivation associated with facility upgrades/improvements, semi-structured interview question #3 asked the volunteers "In your opinion, have you noticed any changes in student engagement or motivation since these upgrades were implemented?"

Staff Member #1 stated:

"The ease of which I can do group work on a daily basis has increased engagement in a very positive way. Student are learning how to work with all types of personalities. I change groups every unit, so they have many opportunities to work with others. In my old building, this was very difficult due to the type of seating and room size. I also have wobble chairs and beanbags. This is valuable for students that like to fidget and have trouble focusing in a standard chair."

Staff Member #2 stated:

"Perhaps motivation. I think you could probably make an argument for if students feel good in the classroom they're in; it can positively impact how they feel. However, I would also argue that the teacher's classroom environment that they

set up in the classroom has a greater impact on a child's readiness to learn. Perhaps there's a connection there."

Staff Member #3 stated:

"Initially a big difference. Ongoing only some."

To get an understanding of student feeling towards facility upgrades/improvements, semi-structured interview question #4 asked the volunteers "Have you received any feedback from students regarding the upgrades or improvements?"

Staff Member #1 stated:

"They love the flexible seating. The first year here, my 8th graders were in my class at the old building in 7th grade. They loved the seating and groups. They said it made it more comfortable and easier to work in groups."

Staff Member #2 stated:

"Yes- they enjoy the newer shared spaces especially- the library and cafeteria, and the playground. It raises their level of excitement to be in the spaces. I remember when the library and cafeteria were in the process of being built/renovated. The anticipation that mounted from students waiting to be in the new spaces built over time, and increased their desire to be in the new spaces."

Staff Member #3 stated:

"Yes, especially initially students were impressed and motivated by changes - current students don't know any differently."

To get a deeper understanding student engagement related to facility upgrades/improvements, semi-structured interview question #5 asked the volunteers "Have you noticed any differences in student engagement before and after facility upgrades?"

Staff Member #1 stated:

"The major difference between the old and new building concerning student engagement has been the ability to quickly change seating to encourage group work. I also have a tall cafe table that students can stand at which helps some students stay focused."

Staff Member #2 stated:

"The shared spaces has increased opportunities for students to collaborate and work together. We have an open classroom outside of the auxiliary gym. Our 4th grade health/PE teacher uses this new space strategically where she can provide direct instruction in a classroom setting about the digestive system, and then they can move into the adjacent aux. gym and act it out. This has increased engagement."

Staff Member #3 stated:

"Initially yes, students were motivated and engaged as a result in part to upgrades and the flexibility they provided. Now students expect them."

Research Question 1 Summary

The findings of the survey titled "School Building Staff Survey related to Facility Upgrades/Improvements" as it pertains to student engagement indicate the majority of the teachers' perception is neutral and student engagement stayed the same because of updated and improved facilities. The findings of the open-ended question within survey titled "School Building Staff Survey related to Facility Upgrades/Improvements" as it pertains to student engagement indicate the majority of the teachers' perception is they did not feel student engagement was impacted because of updated and improved facilities. The semi-structured interviews gave a perspective of both school administrators and classroom teachers working in different school levels. The consensus was student engagement was impacted in a positive manner from facility upgrades/improvements. Each participant gave nice examples of the impact experienced.

When reviewing the data pertaining to this research question, the researcher has a level of bias due to their current position at a small, urban, underfunded public school district in central Pennsylvania. Research was conducted in two affluent school districts who have funding to support facility construction projects. School construction projects are necessary for the researchers' school district, but financial issues are prolonging any potential projects from moving forward.

Research Question 2

To address the second research question "What is the perception of staff on facility upgrades/improvements and its impact on student and staff safety?", qualitative data was collected through the use of a survey titled "School Building Staff Survey related to Facility Upgrades/Improvements". This total survey consisted of 41 survey

questions and two open-ended questions. Four survey questions and one open-ended question were given to participants directly linked to facility upgrades/improvements and student and staff safety. Qualitative data was also collected through a semi-formal interview including five questions related to facility upgrades/improvements and student engagement.

Research Question 2 Findings

In February of 2023, the survey was sent to 775 staff members within the Cumberland Valley School District and the Mechanicsburg Area School District. The potential staff members for participation in this study consisted of 18 administrators, 474 professional staff, and 283 support staff. 45 of those staff members responded and all 45 agreed to participate in the study.

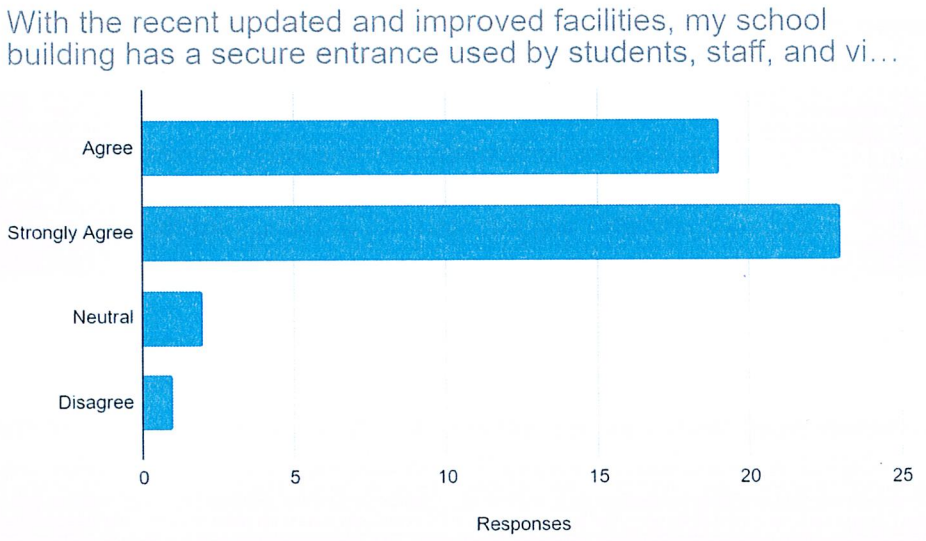
Figures 33, 34, 35, and 36 show the responses related to the survey questions related to facility upgrades/improvements and their association to student and staff safety. Each figure breaks down a specific question within the survey.

Figure 33 reflects the complete responses to survey question #36 *"With the recent updated and improved facilities, my school building has a secure entrance used by students, staff, and visitors"*. Looking at responses from various educational levels, out of the 45 participants, 32 (71%) Elementary Staff, 7 (16%) Middle School/Jr. High School, and 6 (13%) High School Staff responded to this question. 19 (59%) of the Elementary Staff responded that they strongly agree, 12 (38%) responded that they agree, and 1 (3%) responded neutral. 2 (29%) of the Middle School/Jr. High School staff responded that they strongly agree, 4 (57%) responded that they agree, and 1 (14%)

responded that they disagree. 2 (33%) of the High School staff responded that they strongly agree, 3 (50%) responded that they agree, and 1 (17%) responded neutral.

Figure 33

Survey question #36: With the recent updated and improved facilities, my school building has a secure entrance used by students, staff, and visitors.



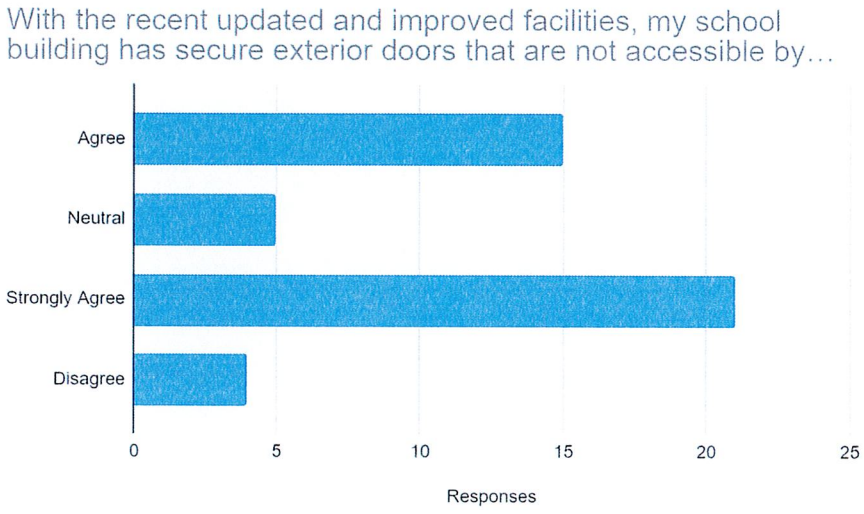
Note. Figure 33 depicts that of the 45 participants in this study, 23 (51%) responded that they strongly agree, 19 (42%) responded that they agree, 2 (4%) responded neutral, and 1 (2%) responded that they disagree.

Figure 34 reflects the complete responses to survey question #37 *"With the recent updated and improved facilities, my school building has secure exterior doors that are not accessible by the public"*. Looking at responses from various educational levels, out of the 45 participants, 32 (71%) Elementary Staff, 7 (16%) Middle School/Jr. High School, and 6 (13%) High School Staff responded to this question. 18 (56%) of the

Elementary Staff responded that they strongly agree, 8 (25%) responded that they agree, 4 (13%) responded neutral, and 2 (6%) responded that they disagree. 2 (29%) of the Middle School/Jr. High School staff responded that they strongly agree, 4 (57%) responded that they agree, and 1 (14%) responded that they disagree. 1 (17%) of the High School staff responded that they strongly agree, 3 (50%) responded that they agree, and 1 (17%) responded neutral.

Figure 34

Survey question #37: With the recent updated and improved facilities, my school building has secure exterior doors that are not accessible by the public.

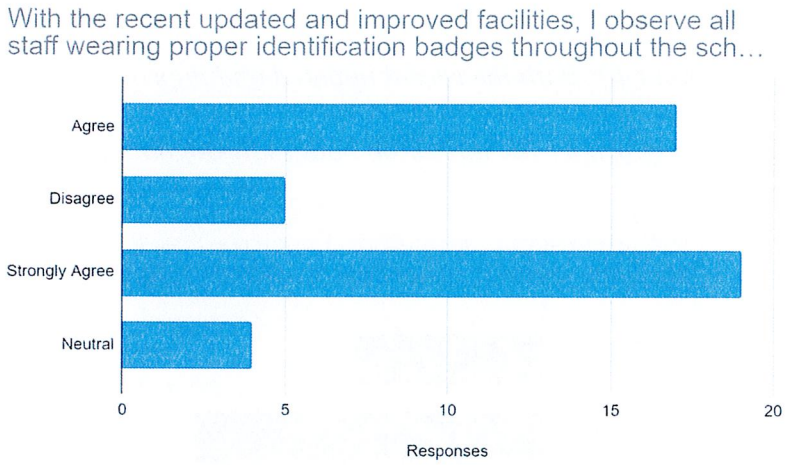


Note. Figure 34 depicts that of the 45 participants in this study, 21 (47%) responded that they strongly agree, 15 (33%) responded that they agree, 5 (11%) responded neutral, and 4 (9%) responded that they disagree.

Figure 35 reflects the complete responses to survey question #39 *"With the recent updated and improved facilities, I observe all staff wearing proper identification badges throughout the school day"*. Looking at responses from various educational levels, out of the 45 participants, 32 (71%) Elementary Staff, 7 (16%) Middle School/Jr. High School, and 6 (13%) High School Staff responded to this question. 15 (47%) of the Elementary Staff responded that they strongly agree, 9 (28%) responded that they agree, 3 (9%) responded neutral, and 5 (16%) responded that they disagree. 3 (43%) of the Middle School/Jr. High School staff responded that they strongly agree and 4 (57%) responded that they agree. 1 (17%) of the High School staff responded that they strongly agree, 4 (67%) responded that they agree, and 1 (17%) responded neutral.

Figure 35

Survey question #39: With the recent updated and improved facilities, I observe all staff wearing proper identification badges throughout the school day.



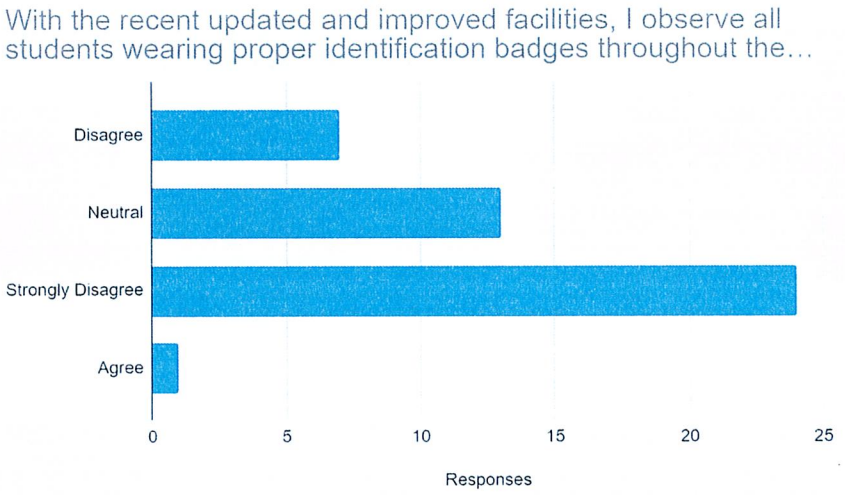
Note. Figure 35 depicts that of the 45 participants in this study, 19 (42%) responded that they strongly agree, 17 (38%) responded that they agree, 4 (9%) responded neutral, and 5 (11%) responded that they disagree.

Figure 36 reflects the complete responses to survey question #40 *"With the recent updated and improved facilities, I observe all students wearing proper identification badges throughout the school day"*. Looking at responses from various educational levels, out of the 45 participants, 32 (71%) Elementary Staff, 7 (16%) Middle School/Jr. High School, and 6 (13%) High School Staff responded to this question. 1 (3%) of the Elementary Staff responded that they agree, 9 (28%) responded neutral, 5 (16%) responded that they disagree, and 17 (53%) responded that they strongly disagree. 4 (57%) of the Middle School/Jr. High School staff responded that they strongly neutral

and 3 (43%) responded that they strongly agree. 2 (33%) of the High School staff responded that they disagree and 4 (67%) responded that they strongly disagree.

Figure 36

Survey question #40: With the recent updated and improved facilities, I observe all students wearing proper identification badges throughout the school day.



Note. Figure 36 depicts that of the 45 participants in this study, 1 (2%) responded that they agree, 13 (29%) responded neutral, 7 (16%) responded that they disagree, and 24 (53%) responded that they strongly disagree.

Research Question 2 Open-ended Responses

When reviewing the open-ended question, "In your perspective, do you think that improving/updating facilities have improved school safety? Please explain.", 27 (60%) of respondents felt student and staff safety was impacted by updated and improved facilities while 13 (29%) of respondents did not feel student and staff safety was

impacted by updated and improved facilities. The remaining 5 (11%) of respondents were unsure if student and staff safety was impacted by updated and improved facilities.

A more depth analysis of the findings from the respondents felt school safety was impacted by updated and improved facilities indicated most respondents felt school safety improved because of entrances being secure, doors being locked, and having an identification/check-in system. Some of the direct answers supporting this perspective were "Yes; now there are two locked doors before entering the office", "All doors, to my knowledge, are locked and have to be scanned in with a badge", "Yes the main entrance is more secure", and "Yes. Better check in system. Doors do not open directly to office anymore or to school".

Unfortunately, in this modern era of education, school safety and security has to be a top priority and reviewing these findings have revealed school safety was a priority within each facility construction project.

Research Question 2 Semi-Structured Interview Findings

In April of 2023, semi-formal interviews were conducted with three voluntary participants from the Cumberland Valley School District and the Mechanicsburg Area School District. To respect the anonymity of the volunteers who participated in the semi-formal interviews, the participants will be referenced as Staff Member #1, Staff Member #2, and Staff Member #3. Staff Member #1 is a Classroom Teacher at the Middle School Level. Staff Member #2 is a Building Administrator at the Elementary Level. Staff Member #3 is a Classroom Teacher at the Elementary Level. Five interview questions were asked of the volunteers in reference to facility upgrades/improvements and their impact on student and staff safety.

To get an understanding of the safety trainings offered within school districts, semi-structured interview question #6 asked the volunteers "Based on the school facility upgrades, was there any additional training or resources provided to staff to ensure that they are equipped to handle any new safety measures or procedures?"

Staff Member #1 stated:

> "The new building has stairs unlike the old one, so every teacher close to the emergency stair evacuation system was trained in its usage. I helped create the emergency routes for evacuation and for severe weather during the summer prior to entering the building. Adjustments were made after the first year. Staff discussed issues with administration and we tweaked the routes to make it flow smoother."

Staff Member #2 stated:

> "Yes- we have had to train our staff with opening and closing the steel curtain that would cover over the garage doors in the cafeteria."

Staff Member #3 stated:

> "Yes, District level focus on safety, situational awareness, behavior."

To get an understanding of the safety priorities, semi-structured interview question #7 asked the volunteers "What steps has the school taken to ensure that student and staff safety remains a top priority even after the upgrades or improvements are completed?"

Staff Member #1 stated:

"Our office has multiple doors and locks that need a badge to enter the building unlike the old school. This makes it more difficult for an intruder to enter the building. The doors at the end of each hallway close in an emergency making it difficult for fire to penetrate. We were told it would take 6 hours for anyone to even notice a fire outside the hallway."

Staff Member #2 stated:

"We are still struggling with our new exterior doors closing on their own, even after 2 years of installation. We are in constant communication with the contractor and our internal maintenance department to ensure that they get fixed."

Staff Member #3 stated:

"Locked entrances with key or scan code required to enter. Follow up on any unknown persons in school area. Entry is secure and everyone must be buzzed in just to vestibule, then to office.

To get an understanding of building use and functionality, semi-structured interview question #8 asked the volunteers "Has the school facility upgrades and improvements affected the overall functionality and usability of the school?"

Staff Member #1 stated:

"Yes, I think overall the new building has make us all rethink protocols and become more aware of issues and the need for the protocols as safety measures. Our building is huge, 1400 students, and we realized that consistency with expectations is vital."

Staff Member #2 stated:

"Definitely. It has increased the amount of classrooms that we have, which increased the flexibility we have to ensure there is space for people to work. Upgrading the cafeteria has increased the amount of students who can eat lunch at a time, which impacts our schedule. Upgrading our playground and back parking lot has changed our traffic flow for car riders, allowing it to flow more smoothly."

Staff Member #3 stated:

"Yes, the building is similar in each wing but also unique to grade level in that wing. Space is broad, well planned, and flexible for use by all."

To get an understanding of building use and functionality, semi-structured interview question #9 asked the volunteers "What safety measures do you believe were the most important for the school to implement, and why?"

Staff Member #1 stated:

"Consistent expectations with hallway and cafeteria behaviors. These are the locations with the most discipline referrals and we all realized that we need to hold the students and each other accountable. Our lunchroom is on giant room that seats over 400 students. Too many bodies in one place to manage if there are issues."

Staff Member #2 stated:

"We already had a secure main entrance. One thing they added to increase our safety was a gate that closed off our inner courtyard."

Staff Member #3 stated:

"Locked entrances all the way around school. Procedures for admittance that are clearly laid out for admittance."

To get an understanding of anything that may have been missed during facility upgrades/improvements, semi-structured interview question #10 asked the volunteers "Are there any particular safety concerns that you feel haven't been adequately addressed in the school facility upgrades and improvements? If so, what concerns do you have, and what additional measures would you like to see implemented?"

Staff Member #1 stated:

"I don't believe that the architects of our building were thinking about safety. Our cafeteria wall is all windows from waist high and up. This is the front of the building. Aesthetics were priority and not safety. I would encourage future improvements and new builds to consider worse case scenarios and go from there."

Staff Member #2 stated:

"They were not a concern to begin with, but now they are- our aforementioned exterior doors that won't close on their own."

Staff Member #3 stated:

"Playground is somewhat open and a path adjacent to it is used by the public at times during the school day. Some use the driveway as a through way during the school day. There is an open track/field adjacent to the playground that is open to

anyone. I think there should be additional signage and gating so, this is less prevalent during the school day, and so the public knows they do not belong there during the school day."

Research Question 2 Summary

The findings of the survey titled "School Building Staff Survey related to Facility Upgrades/Improvements" as it pertains to student and staff safety indicate the majority of the teachers' perception is positive and student and staff safety improved because of updated and improved facilities. The findings of the open-ended question within survey titled "School Building Staff Survey related to Facility Upgrades/Improvements" as it pertains to student and staff safety indicate the majority of the teachers' perception is they did feel student and staff safety was impacted as a result of updated and improved facilities. The semi-structured interviews gave a perspective of both school administrators and classroom teachers working in different school levels. The consensus was student and staff safety was impacted in a positive manner from facility upgrades/improvements. Each participant gave nice examples of the impact experienced.

When reviewing the data pertaining to this research question, the researcher has a level of bias due to their current position at a small, urban, underfunded public school district in central Pennsylvania. Research was conducted in two affluent school districts who have funding to support facility construction projects. School construction projects are necessary for the researchers' school district, but financial issues are prolonging any potential projects from moving forward.

Further discussion of conclusions along with further recommendations for action research will be presented in Chapter V.

CHAPTER V

Conclusions and Recommendations

This capstone action research project was designed to understand the impact of facility upgrades/improvements on student engagement and student and staff safety. Facility upgrades and improvements are essential to ensure students have an equitable educational experience similar to all other students in the state of Pennsylvania. Equitable experiences related to student engagement and safety will help to strengthen a positive school culture. This qualitative study examined the perceptive data of K-12 school staff in buildings who have recently undergone facility upgrades or renovations within the past five years. The purpose of this study was conducted to get an understanding of staff perceptions related to the impact of school facility improvements on student engagement. It was also conducted to get an understanding of staff perceptions related to the impact of school facility improvements on safety as it relates to students and staff. Data collection consisted of a survey and interviews within the Cumberland Valley School District and the Mechanicsburg Area School District. Chapter V summarizes the results of the study and answers the following research questions:

Research Question 1

What is the perception of staff on facility upgrades/improvements and its impact on student engagement?

Research Question 2

What is the perception of staff on facility upgrades/improvements and its impact on student and staff safety?

Similar to the process in Chapter IV, each research question will be analyzed individually. The first part of the chapter will review the impact of facility upgrades/improvements on student engagement. The second part of the chapter will review the impact of facility upgrades/improvements on student and staff safety. Within each section, the fidelity of the research will be discussed along with any challenges faced during research. Recommendations for future research like this will also be addressed.

Conclusions

Research Question 1

The first research question asked, "What is the perception of staff on facility upgrades/improvements and its impact on student engagement?". The methodology and data analysis were designed to gather perceptive data of school staff, including administrators, professional staff, and support staff, related to recent school facility upgrades/improvements and the impact they had on student engagement. The largest group who participated in the survey was professional staff and made up 76% (34) of respondents. The second largest group who participated in the survey was support staff and made up 18% (8) of respondents. The third group who participated in the survey were administrators and made up 7% (3) of respondents. The overall survey consisted of 41 survey questions and two open-ended questions. Specific to this research question, the researcher gathered data through the survey including eight survey questions and one open-ended question given to participants directly linked to facility upgrades/improvements and student engagement. A semi-formal interview was given to

three individuals who volunteered to participate and consisted of five questions focused on facility upgrades/improvements and their impact on student engagement.

When analyzing the results of the survey, the researcher found pertinent data to highlight the perceptions of all staff who participated in the study. The findings of the survey titled "School Building Staff Survey related to Facility Upgrades/Improvements" as it pertains to student engagement indicate the majority of the participant's Perceptive data is neutral and student engagement can be broken down into two sections. The first section would be the answers to the survey questions with multiple-choice responses. Within these responses, the majority of the survey participant's perceptions was student engagement was not impacted and stayed somewhat the same because of updated and improved facilities. The second section looked at the findings of the open-ended question within survey titled "School Building Staff Survey related to Facility Upgrades/Improvements" as it pertains to student engagement. The conclusion from reviewing these responses from participants indicate the majority of the participants perception is they did not feel student engagement was impacted and stayed somewhat the same because of updated and improved facilities. 26 (58%) of respondents did not feel student engagement was impacted by updated and improved facilities while 10 (22%) of respondents felt student engagement was impacted by updated and improved facilities. The remaining 9 (20%) of respondents were unsure if student engagement was impacted by updated and improved facilities. An analysis of the findings from the respondents who did not feel student engagement was impacted by updated and improved facilities indicated most respondents felt student engagement increased because of teachers and instructional strategies. Some of the direct answers supporting this

perspective were "I do not believe the facility is what impacts student engagement. I believe that is the expectation of the teacher", "I think engaged teachers improve student engagement", and "Their engagement is more tied to content and presentation, building of relationships between teacher and students, and a positive classroom environment where students feel safe". Reviewing these findings show students are more responsive and engaged due to the humanistic approach behind teaching and learning.

When analyzing the semi-structured interviews, the researcher was able to gain a perspective of both school administrators and classroom teachers working in different school levels. The semi-structured interviews gave a deeper dive into the perceptions of each and led to great conversations related to the facility improvements and upgrades as well as their potential impact on student engagement. The consensus was student engagement was impacted in a positive manner from facility upgrades/improvements. Each participant gave nice examples of the impact experienced. Some of the direct answers and examples supporting this perspective were "I can seat students individually or in teams. This helps build confidence and I see students who never interact coming together with their team and working", "I think natural light has a positive effect on people, but I can't quantify it. One new design element has been to create collaborative spaces", and "Space is designed for movement, flexibility, grade level coordination. Wings include all staff at a grade level to facilitate interaction, grade level enfranchisement, and collaboration". Reviewing these findings show a different perspective highlighting the positive impact facility upgrades/improvements can have on student engagement focusing on collaboration and flexibility for various types of instruction.

Research Question 2

The second research question asked, "What is the perception of staff on facility upgrades/improvements and its impact on student and staff safety?". The methodology and data analysis were designed to gather the perceptive data of school staff, including administrators, professional staff, and support staff, related to recent school facility upgrades/improvements and the impact they had on student and staff safety. The largest group who participated in the survey was professional staff and made up 76% (34) of respondents. The second largest group who participated in the survey was support staff and made up 18% (8) of respondents. The third group who participated in the survey were administrators and made up 7% (3) of respondents. The overall survey consisted of 41 survey questions and two open-ended questions. Specific to this research question, the researcher gathered data through the survey including four survey questions and one open-ended question given to participants directly linked to facility upgrades/improvements and student and staff safety. A semi-formal interview was given to three individuals who volunteered to participate and consisted of five questions focused on facility upgrades/improvements and their impact on student and staff safety.

When analyzing the results of the survey, the researcher found pertinent data to highlight the perceptions of all staff who participated in the study. The findings of the survey titled "School Building Staff Survey related to Facility Upgrades/Improvements" as it pertains to student and staff safety indicate the majority of the participant's perception is positive and student and staff safety can be broken down into two sections. The first section would be the answers to the survey questions with multiple-choice responses. Within these responses, the majority of the survey participant's perceptions

was student and staff safety was impacted and improved because of updated and improved facilities. The second section looked at the findings of the open-ended question within survey titled "School Building Staff Survey related to Facility Upgrades/Improvements" as it pertains to student and staff safety. The conclusion from reviewing these responses from participants indicate the majority of the participants perception is they felt student and staff safety was impacted and improved because of updated and improved facilities. 27 (60%) of respondents felt student and staff safety was impacted by updated and improved facilities while 13 (29%) of respondents did not feel student and staff safety was impacted by updated and improved facilities. The remaining 5 (11%) of respondents were unsure if student and staff safety was impacted by updated and improved facilities. An analysis of the findings from the respondents indicated most respondents felt school safety improved because of entrances being secure, doors being locked, and having an identification/check-in system. Some of the direct answers supporting this perspective were "Yes; now there are two locked doors before entering the office", "All doors, to my knowledge, are locked and have to be scanned in with a badge", "Yes the main entrance is more secure", and "Yes. Better check in system. Doors do not open directly to office anymore or to school". Reviewing these findings, show student and staff safety was a priority with each facility construction project.

When analyzing the semi-structured interviews, the researcher was able to gain a perspective of both school administrators and classroom teachers working in different school levels. The semi-structured interviews gave a deeper dive into the perceptions of each and led to great conversations related to the facility improvements and upgrades as

well as their potential impact on student and staff safety. The consensus was student and staff safety was impacted in a positive manner from facility upgrades/improvements. Each participant gave nice examples of the impact experienced. Some of the direct answers and examples supporting this perspective were "Yes, District level focus on safety, situational awareness, behavior", "Locked entrances with key or scan code required to enter", and "Locked entrances all the way around school. Procedures for admittance are clearly laid out for admittance". Reviewing these findings show a perspective highlighting the positive impact facility upgrades/improvements had on student and staff safety focusing on making safety and security a priority.

Over the years, the Steelton-Highspire School District has performed minimal upgrades to their school buildings, which has led to deteriorating facilities. The Jr./Sr. High School was built in 1955 and has minimal renovations since its construction. The most recent renovation has been the construction of a safe and secure main entrance. The Elementary School was built in 2006 and the only updates it has received was the construction of a safe and secure main entrance. The district has recently installed a 1.6-megawatt solar field that directly offsets 100% of the school districts energy use. This solar project also included an ESCO project that swapped out all light bulbs for energy saving LED bulbs. Being able to show the impact facility upgrades/renovations potentially have on student engagement and school safety to the stakeholders within the Steelton-Highspire School District will allow them to make informed decisions regarding future renovation or new construction projects.

Fiscal implications associated with this study are minimal. The researcher created surveys utilizing Google Forms, which were sent to participating school districts teachers

and staff. This survey was voluntary and there was no cost for any participant or the researcher. An indirect cost would be the time and effort of the researcher and the survey participants. The researcher will utilize the anonymous responses from the survey and compile them to share with school district stakeholders to review when considering any facility upgrades/improvements. If facility upgrades or renovations were to be proposed, demonstrating the potential effects they could have on student engagement, school safety, and reduced behaviors to the stakeholders in the Steelton-Highspire School District would enable them to make well-informed decisions. In conjunction with the research, the Steelton-Highspire School District contracted with an architectural firm to conduct a feasibility study. This feasibility study will look at the current state of district facilities and options will be presented as a result of the study. The cost of the feasibility study is $2500.00 and will be completed over a 1-2 year period. This financial commitment is necessary to get a professional review of the state of the school district's facilities currently as well as potential possibilities for improvements/upgrades.

Limitations

In addition to the limitations previously mentioned, several other factors may impact the results and generalizability of this doctoral capstone project. Firstly, the demographics of the participants should be taken into account. The 45 school staff members who participated in the study were from the Cumberland Valley School District and Mechanicsburg Area School District. While this sample size provides valuable insights, it is important to consider the representativeness of these districts in relation to the broader educational landscape.

The demographics of these districts may differ significantly from other school districts in terms of socio-economic status, racial and ethnic diversity, and geographical location. Therefore, caution should be exercised when generalizing the findings to other districts with different characteristics. Future research could aim to include a more diverse range of districts to enhance the external validity of the study's findings.

Furthermore, the composition of the participants, including 34 professional staff, 8 support staff, and 3 building administrators, introduces another potential limitation. The perspectives and experiences of these different staff categories may vary significantly, and the unequal distribution of participants across these categories might skew the findings. For instance, the views of professional staff might dominate the results, while the perspectives of support staff or building administrators could be underrepresented.

To address this limitation, future studies could aim for a more balanced representation of participants from various staff categories. This would provide a more comprehensive understanding of the topic and allow for a more nuanced analysis of the data. Additionally, employing qualitative research methods such as focus groups or individual interviews with specific staff categories could yield deeper insights into their unique perspectives and experiences.

Another potential limitation associated with the researcher's bias relates to the influence of their current position at a small, urban, underfunded public school district in central Pennsylvania. The researcher's personal experiences and challenges faced within their own district could potentially impact their objectivity and interpretation of the data. It is important to acknowledge this potential bias and take it into consideration when interpreting the findings.

To mitigate the potential bias, the researcher employed rigorous research methods and analytical techniques. They ensured the use of systematic data collection and analysis processes, including the triangulation of data from multiple sources. Additionally, the researcher sought to maintain a neutral stance by consistently reflecting on their own positionality and potential biases throughout the research process.

Furthermore, the study's focus on two affluent school districts with sufficient funding for facility construction projects may limit the generalizability of the findings. While these districts provide valuable insights into effective strategies for school construction, it is crucial to recognize that the financial resources and priorities of these districts might not be representative of other districts, particularly those facing financial constraints.

To address this limitation, future research could incorporate a more diverse range of school districts with varying levels of funding and resources. By including districts with limited financial resources, the study could gain a more comprehensive understanding of the challenges and potential solutions for school construction projects in different contexts. This would enhance the applicability of the findings to a broader range of districts and facilitate the development of more inclusive and equitable strategies for school construction.

In conclusion, while this doctoral capstone project has provided valuable insights into the topic at hand, it is essential to consider the various limitations that may affect the interpretation and generalizability of the results. These limitations include the sample size and composition of participants, potential researcher bias, and the contextual differences between the researcher's district and the districts included in the study. By acknowledging

these limitations, future research can build upon these findings and strive to address them through methodological improvements and broader inclusion of diverse districts and participants.

Recommendations for Future Research

As this action research project concludes, it is crucial to consider potential avenues for future research that can build upon the findings and expand the understanding of the research topic. One recommendation for future research is to conduct a study in an urban school setting similar to the researcher's current school district. By focusing on a district with a history of low student performance and funding issues, the researcher can gather a more in-depth perspective and additional data that aligns with the researcher's district's current demographics and challenges.

Research conducted within a similar urban school district would provide valuable insights into the specific factors influencing student performance and the impact of funding issues on educational outcomes. By examining the experiences and perspectives of school staff within this context, the researcher can shed light on effective strategies for addressing the challenges faced by urban schools with limited resources. This type of research would be particularly relevant for stakeholders and school leaders in urban districts, as it could provide evidence-based recommendations for improving student outcomes in similar contexts.

Another recommendation for future research is to explore the student's perspective regarding the impact of facility conditions on student engagement as well as student and staff safety. This type of study would allow for data collection that reflects the thoughts and perceptions of students, which is often an underrepresented voice in

research on school facilities. By understanding the students' experiences and viewpoints, researchers can gain valuable insights into how facility conditions influence student well-being, motivation, and academic performance.

To conduct such research, methods like surveys, focus groups, or interviews can be employed to gather students' perspectives on the physical environment and its impact on their educational experience. This data could provide valuable insights to stakeholders and school leaders when making decisions related to facility improvements or upgrades. By considering the student perspective, schools can create learning environments that not only meet their functional needs but also promote student engagement and safety.

A final recommendation for future research is to conduct a longitudinal study encompassing two phases: before and after a facility construction project. This approach would allow for a comprehensive examination of the impact of facility improvements on both staff and students. By collecting data from both groups before the construction project begins and then again after its completion, researchers can evaluate the changes in perceptions, experiences, and outcomes resulting from the facility upgrades.

This two-phase research design would provide a unique opportunity to capture firsthand accounts of the facility construction process and its impact. By collecting data close to the actual construction project dates, the research would benefit from the immediacy and accuracy of the participants' experiences and perceptions. The insights gained from this longitudinal approach could inform future facility improvement initiatives and provide evidence of the tangible benefits that such projects can bring to the school community.

To implement this research design, a combination of quantitative and qualitative methods could be employed. Surveys, observations, interviews, and focus groups could be used to collect data on various aspects such as staff and student satisfaction, perceptions of safety, academic performance, and overall well-being. The findings from this type of research would provide valuable insights into the short-term and long-term effects of facility construction projects, helping schools make informed decisions about future investments in their infrastructure.

In conclusion, as this action research project concludes, it is important to consider potential directions for future research. Conducting research in urban school settings similar to the researcher's current district, exploring the student perspective on facility conditions, and implementing a longitudinal study design involving pre- and post-construction phases are all promising avenues for future investigation. By addressing these areas, researchers can contribute to the understanding of effective strategies for improving educational outcomes, creating safe and engaging learning environments, and maximizing the benefits of facility construction projects for staff and students.

Summary

The completion of this doctoral action research project has proven to be an invaluable experience for the researcher. Working in a small, urban, underfunded public school district with significant needs for facility improvements and upgrades, this study provided the researcher with a deeper understanding of the potential impact that such improvements can have on the district. By conducting this research, the researcher gained insights into the complexities and challenges associated with facility construction projects and their implications for educational equity.

Through the study, the researcher was able to identify the inequities in school funding and opportunities that exist not only within their own district but also across the state of Pennsylvania. This realization underscores the importance of advocating for fair and equitable distribution of resources to ensure that all students have access to safe and conducive learning environments. The valuable data generated through this research can serve as a compelling evidence base for stakeholders within the researcher's school district, enabling them to make informed decisions when considering future facility construction projects.

Furthermore, this research project facilitated the development of meaningful connections with colleagues from local school districts. By engaging in conversations about school district facility construction projects, the researcher has gained firsthand knowledge of various construction projects at different levels. This connection with colleagues provides a valuable opportunity to exchange ideas, learn from each other's experiences, and collaborate on finding innovative solutions to common challenges.

As potential facility construction projects move forward, the researcher's network of colleagues will continue to be instrumental in gathering firsthand knowledge and insights associated with these projects. By leveraging the relationships built through this action research, the researcher can tap into the collective knowledge of peers, benefit from shared best practices, and navigate the intricacies of the construction process more effectively.

Undertaking this doctoral capstone project has not only expanded the researcher's knowledge base but also equipped them with valuable input to inform potential school district projects in the future. The action research component of this study provided a

unique opportunity to bridge the gap between theory and practice. By applying research methodologies to a real-world context, the researcher gained practical insights and a deeper understanding of the challenges and opportunities associated with facility improvements and upgrades.

The knowledge and experience gained through this research will enable the researcher to play a more active and informed role in decision-making processes related to facility construction projects. By drawing upon the findings of this doctoral capstone project, the researcher can contribute to informed discussions, advocate for equitable funding, and champion initiatives that prioritize the creation of safe and conducive learning environments for all students.

Furthermore, the research process itself has honed the researcher's critical thinking, analytical, and problem-solving skills. The ability to identify research gaps, design and implement a study, analyze data, and draw meaningful conclusions is a valuable asset for any educational leader. This research experience has provided the researcher with a solid foundation in research methodologies and the ability to evaluate evidence critically, fostering a data-driven and evidence-based approach to decision-making.

In conclusion, the completion of this doctoral action research project has been an invaluable experience for the researcher, offering profound insights into the impact of facility improvements and upgrades in an underfunded public school district. The research has shed light on the inequities in school funding and opportunities, providing a basis for advocating for equitable resource allocation. The connections formed with colleagues from local districts have opened doors for collaboration and the exchange of

knowledge. Overall, this action research project has not only enriched the researcher's knowledge base but also equipped them with valuable input and skills to make informed decisions regarding potential school district facility construction projects in the future.

References

AFT - American Federation of Teachers - A Union of Professionals. (2006). *Building minds, minding buildings: Turning crumbling schools into environments for learning.* http://www.aft.org/sites/defauly/files/bmmbcrumbling1106_0.pdf

Alexander, C., Ishikawa, S., Silverstein, M., Jacobson, M., Fiksdahl-King, I., & Shlomo, A. (1977). *A pattern language: Towns, buildings, construction.* Oxford University Press.

American Institutes for Research. (2005). *Evaluation of the Bill and Melinda Gates Foundation's High School Grants Initiative.* https://docs.gatesfoundation.org/documents/year4evaluationairsri.pdf

Bakó-Biró, Z., Clements-Croome, D., Kochhar, N., Awbi, H., & Williams, M. (2012). Ventilation rates in schools and pupils' performance. *Building and Environment*, *48*, 215-223. https://doi.org/10.1016/j.buildenv.2011.08.018

Barrett, P., & Barrett, L. (2010). The potential of positive places: Senses, brain and spaces. *Intelligent Buildings International*, *2*, 218-228.

Barrett, P., Davies, F., Zhang, Y., & Barrett, L. (2015). The impact of classroom design on pupils' learning: Final results of a holistic, multi-level analysis. *Building and Environment*, *89*, 118-133. https://doi.org/10.1016/j.buildenv.2015.02.013

Barrett, P., Davies, F., Zhang, Y., & Barrett, L. (2016). The holistic impact of classroom spaces on learning in specific subjects. *Environment and Behavior*, *49*(4), 425-451. https://doi.org/10.1177/0013916516648735

Barrett, P., Treves, A., Shmis, T., & Ambasz, D. (2019). *The impact of school infrastructure on learning: A synthesis of the evidence.* World Bank Publications.

Barrett, P., & Zhang, Y. (2009). *Optimal learning spaces: Design implications for primary schools*. Salford Centre for Research & Innovation in the Built & Human Environment.

Benfield, J. A., Rainbolt, G. N., Bell, P. A., & Donovan, G. H. (2013). Classrooms with nature views. *Environment and Behavior*, *47*(2), 140-157. https://doi.org/10.1177/0013916513499583

Bhandari, P. (2022, October 10). *What is qualitative research? | Methods & examples*. Scribbr. https://www.scribbr.com/methodology/qualitative-research/

Bingler, S., Diamond, B. M., Hill, B., Hoffman, J. L., Howley, C. B., Lawrence, B. K., Mitchell, S., Rudolph, D., & Washor, E. (2002). *Dollars & sense the cost effectiveness of small schools* (ED473168). ERIC. https://files.eric.ed.gov/fulltext/ED473168.pdf

Blackmore, J., Bateman, D., Loughlin, J., O'Mara, J., & Aranda, G. (2011). *Research into the connection between built learning spaces and student outcomes*. Department of Education and Early Childhood Development.

Bloom, H. S., Thompson, S. L., Foundation, B., Unterman, R., Herlihy, C., & Payne, C. F. (2010). *Transforming the high school experience: How New York City's new small schools are boosting student achievement and graduation rates* (ED511106). ERIC. https://files.eric.ed.gov/fulltext/ED511106.pdf

Brühwiler, C., & Blatchford, P. (2011). Effects of class size and adaptive teaching competency on classroom processes and academic outcome. *Learning and Instruction*, *21*(1), 95-108. https://doi.org/10.1016/j.learninstruc.2009.11.004

Buckley, J., Schneider, M., & Shang, Y. (2004). *The effects of school facility quality on teacher retention in urban school districts* (ED539484). ERIC. https://files.eric.ed.gov/fulltext/ED539484.pdf

Campbell, S. D., & Frost, J. L. (1985). *When children play: The effects of playground type on the cognitive and social play behaviors of grade two children.* Association for Childhood Education International.

Canning, D., & James, A. (2012). *The Essex Study optimised classroom acoustics for all.* The Association of Noise Consultants.

Center for Public Education. (2016). *Educational equity: What does it mean? how do we know when we reach it?* (ED608822). ERIC. https://files.eric.ed.gov/fulltext/ED608822.pdf

Checkland, P. (1999). *Systems thinking, systems practice: Includes a 30-Year retrospective*. John Wiley & Sons.

Dumont, H., Istance, D., & Benavides, F. (2010). *Educational research and innovation the nature of learning using research to inspire practice: Using research to inspire practice*. OECD Publishing.

Earthman, G. I. (2004). *Prioritization of 31 criteria for school building adequacy.* American Civil Liberties Union Foundation of Maryland.

Engelbrecht, K. (2003). *The impact of color on learning*. Perkins and Will.

Fidler, P. (2001). *The impact of class size reduction on student achievement* (ED556424). ERIC. https://files.eric.ed.gov/fulltext/ED474386.pdf

Filardo, M. (2008). *Good buildings, better schools: An economic stimulus opportunity with long-term benefits*. Economic Policy Institute.

https://www.epi.org/publication/good-buildings-schools-economic-stimulus/#:~:text=A%20%2420%20billion%20maintenance%20and,billion%20of%20materials%20and%20supplies

Finn, J., & Krueger, A. (2001). *Class size: Project STAR*. American Youth Policy Forum.

Franck, K. A., & Lepori, R. B. (2007). *Architecture from the inside out: From the body, the senses, the site and the community*. Academy Press.

Goodman, J., Hurwitz, M., Park, J., & Smith, J. (2018). *Heat and learning*. https://www.nber.org/system/files/working_papers/w24639/w24639.pdf

Guney, A., & Al, S. (2012). Effective learning environments in relation to different learning theories. *Procedia - Social and Behavioral Sciences*, *46*, 2334-2338. https://doi.org/10.1016/j.sbspro.2012.05.480

Hattie, J. (2008). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.

Haverinen-Shaughnessy, U., Shaughnessy, R. J., Cole, E. C., Toyinbo, O., & Moschandreas, D. J. (2015). An assessment of indoor environmental quality in schools and its association with health and performance. *Building and Environment*, *93*, 35-40. https://doi.org/10.1016/j.buildenv.2015.03.006

Hendricks, C. (2017). *Improving schools through action research: A reflective practice approach* (4th ed.). Pearson.

Heschong, L. (2003). *Daylighting in schools: Reanalysis report: Technical report*. Heschong Mahone Group.

Higgins, S., Hall, E., Wall, K., Woolner, P., & McCaughey, C. (2005). *The impact of school environments: A literature review*. University of Newcastle. http://www.cfbt.com/PDF/91085.pdf

Issa, M., Rankin, J., Attalla, M., & Christian, A. (2011). Absenteeism, performance and occupant satisfaction with the indoor environment of green Toronto schools. *Indoor and Built Environment*, *20*(5), 511-523. https://doi.org/10.1177/1420326x11409114

Kielb, C., Lin, S., Muscatiello, N., Hord, W., Rogers-Harrington, J., & Healy, J. (2014). Building-related health symptoms and classroom indoor air quality: A survey of school teachers in New York State. *Indoor Air*, *25*(4), 371-380. https://doi.org/10.1111/ina.12154

Killeen, J. P., Evans, G. W., & Danko, S. (2003). The role of permanent student artwork in students' sense of ownership in an elementary school. *Environment and Behavior*, *35*(2), 250-263. https://doi.org/10.1177/0013916502250133

Leithwood, K., & Jantzi, D. (2009). A review of empirical evidence about school size effects: A policy perspective. *Review of Educational Research*, *79*(1), 464-490. https://doi.org/10.3102/0034654308326158

Lillrank, P. (1995). The transfer of management innovations from Japan. *Organization Studies*, *16*(6), 971-989. https://doi.org/10.1177/017084069501600603

Loisos, G. (1999). *Daylighting in schools: An investigation into the relationship between daylighting and human performance: Condensed report*. Heschong Mahone Group.

Lukas, J. S., Dupree, R. B., & Swing, J. W. (1981). *Effects of noise on academic achievement and classroom behavior* (No. FHWA/CA/DOHS-81/01 Final Rpt.).

Mendell, M. J., & Heath, G. A. (2005). Do indoor pollutants and thermal conditions in schools influence student performance? A critical review of the literature. *Indoor Air*, *15*(1), 27-52. https://doi.org/10.1111/j.1600-0668.2004.00320.x

Mumovic, D., Palmer, J., Davies, M., Orme, M., Ridley, I., Oreszczyn, T., Judd, C., Critchlow, R., Medina, H., Pilmoor, G., Pearson, C., & Way, P. (2009). Winter indoor air quality, thermal comfort and acoustic performance of newly built secondary schools in England. *Building and Environment*, *44*(7), 1466-1477. https://doi.org/10.1016/j.buildenv.2008.06.014

Nye, B., Konstantopoulos, S., & Hedges, L. V. (2004). How large are teacher effects? *Educational Evaluation and Policy Analysis*, *26*(3), 237-257. https://doi.org/10.3102/01623737026003237

OECD. (2013). *Innovative learning environments*. Educational Research and Innovation.

OECD. (2015). *PISA students, computers and learning making the connection: Making the connection*. OECD Publishing.

Pennsylvania Department of Education. (2022). Find a school. https://futurereadypa.org/

Roaf, S., Brotas, L., & Nicol, F. (2015). Counting the costs of comfort. *Building Research & Information*, *43*(3), 269-273. https://doi.org/10.1080/09613218.2014.998948

Rolls, E. T. (2005). *Emotion explained*. Affective Science. https://doi.org/10.1093/acprof:oso/9780198570035.001.0001

Sadick, A., & Issa, M. H. (2017). Occupants' indoor environmental quality satisfaction factors as measures of school teachers' well-being. *Building and Environment*, *119*, 99-109. https://doi.org/10.1016/j.buildenv.2017.03.045

Schady, N., & Paxson, C. (1999). Do school facilities matter? The case of the Peruvian social fund (FONCODES). *Policy Research Working Papers*. https://doi.org/10.1596/1813-9450-2229

Seydel, O. (2016). Reflections on the relationship between schools and the city. *Education, Space and Urban Planning*, 19-29. https://doi.org/10.1007/978-3-319-38999-8_2

Shaughnessy, R. J., Haverinen-Shaughnessy, U., Nevalainen, A., & Moschandreas, D. (2006). A preliminary study on the association between ventilation rates in classrooms and student performance. *Indoor Air*, *16*(6), 465-468. https://doi.org/10.1111/j.1600-0668.2006.00440.x

Shendell, D. G., Prill, R., Fisk, W. J., Apte, M. G., Blake, D., & Faulkner, D. (2004). Associations between classroom CO2 concentrations and student attendance in Washington and Idaho. *Indoor Air*, *14*(5), 333-341. https://doi.org/10.1111/j.1600-0668.2004.00251.x

Shield, B. M., & Dockrell, J. E. (2003). The effects of noise on children at school: A review. *Building Acoustics*, *10*(2), 97-116. https://doi.org/10.1260/135101003768965960

Shmis, T., Kotnik, J., & Ustinova, M. (2014). Creating new learning environments: Challenges for early childhood development architecture and pedagogy in Russia.

Procedia - Social and Behavioral Sciences, *146*, 40-46. https://doi.org/10.1016/j.sbspro.2014.08.084

Tanner, C. K. (2009). Effects of school design on student outcomes. *Journal of Educational Administration*, *47*(3), 381-399. https://doi.org/10.1108/09578230910955809

Teli, D., James, P. A., & Jentsch, M. F. (2013). Thermal comfort in naturally ventilated primary school classrooms. *Building Research & Information*, *41*(3), 301-316. https://doi.org/10.1080/09613218.2013.773493

Toftum, J., Kjeldsen, B. U., Wargocki, P., Menå, H. R., Hansen, E. M., & Clausen, G. (2015). Association between classroom ventilation mode and learning outcome in Danish schools. *Building and Environment*, *92*, 494-503. https://doi.org/10.1016/j.buildenv.2015.05.017

Toyinbo, O., Shaughnessy, R., Turunen, M., Putus, T., Metsämuuronen, J., Kurnitski, J., & Haverinen-Shaughnessy, U. (2016). Building characteristics, indoor environmental quality, and mathematics achievement in Finnish elementary schools. *Building and Environment*, *104*, 114-121. https://doi.org/10.1016/j.buildenv.2016.04.030

Uline, C., & Tschannen-Moran, M. (2008). The walls speak: The interplay of quality facilities, school climate, and student achievement. *Journal of Educational Administration*, *46*(1), 55-73. https://doi.org/10.1108/09578230810849817

United States Environmental Protection Agency. (2000). *IAQ tools for schools: Managing asthma in the school environment*. https://nepis.epa.gov/Exe/ZyPDF.cgi/000002VY.PDF?Dockey=000002VY.PDF

US National Research Council. (2006). *Review and assessment of the health and productivity benefits of green schools: An interim report*. National Academies Press.

Walden, R. (2015). The school of the future: Conditions and processes – Contributions of architectural psychology. *Schools for the Future*, 89-148. https://doi.org/10.1007/978-3-658-09405-8_5

Wargocki, P., & Wyon, D. (2007). The effects of moderately raised classroom temperatures and classroom ventilation rate on the performance of schoolwork by children (RP-1257). *HVAC&R Research*, *13*(2), 193-220. https://doi.org/10.1080/10789669.2007.10390951

World Bank Group. (2003). *Lifelong learning in the global knowledge economy: Challenges for developing countries*. World Bank Publications.

World Bank Group. (2011). *Learning for all: Investing in people's knowledge and skills to promote development*. The International Bank for Reconstruction and Development.

World Bank Group. (2017). *World development report 2018: Learning to realize education's promise*. World Bank Publications.

World Health Organization. (2015). *School environment: Policies and current status*. World Health Organization. Regional Office for Europe. https://apps.who.int/iris/handle/10665/164594

Appendix A

IRB Approval

PennWest UNIVERSITY

Institutional Review Board
250 University Avenue
California, PA 15419
instreviewboard@calu.edu
Melissa Sovak, Ph.D.

Dear Mick,

Please consider this email as official notification that your proposal titled "Qualitative Perspective of the Effect of School Facility Improvements on Student Success" (Proposal #PW22-053) has been approved by the Pennsylvania Western University Institutional Review Board as submitted.

The effective date of approval is 10/04/2022 and the expiration date is 10/03/2023. These dates must appear on the consent form.

Please note that Federal Policy requires that you notify the IRB promptly regarding any of the following:

(1) Any additions or changes in procedures you might wish for your study (additions or changes must be approved by the IRB before they are implemented)

(2) Any events that affect the safety or well-being of subjects

(3) Any modifications of your study or other responses that are necessitated by any events reported in (2).

(4) To continue your research beyond the approval expiration date of 10/03/2023, you must file additional information to be considered for continuing review. Please contact instreviewboard@calu.edu

Please notify the Board when data collection is complete.

Regards,

Melissa Sovak, PhD.
Chair, Institutional Review Board

Appendix B

District Approval Letter – Cumberland Valley School District

CUMBERLAND VALLEY
SCHOOL DISTRICT

DISTRICT ADMINISTRATIVE OFFICES
Mark A. Blanchard, Ed.D.
Assistant Superintendent of Secondary Education

September 20, 2022

Mick Iskric, Jr.
7697 Aynlee Way
Harrisburg, PA 17112

Dear Mr. Iskric:

I am pleased to write a letter in support of your doctoral capstone project entitled "A Qualitative Perspective of the Impact of School Facility Improvements on Students." The proposed research has value and will allow for me to see the impact upgraded facilities have had on my school district students.

I have reviewed the project proposal and understand the following related to participation:

- Building staff participation involves completion of surveys
- Participation will be voluntary, and staff may withdraw from the study at any time.
- Data collected will be kept confidential and kept secure via electronic files.

Please accept this letter as my formal consent and support of the district's participation in the proposed research project.

Sincerely,

Mark A. Blanchard

6746 CARLISLE PIKE | MECHANICSBURG, PA 17050
717 697-8261 | WWW.CVSCHOOLS.ORG

Appendix C

District Approval Letter – Mechanicsburg Area School District

Mechanicsburg Area School District

600 South Norway Street
2nd Floor
Mechanicsburg, PA 17055

Mark K. Leidy, Ed.D., Superintendent of Schools
Gregory Longwell, Director of Business Operations/CFO

September 15, 2022

Mick Iskric, Jr.
7697 Aynlee Way
Harrisburg, PA 17112

Dear Mr. Iskric:

I am pleased to write a letter in support of your doctoral capstone project entitled, A Qualitative Perspective of the Impact of School Facility Improvements on Students". The proposed research has significant value and will allow for me to see the impact upgraded facilities have had on my school district students.

I have reviewed the project proposal and understand the following related to participation:

Building staff participation involves completion of surveys.

Participation will be voluntary, and staff may withdraw from the study at any time.

Data collected will be kept confidential and kept secure via electronic files.

Please accept this letter as my formal consent and support of the district's participation in the proposed research project.

Yours in education,

Mark K. Leidy, Ed.D.
Superintendent of Schools

Appendix D

District Approval Letter – Staff Consent

PennWest UNIVERSITY

Dear Faculty Member,

As an educational professional, you are being asked to participate in a research study regarding the impacts on students that facility upgrades have had with your school building over the past few years. Impact is specific to student engagement as well as student and staff safety. Your participation in this study will help the researcher learn more about how you perceive the impact on students and the effects that upgraded facilities have had overall for yourself as an educational professional.

What will I be asked to do if I take part in this study?

If you agree to participate in this study, you will be asked to (1) complete one Google Form electronic survey questionnaire.

The survey questionnaire will ask you questions about your background in teaching and questions regarding your perceptions the impact facility upgrades have had on your students.

Where will this study take place?

The survey will be available via an online survey tool (Google Forms) using a secure website.

How long will the study last?

The study is projected to last approximately four months, which includes a survey and interviews. Total participation time will vary. The survey may take up to 10-20 minutes total to complete. Each interview is expected to take 20-30 minutes.

What happens if I don't want to participate?

Your participation is voluntary; you can choose whether you want to participate in the study or not. There will be no penalty if you choose not to participate.

Can I quit the study before it ends?

You can withdraw from the study at any point by notifying the researcher. There will be no penalty should you choose to withdraw. The researcher will not ask you why you opted to withdraw.

What are the risks?

There are minimal risks to this study. You will not be asked questions of a sensitive nature. The survey and interview questions will be straight forward to gather your personal perception of facility upgrades.

However, participants are reminded that they are not required to answer any questions of which they choose. Participants can also stop their participation at any time without question.

How will I benefit from participating?

If you decide to be in this study, you will assist the researcher in better understanding the current perceptions of staff regarding the impacts that facility upgrades have had on students. This will allow you to look at various impacts on students prior to and since upgrades have occurred.

Will my responses be kept confidential and private?

Yes, the survey data and interview responses we collect from you will be kept confidential, which means only the researcher will see or have access to it. Your survey responses will anonymous. No names will be reported in the report of the findings. Data will be stored on a secure server and password-protected and/or stored in a locked office.

Who do I contact if I have questions about this study?

If you have questions about this study, please contact the researcher, Mick Iskric, Jr., at iskric22@hotmail.com or at 717-265-4227. If you would like to speak with someone other than the researcher, please contact Dr. Peter Aiken, Professor at PennWest University, at aiken@pennwest.edu .

I have read this form. Any questions I have about participating in this study have been answered. I agree to take part in this study, and I understand that taking part is voluntary. I do not have to take part if I do not wish to do so. I can stop at any time for any reason. If I choose to stop, no one will ask me why.

By signing below, I agree to participate in this study. By doing so, I am indicating that I have read this form and had my questions answered. I understand that it is my choice to participate and I can stop at any time.

Signature:

Date:

Approved by the PennWest University Institutional Review Board. This approval is effective nn/nn/nn and expires mm/mm/mm.

Appendix E

School Building Staff Survey related to Facility Upgrades/Improvements

School Building Staff Survey related to Facility Upgrades/Improvements

Thank you for taking the time to participate in this survey. The purpose of this survey is to gather your perspective related to your current school building facilities. Although you are providing your name and email address, your responses will remain confidential and only used if follow-up questions are needed.

* Required

1. By answering "Yes" to this question, you agree to participate and this will act as your "consent" to participating in this survey. *

   Mark only one oval.

   - Yes
   - No

2. First Name *

3. Last Name *

4. Email Address *

5. How long have you been a worked in education? *

Mark only one oval.

- 1 to 3 years
- 4 to 10 years
- 11 to 15 years
- More than 15 years

6. How long have you worked at your current district? *

Mark only one oval.

- 1 to 3 years
- 4 to 10 years
- 11 to 15 years
- More than 15 years

7. What type of school building classification do you currently work in? *

Check all that apply.

- [ ] Elementary
- [ ] Middle School/Jr. High School
- [ ] High School
- [ ] N/A

8. What role do your serve in your school district? *

Mark only one oval.

- Building Administrator
- Teacher
- Support Staff

Questions specific to facility upgrades/improvements

9. My school was recently *

Mark only one oval.

- Renovated
- Newly constructed

10. How recently has the latest renovations/new construction taken place? *

Mark only one oval.

- Less than 1 year
- Within 1-2 years
- Within 2-3 years
- Within 3-4 years
- Within 4-5 years
- Greater than 5 years

11. I am very proud of the appearance of my school (Interior and Exterior). *

Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

12. I feel the school building interior is inviting for students, staff, community, and visitors. *

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

13. I feel the school building exterior is inviting for students, staff, community, and visitors. *

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

14. I feel the school building exterior signage is informative for students, staff, community, and visitors. *

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

15. Do you feel that the school building temperature is sufficient? *

Mark only one oval.

- Yes
- No

16. Do you feel that there sufficient lighting in the hallways? *

Mark only one oval.

- Yes
- No

17. Do you feel that there sufficient lighting in the classrooms? *

Mark only one oval.

- Yes
- No

Questions specific to student engagement

18. The classrooms in my school allow for teachers to provide a quality education. *

Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

19. Are the chairs and desks in classrooms in satisfactory condition? *

Mark only one oval.

- Yes
- No

20. Are the whiteboards in the classrooms in good condition? *

Mark only one oval.

- Yes
- No

21. Are there always writing materials available for the whiteboards? *

Mark only one oval.

- Yes
- No

22. Do the classrooms have sufficient technology (i.e. interactive whiteboards, 1:1 devices, etc.)? *

Mark only one oval.

- Yes
- No

23. Are the classrooms equipped with projectors? *

Mark only one oval.

- Yes
- No

24. Students seem to enjoy being in the school cafeteria . *

Mark only one oval.

- Yes
- No

25. Seating in the school cafeteria is sufficient and up to date. *

Mark only one oval.

- Yes
- No

26. The school academic facilities are sufficient for the needs of all students. *

Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

27. With the recent updated and improved facilities, I feel students have more of a sense of pride within the school. *

Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

28. With the recent updated and improved facilities, I feel students care more about their academics. *

Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

29. With the recent updated and improved facilities, I feel students active participation in classroom discussions has... *

Mark only one oval.

- Increased
- Stayed the same
- Decreased

30. With the recent updated and improved facilities, I feel students motivation towards learning has... *

Mark only one oval.

- Increased
- Stayed the same
- Decreased

31. With the recent updated and improved facilities, I feel students enthusiasm about learning has... *

Mark only one oval.

- Increased
- Stayed the same
- Decreased

32. With the recent updated and improved facilities, I feel students curiosity about various topics has... *

Mark only one oval.

- Increased
- Stayed the same
- Decreased

33. With the recent updated and improved facilities, I feel students participate in more or new activities. *

Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

34. With the recent updated and improved facilities, I feel teachers participate in more activities with students. *

Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Questions specific to student and staff safety

35. My school provides a safe and secure learning and working environment. *

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

36. With the recent updated and improved facilities, my school building has a secure entrance used by students, staff, and visitors. *

Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

37. With the recent updated and improved facilities, my school building has secure exterior doors that are not accessible by the public. *

Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

38. My school building has a school resource officer (SRO) or other security personnel assigned to it. *

Mark only one oval.

- Yes
- No

39. With the recent updated and improved facilities, I observe all staff wearing proper identification badges throughout the school day. *

Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

40. With the recent updated and improved facilities, I observe all students wearing proper identification badges throughout the school day. *

Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

41. My school building holds regular safety drills throughout the school year (i.e. fire, intruder, weather, etc.)? *

Mark only one oval.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Open-ended questions regarding your perspectives related to facility upgrades/improvements and the impact they may have on students.

Please be honest with your answers, your answers will remain confidential.

42. In your perspective, do you think that improving/updating facilities have increased student engagement? Please explain. *

43. In your perspective, do you think that improving/updating facilities have improved school safety? Please explain. *

Thank you for your participation thus far. Would you be willing to participate in a brief interview in order to discuss your perceptions of facility upgrades/improvements and the impact on students? The interview will take place via Zoom and at your convenience. If you volunteer to participate, your anonymity will be protected.
If you are able to spare 10-15 minutes and you would like to participate, please email me at iskric22@hotmail.com and write the word *Interview* on the subject line of the email, so that it goes to a specific file. I am grateful for your willingness to participate in this study and I look forward to hearing from you. Thank you again.