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Incorporating Recess into the Ecosystem of the School

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Incorporating Recess into
the Ecosystem of the School

by

Ellen Leavitt Wheeler

A Dissertation submitted to the Department of Leadership,
School Counseling & Sport Management
in partial fulfillment of the requirements for the degree of
Doctor of Education

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DEDICATION

*To all the children whose wide-eyed wonder at the world around them has inspired me to help
make their world a better place to play.*

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To my wonderful husband, Brian, for his unwavering support from our shared time at Louisiana State University through my doctoral journey to the day I told you I wanted you to start calling me “Dr. Ellie”. I worried that the dissertation process would disrupt our lives but found there are new worlds to explore and new conversations to be held. Your support in my struggles as a doctoral student has been unwavering. You have always encouraged me to follow my dreams.

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ABSTRACT

Unstructured outdoor play is critical to a child's healthy development. Often the only outdoor unstructured play opportunities occur during recess. Unstructured play and recess are supported as childhood necessities and human rights by the American Pediatric Association and the United Nations Convention on the Rights of a Child. These pronouncements and grass roots support have fueled the creation of legislation that requires recess during the elementary school day. As of 2022, Florida was one of 10 states enacting legislation requiring recess. However, the maximization of the recess experience is largely dependent on the quality of the space and facilities that provide for that experience. The development, renovation, and maintenance of those spaces and facilities are often not addressed.

This dissertation explores how an urban professional development school's outdoor spaces accommodate and holistically support a student's needs and how those spaces can be designed to maximize a student's cognitive, emotional, social and cultural needs. Bronfenbrenner's Bioecological Theory of Human Development was used to create an ecological connection between the spaces and activities of the school's recess and its students. This study explores the existing recess practices and outdoor play spaces at the study school through the author's on-site observations, interviews with the school's principal, executive director, and physical education teacher, and two design charrettes conducted with faculty volunteers. The result is an inventory and analysis of the school's existing outdoor facilities and the creation of a program and conceptual design that will help the leaders optimize the school's outdoor space for unstructured outdoor play during recess.

CHAPTER 1: INTRODUCTION

Recess is an important part of a child's school day. Unstructured or free play which occurs outdoors during recess is the focus of this study. Such play allows children the most control over their choices and their environment. Place can be dictated by adults for unstructured play to occur, but the activity itself is spontaneous and not controlled by adults (Herrington & Brussoni, 2015; Sutton-Smith, 2009, Ramstetter, 2022). Unstructured play during recess is viewed as critical to a child's physical, cognitive, social, and emotional development, and overall health and wellbeing (Sandseter & Kleppe, 2019). As of 2022, ten states officially acknowledge the research supporting the importance of unstructured play during recess to children's development by enacting legislation requiring recess. These states are West Virginia (2005), Missouri (2010), Rhode Island (2016), Florida (2017), Virginia (2018), Arizona (2019), Arkansas (2019), Connecticut (2019), New Jersey (2019), and Georgia (2022) (Cohen et al, 2020; <https://www.legis.ga.gov>; National Association of State Boards of Education, 2022). Fourteen additional states require some form of non-daily physical activity or recess (Chriqui et al., 2019; Leider & Gabriel, 2019) and others are considering passing recess legislation. For Florida, 20 minutes of daily recess for grades K-5 is legislatively mandated. Even without a recess mandate, many educational leaders and faculty consider recess an important part of their students' school day and critical to their students' academic success (Ozkal, 2020; Simon & Childers, 2006). However, only 20% of elementary principals require recess in their elementary schools. This is disturbing given the spotty implementation of recess; further, the review of recess facilities and the improvement and renovation of existing outdoor recess space is usually left up to the principals of individual schools.

Once initial school construction is completed, outdoor play spaces rarely change significantly; rather, they are generally left to quietly deteriorate (Colabianchi et al., 2011; Frost

et al., 2013). Often “there is an overall pattern of antiquated design, hazardous conditions and poor or absent maintenance” (Frost et al., 2013, p. 18). Recess is usually considered an important part of a school’s ecosystem, but the initial design and implementation is the responsibility of the architect and engineer and once the school is constructed the outdoor facilities are rarely updated (Paya Rico & Janot, 2017).

The poor condition of a school’s outdoor facilities is often the result of lack of attention to them after a school is constructed. Pressure for standardized test achievement from the federal and state education departments on academics and classroom activities, often leaving outdoor facilities in disrepair and/or out of date. The result is a very structured day for children, and interior design, and a lack of attention on outdoor green space (Tallis et al., 2018).

In the last several decades, “children’s participation in spontaneous activities and play has diminished” (Pellegrini, 2008, p. 182), and this trend of reduced time for play continues today. Many parents believe schools should focus on activities that help them succeed in school and later as job-seeking adults (Pellegrini, 2008). However, “if a child is not navigating a packed schedule he or she can be found inside, disconnected from and uninterested in nature...” (Bishop, 2013, p. 510). According to Pellegrini (2008) and Bishop (2013), children’s overscheduling and over-involvement in sedentary activities including technology has severely reduced time spent on unstructured outdoor play.

Unstructured play is not organized, planned, or guided by an adult (Kinder et al., 2020; Pellegrini, 2008). Unstructured play in the form of recess provides multiple positive developmental impacts—cognitive, socio-cultural, emotional, and spatial—that other activities do not (American Academy of Pediatrics Council on School Health, 2013; McNamara, 2013). “Specifically, unstructured [play] permits children opportunities to interact, modify and manipulate their environment to attain positive outcomes and maximize pleasure”

(Sternberg, 2005, cited in Kinder et al., 2020, p. 1). It allows children freedom of choice and opportunities to run, jump, interact or relax and observe, create, fantasize, and experience their natural environment. It is essential in helping education professionals and other stakeholders observe a children's interactions with each other and their environment (Pellegrini, 2008).

Unstructured play improves brain function: neurological studies have found a twenty-fold spike in brain activity following breaks during academic study (National Institutes of Health, 2021) and the brain continues processing what it has learned or is learning during periods of play.

The importance of the freedom of choice in play is internationally recognized as a child's right as a world citizen. The 1989 United Nations Convention on the Rights of the Child (United Nations General Assembly, 1989) includes the right to play as inalienable along with the rights to safety, inclusion, and choice (Davey & Lundy, 2010). Recess is often the only opportunity children have during their day for unstructured outdoor play and peer interaction without the close and constant watch of an authority figure. "Outdoor play provides children with important benefits and developmental experiences that cannot be easily or readily provided (if they can be provided at all) through other means" (Kemple et al., 2016, p. 448).

Recess has been part of the American public educational system since its adoption in the early 1890s. Horace Mann, one of the early proponents and administrators of the American educational system, believed physical activity was an important part of the school day (Noel, 2018). Since the inception of Mann's public school system, support for recess has ebbed and flowed. Today, recess in the United States is considered a break from academic stress within the school day. It "typically involves access to outdoor space, when weather and space permit, and is often unstructured time for recreation, play, and socialization with peers in a setting where adults often supervise at a distance" (Baines & Blatchford, 2019, p. 5). But neurological studies show recess is not just a break from class. Data show a twenty-fold spike in brain activity following

recess periods during academic study. According to this research, the brain continues processing what it has learned or is learning during recess. In fact, recess improves brain function (National Institutes of Health, 2021). Recess is not a break from learning, but an integral part of the learning process.

Recess, in the form of unstructured outdoor play, affects every part of child development, providing a wide range of benefits for students (McNamara, 2013) including promoting the “optimal development of the whole child” (American Academy of Pediatrics Council on School Health, 2013, p. 183). However, in the late 20th century, recess slowly disappeared from school curricula. According to the National School Education Statistics (2007-2008), children’s time in school has become more structured and their behavior increasingly sedentary as they progress through their education.

The reduction of recess time in the U.S. began in the 1990s as standardized testing intensified (Johnson, 1998; Pellegrini, 2008). Seen as unnecessary, recess slowly disappeared from school curricula. During a 1998 New York Times interview, Atlanta Superintendent of Schools Ben Canada stated, “We are intent on improving academic performance. You don’t do that by having kids hanging on the monkey bars” (Johnson, 1998, p.1). Canada’s sentiments echoed those of many of the era’s school leaders who believed recess was not only unnecessary but an impediment to academic success. His position was supported by most school districts and educators (Johnson, 1998; Pellegrini, 2008) and led to the removal of recess from most students’ education for almost 20 years (Simon & Childers, 2006). Subsequently, the return of recess was an uneven and often unsupported occurrence (Center on Education Policy, 2008). Even though 10 states currently require recess, “the onslaughts against recess persist today, even in the face of significant research supporting its educational value, a lack of research supporting a contrary view, and a rising awareness of the importance of play in general” (Pellegrini, 2008, p. 182). The

awareness of the importance of unstructured play has increased, but the availability of time and space for outdoor play has decreased (Lee et al., 2020; Pellegrini, 2008, Lee et al., 2020).

Until recently, children's playgrounds included their neighborhoods and communities. The opportunity for outdoor play has narrowed due to lack of time and space (Ramstetter et al., 2022; Waite-Stupiansky & Findlay, 2001). While recess should not take the place of free, unstructured outdoor play outside of the school day, it is often the only block of time during a child's day that provides for unstructured play (Waite-Stupiansky & Findlay, 2001).

Unfortunately, there has been an increase in structured play and a decrease in unstructured play during recess. According to Lee et al. (2020) "time outdoors is often in structured sport activities rather than in unstructured play that facilitates interactive social skills and enhances vigorous physical activity" (p. 185).

Problem Statement

An abundance of data supports the importance of children's play, specifically unstructured outdoor play in the form of school recess. Why recess is not considered as important to a child's development as mathematics or reading is not entirely clear. Recess allows children free time to develop life skills and should be viewed as an integral part of a student's educational experience (Waite-Stupiansky & Findlay, 2002). Nevertheless, the trend toward disregarding guidelines established by organizations such as the Centers for Disease Control and Prevention (CDC) and the American Physicians Association (APA) continues even within states and school districts that legislate or support the inclusion of recess within the school day (Slater et al., 2012). These guidelines, according to the CDC and the Society of Health and Physical Educators (SHAPE), determined that all students should be provided with a minimum of 20 minutes of recess daily (Centers for Disease Control and Prevention and The Society of Health and Physical Educators, 2017). Even with an established federal guideline, Slater's study

indicates many schools in states and school districts legislating recess still lack the recommended minimum of 20 minutes per day. Often recess is viewed as a privilege to be earned, rather than a right to be protected (Jarrett et al., 2010).

Data show that uneven recess practice is the result of a lack of commitment from districts, lack of adequate maintenance, inadequate facilities, and competition from academics (Brickman et al., 2022; Slater et al., 2012). Parents and researchers who advocate for the reinstatement or expansion of recess as part of the school day often overlook the influence of principals and teachers (Brickman et al., 2022; Ramstetter & Fink, 2018-2019). Twenty-four states have recess legislation or policies, however, there appears to be pushback by some legislators and educational leaders (Shammas, 2019). Even in states that require recess, the legislation generally includes a lack of incentives or accountability for districts and schools (Slater et al., 2012). Rather, principals are expected to establish recess policy and it is the teacher's and faculty's responsibility to implement recess and practices. Communities and legislators are unaware of the extra burden they are placing on principals and teachers, lack understanding of current recess practices, and do not provide funding for upgrading and updating outdoor school environments to accommodate recess in elementary schools (Ramstetter & Fink, 2018-2019). Despite the renewed interest in recess, a gap exists in research regarding educational leaders' perceptions of recess and the implementation of outdoor recess within their schools, including the ability of physical plants to support successful recess based on established best practices. This research fills this gap by engaging administrators and teachers in the analysis of their existing outdoor spaces and determining how those spaces could be altered to improve the outdoor play experiences of students.

Purpose Statement

The purpose of this study was to determine how a school's outdoor play spaces accommodate and holistically support students' needs and can be aligned with the school's curriculum. It endeavors to help the administration and faculty from a professional development school (PDS) in northeast Florida explore their recess practices and their physical outdoor play facilities through the participatory process of action research. The research in this dissertation, in collaboration with the school's principal and teachers, creates a process that can be used on an ongoing basis to review recess practices and existing outdoor spaces to optimize their students' recess experience and tailor them to the unique properties of their school.

Research Questions

The research questions that guided this study are:

1. How do faculty and administrators at an urban PDS perceive recess and play as a part of students' school day and curriculum?
2. What challenges do faculty and administrators face when trying to implement outdoor recess and play for their students?
3. What suggestions do faculty and administrators have regarding structure, design, and utilization of outdoor play spaces to support teaching and learning?
4. How can faculty and administrators implement recess best practices so the ecology of the whole child can be maximized?

Definitions of Key Terms

Curriculum

The importance of a child's development of spatial awareness ties in with John Dewey's "hidden curriculum". The word curriculum usually refers to "explicit, consciously planned course objectives" (Wren, 1999, p. 594). However, a hidden curriculum helps students develop

the social and cultural skills necessary to become successful adults in their respective community and professional partnerships (Whitson, 2008; Wren, 1999). These skills are developed when students interact with each other and their school environment without the explicit supervision of their teachers. Curriculum is generally viewed as the activity that occurs within the school walls. However, according to Dewey (1938), perhaps the greatest of all pedagogical fallacies is that a person learns only the thing he is studying at the time. Dewey believed that collateral learning is based on experiences outside of the traditional classroom subjects in places such as the outdoor environment. The outdoor recess space is one of the spaces where collateral learning occurs. Outdoor recess provides one of the best opportunities for social and cultural skill development during school. The hidden curriculum is the connecting factor that occurs both inside and outside of the school walls.

Design Process

The design process can be viewed as epistemology. It can be utilized as a method of data collection that “builds on Creswell’s well-established overview of knowledge claims (post (positivist), constructivist, advocacy/participatory and pragmatic related research methods” (Lenzholzer et al., 2013). Research through design in landscape architecture allows the researcher and the participants to engage in exploring the focus of the research. The results are an account (either through narrative and/or graphically) of the group’s participation through interviews, analysis of data, and the conceptual plan development.

Ethnographic approach

An ethnographic approach is participatory. Both the researcher and the participants engage in exploring the focus of the research. The results are an account (either through narrative and/or graphically) of the group’s participation through interviews, analysis of the data gained through group documents and products produced by the group and the researcher.

Participatory Action Research (PAR)

“Participatory action research supports sustainable development by providing the means to establish transformative frameworks for engagement” (Keahey, 2021, p. 291). The design charrette utilized in this study can be viewed as a type of participatory action research. With the guidance of the facilitator/landscape architect the participants review the existing conditions that help formulate the conceptual plan.

Play

The definition of play is complex. Play exists in a child’s world somewhere “between reality and unreality” (Sutton-Smith, 2009, p. 1). Play can be viewed as an “expression of imaginative activity that draws and reflects back upon the interrelated domains of emotional, intellectual and social life” (Nicolopoulou, 1993, p. 13). Play can be structured or unstructured and occur in different contexts (Baines & Blatchford, 1998; Herrington & Brussoni, 2015; Prompona et al., 2020). But most of all, play is fun. While video games can be included within the definition of play, according to Fullerton (quoted in Larsen, 2015, p. 177), “a game is a closed system...[it] uses rules to structure an artificial conflict that does not always have the same outcome”. Games can be considered play, but they are never unstructured unless they are created by the children themselves (Caillois, 2001). High physical activity is only one component of play (Gibson et al., 2017). “Outcomes in domains other than physical activity such as cognitive, social and emotional development have received less attention in studies using quantitative approaches” (p. 296).

Physical Activity

Many quantitative studies focus on the physical activity component of recess. Sirard and Pate (2001) defined physical activity as “any bodily movement resulting in energy expenditure” and indicated that “direct observation of the individual’s movement should be used as the gold

standard for physical activity research” (p. 439). The key words in this definition are “any bodily movement”. Outdoor play is often viewed as a highly physical activity but any bodily movement such as walking is included in the definition.

Professional Development School

The National Association of Professional Development Schools (NAPDS) defines a PDS as “a learning community guided by a comprehensive, articulated mission that is broader than the goals of a single partner and that aims to advance equity, anti-racism and social justice within and among schools, colleges/universities, in which all elements affect each other” (National Association of Professional Development Schools, 2021).

Recess

Recess is an inherent part of the learning process, and it is the basis for a child’s learning (Pelligrini, 2005; Rhea, 2016). Recess is an unstructured time allowing children to explore their relationships with themselves, their peers, and their environment. Recess, in this study, refers to a time of unstructured outdoor play for children through elementary school. Ramstetter et al., (2017). This study focuses on unstructured, outdoor recess. While indoor recess is often held when the weather is inclement, it is not included as part of this study. Indoor recess has space and control (by the student) limitations (Waite-Stupiansky & Findlay, 2008; Buris & Burris, 2011). Time periods for recess in the United States generally run from 15 to 30 minutes and are scheduled for once or twice per day. Some schools send students outside for recess by grade, some the entire school together, some combine different grades at different times (Massey et al., 2018). Recess is differentiated from physical education (PE) because it allows for unstructured play while PE classes typically follow activities and schedules prescribed by the PE teacher. PE offers the opportunity to provide physical activity to all children and teach them the skills and knowledge needed to establish and sustain an active lifestyle. PE teachers assess student

knowledge and motor and social skills and provide instruction in a safe, supportive environment (Society of Health and Physical Educators, n.d.). Recess also allows students freedom from assessment and instruction. As with PE classes, it should be provided in a safe, supportive environment. PE and recess serve different yet complementary objectives within the school day. For the purposes of the study the term unstructured outdoor play and recess in the context of the school day are synonymous.

Unstructured Outdoor Play/Nature Contact

Unstructured outdoor play occurs outside of the school building. However, one of the most important components of unstructured outdoor play is nature contact. Data indicate nature contact for children reduces childhood asthma, increases attention span, reduces anxiety and increases creative and cooperative play (Chawla, 2015). Nature contact such as trees to sit and play under, rocks to climb, and jump from and sit on, dirt to play in, and walks lined with native plants and animals can provide high quality outdoor experiences for students (Guardino et al., 2019; Kemple et al., 2016). Data indicates that unstructured play at recess is beneficial for students' development. Outdoor play, "especially in natural environments, has significant benefit to children's physical, cognitive, emotional and social development as well as their overall well-being, self-regulation skills, and attention" (Kemple et al., 2016,451).

School Ecosystem

An ecosystem is defined as a "set of relationships between an organism and its environment" (Dictionary.com). The term ecosystem was initially used to describe the study of the interactions and relationships within a natural system or between natural systems (Began & Townsend, 2021). The term ecosystem has grown from its biological origins to encompass human systems (Alberti et al. 2003).

The term ecology has been adapted for use in education to focus on one element of the ecosystem, such as the ecology of a student, or the ecology of a school. Some researchers in fields such as education, economics and social sciences utilize the word ecology to substitute for the term ecosystem. In this study, the term ecology means ecosystem, although some of the studies in this literature review interchange the two terms.

A school ecosystem includes the relationships between a student, their classmates, their teachers, administration, all school activities including recess, and the indoor and outdoor spaces the students, faculty and administration inhabit during the school day. The two inner layers of Bronfenbrenner's (1977) Bioecological Theory of Human Development (BTHD), the microsystem and the mesosystem and chronosystem are applicable to the ecosystem of the school for the purposes of this study.

Spatial Awareness/Spatial Experience

Spatial awareness includes a child's "interactions with the physical environment" (David & Weinstein, 1987, p. 3). The development of understanding how space affects emotions, cognition, and a sense of who a child is within their world helps a child "[understand] about social roles and norms" (p. 3). Spatial experience is how people, particularly children, develop the ability to navigate their physical environment. As children play, they have a diversity of spatial experiences, and they develop an understanding of how their bodies feel as they move within space. These experiences are necessary for the development of the whole child (Poole et al., 2006). Spatial experiences help students understand how they affect the spaces they inherit and how those spaces affect them. These experiences enhance academic potential.

Spatial awareness is often described as the awareness that comes from experiences with navigating within and manipulating three-dimensional space. Spatial experience is how people, particularly children, develop the ability to navigate their physical environment. As children play, they have a diversity of spatial experiences and develop an understanding of how their bodies feel as they move within space. These experiences are necessary for the development of the whole child (Poole et al., 2006). Spatial awareness results from a child's "interactions with the physical environment" (Weinstein & David, 1987, p. 3). The development of understanding of how to interact with space affects emotions, cognition, and a sense of who a child is within their world and helps a child "[understand] about social roles and norms" (Weinstein & David, 1987, p. 3).

Unstructured Outdoor Play

This study focuses on outdoor play that occurs during outdoor recess. Outdoor play, particularly unstructured outdoor play or free play creates opportunities for socializing, problem solving, sharing, developing social skills, taking risks in a safe environment, improving mental

and physical health and empathetic development (Kinsner, 2019). Unstructured play is defined as “activity that is freely chosen and self-directed by the child, with no adult influence” (Texas Christian University, 2022, n.p.). Unstructured play can include passive or highly active activities. The key component of unstructured play is that it is child directed. “Children pay more attention to class lessons after free play at recess than they do after PE programs, which are more structured” (Pellegrini & Holmes, 2006, quoted in Yogman et al., 2018, n.p.). Research indicates this is because children are more active during unstructured play (Yogman et al., 2018).

Overview of Theoretical Framework

Several theories can be applied to the role of play in child development and in a school’s ecology. While many researchers have referred to the developmental theories of both Piaget and Vygotsky, gaps exist in both theories according to current consensus (Nicolopoulou, 1993; Lourenco, 2012). Early childhood development theories such as Piaget’s and Vygotsky’s are valuable when assessing the impact play has on children, however, they do not encompass all areas where play activities interact to contribute to the successful development of the whole child (Frost & Sutterby, 2017; Nicolopoulou, 1993) including the impact of social and cultural contexts of child development. Piaget pays insufficient attention to the social and cultural contexts of child development. He focused primarily on the cognitive development of the individual child (Aslanian, 2018; Nicolopoulou, 1993). Vygotsky’s perspective focuses on the social-cultural element of play, with the “understanding of play as a social activity connected to [a] broader concern for the social cultural basis of cognition” (Nicolopoulou, 1993, p. 3). According to Nicolopoulou (1993), while Vygotsky’s theory encompasses a more holistic view of the impact of play on children, it does not go far enough. He believes Vygotsky did not “address the wider socio-cultural elements that define and shape the play context” (p. 1) including influences such as family and community.

Since Piaget and Vygotsky first developed their theories, researchers have expanded play theories to include a wider developmental context. One of these theories, Bronfenbrenner's (1977) Ecological Systems Theory (EST), focused on this wider context. Bronfenbrenner's theory separated human development into four systems—the microsystem, the mesosystem, the ecosystem, and the macrosystem. Each system is nested, with the microsystem at the core. The microsystem is the most impactful of Bronfenbrenner's four systems in EST. The microsystem is

...the complex of relations between the developing person and the environment in an immediate setting containing that person. A setting is defined as a “place with features in which [occur] particular activities for particular periods of time” (Bronfenbrenner, 1977, p. 514)

The microsystem center of Bronfenbrenner's theory. It includes people who have direct contact with the child and the child's immediate environment. (Guy-Evens, 2020, n.p.). The microsystem is the center of the school's ecosystem.

The mesosystem consists of the interactions between the child, their environment and people in their immediate sphere. The exosystem includes indirect social connections and interactions that influence the child and the environments and people within their microsystems. The macrosystem is the effect of socioeconomic status on the child/student. (Guy-Evens, 2020).

Bronfenbrenner revised his Ecological Systems Theory by adding a fifth system called the chronosystem. He renamed EST to the Bioecological Theory of Human Development (Figure 1). The BTHD sets up a theoretical framework that can be applied to an individual's development (Frost and Sutterby, 2017; Neal & Neal, 2013). It focuses on the unique qualities of an individual child and how those qualities influence the child's immediate developmental environments.

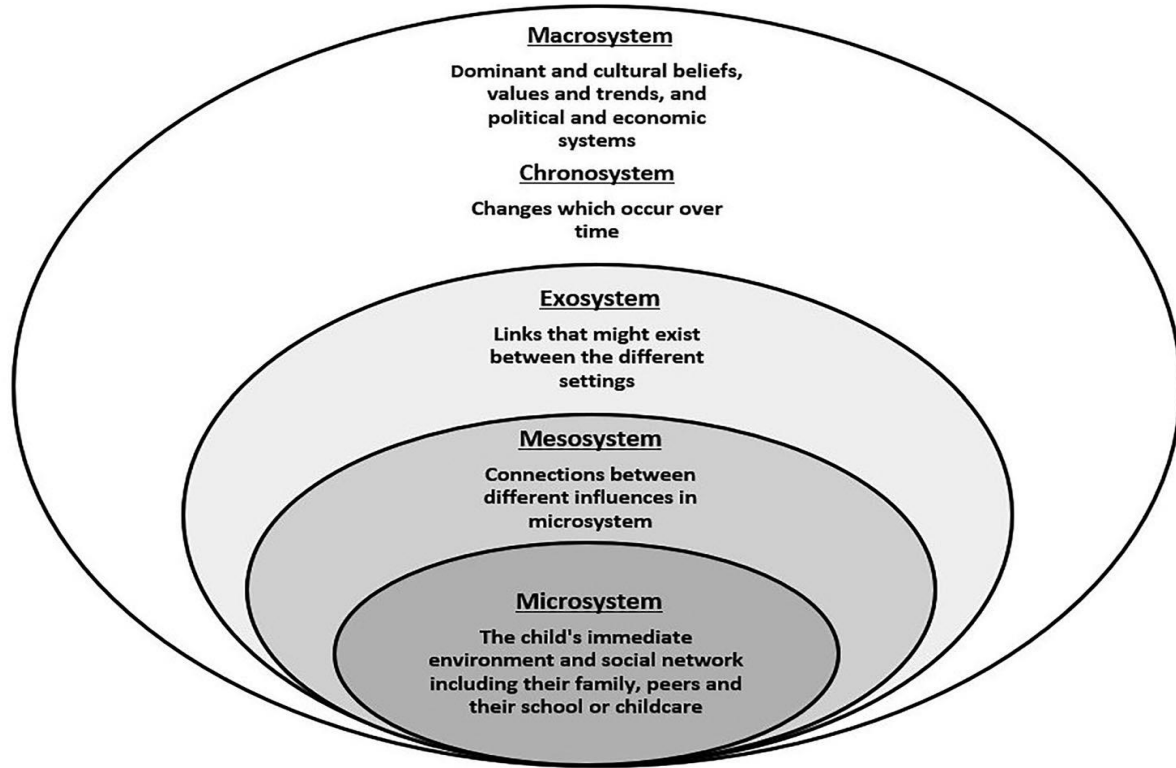
With Bronfenbrenner's BTHD, outcomes can occur in any form including changes to the environment (Bronfenbrenner & Evans, 2000). According to Bronfenbrenner and Evans (2000) the quality of these outcomes is based on timing, duration, frequency, and intensity. The effectiveness of outdoor recess in the form of unstructured play is based on when it occurs, how long it occurs, and how often it occurs. Its intensity is based on how well the space in which it is situated is designed to accommodate these outcomes. The success of these outcomes impacts the development of the child/student and the success of a school's learning environment. The

Bronfenbrenner and Evans (2000) stated the BTHD focuses on a concept called proximal process which

...involves a transfer of energy between the developing human being and the persons, objects and symbols of the immediate environment. The transfer may be in either direction or both, that is, from the developing person to features of the environment, from features of the environment to the developing person or in both directions or simultaneous. (p. 118)

Figure 1

Bronfenbrenner's Bioecological Theory of Human Development



Reproduced from: https://www.researchgate.net/figure/Bronfenbrenners-ecological-model-applied-to-family_fig3_343026827

Inclusion of the chronosystem in Bronfenbrenner's revised theory allows researchers to view a child's development over time and space. Rather than a static view of a student's development, BTHD frames the influences of the environment on a child and a child's influence on their environment (Mannion, 2003). The concept of the development of the whole child is continuous, an ecosystem within an ecosystem. BTHD, with its microsystem, mesosystem, exosystem, chronosystem, and macrosystem, embodies the concept that an ecosystem is a three-dimensional system that is interconnective and interactive. The diagram of BTHD should be a hologram that emphasizes the idea that "places and people are not fixed entities with essences;

but are ever-emerging processes under production and are always the subject of power and politics” (Mannion, 2003, p. 63).

A successful learning environment creates an atmosphere that helps a student develop into a healthy, successful adult. Bronfenbrenner’s BTHD acknowledges that the system includes other stakeholders, but it does not include a wider view of an ecosystem that explains how the student’s environment contains a series of connections and disconnections that make up a healthy or unhealthy ecosystem (Eisner, 1992). According to Eisner, the health of a school’s ecosystem depends on the value of time and space within the system. Eisner believed that inadequate design, availability and/or use of play space can lead to the poor implementation of recess. The overall health and success of the students are partly a result of how well the outdoor play space is designed and how well outdoor play time is managed. Eisner did not believe that play is a break from learning but rather an integral part of the practice of the learning process. His views were later confirmed by neurological studies (National Institutes of Health, 2021).

Educational leaders can utilize BTHD to create a framework for analyzing and improving their school’s performance. When an educational leader clearly outlines the goals of the school in ecological terms and makes them more attractive to their subordinates, wider acceptance of those goals and practices occurs. In the context of this theory the educational leader views all activities as part of the school culture, with each affecting the others. To create a healthy ecosystem that supports the emotional, academic, cognitive, and social success of the whole child, school leaders must be willing to continually adapt their practices and the ecological path of their school (Waters et al., 2009).

BTHD can also be utilized to address conflicts that occur among academic goals established by the school, the state, and federal agencies. These conflicts are created, in part, by the challenges of “increased accountability, more demanding curriculum and government

sanctions for poorly performing schools” (Parrot & Cohen, 2020, p. 230). BTHD views these academic goals as a part of the overall success of the students, indicating that including all aspects of schooling, i.e., art, music, and unstructured play in the form of recess are essential to academic success. Testing and mandates should be considered only a small part of a student’s success. They must be incorporated into the ecosystem of the school which can also allow for student-nature interconnections. EST requires “human-nature interconnections as imperatives when considering young children’s development and wellbeing” (Elliott & Davis, 2020, p. 1123). The more holistic view in BTHD includes a student’s natural and physical environments within its framework. This study utilizes Bronfenbrenner’s developing understanding that the effects of each of the elements within a school’s ecosystem on each other. The effects include what Bronfenbrenner calls the proximal relationship.

The study reported in this dissertation focuses on the school as an ecosystem and acknowledges the influence of outside stakeholders such as parents as part of that ecosystem. Therefore, this study expands Bronfenbrenner’s view to include the effects of each of the elements of a school’s ecosystem on each other. The interrelationships between a child (student) and their physical and natural environment should be taken into consideration. This more holistic view of Bronfenbrenner’s theory includes a student’s natural and physical environment and is the framework for this study.

Overview of Methodology

A qualitative ethnographic action research approach was utilized for this study. The “intent of ethnographic research is to obtain a holistic picture of the subject of study with the emphasis on portraying the everyday experiences of individuals...” (Creswell & Creswell, 2017,

p. 205). It utilizes ethnographic methods such as participant observation and in-depth interviews. This study focuses on the recess practices of the administrators and faculty of an urban northeast Florida charter elementary school, including an analysis of the layout and design of the existing outdoor and play facilities of the school.

For this study, the principal, executive director, and (PE) teacher at the school were interviewed. The results of the interviews were coded, and themes were developed. Two design charrettes were held with four members of the school faculty. A design charrette is a type of participatory action research. “Charrettes comprise a staged series of activities designed to build relationships, establish context and create environment for collaboration and co-creation to allow for developing feasible and practical solutions” (Howard & Somerville, 2014, p. 48). Two charrettes were utilized for this research. The first charrette allowed the stakeholders (the faculty) to inventory, analyze, and create a program for the outdoor recess space for the school based on group discussions and observations of existing conditions. Utilizing the information from the first charrette, the facilitator created a conceptual plan that included a physical design for review, comment, and approval by the charrette participants. This plan review was conducted during the second charrette, held approximately two weeks following the first charrette.

The resultant conceptual plan and attendant narrative created a basis for future collaboration between the principal, director, and faculty and allowed for the development of stronger physical and developmental connections between the indoor and outdoor environment. It will allow the continuous review and development of the outdoor facilities to fit the unique properties of the school which will optimize the impact of the recess experiences. The intent was to create a process that can be used by the leadership of this school and others to ensure their recess practices and facilities are regularly reviewed and updated to meet the school’s changing needs.

Significance of Research

Data indicate that recess positively impacts the cognitive, socio-cultural, academic and physical development of elementary students as well as their understanding of how they move through their environment. A gap exists in determining how a school's outdoor play spaces can accommodate and holistically support students' needs and can be aligned with the school's curriculum. This research aids in filling that gap.

Study Organization

The first chapter in this study, an introduction provides an overview. The second chapter is a literature review of studies regarding the impact of outdoor play and recess on child development and the value of viewing a school as an ecosystem, with the student at its center. The third chapter is the methodology, which includes the selection of a local elementary school; interviewing the principal, executive director, and PE teacher; and conducting two design charrettes with four of the faculty. The fourth chapter analyzes the results of the interviews and the first charrette and the creation of a conceptual plan for use in the second charrette. It also includes the analysis of the results of the second charrette and development of the revised conceptual plan. The fifth chapter is a discussion of the entire process and the results.

Chapter Summary

Unstructured play during recess provides opportunities to discover interesting secret places and the ways and means to find them. Recess provides an environment for students to subconsciously process academic information (Pellegrini, 2008, Jarrett et al., 2010). It provides an opportunity for students to socialize and/or observe their peers, providing opportunities for interaction—child to child, child to school, and child to the natural environment. It allows for access to unstructured outdoor play opportunities, which are important to children's cognitive, socio-cultural, emotional, and spatial development as well as their academic achievement. But

providing such play requires planning, ongoing review, and a variety of experiences (Gibson et al., 2017). Improving existing facilities is increasingly difficult, given the challenges of the lack of guidance and financial support regarding play during the school day on the part of federal, state, school board and individual school leaders, the physical condition of school playgrounds, and the competing pressures on school administration and time spent in school. Ironically, data indicating the importance of recess to a child's successful development has increased in a world where students' time is increasingly structured and time spent outdoors has decreased significantly (National Institutes of Health, n.d.; Ramstetter & Murray, 2017). It is important to understand the genesis of this decline and how it has affected children's development.

Until recently, children's playgrounds were predominantly within their neighborhoods and communities. While recess should not take the place of free, unstructured play outside of the school day (Ramstetter & Murray, 2017), it is often the only block of time during a child's day provided for unstructured play children can call their own. Yet the time spent at recess has declined since 1998, while the importance of recess to a child's successful development has increased (Pellegrini, 2008).

CHAPTER 2: REVIEW OF LITERATURE

Play teaches problem solving, communication, social, cooperation and cognitive skills (Singer et al., 2009). Play is fun; it provides choices and is an outlet for a child's fantasy and creative energies. Play impacts almost every aspect of a child's development. Play helps guide children toward adulthood (Pellegrini et al., 1995; Yogman et al., 2018).

As a child in the 1960s, my friends' and my days were filled with unstructured play. We played before school, we played after school, and we played during 2 one-half hour school day recess periods. My primary school had an acre of playground that contained open grass, trees, swings, a large climbing structure (jungle gym) and a fence line filled with wild blueberries, blackberries, honeysuckle, forsythia (creating tunnels and hidey holes), and of course, bugs and lizards. We played during recess; it was a time of exploration and interaction, separate from adult surveillance (or so we thought).

Today, recess is limited in time and valued primarily for what it adds to the immediate academic success of a student. Since the late 1980's, recess time and quality have declined (Jarrett, 2002; Ramstetter & Borman, 2019; Waite-Stupianksy & Findlay, 2001). Yet recess not only provides a respite from the work and rigor of academics is also vital to a child's successful development (American Academy of Pediatrics Council on School Health, 2013; Hall & Neilsen, 2020; Yogman et al., 2018).

Recess is one of the few times during the day that children have the opportunity for unstructured, play which impacts "students' physical, emotional [mental health], cognitive, and social health and well-being" (Florida Department of Health, quoted in Chen, 2017, n.p.). The American Academy of Pediatrics national guideline recommends that children receive 60 minutes of exercise and 20 minutes of recess each school day, preferably in the form of outdoor play (Yogman et al., 2018). However, the United States Department of Education does not have

a recess policy. The scheduling and implementation guidelines for recess are the responsibility of individual states and their school boards (Society of Health and Physical Educators, 2016).

Time spent in unstructured, spontaneous play is decreasing as structured play, adult control and surveillance, and children's screen time increase (Backett-Milburn & Harden, 2004). "The erosion of this vital component [unstructured play] of children's engagement (agency) and social participation needs to be examined in order that imaginative, creative and child-led play remains a prevailing experience of childhood" (n.p.). Recess provides students with time for imaginative, creative, child-led play (Yogman et al., 2018) and is becoming increasingly important for a child's development (McNamara et al., 2015). The combination of increased academic pressure and reduction of after school play time increases the impact and importance of recess to a child's development. An understanding of the impact recess has on students and how the practice and play space design and layout impact the quality of play can lead to a student's overall success (Moore & Cosco, 2019). Understanding how recess has changed over time can aid educational leaders such as school principals in creating the most impactful recess experiences for their students.

Much of the research regarding the perceptions of recess primarily focuses on teachers and students from pre-school through fifth grade.

The Decline of Outdoor Play

There is increasing competition for children's time and how it is utilized (Hall & Neilsen, 2020). Children are spending additional time in the classroom, and the time school-aged children spend playing has slowly decreased since the 1980s. Children spend approximately 6.5-7 hours per day at school (Craw, 2018; National School Education Statistics, 2008), approximately half their waking hours for five days a week. They spend almost 20 percent of their total weekly time in class, 7.4% of their time playing (including outdoor play) and socializing, and the majority of

the 11% of their passive leisure time watching television or other media (Hall & Neilsen, 2020) (Appendix A).

Children's play opportunities are decreased in part because many spend hours each day either on a school bus or in a car. "By 2001, three quarters of children traveled a mile or more to school" by bus or car (U.S. Department of Transportation, 2008, p. 1). Approximately 75 percent of children who live too far from school to walk or bike are driven to school by personal vehicle (Bureau of Transportation Statistics, 2021). This increased travel time is due "in part [to] the shift away from small neighborhood schools to physically larger schools in lower density areas" (Schlossberg et al., 2006, p. 397). The lack of walkable communities has limited children's ability to walk or bike to their friends' homes and neighborhood. Walkable communities concentrate live, work, and play land uses within a one-half mile radius. They are "traversable, compact, physically enticing and safe". Even in walkable neighborhoods, there is a lack of supervision and caregivers (adults at home) to oversee children when they are playing (Rajalakshmi & Thanasekaran, 2015). "Key elements of walkability are residential density, land use mix, and connectivity" (Van Dyck, 2009, p. 1). Most contemporary neighborhoods lack these key elements.

The lack of play opportunities is worsened when states such as Florida regulate the square footage and acreage of schools based on county demographics and economy of scale, not on the individual needs of neighborhoods. School boards are driven by the availability of -large tracts of land which often forces the construction of schools away from user populations (Wheeler, B., personal communication, June 21, 2021; Florida Department of Education, 2014). Approximately 75 percent of the children who live too far from school to walk or bike are driven by personal vehicle to school (Bureau of Transportation Statistics, 2021).

The lack of walkable communities has also limited children's ability to walk or bike to their friends' homes and neighborhood. Even in walkable neighborhoods, there is a lack of supervision and caregivers (adults at home) to oversee children when they are playing (Rajalakshmi & Thanasekaran, 2015). Time spent in unstructured, spontaneous, play is also decreasing as structured play, adult control, and surveillance increase (Backett-Milburn & Harden, 2004).

Research indicates that play, particularly outdoor unstructured play, is disappearing from the landscape of a child's day (Holmes & Kohm, 2017). According to the National Institutes of Health (NIH) "in the last two decades, children have lost an average of eight hours of free play per week" (National Institutes of Health, n.d., para. 11). Although research supports the importance of play in a child's life, it also indicates that daily time for play continues to shrink (Holmes & Kohm, 2017; Pellegrini et al., 1995). Ninety-five percent of American mothers believe their children are growing up too quickly and do not take or have time for play (Singer et al., 2009). Parental concern regarding the disappearance of play is supported by educational professionals, psychologists, researchers, and medical professionals, whose research indicates that play is an integral part of the cognitive, socio-cultural, and emotional development of children (Elkind, 2007; Holmes & Kohm, 2017). Most experts surveyed agree it is critical for children to have time each day to play without interference and control (p. 288). Parents may express the view that play is the most important activity for their child's development, but statistics support the claim that time spent playing is declining (Malone & Tranter, 2003; Singer et al., 2009). Consequently, they are spending less time playing and more time on sedentary pursuits such as video gaming, watching television and texting friends (Hall & Neilsen, 2020).

In general, research does not sufficiently establish why play is viewed as an important part of childhood development yet remains an ancillary part of a student's day. One suggestion

blames an increasingly regulated and controlled society (McFarland & Laird, 2018). Other factors contributing to the decline of the quantity and quality of play (Holmes & Kohm, 2017; Singer et al., 2009) included “the popularity of television programming, computer games and other technological products” (Holmes & Kohm, 2017, p. 284). Television accounts for 72% of children’s leisure time (p. 295) which means their time for play, including outdoor free play, is limited. Homework and organized after-school activities, both of which have increased in recent decades, have reduced available play time. Studies often include the effect of the pressure of family economics and lack of community support and the decrease in play among children. Data supports this appears to be particularly true of working lower socio-economic parents and working-class families whose work is physically taxing (Singer et al., 2009).

Many parents agree that children need more opportunities for play and additional and safer play spaces. In the 1970s and 1980s, play time included time before and after school, but due to the factors described above, this situation has changed. Factors impacting the decline of play include parental concerns over safety. McFarland & Laird (2018) indicated that, beginning in the 1990s, parents’ fear of risk has led them to “curtail their children’s play” (p. 128). Many neighborhoods lack quality green space, parks, playgrounds, or well-maintained sidewalks. This in turn affects the quality and safety of a neighborhood’s social environment (Kepper et al., 2019). Hypervigilant parents believe they can prevail against real threats such as street traffic or perceived threats for example such as danger from strangers (McFarland & Laird, 2018; Singer et al., 2009). Outdoor play is often curtailed by parental imposition of location restrictions. Children may be restricted to their backyards, to the time of day and with whom their children play, and who is allowed to supervise (Kepper et al., 2019). The school environment removes many of these parental concerns. School provides supervision by teachers and fences that

provide safety from perceived dangers such as streets and adjacent properties. School leaders establish play scheduling, interactions (which grade plays with other grades), and priorities.

The location and time for unstructured free play outdoors has become segregated and in many cases is limited to the 20 or 30 minutes of recess provided during school hours. This is concerning because a variety of environments allows a child to challenge themselves physically and behaviorally (Sandester et al., 2020) and it is the totality of those experiences that lead to healthy, holistic child development. “Children spend approximately 14,000 hours at school from kindergarten through 12th grade” (Altman & Wohlwill, 1978 quoted in Arborgast, et al., 2009, p. 451). Often this is the only time they have the opportunity for exposure to the outdoors and the natural environment of the school grounds (Ramsetter et al., 2010).

History of Recess

To understand how recess works within the context of the school day, it is important to understand how it developed as part of the American educational system. The contemporary American school system was developed in response to the need for skilled workers for American factories. This system was highly structured, requiring students to sit quietly and remain attentive for long periods of time. Recess was one of the few times during the school day where students could be active and engage in unstructured play (Pellegrini, 2005). However, while students were provided with a recess from academic work, the concept of a playground designed to encourage play was not developed until the late 19th century (Ramstetter & Murray, 2017). The American playground movement was begun in 1890 by Joseph Lee in Boston. The birth of contemporary recess was tangential with the development of urban playgrounds:

In the 1890s children were forbidden from playing games in the streets and there were no playgrounds in the poorest neighborhoods [in the Boston Urban Core], where adolescent boys were routinely arrested for delinquency. Lee gained permission to clear a vacant lot

and provide materials and equipment ...such as dirt piles, large pipes, [and]...children came to play. (Ramstetter & Murray, 2017, p. 19)

Between the time of development of this playground and the 1920s, growth in urban education and public play spaces brought recess to public schools. A 1989 study by the National Association of School Principals indicated that ninety-five percent of school districts had one or two daily recess periods of 15 to 20 minutes (Pellegrini et al., 1995). Until the 1990's recess was an assumed part of the school day. However, in the 1990's a shift occurred in the perception of the need for recess. The United States found itself competing economically and technologically with other countries. Schools and their students became intertwined with the American need to out-produce, out-create, and out-think the rest of the world (Slater et al., 2012). Recess remained an important part of the school day until the implementation of the No Child Left Behind Act of 2001 (2002) which emphasized achievement on standardized tests. NCLB had a significant effect on principals' views on recess and its practice within the school day. Principals were pressured by states, school boards, parents, and communities to improve test scores through time spent in class on academic subjects (Ramstetter & Murray, 2017). Interest in recess waned. The passing of Every Student Succeeds Act (2015) (ESSA) did not reduce the pressure created by standardized testing (Ramstetter & Murray, 2017).

Universal testing required by legislation such as NCLB and ESSA became the standard for determining the success of the educational system. Academic performance pressures and a lack of consistent recess policy continued to reduce recess time not only throughout the United States, worldwide (Slater et al., 2012). While interest in recess has increased since 2010, policies and practices vary widely. The determination of when and for how long recess occurs, which students participate in, and the rules and structure of recess are essentially the responsibility of the individual teacher in most jurisdictions (Ramstetter & Fink, 2019).

Mental and Physical Benefits of Recess

The epidemic of lack of healthy choices in the United States appears to have skewed play research heavily toward the determining the impact of physical activity on children's health. An abundance of quantitative research focuses on physical activity because it is easily quantifiable (Hollis et al., 2017). It is also easier to control situationally than socio-cultural or cognitive activity. Accelerometers can be utilized to measure sedentary and physical activity, physical activity energy expenditure (PAEE) and sleep-related behaviors (Migueles et al., 2017). The childhood health crisis is a subject of interest for physicians, psychologists, educational leaders, and parents. Data creates strong links among recess, increased physical activity, and improved healthy living choices. This correlation is one of the bases for understanding the need for increased recess time (American Academy of Pediatrics Council on School Health, 2013). Physical activity is important for improving physical health, increasing healthy and active lifestyle choices, and increasing classroom attentiveness. (American Academy of Pediatrics Council on School Health, 2013; London, 2020).

While physical activity is valuable, it is only one desirable aspect of play (Ramstetter & Murray, 2017). Outdoor play, particularly unstructured or free outdoor play, creates opportunities for socializing, problem solving, sharing, developing social skills, taking risks in a safe environment, improvement in mental and physical health, and empathy development (Kinsner, 2019). "Children pay more attention to class lessons after free play at recess than they do after PE programs, which are more structured" (Pellegrini & Holmes, 2006, quoted in Yogman et al., 2018, n.p.). Data indicate this is because children are more active during free play (Yogman, 2018). Other activities, including peer interaction, fantasy, and creative activities, and sitting quietly in the outdoor environment during recess also improve students' mental health (McNamara et al., 2018).

Cognitive and Academic Benefits of Recess

The increased awareness and utilization of recess as a time for physical activity comes with a warning from Massey et al. (2018):

Physical activity...remains the primary behavioral outcome associated with recess, while many other potentially relevant indicators of recess remain unexamined. Few studies have assessed observations of teacher/student interactions, peer conflict, social interactions, or safety within the recess environment. (p. 1)

However, neuroscience has indicated the importance of recess as a necessary part of increasing the efficacy of academic development (Casey et al., 2005).

A fundamental goal of developmental cognitive neuroscience is to understand how age-related changes in the anatomy and physiology of the brain are linked to the maturation of cognitive abilities. It is well established that brain development and cognitive maturation occur concurrently during childhood and adolescence. (p. 239)

While the neurological benefits of play on cognitive and social areas of child development are more difficult to quantify than physical benefits, the utilization of Magnetic Resonance Imaging (MRI) has provided quantitative data indicating the cognitive benefits of recess (Casey et al., 2005). Cognition is defined as the “the mental action or process of acquiring knowledge and understanding through thought, experience and the senses” (Oxford English Dictionary, www.oed.com). Cognitive development is reduced if breaks are not provided during cognitive activities such as academic studies. Hyperfocus on academic success reduces the focus on how the “embodied mind...is shaped by and helps shape action in the physical world” (Parasuraman, 2010, p. 1). Focusing on academic studies without a break can result in cognitive fatigue (Casey et al., 2005; Kell & Harney, 2019). Cognitive fatigue can be measured using MRI. Data from MRIs indicates a lack of breaks in the form of recess results in loss of memory,

creativity, and ability to problem solve. In many schools the pressure for academic achievement results in the reduction of the quality and quantity of recess which impedes academic achievement (Ramstetter & Fink, 2019). MRI studies “demonstrate the persistent effects of cognitive fatigue in the frontal parietal network after a period of heavy mental work” (p. 1). The results of this fatigue are a decrease in performance that steadily gets worse over time (Ramstetter & Fink, 2019).

Neuroscience also validates the importance of recess as a necessary part of increasing the efficacy of academic development:

A fundamental goal of developmental cognitive neuroscience is to understand how age-related changes in the anatomy and physiology of the brain are linked to the maturation of cognitive abilities. It is well established that brain development and cognitive maturation occur con-currently during childhood and adolescence (Casey et al., 2005).

Through MRI technology, neuroscientists are able to establish a “direct relationship between neuro and cognitive development” (Casey et al., 2005, p. 239). Neuroscience data can be cited by educational leaders to support activities like recess as an integral part of improving not just academic success, but the development of the whole child. Technology such as MRI and magnetoencephalography (brain scanning) can aid qualitative researchers in providing physical evidence that cognitive overload can cause worsening performance and that physical breaks in the form of recess can improve performance (Lim et al., 2010). This is supported by a 2021 NIH study indicating breaks such as recess enhance academic achievement. Utilizing magnetoencephalography, researchers studied the neural activity of the brain during a break from a mental activity. When breaks were provided there was a “spike in brain activity 20-fold” (National Institutes of Health, 2021, n.p.). Stepping away from the classroom does not stop learning, it enhances it. Recess, specifically the unstructured play that occurs during recess,

provides children with the time to process what has previously occurred within the walls of the school. This necessary processing time is one reason recess is an important part of the school day.

Teachers indicate they support the data that indicates that unstructured play during recess improves academic performance (Baumi et al., 2020). However, many still use removal of recess as punishment (London, 2019). Concern about test performance often results in cancellation of recess to allow for additional test preparation. Research on children's recess behavior generally does not examine its integration into the overall school context. More importantly, there is little regard for viewing recess as a critical part of a student's development. In fact, studies show that inconsistent or lack of recess and unstructured play in a child's life can have a negative impact on a child's development (McNamara et al., 2015; Pellegrini et al., 1995).

Academic success and cognitive development can be linked; however, there is a difference between them. Cognitive development focuses on the ability of a child to process information (Jarrett, 2002). Academic success, particularly in standardized testing, is usually a result of positive cognitive development. The replacement of NCLB with ESSA in 2015 condensed the exclusive focus on academics to a set of standards measured by state accountability tests in public schools (Hodge & Welch, 2016, Henley et al., 2007). State and federal funding remains tied to standardized test scores and school grades based on school performance on the tests (Gewertz, 2018). Schools receive grades based on their students' scores and are penalized for low scores, equating to reduced funding and sometimes school closure (Dalton, 2017). This puts pressure on administrators and teachers to increase class time and reduce recess time (Baumi et al., 2020; Martin et al., 2018). Focusing on standardized testing can minimize the importance of students socio-cultural and emotional impact on school.

Socio-Cultural and Emotional Benefits of Recess

Many studies focus specifically on the positive impact recess has on children's social, cultural, and emotional development (Gray, 2011; Pellegrini et al., 1995). Recess is one of the only times children must interact with each other without adult interference (Pellegrini et al., 1995; Gray, 2011). Play during recess is one of the few times during a child's day they can have control over their own activities and interactions with their peers and their immediate environment. Recess allows children to create a peer culture that is unique to the individual school (Prompana et al., 2020). In many studies, recess improved children's social relationships and contributed to their sense of well-being (Gray, 2011; Jarrett et al., 2010; Malone & Tranter, 2003). Aiding in the development of "pro-social skills, social competence and conflict resolution skills" (Holmes & Kohm, 2017, p. 73), recess helps students develop the skills they need to become successful adults. The portions of school curriculum that focus on academics, safety and security, and anti-drug training are important, but they do not further a school experience that "helps students acquire the social and emotional skills, habits and mindsets necessary to be successful in school *and life beyond* (author's italics)" (Darling-Hammond & Cook-Harvey, 2017, p. 1).

Spatial Awareness Benefits of Recess

The spatial awareness benefit of recess, particularly of the physical activity that occurs during recess, is one of its most important and least studied benefits (Holmes & Kohm, 2017). Spatial awareness or spatial intelligence is our ability to move through space, how we react to that movement, and our perception of the spaces around us. Cognition is often attributed to academic work, but it can also be attributed to spatial intelligence, which is beneficial for how a child manipulates their environment and for how a child's environment affects their social, cultural, and cognitive development. Children in primary grades and below have not fully

developed the ability to discern variations in speed, distance, time, and movement (Trifunović et al., 2017). The more complex a situation, the more difficult it is for a child to differentiate changes in speed, for example. Developmental needs, personality traits, and interests differ between individual children, and it is important that the school environment, particularly recess (i.e., outdoor unstructured play) provide a diversity of experiences to accommodate those needs, traits, and interests. It is the outdoor environment that provides the diversity of created experiences in which children learn how to create and manipulate their own spaces. (Moore, 2017; Pellegrini, 2005).

Academic and Behavioral Concerns Influence Recess Time

Increasing pressure for high performance on standardized testing causes many principals, teachers, and parents to believe that more instructional time is required (Pellegrini et al., 1995; Stapp & Karr, 2018; Pellegrini & Holmes, 2006). However, studies indicate that test scores and academic achievement are often improved by non-academic activities such as recess (Stapp & Karr, 2018; Pellegrini & Holmes, 2006). Nevertheless, some principals and teachers believe recess “disrupts the work patterns of children causing high levels of excitement and subsequent inattentiveness” (Pellegrini et al., 1995). Others are concerned about bullying on the playground (Ozkal, 2020; Pellegrini et al., 1995). These concerns can lead to educational leadership decisions that reduce the time allotted to and the quality of recess time. They can also inhibit or eliminate the review of existing outdoor space facilities and the improvement of those facilities.

However, data indicate children “remember more when the material is presented over time with periodic breaks” (Jarrett et al., 2010, p. 122). Students, particularly boys, became restless and inattentive when they did not have recess. Research also indicates that even more sedentary playground behavior such as hopscotch or digging in the sand correlates with classroom attentiveness (p. 122). Breaking recess up into segments during the day improves

students' attention spans for longer periods (Baumi et al., 2020; Pellegrini, 2005). It can increase the number of social relationships by providing practice in how to be social and get along with peers (Baumi et al., 2020).

Impact of Physical Plant on Unstructured Outdoor Play

Most states and school districts have specific physical design requirements for school playgrounds. However, most of those requirements focus on safety and maintenance. Additionally, current research and school playground design and practice focus on increasing and maintaining physical activity during recess (Baquet et al., 2018). This is primarily due to concern over increased childhood obesity, overall health concerns due to lack of exercise and increased playground liability. The availability of prefabricated play structures has also led to a focus on physical activity during recess. School playground designs are usually centered around play structures and open areas for physical activity (Baquet et al., 2018). Unfortunately, the number of students who can use these structures at one time is limited and the structures' design can inhibit unstructured play.

Numerous studies indicate that interaction with and exposure to the “natural landscape of school grounds” (Arborgast et al., 2009, n.p.) have many positive effects on a child's success at school (Arborgast et al., 2009; Moore & Cosco, 2019). The quality of that landscape affects the benefits of the outdoor experience. A well-designed school playground should allow for more than active physical play. It may contain equipment, fixed structures, sand, and water, grassed areas, shade areas or just a paved outdoor space (Baquet et al., 2018). However, the better the space design, containing a variety of play opportunities, the better the quality of experience. “A good playground challenges and promotes children's growth” (Moreno, 2021, para. 1) including in sensory, creative, imaginative, social, and reflective play (Appendix B). It allows for creative and imaginative experiences – a place for children to breathe in the smells and sights of the

natural world. A well-designed playground should have a timeless quality to it. Like Central Park, it should function well through time and must be incorporated as part of the ecosystem of the school. According to Massey et al. (2018) “in considering the potential benefits of recess, the quality of the environment likely shapes how an individual experiences recess and is likely to affect outcomes associated in school-based recess” (p. 3).

Facilities for Play as Part of the Ecosystem of the School

The space children occupy during school hours can have as much impact on student success as the information imparted during those hours. School is space based, yet school personnel often take for granted the space in which their students spend their days (McGregor, 2003). A school can be viewed as an ecosystem with sub-ecosystems, each dependent on one another. In this model, students are the center of the ecosystem and recess is one of the sub-ecosystems.

The ecosystem of a school includes the students, the teachers, the principals, the support staff, the parents, and the school community. The student is the focal organism of the school ecosystem, which includes the environment in which the student physically exists for approximately eight hours per day, Monday through Friday. The school ecosystem description fits the general description of an ecosystem. “In a functional sense [it consists] of organisms [the students] and the environment [the building and the outdoor spaces] are inseparable and form one unitary system” (Jarvilehto, 1998, p. 321). The school ecosystem includes the interactions and relationships between and within the physical and organic elements within the school.

An ecosystem is comprised of the organism(s) and their community together with its physical and chemical environment (Began & Townsend, 2021). The health of an ecosystem is based on the health of its individual units as well as its community and its environment.

Ecological study includes the impact of the individual unit on the system and/or the impact of the

system on the individual unit, although one cannot be separated from the other. Poor health of a unit decreases the efficacy of the system and poor health of the system impacts the efficacy of the unit. If recess as a unit of a school ecosystem is non-existent or of poor quality, students' success is negatively impacted.

A school is an ecosystem whose health is dependent on the health of the interactions of its components. These components include its staff, students, its organic outdoor elements, and its inorganic components in the form of its physical plant. A healthy ecosystem must maintain its biodiversity; loss of biodiversity leads to an unhealthy ecosystem which can include the demise of the system itself. An ecological perspective on both the school and its recess practices “allows us to explore and interrogate personal and subjective views while taking into account the social, political and cultural center within which [students’] lives are lived [within the context of the school environment]” (Rogers, 2012, p. 484). An ecological perspective can allow us to understand how each component of a school, both physical and living, affects the success and health of the school. It can also help develop an understanding of the importance of recess as an integral part of a school's and its students' health.

Reading, math, and science have remained an essential part of school curricula since the creation of the American public school system. With the implementation of standardized tests, more and more school time is focused on teaching to and learning for the test. Many educational administrators, politicians, and parents have focused on only that component of child development affected by school activities. A school (including its ecosystem) is often judged based primarily on its students' standardized test scores, which leads to a hyperfocus on testing (Belfield & Levin, 2002; Green et al., 2015). But the loss or reduction of any of its parts usually leads to a weakening in others. The loss of biodiversity in schools refers to the hyperfocus on testing and the deletion or reduction of non-academic subjects and activities such as recess. This

often results in lower test scores, underachieving students and failing schools. These factors exacerbate students' lack of overall success (Belfield & Levin, 2002; Green et al., 2015).

Effective schools create an ecosystem where students live, work, and play during the most active part of their waking hours. If any portion of, or connections to or within, that ecosystem degrade, the individual components also degrade.

Positive Impacts of Recess on Faculty

The school faculty are part of the ecosystem of the school and their stress level and overall health affects their success with their students. Most studies focus on the impact recess has on students. While faculty are often included in educational research, the state of their mental and physical health is not. Schools are places of employment and the data on the mitigation of workplace stress could be applied to school faculty. Outdoor recess provides nature contact for both faculty and students and it provides faculty with the opportunity to experience the natural world (Lee et al., 2020).

Principal's Responsibilities

The larger context of recess includes creating a recess culture that is consistent with the social-emotional learning culture of their school. This study includes the analysis of the views and observations of a school's educational leaders which helps the researcher understand how those leaders view the importance of recess to that culture. It is therefore necessary to develop a framework for the established responsibilities of principals. Since the implementation of NCLB and subsequently ESSA, principals' responsibilities have become more complex (Glatthorn et al., 2017; Reid, 2021). Principals believe their role as educational leaders focuses on the emotional well-being and mental and physical health of their students. This focus has implications for educational policy and practice (Reid, 2021). The additional responsibilities established by the states, including safety and intruder drills, take away from goals that focus on

educating the whole child. Whole child education is based on creating a “positive school climate [which] is at the core of a successful educational school experience. School climate creates the physiological and psychological conditions for productive learning” (Darling-Hammond & Cook Harvey, 2017, p. 1).

This whole child educational focus, of creating a school culture that encompasses all aspects of the school day, connects with John Dewey’s concept of educating the whole child inside and outside the classroom. Dewey’s philosophy of education emphasizes the importance of all experiences, including those during outdoor play. He encourages educational leaders to include a student’s environment in school experiences, including those experienced outdoors.

Elementary school principals set and create the culture within their schools. They decide which experiences should be cultivated and emphasized, and that includes setting the practices (including procedures and schedules) for recess in general and for specific aspects of recess such as physical activity (Simon & Childers, 2006). Most elementary school principals support recess as a necessary part of the school day (National Association of Elementary School Principals, 2010; Ozkal, 2020). Elementary school principals believe physical activity, release of excess energy, and socialization are the most important benefits of recess (London, 2022; Simon & Childers, 2006). Although elementary school principals generally support the concept of recess as a time for students to reengage and recharge, some educational leaders, teachers, and parents, out of concern for academic performance in math, reading, and science, believe students should spend more time in the classroom and less time at recess (Parker, 2015; Pellegrini, 2005).

There is a disconnect between the understanding that recess is an important part of the school day and the consistent implementation of recess practices (Ozkal, 2020). Despite principals’ support for recess, and although principals set recess practices and scheduling, principals are also responsible for the implementation of school board policy and state law.

Eighty percent of elementary school principals surveyed indicated that students did not receive the requisite 20 minutes of daily recess recommended by the American Academy of Pediatrics Council on School Health (2013). This shortfall is partially due to limitations of staff and resources that create barriers to providing time and quality for recess (Schuler et al., 2018).

Many schools' faculty and staff believe that students' class behavior and participation improve when they were provided with a break in academic focus through recess (Ozkal, 2020). They also believe recess has "social effects including forming friendships, learning about life, self-knowledge, opportunity to play and sharing" (Ozkal, 2020, p. 130). Nevertheless, a lack of faculty motivation appears to be one of the greatest detriments to successful recess implementation. Studies indicate elementary school principals have difficulty getting some of their staff to fully commit to recess as a necessary part of the school day (Simon & Childers, 2006). Some teachers withhold recess as punishment or cancel it to focus on academics. Principals indicate they support recess, but often do not hold teachers accountable for the successful implantation of established recess policy and practices (Simon & Childers, 2006). Research shows that established law and policy often do not lead to the effective practice of recess by the teachers who are responsible for implementing it during the school day (Baumi et al., 2020).

Many educators believe that "testing has gotten out of hand" (Baumi et al., 2020, p. 510) and that recess is "what children need physiologically" (p. 510). However, some principals and teachers voice concern that recess encourages aggressive behavior such as bullying (Ozkal, 2020). While aggressive behavior does occur at recess, it is often a result of poor implementation practices, poor physical facilities, and inadequate maintenance of those facilities (Lodewyk et al., 2019; Pellegrini et al., 1995).

Recess as an Influencer of Students' Mental Health

Some studies on child development and behavior reveal challenges facing students as a result of the impact of COVID-19. The long-term damage to students' learning resulting from over a year of quarantining and remote learning is unknown. Recent data indicate some children may have increased anxiety and depression, including emotional and behavior problems, because of experiencing a year of living in pandemic conditions (Colvin et al., 2022). School achievement and children's desire to persevere are expected to decline over the long term. "Recent data suggests that elementary school children have experienced an increase in school and psychosocial adaptation problems, in the context of the current pandemic" (Malboef et al., 2020, p. 2).

The impact of students' sense of isolation and disconnection on their school success is unclear. "Preventing the negative repercussions of the COVID-19 pandemic on children's mental health by developing interventions adapted to the developmental reality of elementary school children is essential." (Malboef et al., 2020, p. 2). Mitigation methods will have to be developed to help students return to a sense of normalcy. It is vital that elementary school principals develop a monitoring and development plan that includes holistic resource management. Students who have re-entered the physical classroom after a long absence need the interactions and release provided by recess (Clevenger & Pfeiffer, 2020).

Unstructured play during recess can be a form of therapy for students. Not only does recess have positive benefits on children's cognitive, socio-cultural, emotional, and spatial development, it can be a type of therapy that is used by many in the mental health fields. Recess becomes even more important as schools face the emotional and physical effects of the pandemic on their students (Clevenger & Pfeiffer, 2020). It is important for outdoor recess and

unstructured play to remain a part of a student's day to help students overcome the potential impacts of COVID.

Chapter Summary

The challenges students face resulting from the pandemic add to pre-pandemic challenges faced by school leaders. legislatures are reducing school budgets while increasing responsibilities and requirements and goals that, if unmet, threaten the future existence of a school. In crisis, there is a tendency to fall back on what is known, not necessarily what works. Research indicates that the play that occurs during recess is as important to healthy development as is the academic efficacy that is the goal of the standardized requirements that schools are struggling to meet (Clevenger & Pfeiffer, 2020).

Schools can provide an optimal environment for promoting children's "health behavior" (McLoughlin et al., 2020, para. 3). As behavior is a result of the healthy ecosystem of the school, improvement in both the physical and implementation practices of recess can improve the cognitive, social, cultural, emotional, mental, and physical health of the child, all of which extend beyond the walls of the school (Waite-Stupianksy & Findlay, 2008). The "research to implementation gap" (McLoughlin et al., 2020, para. 6) regarding recess can be narrowed through "the modification of policies and practices and the physical environment (i.e., playgrounds)" (McLoughlin et al., 2020) that can maximize the benefits of recess.

CHAPTER 3: METHODOLOGY

The purpose of this study was to determine how a school's outdoor play spaces accommodate and holistically support students' needs and can be aligned with the school's curriculum. Through action research including interviews and two design charrettes, the principal, executive director, and teachers from a PDS explored their recess practices and their physical outdoor play facilities.

Several studies have surveyed the opinions of educational leaders regarding recess in their schools (Simon & Childers, 2007; Vaantaja, 2016). These studies generally quantify those opinions and do not determine whether recess policy aligns with established best practices or its daily implementation within a particular school. Such research generally does not include stakeholders such as educational leaders or teachers in the process of analyzing how existing outdoor play facility design and layout allows for the best development of the whole child. This study focuses on helping those stakeholders take ownership of that process and achieve an acceptable level of implementation. It created a participant-centered process for future review and upgrading of outdoor play facilities to meet future needs and ensure alignment with best practices. The charrette process combined with administration interviews helped the participants analyze their current recess implementation, create an individualized physical plan that can be utilized by the current staff, and create a basis for future analysis.

It was important for me to understand how I as the researcher fit into this study's process. While I have expertise in design development and the impact of space, location, and layout on maximizing recess, it is the principal and teachers who are responsible for setting recess policy and its successful implementation. This action research methodology used an "ecological framework" (Swearer & Doll, 2001, p. 7) which helped examine how recess integrates into the academic, social, cognitive, institutional, physical, and cultural framework within a school. It

views recess as an “ecological phenomenon” (p. 7) as part of the broader school ecosystem. Observations and discussions were framed by the incorporation of the concept of the child/student as the center of the school ecosystem. This ecosystem included recess as an important component of the students’ physical and mental health. Utilizing action research helped the participants delve into their established day-to-day recess practices. They determined how the design and layout of their school’s physical outdoor play spaces satisfy the guidelines they have established for those practices.

Design as a qualitative methodology can be used in qualitative research to create a physical solution to a proposed problem. According to Gair and van Luyn (2019),

Undertaking qualitative research is about making a choice, to uphold narrative over numbers. It is about hearing, showing and amplifying narratives because this approach best suits the specific issue researchers want to illuminate. (p. 1)

The design approach to qualitative research can be viewed as more than an arts-based methodology. It can connect the art portion of the method to the practical, technical implementation part of the method. The core of this type of participatory qualitative research is that it “occurs with and for...communities rather than about them” (Gair & van Luyn, 2017, p. 1).

The charrette design process is well suited to qualitative research. According to Gair and van Luyn (2017), “undertaking qualitative research is about making a choice to uphold narratives over numbers. It is about hearing, showing and amplifying narratives because this approach best suits the specific issue researchers want to illuminate” (p. 1). The charrette process is collaborative. It is not just an art-based method. It is a process that engages participants in research that is with and for their communities “rather than research about them” (p.1). It takes the art-based design translating it into engineering applications that can be physically realized.

The design charrette as qualitative research has been successfully utilized by researchers Howard and Somerville (2014) and Egretta-Sutton & Kemp (2002).

Participatory action research is best suited to the concept of the recess as part of the ecology of both the child/student and the school. Participatory action research is also well suited to my training as an educator and a landscape architect. My work as a landscape architect focuses on practical as well as aesthetic solutions to problems. Principals are faced with many issues whose solutions appear to conflict. During my career, I have developed expertise in how to minimize the effects of multiple conflicts and help participants and professionals work together to develop solutions.

Study Design

This action research study focused on an urban PDS located in northeast Florida. The goal was to help the school's principal, executive director, and teachers investigate their school's recess practices and outdoor play space design. It helped them determine which of those practices are effective and any additions or revisions they deem necessary for the school's outdoor play spaces. It created a cycle of action that the researcher-participants and other school leaders could utilize to continually evaluate and improve their recess practice and spaces.

Merriam and Tisdell's (2015) five principles of action research were incorporated into this study. These principles outline how educational leaders can effect change within their schools. The first principle focuses on the "problematic situation" (p. 50). The school already incorporates recess into their school day (a positive practice). I worked with the administrators and teachers to determine how to "further enhance what is already positive" (p. 50) and eliminate the negative aspects ("problematic situation") of their outdoor recess practice. Merriam and Tisdell's second principle of action research indicates the design of the study must be

“emergent” (Merriam & Tisdell, 2015, p. 50). The process of this study is part of the product, thus meeting the “emergent” criterion.

The third principle is “engaging the participants as co-investigators” (p. 50). That is, it is important for the researcher to create a team atmosphere during the research process. This study established a partnership between the researcher and the school administrators and teachers. Encouraging the participants to believe that involvement could result in recess practices that they themselves can implement, maintain, and adapt to changing school needs was an important part of this study.

The fourth principle focuses on the positionality of the researcher within the participants’ environment. During this study my positionality was predominantly as an outsider since I am not intimately involved with the daily experiences within the school. I do, however, have a professional and personal relationship with the school’s principal and had already completed a pilot study on recess at the school which also provided me with some insider positionality.

In keeping with Merriam and Tisdell’s fifth principle, the study process involved the collection and analyzation of multiple forms of data (Merriam & Tisdell, 2015, p. 50). In addition to the interviews, I inserted an additional step, a charrette, which is an integral part of the physical design process utilized by design professionals.

Study Site

A northeast Florida urban charter school was chosen as the focus of this study for three primary reasons. The first was proximity to the researcher. For this observation- and interaction-intensive study, access and proximity were important to its success.

The second reason is that Florida is one of ten states that codifies recess. Florida is one of the only states whose code defines recess as “unstructured free-play each week for students’

in kindergarten through grade 5 so that there are at least 20 consecutive minutes of free-play recess per day” (Appendix C). Florida statues also require school districts to establish recess policy (Appendix C).

The third reason the subject school was chosen is their partnership with the local YMCA, whose mission includes empowering young people and promoting their mental and physical health (First Coast YMCA, 2022), a mission which is consistent with the school’s goals. Choosing a PDS (which is also a nonprofit charter school) allowed for greater study flexibility and access to the administration and teaching staff since the school has an established relationship with the University of North Florida’s Professional Development School program. PDSs are collaborations between colleges and universities with PK–12 schools and districts to advance agendas of mutual interest in education with the goal of preparing and sustaining professional educators. PDSs are unique school-university partnerships that aim for the improvement of PK–12 student learning, joint engagement in teacher education activities, promotion of professional growth of all participants and construction of knowledge through intentional, synergistic research endeavors (University of North Florida Newsroom, 2021).

The student population of this Title 1 school is 211, of which 51% female and 49% male. The student population is 100% Black. The teacher/student ratio is 19:1 and the school are free and reduced lunch eligible. The school has 11 full time teachers and 1 counselor (Florida Department of Education, 2021). The school day is 7½ hours and the school year is 195 days. Before and after school care is available. One of the goals of the school’s 2021-2024 Strategic Plan is to provide a variety of enriching experiences (academics, athletics, clubs) for students to meet the school mission to provide rigorous academic standards, character development, self-discipline, personal and social responsibility, and family involvement.

Although charter schools are not required to follow state recess standards, the subject school has a self-imposed requirement of a minimum of 30 minutes of recess per day. While charter schools are exempt from many public school building and functional requirements, there are several areas where they must adhere to established state requirements and practices. Charter schools are *not* exempt from the State of Florida building code (Appendix D) which “governs the design, construction, erection, alteration, modification, repair and demolition of public and private buildings, structures and facilities in the state” (Florida Building Code, Section A (101.2)) including play areas and play spaces. This requirement is germane to this study as it frames the layout requirements and utilization of space for the purposes of outdoor play. Charter schools are exempt from all statutes of the Florida State Education code, except for the following: statutes specifically applying to charter schools; accountability, student assessment program and school grading system; provision of services to students with disabilities; civil rights and discrimination; student health, safety, and welfare (Florida Charter School Law and Compliance, 2021). These standards are important to this study because they affect the functionality and efficiency of playground use and impact the efficacy of recess. Taken together, the building code and state education code provide a minimum standard for recess and play facilities for all schools in Florida.

Research Questions

The research questions that guided this study are:

1. How do teachers and administrators at an urban PDS perceive recess and play as a part of students’ school day and curriculum?
2. What challenges do teachers and administrators face when trying to implement outdoor recess and play for their students?
3. What suggestions do teachers and administrators have regarding structure, design,

and utilization of outdoor play spaces to support teaching and learning?

4. How can teachers and administrators implement recess best practices so the ecology of the whole child can be maximized?

Initial Observations

An inventory was made of the physical outdoor playground spaces. This inventory was based on Google Earth aerial photographs and on established design practices. Google Earth provides current and historical aerial photographs of land areas. It also allows for measurement and eye level view of sites that are not access controlled. It helped the researcher identify and locate the following: open space (grassed, mulched and dirt); buildings; parking, traffic flow and streets; walkways; trees; play equipment; drainage areas; adjacent uses (parks, shopping centers, housing, etc.); utility lines; and site ingress and egress. Observations were conducted utilizing design criteria established by best design practices and state safety and design standards for school play spaces established by Florida law (Health and Safety, 2017; Title XLVIII – Early Learning-20 Education Code, 2022 [Appendix C]). During the charrette the participants created their own inventory. Both the facilitator and participants’ inventories were compiled as part of this data collection process.

Interviews

The interviewees (principal, executive director, and PE teacher) received and signed an informed consent letter (Appendix E). The interviewer and school personnel were fully vaccinated, permitting in-person interviews. The principal, executive director, and PE teacher interviews filled in the gaps regarding outdoor recess practices. While the PE teacher is not involved with recess, he has more experience with how children of all grades react to the outdoor facilities and which areas are utilized, what areas could be improved, and which areas have

conflicts with other uses. The teachers and support staff supervise recess. The PE teacher can observe the students and teachers during recess, but he does not supervise recess.

The interviews were recorded, transcribed (with participant permission), then analyzed through a coding process. The interviews ran from 30-60 minutes and were held in one of two conference rooms adjacent to the school's main office. The interview with the executive director was 36 minutes long and was held in the conference room outside of the main office. The interview with the principal was thirty-eight minutes long and was held in the conference room inside the main office and adjacent to the principal's office. The third interview with the PE teacher was held in the conference room inside the main office. The transcripts of the interviews were coded, and themes emerged with priori hypotheses based upon the research questions. Within several days following the interviews, the interview transcripts were coded, and themes developed were developed based on the research questions and the information garnered from the interviews. Quotations were utilized to support the development of each theme. See Appendix F for the list of interview questions.

A Google Earth aerial photograph of the school (Figure 2) was utilized as a visual aid during the interviews. The interviewees utilized this aerial photo to identify the areas they were discussing. The participants in the charrettes were not supposed to know how the interviewees responded during the interviews. One of the reasons the interviewees did not participate in the charrettes was to allow the participants to express their views without worrying about the position of the administration. However, the data from the interviews was utilized when the facilitator created the conceptual and final plans.

Recruitment and Selection of Faculty Participants

The Executive Director provided a list of faculty she felt would have the time and inclination to participate. Four faculty participants were recruited from grades K-5 based on

availability and willingness to participate and were invited to participate via e-mail. The pandemic has placed many stressors on principals, teachers, students, and parents, particularly those in lower socio-economic populations. To minimize stress on either administrators or faculty, this study was conducted at the end of the spring 2022 semester following state accountability. The faculty participants received and signed an informed consent letter (Appendix G).

Charrettes

Two design charrettes were held with the four faculty participants. The charrettes lasted approximately 60 minutes and were held in a school conference room. The organization of the charrettes followed the design process (Appendix H) utilized by architects, landscape architects, engineers and other designers in their project and research processes. The charrette is a type of participatory action research” (Howard & Sommerville, 2013) that utilizes a multi-faceted team of stakeholders to create a design for a specific space. The charrette process was used to help participants “capture [their] vision, values and ideas” regarding their recess practices and outdoor facilities. The charrette process generates “ideas about the future” (n.p.) and gives stakeholders the knowledge to maintain the process within their school community. The charrette was critical to helping participants create and maintain tangible improvements to both practices and their outdoor play spaces. Two charrettes were conducted in this study.

The charrette process can vary slightly depending on the project and the facilitator. For the purposes of this study the charrette process included the following steps.

First Charrette

The first charrette established a vision for the future of recess practices and the integration of the play spaces into that vision. After a physical exploration of the spaces by the participants, the participants were asked to identify their values regarding recess as part of the

school and individual classroom community. Together the faculty participants and the researcher investigated how to physically alter or add to the recess space. The results of the first charrette were translated into a conceptual plan. The participants reviewed and commented on the conceptual plan during the second charrette and the facilitator/landscape architect revised the conceptual plan to create the final product of the charettes.

The first step of the charrette process was an inventory of the existing facilities and processes. The inventory included a list of the existing individual elements located on the site and the location of various recess elements such as climbing structures and spaces for passive activities such as socializing. The inventory was a combination of site observations and site review by the facilitator and by the participants, using both direct observations and aerial photographs. This portion of the design included a discussion regarding the goals and values the participants had for the project.

The second step was an analysis of the existing facilities. The participants were divided into smaller groups to analyze the existing facilities regarding their positive and negative characteristics. The individual groups combined after approximately 30 minutes to compare notes and develop a master list of the elements of their analysis.

The third step was the program development for the existing facilities. The participants divided into smaller groups and developed a program of the outdoor facility elements they inventoried and analyzed. They decided which of these inventoried and analyzed elements they would add to, remove from, or redesign.

The fourth step was the development of a conceptual plan. Utilizing the program elements, the facilitator/landscape architect developed a conceptual plan showing the location and design of the program elements developed by the participants overlayed on the aerial photograph. This plan may include or reject elements of the program if they do not align with the

goals and values of the participants. The facilitator may also add elements to the design that were not explicitly expressed but were inferred component solutions from the values of the participants.

Second Charrette

Together, the faculty participants and researcher analyzed the potential to add to or alter the existing recess spaces. The results of the first charrette were translated into the final product by the researcher and presented to the participant group in the second charrette. During the second charrette the facilitator presented the conceptual plan to the participants. The participants provided feedback and indicated elements they would delete, add, or move to a different area. Once the group interacted with the plans and began to understand why they were developed, an implementation matrix was created that outlined responsibilities, actions and some of the conceptual budgets needed.

In the final step of the charrette process the facilitator/landscape architect revised the conceptual plan. This plan included a narrative explaining the elements of the plan. This plan was sufficient for moving forward with the implementation process.

Data Analysis

This action research study design included the following:

1. The interviews with the Principal, the Executive Director, and the PE teacher which were coded from the transcription of the recordings. Themes were developed from the coded transcription.
2. The first charrette's faculty volunteers' development of an inventory, analysis, and program for the existing outdoor play space. This included information regarding the location and use of these spaces and created an inventory to be utilized throughout the charrette and design process. The analysis included the existing space and

elements in that space to determine the efficacy of those items and the perceived additions or deletions.

3. The second charrette's faculty volunteers' review of the conceptual plan created by the facilitator that incorporated the results of the first charrette into a physical layout for the space.
4. The creation of a revised conceptual plan. The facilitator re-designed the conceptual plan based on the charrette participants comments and the coding from the three interviews. This design also incorporated items that research indicates should be included based on best practices.

Combining the results of the interviews and the charrettes helped to create a more comprehensive plan that included the values of both faculty and administration. Data generated from the on-site observations and interviews were analyzed by the researcher to determine the consistencies and inconsistencies between perceived existing conditions and the implementation of recess at the school. This information was analyzed using a priori hypothesis on current research including best use practices (Qureshi, 2020). The results of this analysis helped the facilitator understand how the school's recess policies and practices were perceived by the interviewees and the charrette participants.

The themes derived from the interviews were developed from similar answers given by the interviewees to the interview questions. The interview themes helped participants in the second charrette formulate a plan for future and outdoor space utilization. The translation of this data into a conceptual plan aided the participants in analyzing and critiquing the conceptual plan.

Positionality

My professional training and experience as a landscape architect combined with my educational background provided an understanding of the connections between outdoor play and

the success of the whole student. As a landscape architect I have a unique perspective on how the spaces children move through and are surrounded by impact their view of their world. Through action research I wanted to guide the school's educational leaders in determining how their understanding of their outdoor spaces can broaden and expand.

I chose to pursue an EdD based on the Carnegie Project on the Educational Doctorate, whose framework includes focusing on “questions of equity, ethics, and social justice to bring about solutions to complex problems of practice” (National Association of Professional Development Schools, 2021). One of my goals as an educational leader is to create a system that helps elementary school educational leaders analyze their existing recess facilities to determine how they could be improved to better fulfill the benefits of recess outlined in data providing best practices.

Action research was best suited to the concept of the recess as part of the ecology of both the child/student and the school. Action research was also well suited to my training as an educator and a landscape architect. My work as a landscape architect focuses on practical as well as aesthetic solutions to problems. Principals are faced with many issues whose solutions appear to conflict. I have developed expertise in how to minimize the effects of multiple conflicts and help participants and professionals work together to develop solutions.

Rigor/Credibility, Trustworthiness/Reliability, Validity

Utilizing action research focusing on collaboration and connection throughout the study process helped ensure reliability. Collaboration allowed checks and balances regarding participants' personal views versus the views of other participants and the final consensus. The use of open-ended interviews of administrators, on-site observations, and the utilization of two charrettes helped ensure the credibility and trustworthiness of this study. Copies of the interview transcriptions were made available to interviewees for review and verification. In addition, the

expertise I have developed in observation through both my education and experience as a landscape architect helped establish the trustworthiness of the on-site observations. This training included an understanding of the process for designing and maintaining a quality play space.

Chapter Summary

This action research study was designed to aid faculty at one school, and educational researchers generally, in the creation of a template for ongoing review and revision of their recess practices and outdoor play spaces. The use of the design charrette as part of the action research process enhanced the participants' ability to fully analyze the effectiveness of their recess practices and facilities and its incorporation into the ecosystem of the school, with the goal of "leading a group of action researchers toward a greater awareness of their own practice[s] in their own institution" (Robertson, 2006, p. 307). This action research was an example of providing a path for educational leaders to determine "emancipatory practices" (p. 307) that will lead to the successful development of the whole child.

CHAPTER 4: FINDINGS

The purpose of this study was to help an elementary school's principal, executive director, PE teacher and faculty leaders develop a process for analyzing their school's outdoor spaces regarding recess and unstructured play as a part of the overall ecosystem of the school. This qualitative study utilized Bronfenbrenner's (1977) BTHD to help establish a basis for a healthy school ecosystem.

Data and Analysis

The data indicate the faculty participants, principal, executive director, and PE teacher are very supportive of outdoor unstructured recess and the potential for improving both the space and procedures already in place. It also indicates the process used in this study can be applied to similar schools. However, there are concerns regarding the implementation of the conceptual plan. However, as described in Chapter 1, state funding for outdoor recess facility improvements does not exist. While state inspectors review the facilities for safety violations there are no funds budgeted for repair or replacement (Appendix D). The funding for outdoor play space improvements is the responsibility of local school boards and the individual schools.

A Google Earth photograph (Google, n.d.) was used during the interviews to allow interviewees to physically reference different areas under discussion (Figure 2). An overlay diagram (Figure 3) is provided to areas referenced during the interviews.

Figure 2

Aerial Photograph of School



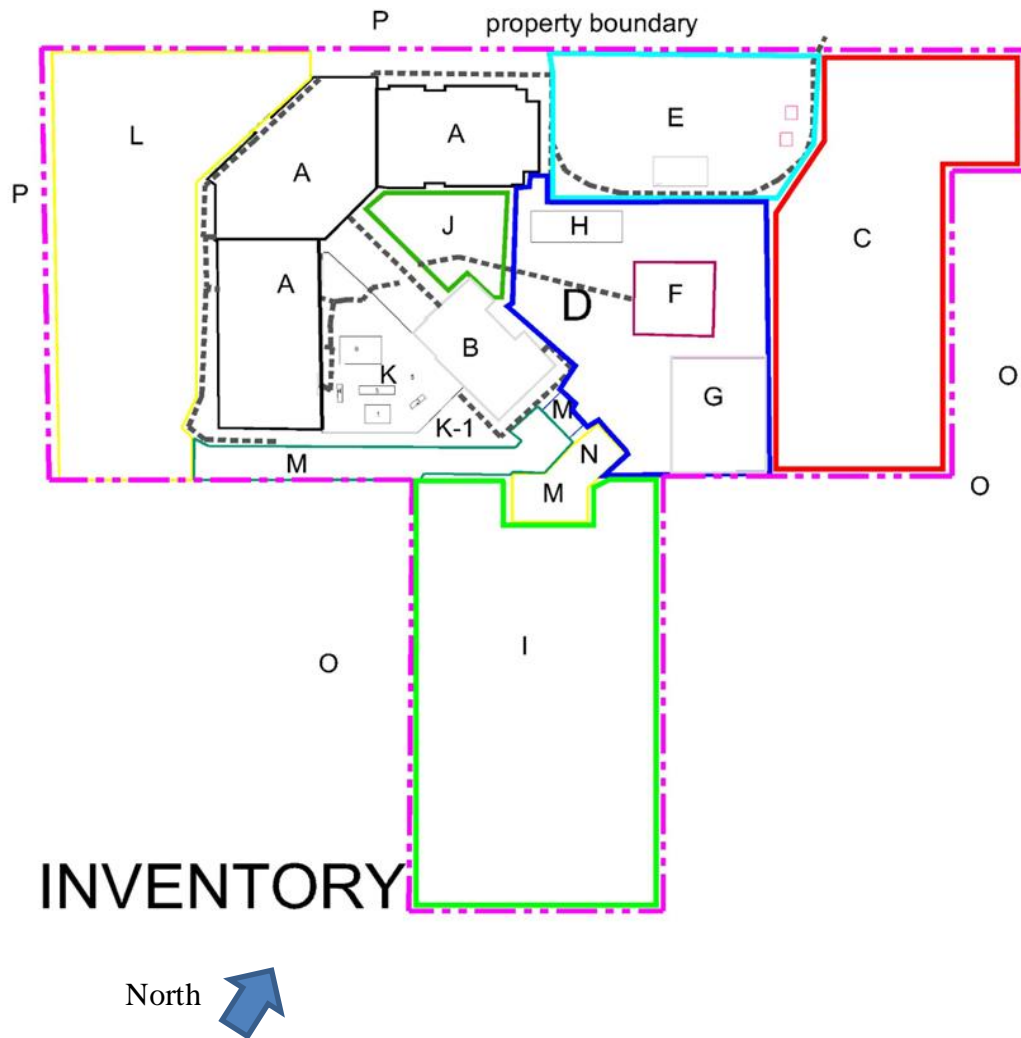
Google Earth 07/21/2021

North



Figure 3

Inventory of Existing Outdoor School Spaces



Research Question 1

How do the faculty and administrators at an urban PDS perceive recess and play as a part of students' school day and curriculum?

Three themes emerged. First, recess is considered a part of overall whole student physical health and mental wellbeing. Second, recess is a part of developmentally appropriate practice. Third, outdoor recess has several benefits for both students and faculty (Table 1).

Table 1*Themes, Codes, and Quotes for Research Question 1*

Theme/Definition	Code	Quotes
Recess as part of attaining overall whole student physical health and mental wellbeing	Recess is an important part of students' day. Moving body, clearing mind	"The teachers are good about taking their kids out. If anything, we have to tell them not to keep them out for so long." (Principal)
Recess as part of developmentally appropriate practice and an important part of whole student development	Recess impacts cognitive development, emotional development, social development, and academic success. Being outdoors is good for students and teachers	<p>"Recess is a time to get their bodies moving and make healthy choices. We have struggled a little with getting kids moving." (Principal)</p> <p>"Provides exposure to nature and the outdoors."</p> <p>"Getting outside helps with whole child development." (Principal)</p> <p>"Recess makes them better at being able to play and do active things with friends, collaborate, be a teammate." (Principal)</p> <p>Recess is a time for working on interpersonal skills and how to get along". (Principal)</p> <p>"I would like an outdoor stage. Something that's fun for kids if they want to hangout. It could be a place for outdoor learning – a multi-purpose space." (Executive Director)</p>
Recess as an important part of the school curriculum.	Good for teachers – helps with SEL (Social Emotional Learning)	<p>"It's good to get outside and move your body especially during the time of high stakes (standardized) testing with the climate in education there are standards in education. Getting outside helps with testing success." (Principal)</p> <p>"Recess helps student prepare for their future." (Executive Director)</p>

Recess as Part of Attaining Overall Whole Student Physical Health and Well Being.

Both the principal and the executive director are concerned with the overall health of their

students and encouraging physical activity is part of the overall school strategy. However, the PE teacher has a more holistic, ecological view of the students. He teaches all the students at least once a week, and he is concerned that the students do not have healthy habits. He observes some of the students eat candy or hot chips or Cheetos™ for breakfast, and they are tired and cannot stay awake during the day. As the PE teacher said, “It isn’t just Phys. Ed. or recess, it’s lifestyle that has to be incorporated into the entire day of school”.

According to all three interviewees, the only time students can be physically active is during recess, which they have for 20 minutes 4 times a week, and during PE class which they have for 45 minutes once a week, on the day that they do not have recess. According to the PE teacher, for many students this is the only time during the day they can experience the outdoors and to exercise. He indicated that many students do not or cannot take advantage of physical activity opportunities after school.

The PE teacher noted that the layout of the outdoor spaces can either help or limit the physical activity part of that experience. For example, the only area to have relay races is in the delivery drive where there can be a conflict between deliveries, garbage pickup and parking.

Recess as an Important Part of Developmentally Appropriate Practice. While the principal felt strongly that recess should be unstructured, he indicated:

Recess still needs to be structured and managed – you still supervise the students. But give them free choice for what they are doing within the confines of rules. [These rules include safety, timing, and access]. We should allow them to know what is acceptable.

The executive director was enthusiastic about recess and its impact on students’ development. She said that the format of recess must be fluid to meet student’s and teachers’ needs. “Recess”, she says, “is a work in progress”. That is, both she and the principal said it is important to review recess practices to ensure the social, emotional, and cognitive needs of the

students are met. For example, both the principal and executive director believe that the disruption in school caused by the COVID pandemic was responsible for poor recess behavior due to students' lack of group physical activity for almost two years. A more teacher-directed recess policy was instituted. However, ideally, play during recess should be unstructured (Ramstetter & Murray, 2017).

Recess as an Important Part of the School Curriculum. Recess, according to the executive director, is a time when students can work on their interpersonal skills without worrying about the stress of tests or class. The executive director focused on how their school prepares students for their future. She feels that recess uniquely:

...benefits a student's moving forward (to sixth grade and beyond). You would hope, especially if they go to middle school and don't have recess, they will miss the physical activity...and outside experience.

Curriculum is often viewed as limited to what occurs within the walls of a school, particularly the classroom. Whitson (2008) expanded the definition of curriculum to encompass a kind of ecosystem, "the course of experience actually lived by a particular person, in which school curriculum may be understood as just one sector in the integral curriculum of (a person's) life" (p. 866). This expansion of definition is consistent with Bronfenbrenner's BTHD.

While the administrators and PE teacher of this urban PDS viewed recess as an important part of the school day, they did not describe it as part of a curriculum. For example, the PE teacher said that "recess is personal, part of kids' overall health". This view was reiterated by the

principal, who stated that teachers liked taking the kids outside. Recess provides a “variety of enriching experiences” which is a tenet of the school’s mission statement.

Research Question 2

What challenges do faculty and administrators face when trying to implement outdoor recess and play for their students?

Three themes emerged regarding this question: lack of variety of existing outdoor spaces, concerns over how weather affects recess, and concerns over how safety issues affect outdoor recess (Table 2). All three interviewees voiced their concerns about safety, lack of variety and weather negatively impacting recess.

Table 2

Themes, Codes, and Quotes for Research Question 2

Theme/Definition	Code	Quote
Lack of variety in existing outdoor spaces	Play structure (in Area D) is too small – can’t accommodate number of students	“There are your trash cans, your dumpster ...and your basketball right there (behind the cafeteria) It’s gross and it’s a crummy basketball goal”. (Executive Director)
Concerns over how weather affects recess	Hot weather can cause dehydration Lack of shade Protection from rain	“You just boil outside.” “There could be more shade.” “I want a space where PE and recess can be held rain or shine – that has shade.” (Executive Director)
Concerns over how safety issues affect outdoor recess success	Must use bus loop and delivery area by dumpster for basketball and relay races. Multi-uses Better space design Safety Improvements	We see a lot of kids struggle with how to be a good sport: how to get along”. (Principal) “Some of the teachers have more structured play during recess – because we have had some behavior problems”. (Principal) “If you are a teacher supervising (recess) you pretty much need to be over here (Area I – field) The way (view) is blocked (between Areas D and I) “. (Executive Director)

Lack of Variety in Existing Outdoor Spaces. The first theme concerns the lack of variety in the outdoor space. Most of the outdoor space consists of open unpaved grassy and dirt

areas. The interviewees noted there is little shade and few places to sit or play quietly. Additionally, the space behind the cafeteria houses the dumpsters which affect its safety and useability. This space is used for running games and basketball. Deliveries and traffic compete with the students' use of this area. This is one of the areas where teachers and teacher assistants could not see or properly supervise all the students. The three interviewees were very concerned about the condition of large field 2 (Area I, Figure 3) which is approximately 60,000 sq ft. While all three interviewees commented on the poor condition of the field, the principal's observations were more extensive:

The field [needs to be] graded out. I played outside in the mud all the time (as a kid). I don't want them to do it here, though – ha ha! The field gets soggy and muddy over in that area and they can't go out that way. I would invest in making this field available for different things—right now it's limited. I would grade this field because it's never been brought up to par as far as being leveled...it's potholes and holes.

According to the PE teacher, if this field cannot be used, highly physical activities cannot occur. He noted that the field is the only space that allows for play activities such as football, basketball, soccer, and races or running. In addition, he agreed with the principal that the field's condition, even when dry, is uneven and not conducive to optimal sports activities due to potential injury.

The executive director and PE teacher highlighted the lack of variety of spaces and activities which limited passive and creative play. There is a lack of shade that creates a comfortable space for those activities to occur. The executive director said she would like to see areas developed for creative play and socialization.

Concerns for How Weather Affects Outdoor Recess Success. The principal was most concerned about ensuring the recess schedule is followed and wanted to mitigate the impacts of

weather. He has scheduled recess for 20 minutes, 4 days a week for every class in grades 1-5, while pre-K and kindergarten classes get 40 minutes a day. He stated that recess should be as much a part of the school day as math or language arts. He was concerned that some teachers skipped recess due to weather conditions.

The interviews revealed general concern regarding the elements (heat, cold, and rain) impacting the efficacy of recess in the current outdoor space. Northeast Florida averages 47.6 inches of rainfall per year. The number of rainy days in 2021 was 120 (Current Results: Weather and Science Facts, 2022). The average temperatures range from 54 degrees to 86 degrees Fahrenheit (weather.gov). The interviews did not include questions regarding the parents' views on the outdoor play facilities. However, the PE teacher stated that parents are concerned about heat stroke and proper hydration, even though the students do not often complain about being outside. He said it is rare for students to miss recess or PE due to the heat. Students have water bottles they bring out to recess, but he would like to have shaded water stations where the students can take a break. The PE teacher believed more shade areas would motivate some of the students to resist sitting out so often. He indicated that students do not complain about the heat prior to going outside, but once they are outside some of the students say

I'm hot so I don't want to do anything now 'cause I'm hot', but if there were some areas to be in a shaded area, then I can say, okay, some shade, then go back and join in the game.

All three interviewees believe it is important to protect children from sunburn. The principal noted excess sun exposure exponentially increases the chance of developing skin

cancer as adults. According to data, 80% of skin damage from exposure to ultraviolet rays occurs prior to 18 years of age, so their concerns are warranted (Jindal, A.K.et al. 2020).

The PE teacher expressed excitement about outside PE classes, “I can definitely tell you that that the school is very strongly behind the policy of being active.” However, he is also concerned about the condition of facilities, including the poor condition of Area I (Figure 3) which supports outdoor activities such as soccer and baseball. He noted that weather issues were a barrier to providing variety on the playground:

The school supports kids being active, [but] the students need motivation to move their bodies. It’s hard sometimes. Weather is an issue. It’s [often] too hot or cold or raining. We are really big on the outdoors and the kids are big about going outside.

Concerns for How Safety Issues Affect Outdoor Recess Success. During the interviews and charettes, the administrators and the staff noted that safety was a concern. Safety issues can be framed in two ways – safety of the physical environment and safety regarding peer-to-peer interactions and poor sportsmanship.

Poor behavior, often involving safety issues, is a recess challenge for the administrators and teachers. Sometimes teachers withhold recess as punishment for misbehavior. While this strategy is frowned upon by the administrators, sometimes recess continues to be withheld for bad behavior.

The principal is concerned about students’ behaviors on the playground. Although he supports unstructured play at recess he indicated:

Some of the teachers have more structured play [during recess] and we are encouraging that right now because we have had some behavior problems with the kids. It is a work in progress. We see a lot of kids struggle with how to be a good sport; how to get along.

According to the principal, there are several other safety issues regarding the school's outdoor facilities. The executive director supports the principal's concerns regarding poor behavior during recess, but she is more concerned about the lack of outdoor space planning and safety. One of the results of the poor layout is that teachers find it difficult to keep up with the students' location outside. Pointing to the two play areas behind the cafeteria and between the two classroom wings, and the service area behind the cafeteria, she discussed the conflicts between uses:

There are your trash cans, your dumpster right off the cafeteria and there's your basketball goal right there [behind the cafeteria]. The basketball goal is in the parking lot and that's not the best situation. It's gross and it's a crummy basketball goal so that doesn't work. But they use it, but it's terrible. I feel like they just climb on top of the play equipment [instead of using it]. There is a physical barrier [dumpster and large storage container] so you can't see both areas at the same time. A person can't manage both at the same time.

The executive director believes the areas separated by the dumpster and the large storage container cannot be seen or managed by one person. The principal reiterated this position, saying:

If I can change everyone to embracing and understanding it is their responsibility to watch and see [both play areas] because of the big container which is an impediment to the teacher providing the best supervision. If there was one thing [to improve the space] ...maybe an emergency button – a more efficient way of responding to emergencies.

Safety of the play equipment and outdoor facilities falls under the purview of the principal, executive director, and PE teacher, and it is mandated by state requirements for all schools including charter schools (Appendix D). This requirement includes maintaining all

outdoor play spaces and equipment and keeping them in good repair. Play spaces and equipment are subject to state inspection. The state also requires that any additions to the play space must take maintenance of that space into consideration. It is important to note that the state provides funds only for maintenance of facilities that were part of initial construction. Generally, if a piece of equipment is broken or in disrepair, there are no funds to replace or upgrade. It is therefore removed and not replaced.

The PE teacher said that he was creative with using the existing outdoor spaces to fit the PE classes' needs. He uses the bus loop for games such as races, chalk games, ball games, and field day, and the delivery road for relay races. However, he acknowledges that using spaces that are intended for vehicular usage creates safety concerns. The delivery, parking, storage, and dumpster area located behind the cafeteria is also used for basketball. Area D (Figure 3) is located between the cafeteria and the retention pond (Area C, Figure 3). Area D (Figure 3) is used for first through fifth grade recess and PE. It contains a large play structure that is unshaded, a portable classroom, a garden area and some open dirt and grassed area. Area I (Figure 3) is located at the easternmost portion of the school property. It contains an open field with a natural grove of trees and is used for higher levels of physical activity than Area D, such as soccer, football, baseball, and other field sports. During inclement weather, the cafeteria is used for recess and PE. The principal is cognizant of weather issues regarding recess. He schedules PE, recess, and lunch to avoid conflicts if indoor recess or PE are necessary.

During his interview, the PE teacher mentioned that the school provides breakfast, lunch, and afternoon snacks for the students and dinner for the students who qualify. He asserted that some students come to school eating "junk food". While the interviewees did not mention the childhood obesity epidemic in the United States, the PE teacher expressed concern for students' health and weight.. The school, according to the PE teacher, has become a center for healthy

living for its students. As a result, recess and the school's outdoor facilities take on a more important role in the overall health of its students.

The PE teacher said that the students did not often complain about playing outside and that it was rare that the students missed recess or PE due to the heat. He, the principal and executive director are concerned about protecting the students from sunburn and heat stroke.

Research Question 3

What suggestions do faculty and administrators have regarding structure, design, and utilization of outdoor play spaces to support teaching and learning?

Three themes that addressed this research question emerged from the interviews: improve the variety of spaces and activities, create more nature contact, outside consultation for effective recess practices (Table 3).

Table 3*Themes, Codes, and Quotes for Research Question 3*

Theme/Definition	Code	Quote/Notes
Improve the variety of outside spaces and activities	Better space design Safety improvements Expand spaces to include outdoor classrooms Create multipurpose spaces	“Good space design creates a space for kids to naturally say ‘I need a time out’. I wish we had an aimasium. I wish we had a better space layout.” (Executive Director)
Create more nature contact	Expand use to include outdoor classroom Being outdoors is good for students Moving body Clearing mind	“Getting outside helps (with whole child development).” (Principal) “It’s good to get outside and move your body especially during the time of high stakes (standardized) testing. With the climate in education there are standards in education. Getting outside helps with testing success.” (Principal)
Outside consultation for effective recess practices	Teacher exposure to current data on recess Teacher exposure to current data on whole child development Teacher access to current data on best recess practices and space development	“It would be a good idea to have) someone to come in and say the same things that I’ve been hearing at conferences or in leadership.” (Principal)

Improve the Variety of Outside Spaces and Activities. The principal, executive director, and PE teacher all recognized the need for an all-weather covered outdoor facility that provides shade and protection from the elements. The school does not have an indoor gymnasium. In inclement weather the PE teacher uses the cafeteria (with the tables pushed back against the walls) which, due to scheduling, limits his PE time to morning hours. The lack of a designated space with designated equipment also inhibits recess during inclement weather or forces teachers to have recess or PE in the individual classroom.

The interviewees spoke about using existing areas such as the bus loop, the exterior perimeter along the fence, and the delivery driveway as a track or walking path. The PE teacher

suggested that a track for relays, running, and walking be added to the grassy field area to create an additional variety of activities.

The PE teacher had had experience at other schools in previous summers. He was asked to teach hip hop dance during the summer at another school. He was concerned about the heat until he discovered they had a pavilion which he said reduced the effects of the heat and the sun. An airnasium (open-air gym, Figure 4) would be multi-purpose and would be the PE teacher's first addition to the school's outdoor facilities. When the executive director was asked what her first addition would be to the play space, she answered, "I want an airnasium, I want an airnasium, I want an airnasium". The principal's first wished-for addition for outdoor facilities is also an airnasium. The airnasium would provide an area where students can take a break from physical activity.

Figure 4

Typical Airnasium with Bathrooms, Storage and Water



Note: Langham Creek Family YMCA, Houston, TX

Source: Google Images

All three interviewees and the charrette participants agreed the best location for an airnasium is the field in Area I (Figure 3) located behind the cafeteria. To construct the airnasium, the field's grading and drainage issues would have to be addressed. The airnasium would take up approximately one-quarter of the field in Area I. It would be approximately 190 feet X 70 feet, or 13,400 sq ft of floor space, and 28' in height. The size of the structure would likely be limited by the local zoning requirements and development requirements.

All three interviewees and the charrette participants wanted more shade than would be provided by the airnasium. They felt there should be shaded areas distributed throughout the outdoor spaces.

All three interviewees were concerned about poor sportsmanship or bullying. However, while the executive director and the PE teacher believed the solution to behavior issues was a more structured recess, the principal saw an opportunity to create spaces that helped students

deal with recess issues. The principal wanted a space design that provided kids with a quiet space for them to go when they feel they need a time out. He believed a well-designed play space can minimize or eliminate bullying and poor sportsmanship.

Research Question 4

How can faculty and administrators implement recess best practices so the ecology of the school can be maximized?

Two themes that addressed this research question emerged from the interviews: extend the activities indoors into the outdoors and the outdoors indoors and improve the perception of outdoor space utilization for unstructured play (Table 4).

Table 4

Themes, Codes, and Quotes for Research Question 4

Theme/Definition	Code	Quotes
Extend the activities indoors into the outdoors and outdoors indoors	Tie recess time and indoor activities and outdoor activities overall student and school success Outdoor activities should be promoted by teachers and administration Clearing mind	“The facilities should have dual purpose Being outdoors is good for students. The school (administration and teachers) strongly support students being active.” (PE teacher) “Our principal is really big on (students being outside).” (PE teacher)
Outdoor space utilization for unstructured play	Rules for recess, anti-bullying etc. are necessary, but unstructured play expands creativity.	“Unstructured time (play) outdoors allows for running around, being active, jumping, just letting go, provides time to chill.” (Executive Director) “Recess makes them better at being able to play and do active things with friends, collaborate, be a teammate. (Principal) “Recess is a time for working on interpersonal skills and how to get along”. (Executive Director)

Extend Activities Indoors into the Outdoors and the Outdoors into the Indoors.

According to the executive director, there is no suitable transition or physical markers informing students they are moving between indoor and outdoor facilities. For example, if a game has

ended and there is a disagreement regarding who won, there is no time provided, no process, and no established path to return to the building allowing students to work out their argument. The PE teacher and the executive director believe student discord could be mitigated by extending PE class from 45 minutes to 60 minutes and having recess every day. The PE teacher also believes if there were more time, students would be encouraged to increase physical activity and take time to create rules for the games they play and create during recess.

The PE teacher stated that he spent too much time walking entire classes back and forth to the restrooms. The extra time would help keep non-PE activities from reducing the physical activity time at PE. The PE teacher suggested the addition of a restroom outside or better access to the indoor restrooms would save time. A sidewalk system tying the outdoor spaces together would help minimize student travel time.

The executive director believes that the airnasium could help with the indoor/outdoor relationship, not only for students, but for faculty and supervisors:

The airnasium gives you an outdoor space you could teach in. Teachers who want to take their class outside could have their lesson outside in it. We could have summer camp, team building, parents' night out – there's just a million things you could do in it. I would love to see kids outside as far as teaching and student engagement which is going to be a big focus for next year.

The airnasium would also allow recess and PE to occur during mild inclement weather and provide a shaded space for unstructured play. Indoor-outdoor carpet squares could be available for students to create their own games, create areas to socialize, build structures with provided materials such as boxes.

Outdoor Space Utilization for Unstructured Play. Unstructured time outdoors allows for children to express themselves and create their own activities (Jarrett, 2002). According to

the principal, unstructured play activities during recess “helps the students perform better academically”. Data supports this view. Ramstetter and Murray (2017) indicated that recess positively affects academic progress.

The PE teacher said,

There needs to be a sense that being outside is a part of healthy living [and being outside] is a connection between keeping yourself physically fit through healthy activity and healthy life choices.

One of those choices is making connections with the natural outside world. The principal stated a similar view during his interview:

Outdoor connections make them [students] better at being able to play and do active things with friends, collaborate, be a teammate. Recess is a time for working on interpersonal skills and learning how to get along.

The executive director concurred. Some of her fondest memories of her own childhood and her own children playing on a creatively designed playground:

There is a playground in Cashiers, North Carolina that has monkey bars. The children climb up the slide – they don’t necessarily do what you are supposed to do on the playground. They play chase. Unstructured play is about choice and being able to follow an interest or a passion. It’s about not being told what you have to do or what you have to be interested in. It doesn’t mean the students are not supervised.

This theme arose repeatedly throughout all three interviews. All three interviewees were particularly concerned with extending the time students spent outdoors and improving the outdoor facilities to meet students’ needs and interests. All three believe that recess is an important part of the school’s curriculum, but they also believe the longer they spend outside the more protection they need from the elements.

Charrettes

Four female faculty between 30 and 50 years of age accepted the invitation to participate in the design charrettes. The participants included the instructional coach, reading coach, student support services director and the resident clinical faculty member. The group appeared to be motivated and excited about the opportunity to participate. They all agreed that recess was an important part of the school day, for both students and teachers, and it positively impacted learning and social interactions between students. The charrettes were held at 3:00 during after school hours in the conference room immediately across from the main office at the main entrance to the school.

Charette 1 (Inventory, Analysis, Program)

The facilitator/researcher told the teachers they would be working together to inventory the existing elements of the school's outdoor spaces, analyze those spaces for their highest and best use for recess purposes, and create a program for the outdoor space to increase the efficacy of their recess time. The participating teachers agreed that the existing outdoor recess facilities are insufficient to meet the needs of the students and the teachers. The teachers were separated into groups of two and were asked to create an inventory and analysis of the school's existing outdoor spaces. They were asked to identify which spaces were utilized for which purposes. They were provided with a scaled aerial photograph from Google Earth™ and were asked to mark and label these areas with a black or red Sharpie™. They made a list of the additions they determined were needed for the outdoor space and outlined general areas of those spaces. Once they completed these tasks, they were asked to analyze these areas in terms of efficacy.

Upon completion of the inventory and analysis, the sub-groups were brought together as a whole group and were asked to develop a program (highest and best use) for the different areas on the site. They were asked to list these elements in terms of perceived importance and to

discuss why those elements were important. At the conclusion of the first charette, the participants were told the facilitator would take their program and the codes from the interviews and create a conceptual plan for their review and comment during the second charette.

Inventory. The teachers inventoried the existing outdoor spaces. The facilitator added some descriptive language to help create a clearer picture of the existing facilities. The inventory is shown on the site map in Figure 5 (reproduced from Figure 3 for convenience). The areas were inventoried as follows.

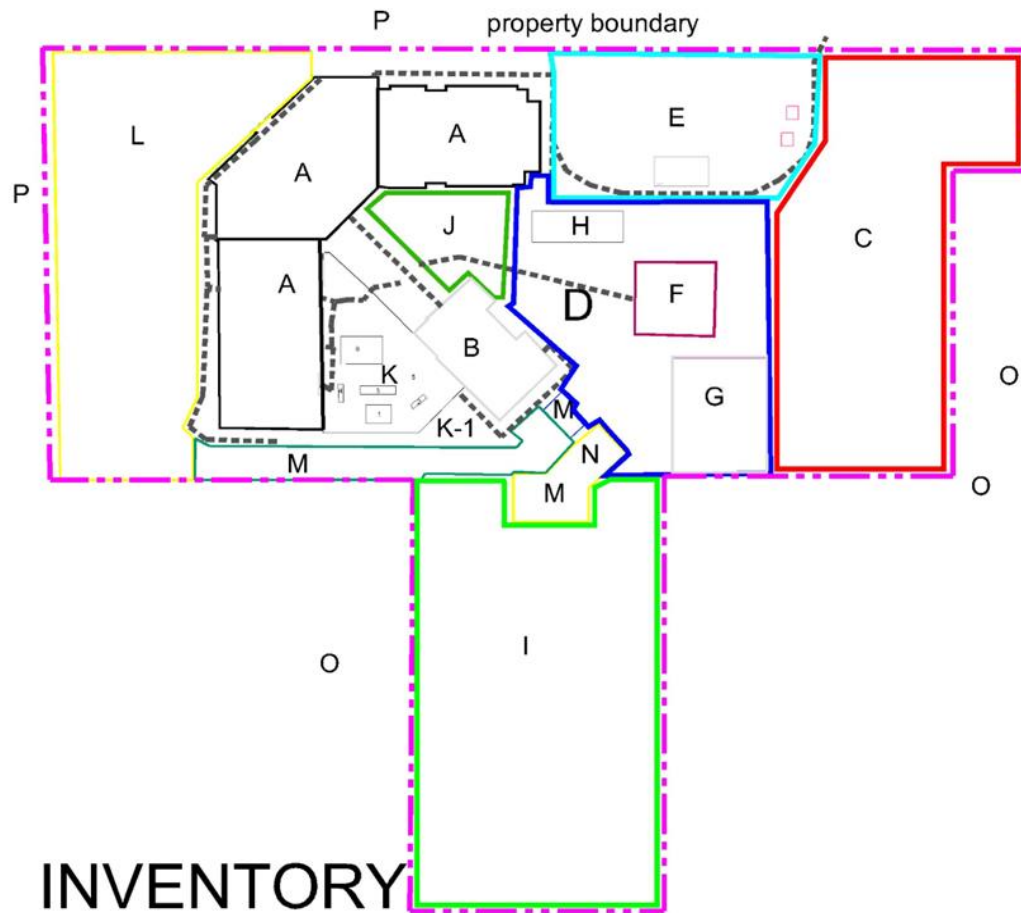
Area A: Classroom and administration buildings. The school is laid out in a V shape. It consists of two classroom wings with the administrative area located in the center.

Area B: Cafeteria (5599 sq ft). The cafeteria is located between the classroom wings. It is used for lunch, PE classes during inclement weather, and as an auditorium.

Area C: Drainage/retention pond. Located at the south end of the school grounds, this retention pond holds storm runoff and is a requirement of the construction permit from both the local and state agencies. A 52" high black aluminum fence surrounds the pond.

Figure 5

Inventory of Existing Outdoor School Spaces (Repeated for Convenience)



North 

Area D: Open field 1 (57,473 sq ft). The field is used for first through fifth grade outdoor play area. It is in the northeastern part of the property, north of the northern class wing and west of the cafeteria, and is bordered by the school, a road, the retention pond, and a small, wooded area that is within the boundary of the school property. It is primarily an open space consisting of Bahai grass and dirt. Areas E (bus loop), F (play structure), G (Garden and Passive Activities), and H (portable classroom) are contained within the boundary of Area D.

Area E: The bus loop (21,850 sq ft) and is in the northern section of Area D, is used for bus drop off and pickup. It has an ingress and egress that are gated. A 52" fence runs between the street and the bus loop that is also connected to the perimeter fence. The bus loop is also utilized during the school day for recess and PE activities. The driveway is constructed of concrete and has a United States map and 2-four square games painted on it as well as relay races. The island in the center of the loop, consisting of Bahia grass and dirt, is also used for games and relay races. Seven live oaks in various stages of health and growth are located along the bus loop. Concrete sidewalks of varying widths connect the bus loop to the school.

Area F: This 2700 sq ft area contains the existing unshaded play structure for the first through fifth grades and is in the center of Area D. It is primarily a climbing and sliding structure. There are no swings in this area. The variety of play within this area is limited, particularly when compared to the pre-K-K playground. It is primarily utilized as a climbing structure and as a home base for games such as tag.

Area G: This area is in the northeast corner of the school property. It contains a large live oak and other shade trees and is utilized for activities such as reading or lounging with friends. It also houses a communal garden which is approximately 6499 square feet. The garden is constructed of raised wooden planters.

Area H: This area contains a portable classroom whose dimensions are approximately 70 feet x24 feet.

Area I: This 60,000 square foot area is located along the south edge of the school property. It consists of a large field that is used for unstructured play and organized sports during recess. It is also used for PE classes. The field is often inundated with stormwater during and after periods of heavy rain. This is the largest open area on property. A wooded area along the northern end of the field provides shade. The tree canopy includes southern red cedar, slash

pinus, live oak, southern red maple, and other species. The delivery area (considered part of this area) is located behind the cafeteria and the delivery drive runs along the southern classroom wing. The delivery pad has a basketball hoop that is used during recess and PE. The delivery area driveway is utilized for relay races during recess and PE when there isn't a conflict with food deliveries (which occur approximately three times a week, according to the PE teacher). A large portable storage container and garbage dumpsters are located behind the cafeteria adjacent to the basketball goal. The delivery driveway and concrete pad are also used to park cars. Outdoor play Areas D and I are separated by a portable storage facility, the delivery area, and large commercial trash receptacles.

Area J: This area is used for outdoor eating. It includes a larger (7228 square foot) area which transitions from the covered walk from the main building to the cafeteria. The larger area is heavily treed with oaks that provide shade to the picnic tables scattered underneath. It leads to an area of transition between the school building and open play area (Area D). The transition area consists of some Bahia grass and bare dirt where a path has been worn to the active play areas. Area J also contains a smaller unshaded paved area that is used for outdoor eating. It is attached to the south side of the cafeteria and is accessed from the cafeteria entrances and the walkway connecting the administration and the classrooms to the cafeteria.

Area K: This pre-K-K playground (9218 square feet) is located between the cafeteria and the south classroom wing. Gates are located at the door to the south wing and accessing the overhead walkway that connects the body of the building to the cafeteria. The playground is triangular (which fits the space the space that is available between the cafeteria and the pre-K-K wing). A concrete sidewalk approximately 5 feet wide runs along the perimeter. A 4-foot high fence runs along the outside of the sidewalk and the playground. A small overhead structure is located at the northern end of the playground. Benches underneath the structure allow the

teachers to sit in the shade and watch the children. A swing set with three swings is offset from the center of the playground. The center of the playground is covered by 5 to 6 inches of black rubber mulch except where the children's feet have dragged at the base of the swing set. A prefabricated plastic play structure in the center of the playground is primarily a climbing structure, but it also has a slide on the west side. "Rocking horses" on springs are scattered throughout the area. The area also contains some loose parts such as balls, tricycles, etc. The Pre-K-K students have a minimum of 40 minutes of recess, 20 minutes in the morning and 20 minutes in the afternoon. Two classes use the playground at a time. Nine live oaks, 12 to 18 feet tall, are located around the playground.

Area K-1: This area is an unused open space. It is located adjacent to the delivery drive, the cafeteria and the pre-K-K playground.

Area L: This area contains parking for administration, teachers and guests and is located on the western side of the school property. It has landscaping, including live oak trees and crepe myrtles. Sidewalks lead to an access-controlled entrance. It is not accessible to the students during school hours except for parents to drop off and pick up their children.

Area M: This area contains a basketball hoop and is utilized for deliveries, overflow parking and handicapped parking.

Area N: This area is used for storage for items such as chairs and tables for extra-curricular activities such as parents' night.

Area O: These areas consist of the adjacent residential, commercial, and vacant property.

Area P: This area contains the dumpster and is located behind the cafeteria.

Area Q: This area consists of the streets that are adjacent to the school.

Transitions: The only structured exterior transition hardscape (elements constructed of manmade permanent material) are the covered concrete sidewalk leading from the main building

to the cafeteria, the bus loop sidewalk, and the sidewalks connecting the buildings to each other and the exterior parking areas. All other transitions are awkward and non-distinctive. For example, to access the fields, students must walk through the cafeteria or along the west side of the cafeteria through the grass and dirt and around the storage/dumpster area to access the large field behind the cafeteria (Area I). The participants and the PE teacher believe that a series of walkways and transitions are necessary to reduce the negative aspects of recess, specifically bullying and poor sportsmanship. Visual cues such as an array of trees or different colors painted on the sidewalk can alert children that they are getting closer to the classroom and should transition their behavior (Smith, 2002).

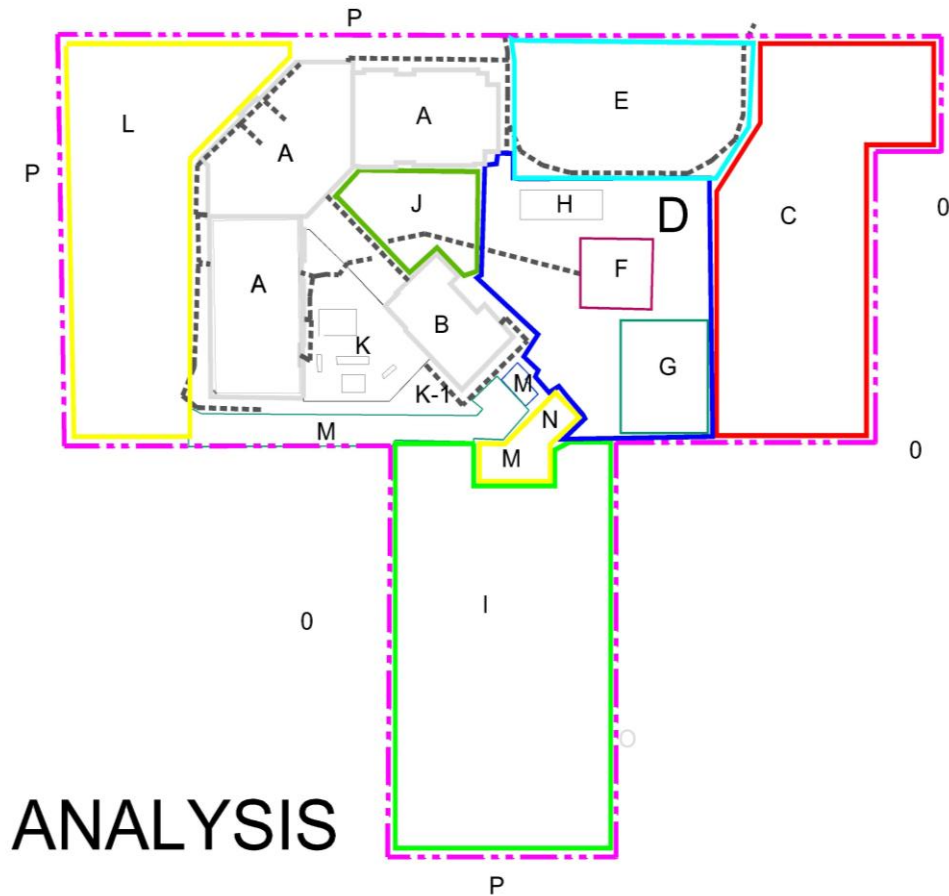
Analysis. This analysis was the result of the first teacher charrette and input from the facilitator/researcher. Figure 6 is a diagram of the results of this analysis.

All participants in the charrette were satisfied with the overall size of the outdoor facilities. There is a large vacant property north of the retention pond, but no one felt it necessary to add this as an extension to school property. The participants all believed there were areas that needed to be added, altered, or expanded. Areas A and B are the existing school buildings and while there are connections and transitions between the indoor and outdoor facilities, only the location of the building and their connections to the outdoor facilities are germane to this study.

Areas A, B, and L: These areas house the school buildings and parking respectively and were not altered as part of these charrettes, but their juxtaposition is an important part of the analysis of how they currently relate to each other and to the outdoor spaces. The buildings are the hub of the campus and the interconnections to the outdoor spaces are important.

Figure 6

Areas Identified during the Inventory Stage of the First Charrette



North 

Area C: The pond/retention area is a spot of interest for the students. They enjoy watching the birds, turtles, and fish. The teachers thought this could be designed to be utilized not only for passive play at recess, but for science and maybe math lessons which would help create stronger connections to the activities inside the classroom. The participants agreed that an overlook connected by a walkway to the play structure would be of sufficient size for use as a passive play area and outdoor classroom.

Area D: Open Field 1 is not very well laid out because there is no relationship between elements and no connections to the elements within this space. The design should incorporate connectors such as sidewalks and newly planted trees to tie all the elements together. This area contains patches of dirt and spotty grassed areas. The bare spots should be re-seeded with Bahai grass and watered in.

Area E: Since there is no conflict during the school day except for drop off in the morning and pickup in the afternoon, this bus loop could remain in use for recess and PE. The students use both the four-square board and the U.S. map during recess. Data show that the use of playground markings such as four-square can increase the physical activity of students during recess (Stratton & Mullan, 2005).

Area F: While only several years old, this first through fifth grade prefabricated play structure is inadequate to meet the needs of the students. The current design of the structure allows access to only a small number of students who use it to climb under and over. There are typically approximately thirty students at recess (two classes from the same grade) and the structure and the surrounding base hold approximately ten students. The teachers participating in the charette believed that the structure and base could be expanded to allow for more passive or semi-passive activities such as four square and chalk painting and could be used for outdoor classes. All interviewees and charrette participants agreed the play equipment needs a shade structure. An overhead structure could be added to cover both the structure and the base material to allow for various activities and creative play. They also want more seating around this area, as well as around the pond, the garden, and the large live oak near the garden.

Area G: This garden area is currently used only by the student garden club which uses the garden boxes to grow vegetables. Expanding the area to include an amphitheater for multi-purpose utilization, including an outdoor classroom area, would create a better indoor/outdoor

relationship and would encourage students to utilize more of the available outdoor space. Adding a shade structure and benches to this area would encourage use for unstructured play.

Area H: There are no physical connections between this portable classroom, the surrounding area, and the classroom/administration building and cafeteria.

Area I: Open field 2, according to the charrette participants, is often muddy and wet, and is poorly graded. Since this is the largest area available for active play, the teachers would like to add an airasium close to the building. The access to this area is cumbersome, occurring through the cafeteria or beginning at the sidewalk connecting the main building with the cafeteria and working through grass and bare dirt around the cafeteria to the field/delivery area. This is the largest open area and would be ideal for organized sports, games, and meetings if the environmental problems were rectified. The wooded area could be utilized for play, science classes, strolling, exercise and a variety of activities if natural understory debris were cleaned up.

Area J: This area provides two spaces for outdoor eating. One is attached to the south side of the cafeteria and is heavily treed with oaks, which provide shade to the picnic tables scattered underneath. It leads to an area of transition between the school building and the open play area. The transition area consists of some Bahia grass and bare dirt where a path has been worn to the active play areas. The picnic tables located in the treed area adjacent to the walkway between the main building and the cafeteria are haphazardly located and have no transition to the cafeteria. In addition, the tables are single-use oriented. This area is the only naturally shaded area immediately adjacent to the buildings and could have multi-purpose use. A sidewalk through the shaded eating area to the cafeteria outdoor eating area could be created through the grassed/dirt area adjacent to both eating areas. Bahia sod could be added to the sides of this area and temporarily watered to establish the sod. This would add another area for the students to sit and eat their lunches and create an additional outdoor experience.

The second eating area is accessed from the west side of the cafeteria and the walkway connecting the administration and the classrooms to the cafeteria. It consists of picnic tables and is located on a concrete slab. The only shade comes from the building wall.

Area K: There was not much discussion regarding this pre-K-K playground. There was, however, a consensus that there was not enough shade over the play area. Observations by the facilitator indicated that the swing set took up a disproportionate amount of the area. While data indicate that swinging can aid with important aspects of a child's development (Trautner, 2018), only four children can swing on the swing set at a time. Playground swings are available that occupy a smaller footprint and are safer for both participants and other children playing in the area (Figure 7).

Area K-1: The teachers believe this would be an excellent area for the development of an outdoor teachers' lounge. There would need to be a fenced area to protect it from the traffic of the delivery area and view of the dumpster. It could be utilized for outdoor lunchtimes and small group meetings.

Area L: The parking area will remain in its current condition.

Area M: The delivery area would no longer be used for basketball. The participants agreed that this area would be utilized for deliveries, storage, and dumpster storage only. The cross-utilization of this area was determined to be less than ideal. A basketball court could be built on part of open field 2.

Area N: This area would continue to be utilized for storage based on the needs of the school. However, it could be re-located to allow for better flow between the two fields.

Figure 7

Example Swing Set Design



Note: Swing Set and Image from Miracle Recreation

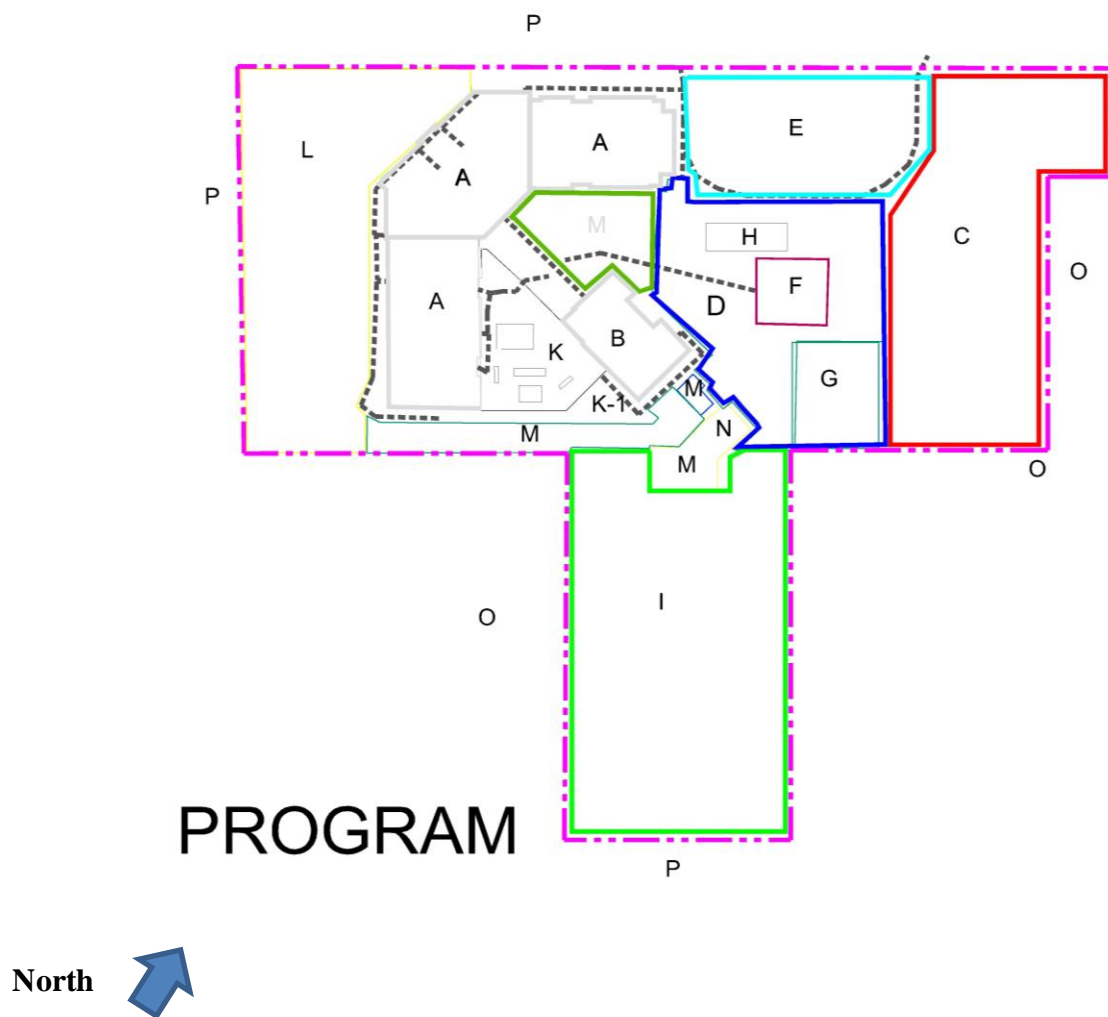
Program. A design program is a list and description of items that a group chooses to include in the development of conceptual and eventually final plans. The faculty participants were told to let their imaginations run wild in creating a program that would meet their and their school's needs and dreams for the outdoor play spaces. The four faculty participants, both in their sub-groups and when they met as a whole group, determined it was important that the design and utilization of the space be multi-purpose. This statement, which was backed up by the principal, the executive director, and the PE teacher, became the unifying thread of the plan. This is a strong connection between Bronfenbrenner's BTHD and the design process inherent to the

charrettes. The group believed that creating multiple-use spaces will help create a strong connection between indoor and outdoor activities.

The program developed by the teachers (Figure 8) included the following:

Figure 8

Program for Existing Outdoor School Spaces Developed by Charrette Participants



Area C: Both the executive director and the charrette participants noted the students' interest in the natural environment surrounding the pond/retention area. The participants stated that students often sit along the existing fence and watch the ducks, geese, turtles, and other wildlife in the pond. Adding a wood deck structure with composite decking (for splinter

control) and an aluminum railing would allow for passive observation and serve as an adjunct to science curricula centered around natural ecosystems. A shade structure area such as a wooden arbor or sailcloth would allow for longer time periods in this area. Such a deck would be consistent with Bronfenbrenner's BTHD, which connects the success of a child with the quality of their surrounding environment. This program element improves the quality of the students' nature contact.

The lake edge could be planted with native plants that create a littoral zone. A littoral zone is "a shallow down-sloping shelf of a lake or pond. It is an area where the water meets the land. Plants here support wildlife such as wading birds, turtles, and crabs. Littoral zones are crucial components of healthy ecosystems" (University of Florida Institute of Agricultural and Food Services, n.d., n.p.). The perimeter could be planted with native plants well adapted to water environments such as Black Willow (*Salix nigra*) or Bald cypress (*Taxodium distichum*). This design for this area would also create an environment for outdoor science and math classes, a reading area, and a place for students to interact in a quiet, peaceful environment.

The pre-K and kindergarten students have a designated enclosed playground, which is a state requirement. They will not be utilizing the wood structure around the pond. In addition, the structure and fencing will meet all state safety requirements.

Area D: including Open Field 1, the following were included as part of
Area D:

- Area E: The bus loop can continue to be utilized as an outdoor play space.
According to Stratton and Mullan (2005), markings should be utilized in outdoor play areas. These markings can include:
...castles, dragons, clock faces, mazes, fun trails, dens, hopscotch, letter squares, snakes and ladders, and various animals [which are] consistently

popular in early primary schools. Late primary schools [could] include markings for netball, football, and short tennis, and targets for games related skills. (p. 829)

According to the facilitator, these markings can be painted with outdoor paint or applied as waterproof appliques.

- Area F: The school has a grant for a shade structure for the existing prefabricated play structure. However, the design of the design of the existing structure allows access to only a small number of students who use it to climb under and over. Play structures do not generally encourage a variety of play activities especially those involving unstructured play (Herrington & Brussoni, 2015, Lee et al, 2020) Creating opportunities for diverse forms of outdoor play is the “optimal approach for ensuring children maintain their play as intrinsically motivated, purposeless and fun” (Herrington and Brussoni, 2015, p. 478). The space should be expanded and designed to allow free choice in play activity. “Natural play spaces are among the most versatile venues for strengthening the link between children’s health and development and play” (Herrington and Brussoni, 2015, p. 478). The surface around this play structure should be expanded to allow for more passive or semi-passive activities such as four square and chalk painting. The fixed structures area is designed not only to allow for physical activity, but also for creative play. However, playscapes consisting of berms, grass, dirt, and other landscape elements are better suited for unstructured play. The teachers also want seating and additional shade around this area. If possible, some of the seats should be mobile.

- Area G: This design should create areas for multi-purposes uses. The garden area should be expanded to include a small greenhouse that can hold 10-15 students and a butterfly garden. The faculty wanted additional garden boxes. The teacher who runs the garden club would like to expand the program to grow vegetables that could be taken home or eaten as part of the school lunch. The faculty would also like to add a butterfly garden which could be used as a tool for science classes and art classes. The participants would like additional material such as concrete or mulch added to the perimeter to encourage a variety of activities and creative play. Adding shades areas and benches in this area would encourage use for a variety of unstructured play as well as gardening useage.
- Greenhouse: Adding a greenhouse in conjunction with the garden area would allow for growing vegetables all year long. It could also be incorporated as part of science and art classes. The PE teacher is concerned about the poor eating habits of his students. According to Skelton et al. (2020, n.p.), “garden-based interventions show promise for improving not only child nutrition, but other indicators” including academic achievement and increase in physical activity.

Figure 9 shows an example of a greenhouse that is reasonably priced (around \$4,000) and would fit into the space designated by the charette participants.

Figure 9

Greenhouse Example



- Amphitheater - An amphitheater (Figure 10) was proposed for a location adjacent to the garden area with the live oak tree at the base of the stage/podium area. It could be used for creative activities such as creating and performing plays and could include seating that can be used for climbing and jumping. The amphitheater area would also be bermed (raised and sloped) with dirt and structure that will help with visibility and activities. The participants indicated they predict this area will also be utilized for teacher, parent, and community meetings. They also indicated it could be used as an outdoor classroom, which would create a better indoor/outdoor relationship.

Figure 10*Amphitheater Example*

Source: Sierra Foothill School Finishes

Area H: There should be a permanent sidewalk that leads from the portable classroom to one of the school entrances. A sidewalk should be added to connect the covered walkway that leads from the main building to the cafeteria to the portable classroom.

Area I: All charette participants, the principal, executive director, and PE teacher wanted to include an airnasium for open field 2. It should be located close to the cafeteria and main building for easy access to bathrooms. Based on the available space, the suggested size could be 102 x 70 x 28 ft. It could contain basketball goals and an open-air half court adjacent to the airnasium. The PE teacher indicated that outdoor bathrooms would make both PE and recess more effective by limiting trips back into the building. The airnasium could include bathrooms and outdoor water stations as well as storage for outdoor play equipment and other loose parts such as balls, outdoor art supplies, games, and boxes. The airnasium could include lighting for

nighttime activities as well as storage for chairs to be used for outdoor classes, meetings, and other activities. The airnasium could also be used for activities such as outdoor and indoor games, as an outdoor classroom, summer activities, parent meetings, teacher meetings, art projects, music projects, family engagement, PTA activities, etc.

The long dimension of the airnasium would run east west and the back would be located closest to the delivery area (Areas M and N). Benches would be located around the perimeter, providing seating for supervision and for students who want to watch, read, or participate in other passive activities. Additional shade trees should be planted around the perimeter and various plants should be planted for student enjoyment and utilization for science classes. A sidewalk/jogging path with exercise centers and an area for relay races would be designed around the perimeter of this area. The PE teacher and executive director commented on the need for separating the maintenance spaces from the play spaces. The field would require regrading and drainage to maintain flexibility of use. The facilitator suggested the installation of a bio-swale zone (Figure 11) which would provide an area to which to direct the runoff from the field which currently has drainage issues, as discussed both in the interviews and the charrettes. Bioswales can mitigate drainage issues. According to Merriam-Webster dictionary (merriam-webster.com), a bioswale is “a long-channeled depression or trench [that] has vegetation (such as grasses, flowering herbs and shrubs)” (n.p.), usually native plants well suited for wet conditions. The bottom of the bioswale is typically rock and gravel, which allows for conveyance of stormwater and the slow water infiltration and filtration of pollutants. Maintenance is relatively

minor, usually blowing out leaves and debris from the bottom of the swale and yearly trimming of surrounding plant material.

Figure 11

Example Bioswale at Amos Herr Park Playground, East Hempfield PA



Area J: This heavily treed area, located between the north side of the cafeteria and the northernmost wing of the school building, should be re-designed to allow for multi-purpose usage. New seating could be moveable and allow for utilization as an outdoor classroom area, reading areas, or meeting area. The heavy shade creates a cool, quiet environment that provides an enclosed, safe feeling for passive activities. It should remain a shaded eating area, but the tables should be multi-purpose. It could be utilized for art, music, and outdoor classes. The outdoor eating area adjacent to the treed area could be incorporated into this area. The ground plane is currently mulch, which could remain in place. A concrete sidewalk could be added through this space for transition to the more active play areas. Area K: This pre-K-K playground

needs additional shade areas and seating in other areas. It is well laid out; however, the swing set could be updated to reduce its footprint.

Area K-1: The charette participants chose this triangular area, located behind the pre-K-K playground fence that is bordered by the cafeteria wall and the delivery driveway, for the outdoor teachers' lounge. The participants wanted an area where teachers and staff could enjoy the outdoors and take a break from their day and the students. The space should contain lounge chairs, an overhead structure such as an arbor, ceiling fans, a lattice fence along the driveway side, and potted plants hanging from the fence. The floor should be pervious pavers or concrete to allow for drainage. This outdoor lounge was an interesting decision for the first addition to the existing facilities. The idea of self-care for the faculty is important. This area was originally the most important area the faculty wanted to develop. During the second charrette, they changed their order of preference, putting the airnasium first. This was due to the diversity of use of the airnasium.

Charrette 2 (Concept Plan Design Review)

During the first charrette the participants reviewed their inventory of the existing physical elements of the school's outdoor play facilities. They also determined which of those elements appeared to work successfully, which were not successful, and which could be approved. They developed a program from the compiled list including the location and connections of the program elements. A conceptual plan was developed by the facilitator/designer based on the data gathered from the themes and the first design charrette.

Two weeks after completion of the first charette, a second charette was held. All four participants met for the second time. The facilitator presented a scaled aerial photograph overlaid with the conceptual plan of the outdoor play space, This plan was utilized by the charrette participants to review their input and add or delete elements of the design.

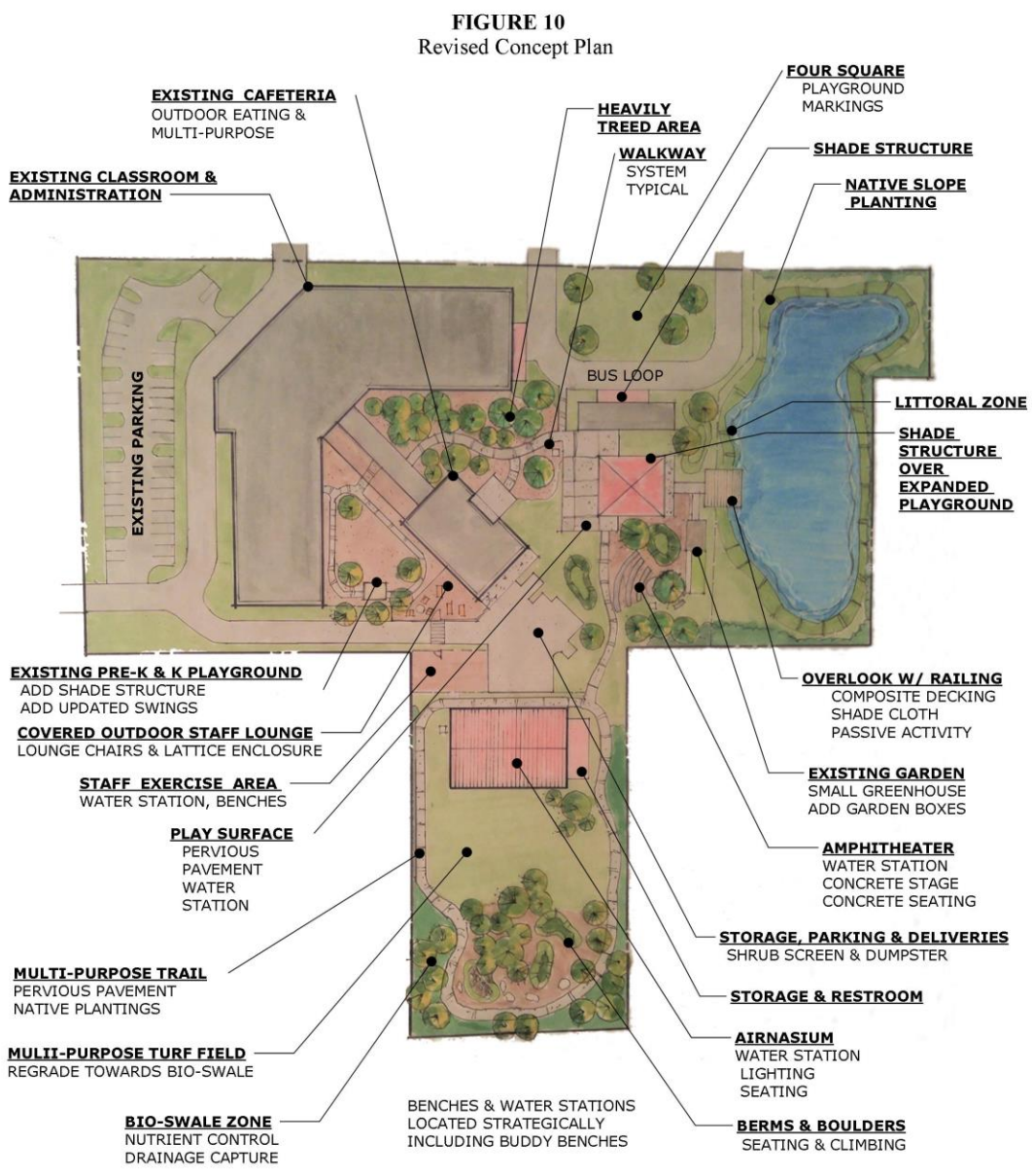
The conceptual plan was revised during the second charrette by the participants with input from the facilitator (Figure 12) and included the following elements:

Airnasium: During the first charrette, participants' priority was a faculty lounge where they could eat their lunch and take breaks. But in discussion following review of the conceptual plan, the charrette participants agreed that the airnasium would meet the needs of students, administration, parents, and faculty and the needs of the entire school ecosystem including the shade requirement, protection from inclement weather and a place to gather. The school does not have a gymnasium and their review of the school grounds revealed there was enough space for an airnasium and still have room for all the outdoor activities in which the principal, the executive director, the PE teacher, and the interviewees are interested. Workout stations, which could be utilized by students, teachers, and parents, are also shown along the walkway located around the field that contains the airnasium.

Faculty lounge: This remains important to the participants. The participants indicated they "are stressed" from the effects of teaching through COVID and high stakes testing. They believe if faculty do not have a restorative, self-caring break, they cannot provide the healthiest experience possible for the students. If faculty have an outside space for themselves that is well designed and meets their needs, they said they would want to spend more time outside.

Figure 12

Revised Conceptual Plan **North** 



Faculty exercise/workout area: Another area designated for faculty self-care, a workout area would be located adjacent to the cafeteria for ease of access and would be fenced with a locked gate so it would be for faculty use only. It would include a surface conducive to yoga, Pilates and working out, and a small storage area for weights. This area was created because of discussions during the second charrette. It was not mentioned during the first charrette.

Conflict avoidance, dissolution, and resolution: Areas should be added to allow students to take a break from other recess activities. These areas should be calming, containing seating such as benches, shade, and a calming design. Programs could be designed to teach students and teachers how to manage and avoid conflict. The principal and the executive director were particularly concerned about creating a method of mitigating conflict including training faculty in conflict resolution. Some of these programs could be held in the areas that have been designed for conflict resolution. This was discussed in depth by the principal and the executive director who stated that recess had become more structured because of behavior issues.

Art project area: This area will be located near the garden area and will allow faculty and specialists to bring students to work on art projects. The fences along the perimeter could be utilized to display students' and faculty artwork.

Natural elements: Incorporate logs, boulders, and other natural elements throughout the outdoor space to encourage taking breaks and socializing. This was an addition by the facilitator based on the suggestions by the teachers during the second charrette.

Garden: The garden area should be expanded to include a greenhouse and butterfly garden. This was mentioned during the second charrette and was an expansion from the first charrette's comments. The butterfly garden was added to the plan by the participants during the

second charrette. The participants indicated that a butterfly garden would help the dwindling butterfly population, and could be utilized for academic classes, art, and meditation.

Variety: Add water play, a canvas cover, and more nature contact in the pre-K-K playground. The water play area was added to by the faculty during the second charrette.

Accommodations: Add play elements that enhance the outdoor experience of special needs students. This was mentioned during the second charrette in the form of a question from the facilitator which was confirmed by the participants. It was not discussed during the interviews or the first charrette. Elements such as sidewalks must meet or exceed Americans with Disabilities Act (ADA) standards and all state safety standards for elementary schools and preschools.

Transitions: Add a sidewalk leading from the connection between the cafeteria and main building, through the treed area, to the portable classroom and outdoor eating area by the side of the cafeteria. Add a sidewalk leading from the outdoor eating area by the cafeteria to the field on the south side of the cafeteria. The sidewalks would be constructed of concrete with leaf patterns stamped into them, or with hopscotch and other games painted on them. None of the sidewalks should be located to interfere with play. The layout of the sidewalk would be a figure eight configuration, tying into a track walkway running along the periphery of the property and tying into the airnasium.

Nature contact: Utilizing design elements such as trees, boulders, native plants, a viewing platform around the lake, walkway through trees, and eating areas under trees will increase the students' access to nature which amplifies the benefits of outdoor recess.

Comparison of Interview and Charrette Results

As noted in the previous discussion, there were more similarities than differences between the views expressed by the interviewee group and the faculty who participated in the

charrette. However, the interviews felt less spontaneous than the charettes. The open-ended interviews generated rich data, but there was a sense of structure. The teachers were more forthcoming than the interviewees, apparently due to the more relaxed nature of the charrette and the fact that the interactions were predominantly between colleagues. The charettes' more social and interconnected feeling was enhanced by the fact the teachers knew each other and appeared to genuinely like each other. The charrette facilitator set the parameters, then removed herself from the process. The participants could then let their imaginations create their ideal outdoor play spaces. They did not have to be prompted to interact or make suggestions. They were welcoming and excited about the charette even after a long day at school. The value of the charette is the shared goal and the camaraderie between participants.

The faculty's participation in the charrette descriptions of the existing outdoor facilities was more detailed and in depth than that of the interviewees. While the interviewees acknowledged the need for more variety in the outdoor play spaces as well as the desire for multi-purpose space design, the charrette participants were more specific. They provided a detailed description of the use of the existing spaces, they suggested additional spaces and equipment, and the locations of that space and equipment helped guide the facilitator's conceptual plan. They also provided suggestions for multi-purpose uses for the suggested spaces.

While the interviews provided strong insight into the school's policy on and commitment to recess, the interviews disseminated information for the interviewer to interpret. The charettes created a physical product the participants could use as a future tool without the input or presence of the facilitator.

Chapter Summary

The semi-structured interviews conducted with the principal, executive director and the PE teacher were transcribed and coded into themes. These themes were consistent with the

charrette results. The results of the coded interviews were incorporated with the results of the charrettes to create a conceptual design. This conceptual design can be used as a guide for the systematic development of the outdoor spaces that will allow the school to continue to review and develop a plan that incorporates the charette design process into the ongoing development of the outside play spaces of the school.

CHAPTER 5: DISCUSSION

The quality and success of unstructured outdoor play in general and recess depends on the quality of its context – the physical space it inhabits, the variety of experiences it affords, and how the students interact with the space, each other, and their supervisors (Ramstetter & Murray, 2017). From a whole child framework, research reveals that students’ academic success is influenced by their developmental growth in the physical, emotional, social, and cognitive domains (Lewallen, et al., 2015). Recess cannot be separated from the curriculum that takes place within the walls of the school building. It is part of what Dewey (1938) called the “hidden curriculum” (p. 255), or the part of the educational process of a school that includes the “interrelationships between the [student] and the social environment and the non-human biophysical environment” (p. 255). It is not explicitly stated as learning goals. According to both Dewey and Bronfenbrenner (1977), the school environment can be viewed as an ecosystem, an organic entity in which every piece affects each other. The unstructured play that typically occurs during recess impacts every other element of a child’s development at school. Recess has been called the “fourth R” (London et al., 2014, p. 53). It is an important part of a child’s social, emotional, cognitive, and physical development. Both the American Society of Pediatrics and the United Nations High Commission for Human Rights have recognized unstructured play as a human right (London et al., 2014). This right is not fully realized if the recess environment is designed and developed to fully support that right.

Discussion of Results

This study arose from a collaboration between the researcher and the school. The school’s faculty and administration identified a need for improved outdoor spaces for recess, play, and learning, needs reinforced by findings from their annual strategic planning. Data revealed the school valued and was putting time into the socio-emotional development of their

students. This included improving students' ability to play, get along, and develop and maintain their physical health. They were supportive of adding outdoor play spaces to enhance their student's whole development.

Further, the researcher, a doctoral student and landscape architect who had long studied outdoor environments, had identified a gap in the research regarding educators' understanding of the value of outdoor recess, how it is implemented, and how a school's exterior grounds and playground layout and design affected the efficacy of recess. The opportunity to collaborate to find a solution to the school's problem provided a real-world opportunity. One goal of this study was to understand the issue—to dig deep and uncover the concerns, needs and perceptions of the administration, faculty about recess, outdoor play and learning. A second goal was to take the participants' responses and help redesign the spaces to best support teachers' and students' needs, with the goal of more efficiently incorporating the outdoor spaces into the school's ecosystem.

The data collected revealed that the school administrators and teachers valued recess and were committed to increasing the time students spent outdoors during school hours. They value and are committed to increasing the social-emotional aspects of outdoor recess including play, getting along, and physical benefits rather than the academic or cognitive benefits. The school's Positivity Project, which helps students learn how to play together, get along together, develop lifelong healthy habits, and build positive relationships, complements the focus on the socio-emotional development benefits of recess.

Guided by a qualitative, grounded theory action research approach, the administrators were interviewed about their perceptions of recess, outdoor play, and the school's environment. Faculty participated in two design charrettes, where they were able to discuss their beliefs about

current practices, challenges, and barriers related to the existing outdoor facilities. While interviewee responses varied depending on their role, several common themes arose.

Based on the participants' responses at every level, best practices for recess and outdoor unstructured play are not always possible. This is due to a number of reasons including pressures of accountability especially during time periods of required state testing. Data indicate that a well-designed outdoor play environment can help ameliorate academic pressure (Lee et al., 2020).

The outdoor environment and grounds were also factors in hindering best practices. For instance, the largest open space was not usable during inclement weather, and often not usable for several days after heavy rains. Some areas used for play were also used for other purposes, such as unloading and trash disposal. A lack of shade and outdoor access to drinking water, as well as a lack of seating and quiet areas for teachers and students, were also problematic. Finally, the existing spaces and access to the areas presented some obstacles with regard to ADA requirements and inclusivity for all students and faculty (Appendix I). This is a conceptual plan, and the construction documents would have to follow all applicable local, state, and federal requirements. The principal was very supportive of the idea of using the outdoor spaces for a variety of purposes in addition to recess and PE, such as outdoor classrooms and meeting spaces. The PE teacher's concern about the students' nutrition and food habits, as well as the school's location in an area with few grocery stores and fresh produce markets were also considered in the design.

Limitations

While key administrators were interviewed, only four faculty members participated in the study. This could be viewed as a biased sample. The executive director indicated that the lack of participation by the teachers was a result of exhaustion from preparing for end of the year

testing. However, the views of the principal, executive director and PE teacher were consistent with those of the charrette participants and the final conceptual plan produced a cohesive and well-laid out plan that could be implemented in phases.

Further, this study did not include interviews with parents, extended day staff, students, or community members. Future research could include more stakeholders. Another limitation was the initial lack of intentionality as to the inclusivity of the play spaces. As the study progressed, it became apparent that student access to the play spaces, especially for those students with exceptionalities, was an issue. Students and teachers/staff with physical disabilities would not have easy access to most of the spaces. Additionally, considerations of the outdoor spaces regarding students who are neurotypical or have medical diagnoses such as attention deficit disorder (ADD) were not initially taken into consideration when talking with the participants. Again, future research should look at how the spaces can be most inclusive of all students and adults using the spaces.

Recommendations

After careful analysis of the data, a redesign of the existing space and suggestions for other uses were developed. As noted previously, recess, at its best, is unstructured (within a framework that ensures safety) and filled with opportunities for students to take charge of their play (Ramstetter & Murray, 2017). Unlike other curriculums, it allows a student to bring in their individual cultural, and intellectual viewpoints while fostering their social-emotional and physical well-being. Through play, children develop spatial awareness, resilience, and persistence. Varying the spaces for different purposes can give students an opportunity to expand their understanding of the physical world and can encourage their imagination and creativity and allows teachers to see the spaces as an extension of the classroom. While not an initial focus of this study, the data revealed that the instructional and non-instructional staff could also benefit

from outdoor spaces designed with their needs in mind. When monitoring the students, the teachers and assistants often had to stand in the sun or move constantly to be able to properly. While all participants expressed the need for an airnasium, it would require some focused fundraising or grant writing. The following are suggestions that start with safety issues, and then optional recommendations from the simplest and lowest cost to the more expensive.:

Recommendation 1: Safety

The dumpster and delivery area for the cafeteria must remain in place, and the teachers who supervise recess need to be able to see the students. For this reason, the utilization of the outdoor space should be divided into two zones – the space around Area D and the space around Area I. The teachers should decide on what days they would like to utilize which areas for recess. This will mitigate the concerns over supervision of both areas simultaneously. An alternative would be to construct or purchase an observation tower that would allow recess supervisors a view of both Areas D and I. If the tower is big enough it can be utilized for science and other classes to get a birds-eye view of the campus and surrounding area.

Another big concern is the lack of shade and the lack of opportunities for students to take a break from activities held in the sun. The planting of native shade trees and the use of prefabricated shade structures would help alleviate this issue. The prefabricated shade structure shown in Figure 13 costs approximately \$5000 (2022 cost). Two structures would cover the existing playground in Area D.

Figure 13*Example of Shade Structure – Hypar Sail**Source: Adventure Shade Structures****Recommendation 2: Additional Seating***

Seating areas which allow for passive activities such as reading, games and observations would be an inexpensive addition to the outdoor play spaces that can enhance the quality of recess and other outdoor activities. The cost of each bench would start at approximately \$350. The least expensive long-lasting material is concrete; however, seating can be constructed of Live Oak trunk sections, concrete blocks, and other recycled materials. The benches could be constructed in partnership with the fifth-grade classes and the local YMCA associated with the school. Alternatively, families could buy a bench with a dedication plaque. The plaques could be created in an art class or painted onto the benches. Some of the seats should be light enough that

they could be moved to different areas of the play spaces. Benches could be constructed out of concrete blocks and wooden pallets as shown in Figure 14.

Figure 14

Example of Bench and Tables Constructed of Recycled Materials



Recommendation 3: Creativity

The environment is often called the third teacher (Strong-Wilson & Ellis, J., 2007). It is important to create outdoor spaces that allow children to express their creative and imaginative side. My childhood best friend and I created an entire town in the woods out of discarded materials we found there. One of the easiest and inexpensive ways of stimulating imagination and creativity is to supply students with loose materials such as boxes and leaves. Utilizing moveable and multi-purpose parts in the outdoor landscape of a school helps children create their own best environment for learning. It gives them an opportunity to participate in the development of their school's ecosystem. Expanding the outdoor play structure and surrounding space by pouring a concrete area outside of the fall zone would provide students an area in which

to utilize sidewalk chalk, add playground markings for games, and create their own obstacle course out of supplied materials such as boxes.

Recommendation 4: Garden Area

Garden boxes begin at \$80 for a prefabricated box from a hardware store. Involving more of the school population in the construction and use of the garden area, including tying into science and art curricula, would increase students' exposure to the outdoor environment. This garden could be multi-purpose including activities such as art projects, science class and projects, math classes, a reading and story center or a combination of uses. The garden boxes could be painted by the students as part of their art class (Figure 15). The cost of these boxes varies. They can be built by parents, teachers, fourth or fifth grade students, or community groups such as the Boy or Girl Scouts or they could be purchased from a landscape supplier. The garden could be divided into different areas to support the following activities that were not mentioned in either the interviews or the charrettes:

Sensory garden area: This area would help with children who are neurotypical, have health issues such as ADHD, ADD, etc. Sensory gardens are "highly important for children [who are neurotypical] to give them the opportunity for free play and choices for exploration and learning" (Hussein, 2010, p. 26). Data indicate that sensory gardens can help reduce aggressive and negative behaviors by creating connections with the planted environment (Blair, 2009).

Class gardens: These gardens can be tailored for individual teachers and class size, culture, and age group. Each grade level could utilize a section of the garden. There are curricula specifically designed to incorporate the garden as part of the whole school curriculum (Blair, 2009). The expanded garden areas can create a learning landscape that can help with "academic, behavioral, recreational, social (increase a sense of belonging), political and environmental remediation" (Blair, 2009, p. 16).

Recommendation 5: Outdoor Learning

Teachers, support staff and administration can use flexible design to create their conception of the ideal classroom. This school, with its relationship with the YMCA, its designation as a professional development and its wonderfully large outdoor campus lends itself to a creative and flexible outdoor environment for the highest and best recess practice.

Recommendation 6: Parking

Add parking for events outside of school hours. The charrette participants, the interviewees, and the facilitator were focused on space design for outdoor activities during school, after school student care and summer camp. The other activities for which the community utilizes the school require overflow parking which would be in the Area I field. During the detailed drawing and implementation stages of the design layout the vehicular access to this field would have to be incorporated into the plan. The vehicular access would be along the northeast corner of the field where the delivery access road and pad are contiguous to this area.

Recommendation 7: Ongoing Professional Development

As mentioned by the principal, ongoing professional development on the maximization of the outdoor facilities and recess would be valuable to the teachers and other educational professionals. One of the areas that could be included in professional development is Developmentally Appropriate Practice (DAP). According to the National Association for the Education of Young Children (NAEYC), DAP should be considered when designing outdoor school spaces for recess. This practice includes methods “that promote each child’s optimal development and learning through a strength-based approach to joyful, engaged learning” (National Association for the Education of Young Children, n.d., n.p.). The charrette process will help educators to ensure the design of their school’s outdoor spaces “help all children achieve their full potential across all domains of development” (n.p.).

Implications

The process presented in this study is one of awareness. It can translate into different physical spaces, into any school urban or rural, public, or private, based on the different nuances of a specific school. It is the individuals who are part of their school's ecosystem and the unique quality of the diversity of each school that utilizes the charrette for developing design solutions to spatial issues. This process can be utilized with or without a design professional facilitator. The facilitator adds more details to the process and provides input of individuals such as the principal or other stakeholders allowing for confirmation regarding the outdoor space utilization.

Utilizing this qualitative evaluation of the schools and the school grounds allows the stakeholders, including administrators, teachers, parents, and students, to improve the quality of their outdoor play spaces. The design process allows the intersection of having the willingness to balance the intersection of students needs with the learning ecosystem, the spatial needs of the school and the developmental needs of the students. These fundamental elements were the basis for this study and can be the basis for the study of any school's outdoor spaces.

Ultimately individual sites have specific space planning requirements. The individualism and diversity of each school presents an argument for creating whole site design solutions that will allow a school to retrofit their outdoor play space needs and wants into their existing facilities.

The charrette with its design process is universal to all areas of design and creativity. It transcends the scale of a space and age group within a school. The process is participatory, and the process allows for continuous review and adjustment. It is experiential based on the values a school develops as the design implementation develops.

Future Research

Future research could include the following:

1. Expand the interviews and charrettes to include students, other teachers, faculty, parents, and other stakeholders.
2. Consider the development of the outdoor spaces to be included as part of the strategic planning process.
3. Expand the scope of the research to include the development of the outdoor space for multi-purpose utilization such as outdoor classrooms.
4. Recruit American Institute of Architects and American Society of Landscape Architects to offer pro-bono services to act as facilitators for schools who request support for the design and development of their outdoor spaces.
5. Expand the concept of recess and the design and development of the outdoor spaces for secondary schools.
6. Create a manual that will help schools conduct their own charrettes and create their own conceptual plans for their outdoor play spaces.

Chapter Summary

While this research was limited in scope, the findings and recommendations are promising. The administration and the teachers and staff value recess and outdoor learning and are committed to adding to and enhancing their outdoor play spaces. Having buy-in is essential. Understanding the barriers, challenges, and perceptions are the next steps, and while other stakeholders' input is important, this research study revealed a great deal. Making the outdoor

spaces more inviting and useful is the first step to ensuring that recess and outdoor learning are seen as an integral part of the school's ecosystem.

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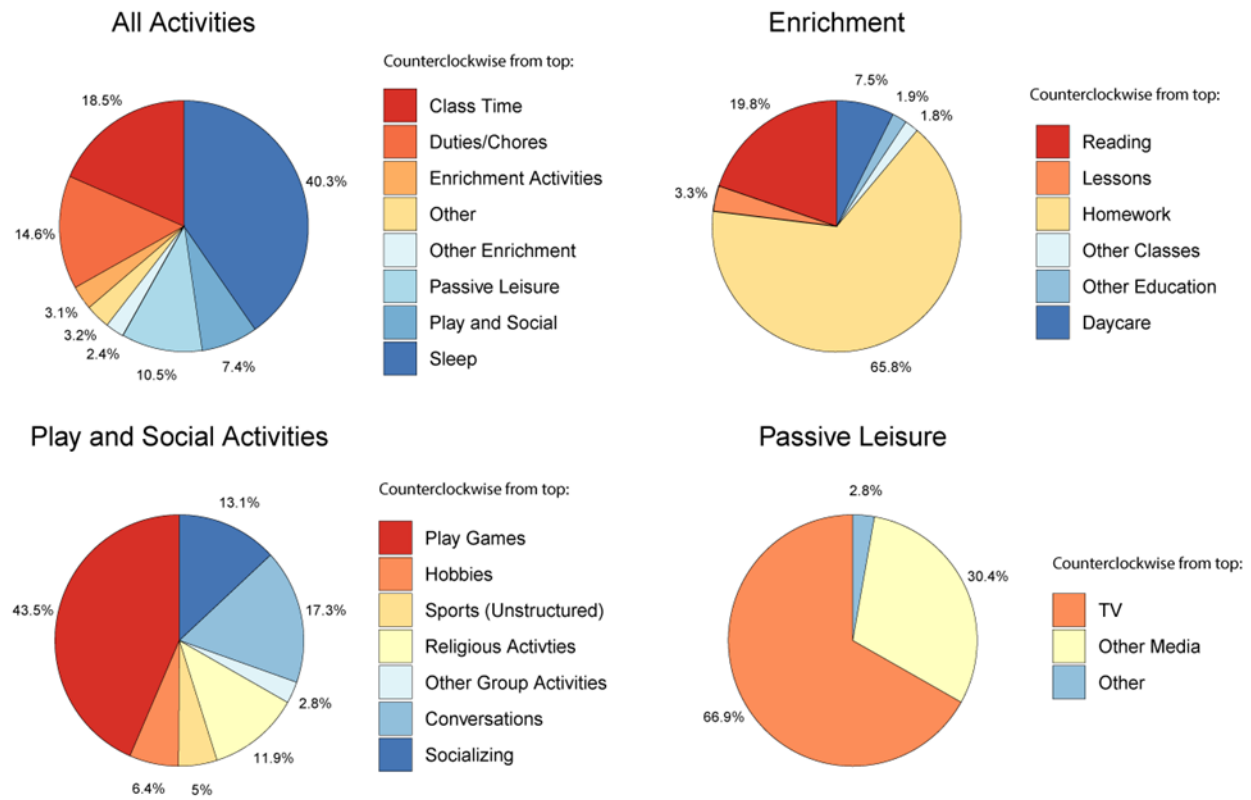
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APPENDIX A: CHILDREN'S DAILY TIME USAGE

(Hall and Neilson, 2002)



APPENDIX B: TYPES OF PLAY SPACE

Designing for Play Affordances

Herrington, S. & Brussoni, M. (2015), pp. 479-480

1. Character indicates the overall feel of outdoor spaces and includes light quality, color differentials and the presence of soft material.
2. Context involves how the play space interacts with its surroundings.
3. Connectivity indicates the physical and visual connectedness of the play space.
4. Change refers to the range of differently sized spaces designed in the play area and how these spaces change over time.
5. Clarity integrates physical and perceptual legibility.
6. The Chance criterion provides an opportunity for children to create, manipulate and leave an impression on their outdoor play space.
7. Challenge refers to the available physical and cognitive challenges that a play space provides.

APPENDIX C: FLORIDA EARLY LEARNING - 20 EDUCATION CODE

The 2022 Florida Statutes

Title XLVIII	Chapter 1003	View Entire Chapter
EARLY LEARNING-20 EDUCATION CODE	PUBLIC K-12 EDUCATION	
1003.455 Physical education; assessment.—		
<p>(1) It is the responsibility of each district school board to develop a physical education program that stresses physical fitness and encourages healthful, active lifestyles and to encourage all students in prekindergarten through grade 12 to participate in physical education. Physical education shall consist of physical activities of at least a moderate intensity level and for a duration sufficient to provide a significant health benefit to students, subject to the differing capabilities of students. All physical education programs and curricula must be reviewed by a certified physical education instructor.</p>		
<p>(2) Each district school board shall adopt a written physical education policy that details the school district's physical education program, the expected program outcomes, the benefits of physical education, and the availability of one-on-one counseling concerning the benefits of physical education.</p>		
<p>(3) Each district school board shall provide 150 minutes of physical education each week for students in kindergarten through grade 5 and for students in grade 6 who are enrolled in a school that contains one or more elementary grades so that on any day during which physical education instruction is conducted there are at least 30 consecutive minutes per day. Beginning with the 2009-2010 school year, the equivalent of one class period per day of physical education for one semester of each year is required for students enrolled in grades 6 through 8. Students enrolled in such instruction shall be reported through the periodic student membership surveys, and records of such enrollment shall be audited pursuant to s. 1010.305. Such instruction may be provided by any instructional personnel as defined in s. 1012.01(2), regardless of certification, who are designated by the school principal.</p>		
<p>(4) The requirement in subsection (3) shall be waived for a student who meets one of the following criteria:</p>		
<p>(a) The student is enrolled or required to enroll in a remedial course.</p>		
<p>(b) The student's parent indicates in writing to the school that:</p>		
<p>1. The parent requests that the student enroll in another course from among those courses offered as options by the school district; or</p>		

2. The student is participating in physical activities outside the school day which are equal to or in excess of the mandated requirement.

(5) Each school district shall notify the student's parent of the options available under subsection (4) before scheduling the student to participate in physical education.

(6) In addition to the requirements in subsection (3), each district school board shall provide at least 100 minutes of " This requirement does not apply to charter schools.

History.—s. 4, ch. 2004-255; s. 19, ch. 2006-301; s. 3, ch. 2007-28; s. 2, ch. 2008-94; s. 49, ch. 2017-116.

APPENDIX D: STATE OF FLORIDA SCHOOL PLAYGROUND SAFETY
REQUIREMENTS

Florida Senate - 2014

SB 1614

By Senator Sobel

33-01328A-14

20141614__

1 A bill to be entitled

2 An act relating to playground safety; providing a

3 short title; providing definitions; requiring new and

4 existing playgrounds open to the public to comply with

5 specified national safety standards and guidelines;

6 requiring inspections of playgrounds by certified

7 playground safety inspectors; requiring counties and

8 municipalities to post certain playground safety

9 information on their websites; authorizing counties

10 and municipalities to require permits and charge fees

11 for construction or renovation of certain playgrounds;

12 prohibiting use of state funds for construction or

13 retrofit of playgrounds unless the playground meets

14 certain safety requirements; prohibiting appropriation

15 of state funds after a specific date to operate,

16 maintain, or supervise playgrounds that do not meet

17 safety requirements; providing an effective date.

18

19 WHEREAS, the United States Consumer Product Safety

20 Commission estimates that every year more than 200,000 children

21 are injured severely enough on playgrounds to necessitate a trip

22 to a hospital, and

23 WHEREAS, the United States Consumer Product Safety

24 Commission also estimates that between five and fifteen children
25 die annually as a result of dangerous or defective playgrounds,
26 and

27 WHEREAS, according to the American Academy of Dermatology,
28 one in five Americans will develop some form of skin cancer
29 during their lives and so designing play structures to provide
30 or create shade opportunities is essential to protect children's
31 skin from the sun, and

32 WHEREAS, other states have playground safety laws, but
33 there are currently no laws in Florida to prevent these
34 tragedies, and

35 WHEREAS, the Legislature intends for all playgrounds in the
36 state to be safe for children by requiring that playgrounds open
37 to the public comply with national playground safety standards
38 from ASTM International, formerly the American Society for
39 Testing and Materials, and with national safety guidelines from
40 the United States Consumer Product Safety Commission, NOW,
41 THEREFORE,

42

43 Be It Enacted by the Legislature of the State of Florida:

44

45 Section 1. This act may be cited as the "Playground Safety
46 Act."

47 Section 2. (1) DEFINITIONS.—As used in this section, the
48 term:

49 (a) "Certified playground safety inspector" means an
50 individual who successfully completes the program requirements
51 for certification as a playground safety inspector by the
52 National Recreation and Park Association.

53 (b) "Public playground owner" or "owner" means an entity
54 that provides a playground open to the public and includes a
55 subdivision, park, school, apartment complex, hotel, motel,
56 resort, campground, office, hospital, shopping center, child
57 care facility, homeowners' association, or restaurant. The term
58 does not include a foster home, group home, or family day care

59 home.

60 (c) "Park" means all public and private property
61 specifically designated as being used for recreational purposes
62 where children regularly congregate.

63 (d) "Playground" means an indoor or outdoor area designated
64 for children that has one or more nonmechanized structures,
65 including swings, seesaws, stationary spring-mounted animal
66 features, rider-propelled merry-go-rounds, climbers, slides, and
67 surfacing material. The term does not include improved outdoor
68 or indoor areas intended for use as an athletic playing field or
69 court.

70 (e) "Public agency" means the state or a county,
71 municipality, special district, or other political subdivision
72 that builds or provides playgrounds open to the public.

73 (2) PLAYGROUND STANDARDS.—

74 (a) Effective July 1, 2015, all new playgrounds open to the
75 public that are built or installed by a public agency or a
76 public playground owner shall conform to the playground safety
77 standards set forth by ASTM International, formerly the American
78 Society for Testing and Materials, in standard specifications
79 F1292, F1487, F1918, and F2049 and the playground safety
80 guidelines set forth in the Public Playground Safety Handbook
81 No. 325 published by the United States Consumer Product Safety
82 Commission.

83 (b) A public agency or owner of a playground that is open
84 to the public on July 1, 2015, shall have a certified playground
85 safety inspector conduct an initial safety inspection no later
86 than July 1, 2016, for the purpose of aiding in compliance with
87 the safety standards and guidelines. A written inspection report
88 may serve as a reference for the public agency or public
89 playground owner for whom the report was written, but it is not
90 intended for any other use or purpose.

91 (c) Effective July 1, 2015, equipment or components of
92 existing playgrounds that are added, replaced, or modified shall
93 conform to the playground safety standards set forth by ASTM

94 International, formerly the American Society for Testing and
95 Materials, in standard specifications F1292, F1487, F1918, and
96 F2049, and the playground safety guidelines set forth in the
97 Public Playground Safety Handbook No. 325 published by the
98 United States Consumer Product Safety Commission.

99 (d) Effective July 1, 2020, all playgrounds built and
100 installed before July 1, 2015, must conform to the requirements
101 set forth in paragraph (a).

102 (e) Each playground open to the public must be inspected
103 every 5 years by a certified playground safety inspector using
104 the national safety standards and guidelines as provided in
105 paragraph (a). The inspection report may serve as a reference
106 for the public agency for whom the report was written, but is
107 not intended for any other use or purpose.

108 (f) By December 1, 2014, each county and municipality must
109 provide on its website that provides building permits and
110 applications, a link to the standards and guidelines for
111 playground safety as provided in this section.

112 (3) FUNDING.—

113 (a) Each county or municipality may require a building
114 permit from each public playground owner that constructs a new
115 playground or provides a major modification, addition, or
116 replacement of an existing playground. The county or
117 municipality may charge a fee for such permit.

118 (b) A public agency may not use state funds for the
119 planning, development, or redevelopment costs of a playground
120 open to the public unless such playground, when constructed or
121 installed, complies with the playground safety requirements of
122 this section. A public agency that has received but not yet
123 expended a state allocation for a playground project shall
124 retrofit the design of the project to comply with this section
125 before receiving the funding, unless doing so would
126 significantly increase the project costs.

127 (c) After the date that a public agency is required to meet
128 the playground safety standards set forth in subsection (2), a

129 public agency may not use state funds to operate, maintain, or
130 supervise a playground open to the public unless the playground
131 meets the playground safety standards set forth in this section.

132 Section 3. This act shall take effect January 1, 2015.

APPENDIX E: INFORMED CONSENT LETTER FOR PRINCIPAL, EXECUTIVE
DIRECTOR, AND PE TEACHER

April 24, 2022

Dear :

My name is Ellen Wheeler, and I am a doctoral at the University of North Florida. I am conducting research intended to help elementary schools improve both their recess practices and outdoor play facilities/spaces.

If you are willing to voluntarily take part in my research, it will be in the form of a personal interview between you and myself. This interview will take approximately 1 hour of your time to complete. The questions will focus on the recess practices and the utilization of the outdoor play spaces at your school. This interview will be conducted at your school at a convenient time. Your responses will be confidential. Interviews will be recorded, and the recordings will be stored in a locked office cabinet. Only authorized personnel will have access to your responses. Once the dissertation is complete, the recordings will be erased.

Although there are no direct benefits to or compensation for taking part in this study, others may benefit from the information we learn from the results of this study. Additionally, there are no foreseeable risks for taking part in this project. Participation is voluntary and there are no penalties for deciding not to participate, skipping questions, or withdrawing your participation. You may choose not to participate in this research without negatively impacting your relationship with the UNF Professional Development School system.

If you have any questions or concerns about this project, please contact me. A copy of this form will be given to you to keep for your records.

If you have questions about your rights as a research participant or if you would like to contact someone about a research-related injury, please contact the chair of the UNF Institutional Review board by calling (904) 620-2498 or emailing irb@unf.edu.

Thank you for your consideration.

Sincerely,

Ellen G. Wheeler
Phone: 904-610-5798
Email: egwheeler@bellsouth.net

I _____ (print name) attest that I am at least 18 years of age and agree to take part in this research study.

Signature: _____ Date: _____

APPENDIX F: INTERVIEW QUESTIONS FOR PRINCIPAL, EXECUTIVE DIRECTOR, AND PE TEACHER

Interview (recorded with permission from the participants):

1. What are your established recess practices?
2. What are some ways you would like to change these practices and why?
What parts of your recess practices work well and why?
3. What do you perceive is the value of recess?
4. How do believe your teachers perceive the value of recess?
5. What do you perceive are the most important impacts of recess on your students?
6. How would you improve your recess/physical education facilities?
7. What activities do your students engage in during recess?
8. How do you think your playground layout encourages or inhibits free, unstructured play?
9. What does free and unstructured play mean to you.
10. What improvements/additions would you like to see regarding your playground layout and design?
11. What is your perception of the overlap between recess and physical education? How does recess and physical education compete? How do they work together?

On-site observations:

On-site observation consisted of an open-ended discussion between the participant and the researcher. During the interview a campus by aerial photograph was used as a point of reference. We will look at how the existing recess facilities are located in regard to the building(s), the sidewalks and the access points. We also looked at areas where the participants believe could be utilized for additional recess activities.

APPENDIX G: FACULTY INFORMED CONSENT LETTER

Hi, my name is Ellen Wheeler, and I am a doctoral student at the University of North Florida. I am conducting a research study on recess practices and facilities to help schools maximize their recess time and outdoor facilities.

If you take part in my project, you will be participating in two charrettes which is a process similar to a focus group but provides participants with the opportunity to create an on-going system of analysis that can be utilized when they deem necessary. The charettes will occur on two separate days approximately 10 days apart. I expect that participation in this study will take approximately 3 hours (1.5 hours per charette). Your responses will be anonymous except for the charette participants since the charettes are typically done in person. Only authorized personnel will have access to your responses.

As a small means of thanks, a Starbucks gift card will be presented to participants at the conclusion of the second charette independent of completion of participation. The intent is for the teacher participants to develop the tools to help them, and their schools, maximize the benefits of recess as well as the available outdoor space that is available for recess. Although there are no direct benefits to or compensation for taking part in this study, others may benefit from the information we learn from the results of this study. Additionally, there are no foreseeable risks for taking part in this project. Participation is voluntary and there are no penalties for deciding not to participate, skipping questions, or withdrawing your participation. You may choose not to participate in this research without negatively impacting your professional relationships.

If you have any questions or concerns about this project, please contact me. A copy of this form will be given to you to keep for your records.

If you have questions about your rights as a research participant or if you

would like to contact someone about a research-related injury, please contact the chair of the UNF Institutional Review board by calling (904) 620-2498 or emailing irb@unf.edu.

Thank you for your consideration.

Sincerely,

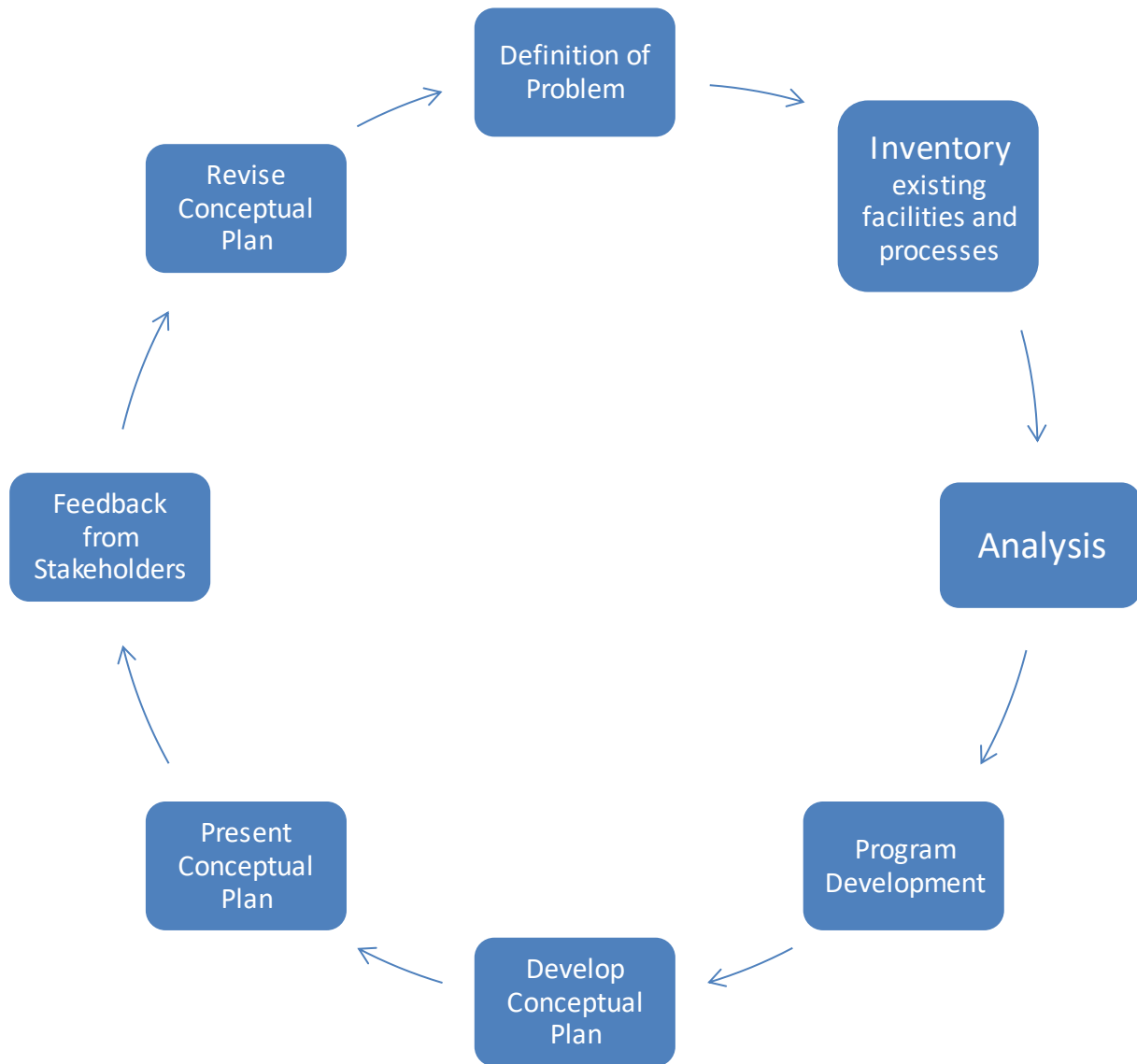
Ellen G. Wheeler
Phone: 904-610-5798
Email: egwheeler@bellsouth.net

Dr. Katrina Hall
Phone: 904-620-1761
E-mail: khall@unf.edu

I _____ (print name) attest that I am at least 18 years of age and agree to take part in this research study.

Signature: _____ Date: _____

APPENDIX H: DESIGN PROCESS FOR THE CHARETTES



APPENDIX I: AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE FOR PLAY AREAS

Support ADA Compliance Directory 240 and 1008 Play Areas

Section 240 of the 2010 Standards provides scoping for play areas and section 1008 provides technical requirements for play areas. Section 240.1 of the 2010 Standards sets requirements for play areas for children ages 2 and over and covers separate play areas within a site for specific age groups. Section 240.1 also provides four exceptions to the requirements that apply to family childcare facilities, relocation of existing play components in existing play areas, amusement attractions, and alterations to play components where the ground surface is not altered.

Ground Surfaces. Section 1008.2.6 of the 2010 Standards provides technical requirements for accessible ground surfaces for play areas on accessible routes, clear floor or ground spaces, and turning spaces. These ground surfaces must follow special rules, incorporated by reference from nationally recognized standards for accessibility and safety in play areas, including those issued by the American Society for Testing and Materials (ASTM).

A commenter recommended that the Department closely examine the requirements for ground surfaces at play areas. The Department is aware that there is an ongoing controversy about play area ground surfaces arising from a concern that some surfaces that meet the ASTM requirements at the time of installation will become inaccessible if they do not receive constant maintenance. The Access Board is also aware of this issue and is working to develop a portable field test that will provide more relevant information on installed play surfaces. The Department would caution covered entities selecting among the ground surfacing materials that comply with the ASTM requirements that they must anticipate the maintenance costs that will be associated with some of the products. Permitting a surface to deteriorate so that it does not meet the 2010 Standards would be an independent violation of the Department's ADA regulations.

Accessible Route to Play Components. Section 206.2.17 of the 2010 Standards provides scoping requirements for accessible routes to ground level and elevated play components and to soft contained play structures. Sections 240.2 and 1008 of the 2010 Standards require that accessible routes be provided for play components. The accessible route must connect to at least one ground level play component of each different type provided (e.g., for different experiences such as rocking, swinging, climbing, spinning, and sliding). Table 240.2.1.2 sets requirements for the number and types of ground level play components required to be on accessible routes. When elevated play components are provided, an accessible route must connect at least fifty percent (50%) of the elevated play components. Section 240.2.1.2, provides an exception to the requirements for ground level play components if at least fifty percent

(50%) of the elevated play components are connected by a ramp and at least three of the elevated play components connected by the ramp are different types of play components.

The technical requirements at section 1008 include provisions where if three or fewer entry points are provided to a soft contained play structure, then at least one entry point must be on an accessible route. In addition, where four or more entry points are provided to a soft contained play structure, then at least two entry points must be served by an accessible route.

If elevated play components are provided, fifty percent (50%) of the elevated components are required to be accessible. Where 20 or more elevated play components are provided, at least twenty five percent (25%) will have to be connected by a ramp. The remaining play components are permitted to be connected by a transfer system. Where less than 20 elevated play components are provided, a transfer system is permitted in lieu of a ramp.

A commenter noted that the 2010 Standards allow for the provision of transfer steps to elevated play structures based on the number of elevated play activities, but asserted that transfer steps have not been documented as an effective means of access.

The 2010 Standards recognize that play structures are designed to provide unique experiences and opportunities for children. The 2010 Standards provide for play components that are accessible to children who cannot transfer from their wheelchair, but they also provide opportunities for children who are able to transfer. Children often interact with their environment in ways that would be considered inappropriate for adults. Crawling and climbing, for example, are integral parts of the play experience for young children. Permitting the use of transfer platforms in play structures provides some flexibility for creative playground design.

Accessible Play Components. Accessible play components are required to be on accessible routes, including elevated play components that are required to be connected by ramps. These play components must also comply with other accessibility requirements, including specifications for clear floor space and seat heights (where provided).

A commenter expressed concerns that the general requirements of section 240.2.1 of the 2010 Standards and the advisory accompanying section 240.2.1 conflict. The comment asserts that section 240.2.1 of the 2010 Standards provides that the only requirement for integration of equipment is where there are two or more required ground level play components, while the advisory appears to suggest that all accessible components must be integrated.

The commenter misinterprets the requirement. The ADA mandates that persons with disabilities be able to participate in programs or activities in the most integrated setting appropriate to their needs. Therefore, all accessible play components must be integrated into the general playground setting. Section 240.2.1 of the 2010 Standards specifies that where there is more than one accessible ground level play component, the components must be both dispersed and integrated.

240 Play Areas

240.1 General. Play areas for children ages 2 and over shall comply with 240. Where separate play areas are provided within a site for specific age groups, each play area shall comply with 240.

EXCEPTIONS:

1. Play areas located in family child care facilities where the proprietor actually resides shall not be required to comply with 240.
2. In existing play areas, where play components are relocated for the purposes of creating safe use zones and the ground surface is not altered or extended for more than one use zone, the play area shall not be required to comply with 240.
3. Amusement attractions shall not be required to comply with 240.
4. Where play components are altered and the ground surface is not altered, the ground surface shall not be required to comply with 1008.2.6 unless required by 202.4.

Advisory 240.1 General. Play areas may be located on exterior sites or within a building. Where separate play areas are provided within a site for children in specified age groups (e.g., preschool (ages 2 to 5) and school age (ages 5 to 12)), each play area must comply with this section. Where play areas are provided for the same age group on a site but are geographically separated (e.g., one is located next to a picnic area and another is located next to a softball field), they are considered separate play areas and each play area must comply with this section.

240.1.1 Additions. *Where play areas are designed and constructed in phases, the requirements of 240 shall apply to each successive addition so that when the addition is completed, the entire play area complies with all the applicable requirements of 240.*

Advisory 240.1.1 Additions. These requirements are to be applied so that when each successive addition is completed, the entire play area complies with all applicable provisions. For example, a play area is built in two phases. In the first phase, there are 10 elevated play components and 10 elevated play components are added in the second phase for a total of 20 elevated play components in the play area. When the first phase was completed, at least 5 elevated play components, including at least 3 different types, were to be provided on an accessible route. When the second phase is completed, at least 10 elevated play components must be located on an accessible route, and at least 7 ground level play components, including 4 different types, must be provided on an accessible route. At the time the second phase is complete, ramps must be used to connect at least 5 of the elevated play components and

transfer systems are permitted to be used to connect the rest of the elevated play components required to be located on an accessible route.

240.2 Play Components. Where provided, play components shall comply with 240.2.

240.2.1 Ground Level Play Components. *Ground level play components shall be provided in the number and types required by 240.2.1. Ground level play components that are provided to comply with 240.2.1.1 shall be permitted to satisfy the additional number required by 240.2.1.2 if the minimum required types of play components are satisfied. Where two or more required ground level play components are provided, they shall be dispersed throughout the play area and integrated with other play components.*

Advisory 240.2.1 Ground Level Play Components. Examples of ground level play components may include spring rockers, swings, diggers, and stand-alone slides. When distinguishing between the different types of ground level play components, consider the general experience provided by the play component. Examples of different types of experiences include, but are not limited to, rocking, swinging, climbing, spinning, and sliding. A spiral slide may provide a slightly different experience from a straight slide, but sliding is the general experience and therefore a spiral slide is not considered a different type of play component from a straight slide.

Ground level play components accessed by children with disabilities must be integrated into the play area. Designers should consider the optimal layout of ground level play components accessed by children with disabilities to foster interaction and socialization among all children. Grouping all ground level play components accessed by children with disabilities in one location is not considered integrated.

Where a stand-alone slide is provided, an accessible route must connect the base of the stairs at the entry point to the exit point of the slide. A ramp or transfer system to the top of the slide is not required. Where a sand box is provided, an accessible route must connect to the border of the sand box. Accessibility to the sand box would be enhanced by providing a transfer system into the sand or by providing a raised sand table with knee clearance complying with 1008.4.3.

Ramps are preferred over transfer systems since not all children who use wheelchairs or other mobility devices may be able to use, or may choose not to use, transfer systems. Where ramps connect elevated play components, the maximum rise of any ramp run is limited to 12 inches (305 mm). Where possible, designers and operators are encouraged to provide ramps with a slope less than the 1:12 maximum. Berms or sculpted dirt may be used to provide elevation and may be part of an accessible route to composite play structures.

Platform lifts are permitted as a part of an accessible route. Because lifts must be independently operable, operators should carefully consider the appropriateness of their use in unsupervised settings.

240.2.1.1 Minimum Number and Types. *Where ground level play components are provided, at least one of each type shall be on an accessible route and shall comply with 1008.4.*

240.2.1.2 Additional Number and Types. *Where elevated play components are provided, ground level play components shall be provided in accordance with Table 240.2.1.2 and shall comply with 1008.4.*

EXCEPTION: *If at least 50 percent of the elevated play components are connected by a ramp and at least 3 of the elevated play components connected by the ramp are different types of play components, the play area shall not be required to comply with 240.2.1.2.*

Table 240.2.1.2 Number and Types of Ground Level Play Components
Required to be on Accessible Routes ([text version](#))

Number of Elevated Play Components Provided	Minimum Number of Ground Level Play Components Required to be on an Accessible Route	Minimum Number of Different Types of Ground Level Play Components Required to be on an Accessible Route
1	Not applicable	Not applicable
2 to 4	1	1
5 to 7	2	2
8 to 10	3	3
11 to 13	4	3
14 to 16	5	3
17 to 19	6	3
20 to 22	7	4
23 to 25	8	4

26 and over	8, plus 1 for each additional 3, or fraction thereof, over 25	5
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Advisory 240.2.1.2 Additional Number and Types. Where a large play area includes two or more composite play structures designed for the same age group, the total number of elevated play components on all the composite play structures must be added to determine the additional number and types of ground level play components that must be provided on an accessible route.

240.2.2 Elevated Play Components. *Where elevated play components are provided, at least 50 percent shall be on an accessible route and shall comply with 1008.4.*

Advisory 240.2.2 Elevated Play Components. A double or triple slide that is part of a composite play structure is one elevated play component. For purposes of this section, ramps, transfer systems, steps, decks, and roofs are not considered elevated play components. Although socialization and pretend play can occur on these elements, they are not primarily intended for play.

Some play components that are attached to a composite play structure can be approached or exited at the ground level or above grade from a platform or deck. For example, a climber attached to a composite play structure can be approached or exited at the ground level or above grade from a platform or deck on a composite play structure. Play components that are attached to a composite play structure and can be approached from a platform or deck (e.g., climbers and overhead play components) are considered elevated play components. These play components are not considered ground level play components and do not count toward the requirements in 240.2.1.2 regarding the number of ground level play components that must be located on an accessible route.