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The Outdoor Environments of Elementary Schools: A Study of Schoolyards and Playgrounds in Windsor and Essex County

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The Outdoor Environments of Elementary Schools: A Study of Schoolyards and
Playgrounds in Windsor and Essex County

by

Oscar Vicente

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Playgrounds in Windsor and Essex County

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February 4, 2013

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Abstract

This qualitative research study examines whether the outdoor environments of elementary schools found in Windsor and Essex County reflected the theories and methodologies of scholars within academic literature with respect to outdoor school environments. For purposes of this study, outdoor environments will consist of the grounds surrounding the school building, inclusive of schoolyards and playgrounds.

It is not uncommon for a school's population to grow beyond its intended capacity. As a result, the grounds surrounding a school building may be used for installation of portable classrooms, expansion of the school building, addition of parking spaces and so forth. These structural changes often detract from the original outdoor school environment and its intended purpose or function.

A convenient sample was generated for this study from elementary schools of the Greater Essex County District School Board and the Windsor-Essex Catholic District School Board. The elementary schools selected for inclusion in this research study came from a non-probabilistic sampling.

I conducted the data collection process between Saturday, February 4, 2012 and Sunday, February 5, 2012 in order to maintain as much uniformity as possible with regards to the weather conditions at each research site. The techniques and instruments that I utilized in this investigation were as follows: personal observations, field notes, and photography that focussed on the overall outdoor school environments.

I believe the results from this investigation contributes information to decisions makers with regards to new or changes to the school architecture, as well as may assist policy makers and educators with improving outdoor school environments for students. Some of the outcomes from this research study include: a significant distinction between

new and old (schools), related to the tangible space of their outdoor environments.

Moreover, it should be noted that, the rural schools examined in this research study

ranked higher than their urban counterparts, based on their individual checklist scores.

Lastly, these findings illustrate that schools located in lower income neighbourhoods

faired better than those in more affluent areas.

Key words: Elementary Schools, Greater Essex County District School Board, Outdoor

Environments, Playgrounds, Qualitative Research Study, Schoolyards, Windsor-Essex

Catholic District School Board

Dedication

To my parents, for immigrating to Canada in search of a better life for their children.

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Moreover, I would like to recognize contributions made by Dr. Clinton Beckford (Faculty of Education, University of Windsor) and convey my heartfelt gratitude to him for his unyielding patience throughout this long process. I must also thank Gayle Tait, Secretary Graduate Studies and Research whom tirelessly administered all the requisite paperwork associated with such an undertaking.

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Maggie, for her attention to detail, stamina and inclination for language rules. Lastly, to my first child, Matthew, for his enthusiasm to explore the world around him, which has inspired me to complete this endeavour.

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CHAPTER I

Introduction

Overview

"A human is most human... when at play." (Ellis, 1973, p.1)

The abovementioned concept about play is most appropriately applied within a context when children are at play. In the scenario of a child at play, it is also acceptable to make an assumption that a child has the liberty to make choices for themselves. However, it appears that an important element is absent from this line of reasoning, most notably the environment in which play is to occur. As such, in the course of this review of literature, it was noticed that the information available with regards to the outdoor play environments, more specifically that of pertaining to elementary schoolyards and playgrounds was understudied. In an era of education reforms that has changed our outlook regarding school architecture and classroom structure, as well as significant technological advancements, it appears to me that the study of outdoor school environments has almost been neglected in educational research.

The schoolyard and playground are examples of very few places in an elementary school where students have an opportunity to individualize their learning experiences. Since, more often than not, their teacher predetermines the manner in which they will deliver the provincial government's educational curriculum, as well as choose the requisite materials that students must utilize in the course of their studies. Moreover, the daily school routine is governed by the school's administration which has the luxury of deciding at what time students will take their recess breaks during the day. Thus, it is understandable that a child would enjoy the freedom and liberty they are afforded during outdoor recess periods.

However, outdoor school environments are not all identical in their layout and design. In this regard, the extent to which children are capable of expressing themselves may be related to the outdoor spaces which are at their disposal. Thus, it must be highlighted that when a new school is being designed the architect commands a lot of discretion with regards to the physical features and play apparatus selected. As such, architects influence the potential play outcomes that students will develop within the confines of their outdoor spaces. What is more, is that architects believe their decisions will result in their own desired outcome for student interaction with outdoor spaces (Frost & Klein, 1979). However, school designs and architecture are reflective of educational ideologies that existed at the time of their construction. As such, some elementary schools unfortunately survive without green space or playground equipment for their students, since it was not deemed essential at that moment in educational history. Hence, the outdoor school environment despite any possible short comings serves as a locale for individual learning experiences.

Thus, in the absence of a formal playground it is still possible for students to enhance their albeit limited outdoor experiences by means of imaginative play and the development of games. Smilansky (1990) defined sociodramatic play as involving four elements:

1. The child undertakes a make-believe role.

2. The child uses make-believe to transform objects into things necessary for the play.

3. Verbal exclamations or descriptions are used at times in place of actions or situations.

4. The play scenarios last at least ten minutes.

If asked to recall, the majority of people could remember a moment from their childhood. More than likely that experience contributed to their personal development without them even realizing it. I believe that much of our understanding about the world stems from simple moments when as children we simply played. Today's generation of youth have entered a world that is now filled with electronic stimulus, including: Internet capable video games, social media and wireless communications. What is more, these devices have played a significant role in the decrease of physical activity amongst children. Moreover, this inactivity has contributed to the noticeable increase in obesity in this demographic group. All the more reason, for researchers to study outdoor school environments and better understand the impact that school architecture, schoolyard layout, and playground design affects the manners in which students engage their outdoor spaces. I still hear from time-to-time the phrase - all I really need to know I learned in kindergarten. Surprisingly, that mantra is not all that far from the truth. Frost and Klein (1979) in their research on play discovered that:

> Play is the chief vehicle for the development of imagination and intelligence, language, sex role behavior, and perceptual-motor development in infants and young children. Development occurs naturally when healthy children are allowed freedom to explore rich environments. (p. 50)

As such, the focus of this research study centred around the richness of outdoor spaces, albeit from the researchers personal perspective to help determine if these outdoor environments facilitated in children's development.

Academic literature has forged well beyond studies exclusively focused on the activity of play. Today, there is research available that has coupled play with investigations pertaining to topics of playgrounds and early childhood education. Our

understanding of play has broadened with each researcher's subsequent contribution. However, academic literature has overlooked the significant role of elementary schoolyards and playgrounds in the development of children. What is more, this oversight may be linked to the philosophy which governs children's transition from kindergarten to the first grade. In this regard, play no longer serves as their impetus for learning within this new classroom structure.

Elkind (2007) studied the manner in which children used their time and discovered that:

> Over the past two decades, children have lost twelve hours of free time a week, including eight hours of unstructured play and outdoor activities. In contrast, the amount of time children spend in organized sports has doubled, and the number of minutes children devote to passive spectator leisure, not counting television but including sports viewing, has increased fivefold from thirty minutes to over three hours. (p. ix)

These findings should be sounding alarm bells for educational researchers in order to determine if children have essentially lost their freedom to make decisions that affect their development. Within the context of this research, it appears that elementary schoolyards and playgrounds have unexpectedly positioned themselves to become fundamental contributors to the physical, mental and social development of children.

Therefore, it seems appropriate that this research study investigated possibly one of the last places where our society can still find children out-of-doors at play - the outdoor school environments of elementary schools. This research study was able to shed some light on the unique relationship that exists between educational theory and in-service practitioners. This research study explored a selection of outdoor school environments

from a variety of elementary schools located throughout Windsor and Essex County documenting every site along the way by means of observation, photography and field notes. However, it should be noted that a large proportion of the academic literature included within the review of literature relied heavily on American researchers and their perspectives. The rationale for making this decision revolved around the close proximity of Windsor and Essex County to the Canada-United States border, and the significant cultural, social, and political influences that American doctrine has on our region. Fundamentally, this study sought to resolve if the theories and methodologies of educational researchers found within academic literature was being applied into practice in elementary schoolyard and playground layouts/designs in order for these outdoor spaces to satisfy the developmental needs of their student population.

Researcher's Perspective

The following qualitative study relied heavily on my role as researcher to collect a variety of data including: observations, field notes, and photographs. In this regard, it could be argued that my personal perspective and predisposed bias would have significantly influenced not only the qualitative research methods employed herein, but also, its subsequent findings derived from the data collected. Thus, it is imperative that my perspective as the researcher be discussed at the outset of this dissertation in order for the reader to have knowledge of fundamental elements that influenced this study.

I am a certified member of the Ontario College of Teachers and in good standing since joining in 2004. I hold a Bachelor of Education (University of Windsor) with a concentration in primary/junior education. In addition, I have also completed a Master of Education (University of Windsor) with specialized courses in education administration, curriculum design, and teaching/learning methodology. Moreover, I also have a Bachelor

of Arts - Honours (University of Windsor) in political science, and a Bachelor of

Commerce - Honours (University of Windsor) in business administration. As well, I have

attained certificates in both public administration and arts management from the

University of Windsor. Likewise, the essays that I wrote throughout my university career

are suggestive of development as a researcher. During this period, I acquired skills that

include: conceptualizing ideas, developing arguments, analysing literature, creating a

premise, and defining questions.

My professional experiences include working as a Border Services Officer since the

inception of Canada Border Services Agency in 2003. In this role, I have developed

sophisticated observation and analytical skills which are required for the collection of

indicators during both interview and examination processes. As such, I believe this

specialized knowledge and work experience are transferable to the context of data

collection within academic research and should assist me in fulfilling the requirements

that are attached to role of researcher.

Furthermore, I have worked for several years in the capacity of an occasional teacher

with the Greater Essex County District School Board. During this time, the provincial

government was in the process of introducing standardized tests and restrictions to

classroom size. I mention this because these significant changes in education policy

represent a movement towards equality in our education system. As such, I observed

while working as an occasional teacher, outside on yard duty, that the schoolyards and

playgrounds of elementary schools did not reflect the ideology mentioned above. Thus, I

began to take note during my occasional teacher assignments of the disparity amongst

elementary schools with regards to their outdoor spaces. From these humble beginnings,

my inspiration for this research study evolved into an investigation that provided me with the information necessary to write this dissertation.

During this research study, I continuously reflected upon the knowledge obtained throughout my university studies. For example, Elliot Eisner was a favourite theorist of mine while completing my Master of Education degree. Eisner's research examined the reality of educational curriculum and recognized that it is virtually impossible to teach everything through school. Eisner utilized the phrase *null curriculum* to account for knowledge that was not taught, as well as noted that overt (written) curriculum was subjective based on its inclusion. As such, I would argue that the outdoor spaces of elementary schools reflect a null curriculum, essentially discounted formal education policy and subjective based on the disparity that I observed between a selection of elementary schoolyards and playgrounds.

Lastly, I hope that this research study will contribute to the discussion about schoolyards and playgrounds; provide educational practitioners with insight towards change at the local level; and bring the issue of outdoor disparity amid elementary schools to the forefront of education reform.

Statement of the Problem

While school buildings, teaching methods, and learning materials have changed rapidly throughout recent years, schoolyards and playgrounds have stayed roughly unchanged over the same period (Wilkinson, 1980; Hart, 1993; Bishop & Curtis, 2001; Pellegrini, 2005). Outdoor school environments warrant the attention of those individuals that decide which educational resources will be included throughout the school. As such, this research study will help foster a greater awareness of outdoor spaces and the important role that elementary schoolyards and playgrounds serve. Moreover, collecting

data and information about this topic, will help reinforce the developmental benefits attributed to play, specifically - outdoor play. What is more, by attempting to bring this topic to the forefront of discussions about this subject matter it may allow for elementary schoolyards and playgrounds to find its way out of the null-curriculum.

Outdoor school environments have the potential to become a valuable educational resource. Educators could incorporate practical aspects of play amid outdoor spaces into a variety of subjects they teach (such as, physical education, science and art) directly into their own lesson plans. However, it should be noted, that only a few academic studies have attempted to analyse formal educational theories and methodologies in the context of outdoor school environments... The main body of research associated with this topic focuses its attention more heavily on child development, dynamics of play and playground safety. Absent from much of the literature reviewed, for this research study, was a progressive evaluation that considered the extent of which educational theories and methodologies were applied in the design and layoutof elementary schoolyards and playgrounds. As such, this research study will help to fill the abovementioned gap identified within this literature. This research study investigated twelve elementary schools from both the public and catholic school boards located within Windsor and Essex County in order to compare their physical outdoor features amid schoolyards and playgrounds in an attempt to connect these findings with the information found in literature that pertains to this topic.

Albeit that a significant proportion of the literature reviewed in this research study focused heavily on an American perspective. Additional research has been conducted on this unique topic in other areas of the world, most notably in the United Kingdom. In 1997, a report was published by the Department for Educational and Employment which

focussed on school grounds. This report noted that "their size and design, the features they contain, how they are used and the way they are managed can have a significant effect on the life and work of the school and on the quality of education its pupils receive" (p. 3). It is surprising, that researchers in North America have not explored this topic in greater detail considering the abovementioned research findings.

Outdoor school environments are perhaps the place where students spend the most amount of time at play; more so than anywhere else. Wilkinson (1980) notes that "play is what children want it to be; therefore, it manifests itself in a variety of forms, including arts and crafts, games, co-operative and solitary behavior, reading, imitation, fantasy, sports and so on" (p. 9). In light of this fact, it should be mentioned, that the elementary schoolyards and playgrounds included within this research study had placed greater emphasis on providing students with play opportunities associated with physical activities and organized sport.

Playgrounds can be found outside almost any school building. Moreover, the manner in which they provide students with opportunities for play is as varied perhaps as its range of complexity. The playground is a place where deliberate and unexpected learning opportunities can present themselves with support from school administrators. As such, Miller (1972) contends that:

> The play area should be conducive to individual as well as group use. There should be opportunities for numerous individual and group decisions regarding the activities to be pursued alone or together. There should be no need to wait in line for turns to use the equipment. (p. 29)

Where in comparison, Hill (1980) purports that "the playground integrates three unique elements: human development, physical environment, and social relations" (p. 23). What

is more, Miller (1972) maintains that "greater attention and consideration should be given to the kinds and quality of learning experiences which the outdoors can provide" (p. 2).

Wilkinson (1980) suggests that "with the exception of recess time, the educational conspiracy seems to dictate that, after they have completed kindergarten, children are in school to learn and not to play" (p. 11). However, there is an abundance of information which indicates that out-of-class time - the play life of the child - is a major influence on what they will develop into (Hill, 1980). The accomplishment of controlling and investigating tangible things during early childhood establishes the base from which children eventually develop into theoretical thinking in adolescence (Gaunt, 1980). Moreover, it is believed that the opportunity for children to play outside presents their first opportunity to experience nature (Miller, 1972).

Children have had minimal influence on the development of outdoor school environments. Ellis (1973) noted that "when children are in control of the equipment, they are in control of themselves as well" (p. 219). In addition, there has been nominal advancement in the design of schoolyards and playgrounds. Playgrounds today are similar to those from our parent's generation. Speaking of playgrounds, Fjeldsted (1980) claims that "the most critical drag on their evolution seems to be the assumption that it is possible to sustain play over the early life of a child without there being any alteration in the play environment" (p. 35). Playgrounds become unused because children's interactions with their outdoor school environments do not spiral upwards in complexity as the child revisits the equipment. Once boring and redundant, the playground cannot function as a play thing (Ellis, 1973).

Johnson (1935) studied the effects of varying the amount of play equipment on children. As the amount of equipment increased, the amount of motor play and play with

materials increased, while the amount of undesirable behaviour (hitting, arguing, teasing) and social play decreased. As the amount of equipment decreased, there was a corresponding decrease in gross motor play and an increase in the number of social contacts and social conflicts. Frost and Campbell (1977) explored the quality of children's interaction with play equipment and discovered that the nature of the equipment on playgrounds makes significant differences in the types of play engaged in by children.

Chillman (2003) states that, "any balanced decision regarding the change of use of outdoor space requires that its value to the school has been fully identified and valued". The author further explains that "this could include benefits in the form of improved academic performance, attitudes to school or behaviour through the suitable design and effective use of the grounds for the formal, maintenance and improvement of their grounds" (p. 7).

The playground boundaries have expanded beyond the smaller designated area to include the entire schoolyard. Armitage (2005) stated that "the spaces and other environmental features that exist in the architecture and design of the wider space will be pressed into play use and will dictate to a large extent what is played and where" (p. 548).

In addition, there are occasions when school populations outgrow their intended capacities and overcrowding becomes an issue. Overcrowding also occurs when large groups of children gravitate to the most attractive feature on the schoolyard or playground, and results in children waiting in line-ups for a turn. Bennett (2010) argued that:

> There is much more to a school playground than the focal play structure. There are basketball hoops and swing sets. There are open areas to play on and there are softball diamonds... But often these areas are underused. The more popular areas

often put a large number of children in a small space. This overcrowding is often

the cause of conflict and injury on the playground and can be avoided. (para. 1)

The U.S. Consumer Product Safety Commission (2008) suggested that when

architects and school administrators set out to design a new playground the following

recommendations should be considered:

When selecting playground equipment, it is important to know the age range of

the children who will be using the playground. Children at different ages and

stages of development have different needs and abilities. Playgrounds should be

designed to stimulate children and encourage them to develop new skills, but

should be scaled with their sizes, abilities, and development levels. Consideration

should also be given to providing play equipment that is accessible to children

with disabilities and encourages integration within the playground. (p. 7)

As children develop, their interest in play equipment already mastered in their earlier

years makes way for new activities. Rubenstein (1996) noted that "children over 10 begin

to outgrow playground equipment and as they get older wish to participate in sports such

as softball and basketball or other social settings" (p. 362).

The inherent structure of elementary schools, dictates that children from different age

groups will share the schoolyard and playground areas with students at diverse

development stages. The U.S. Consumer Product Safety Commission (2008), explored

situations in which children of different ages were utilizing the same playground and

suggested the following recommendations:

For playgrounds intended to serve children of all ages, the layout of pathways and

the landscaping of the playground should show the distinct areas for the different

age groups. The areas should be separated at least by a buffer zone, which could

be an area with shrubs or benched. This separation and buffer zone will reduce the

chance of injury from older, more active children running through areas filled

with younger children with generally slower movement and reaction times. (p. 6)

Fjortoft, Kristoffersen and Sageie (2009) investigated "how 6-year-old school children

used their schoolyard during recess and how the yard invited physical activity" and

discovered that:

> The flat, asphalted schoolyard favoured boys playing soccer, while the forest yard
>
> seemed to favour higher intensity of physical activity in girls. Open space
>
> favoured locomotion and moderate to vigorous physical activity in the asphalt
>
> schoolyard, while running around and exploring the forest area were documented
>
> by movement patterns that enhanced more moderate levels of physical activity. (p.
>
> 217)

Research has shown that the activity of play can influence a child's development

(Wilkinson, 1980; Miller, 1972; Hill, 1980; Gaunt, 1980). Other studies have indentified

that the type of playground equipment available to children affects the nature of their play

(Johnson, 1935; Ellis, 1973; Frost & Campbell, 1977; Fjeldsted, 1980).

Research studies have shown that for an outdoor learning environment to be

successful, considerable thought must be put into their design and layout during the

planning stages, to ensure that they function as intended. Frost and Klein (1979)

explained that:

> A well planned learning environment should incorporate quiet areas with a
>
> sandbox for digging and forming, a garden area, an area for creative play and an
>
> area for wheel-toy activity with adequate storage. Most important of all, an area
>
> should be planned with equipment designed for gross motor development.

Equipment for balancing grasping, climbing, sliding, crawling, and strengthening

the upper torso are all important ingredients in a well planned learning

environment. (p. 176)

Notwithstanding this information, little is known about the manner in which

elementary schools have integrated theories and methodologies into schoolyard layout

and design. Thus, there is a necessity to explore the outdoor spaces of elementary schools

in order to determine if their in-service practices replicate theories and methodologies

identified in the literature.

Significance of the Study

It was hoped that this qualitative research study would contribute to the

understanding and practices of educators with regards to the outdoor spaces found amid

elementary schoolyards and playgrounds. Moreover, this contribution helps connect the

theories and methodologies found within the literature which relate to outdoor school

environments with the practices of in-service educators who may be involved in the

decision making processes associated with schoolyards and playgrounds at their

elementary school. Furthermore, this research study will put forth a new perspective

about the diversity of outdoor school environments found within elementary schools (for

example: natural landscapes, physical features and playground equipment). Moreover,

these findings have helped to uncover a phenomenon which is highly overlooked by

many scholars.

Academic research has relied too heavily on quantitative methods in its quest for

knowledge. What is more, qualitative researchers often find themselves spending more

time defending their research approach rather than discussing research findings. As such,

Giles (2002) discovered that "it is vital for qualitative psychologists to defend the quality

and merit of their work against criticism that qualitative research lacks rigour, fails to

address issues such as reliability and validity, and is unscientific as a result" (p. 214). In

spite of the abovementioned findings, it was resolved that the research method for this

investigation would be better suited within the parameters of a qualitative approach.

Moreover, this significant decision was coupled with another that would have the

research study incorporate photography into the data collection process. The inclustion of

photographs would allow the reader to make judgements from their own perspective

about the elementary schools included within this research study, and thus, adding

another dimension to its results.

While there has been plenty of research conducted that concerns the functional

relationship between child development and playgrounds, there is significantly fewer

studies that focus on its correlation with schoolyards and playgrounds. Thus, educational

practitioners will significantly benefit from understanding the strengths and weaknesses

of different schoolyards and playgrounds in relation to fundamental theories and

methodologies about this topic. Also, the results from this research study will contribute

to the ideology of school architecture by providing architects with more information

about the manner in which their layouts and designs are transformed

Furthermore, this research study would also be of interest to individuals in the field

of education who may have an interest with regards to the implementation of

contemporary educational theories into practice at their own elementary schools.

Moreover, research studies have established that children spend a significant portion of

their play engaged in the following activities: watching television, playing video games,

or interacting with the computer (including Internet). What is more, popular video game

manufacturer, Nintendo has moved electronic media forward with the introduction of Wii

Fit interactive games. However, in the review of liteture little is currently known about the possibilities of integrating electronic media into the outdoor school environment. Perhaps these technological advancements in play could be integrated into schoolyards and playgrounds in order to further engage students in their outdoor school environments. Conceivably, the data collected from this research study could influence educational policy makers to consider establishing a standard for outdoor spaces at elementary schools in order to conform with the contemporary knowledge about this topic found the in academic literature.

Furthermore, in cases where elementary schools have exceeded their intended capacities and now face issues related to overcrowding, the information found within this research study could also assist administrators that are faced with making decisions which could permanently change the outdoor landscape of their schoolyards and in advertently the outdoor experiences for their students. What is more, this research study could help stimulate new approaches in the layout and design of school architecture which might look at the inclusion of students' perceptions in the fundamental decision making process.

The curriculum taught in Ontario elementary schools has the potential to go beyond the confines of its classrooms and out-of-doors into the schoolyard and playground. I believe that students should experience as much firsthand learning opportunities as possible. What is more, outdoor school environments provide educators with natural resources for experiential student learning.

In addition, another positive outcome from this research study is that the discrepancy between the elementary school schoolyards and playgrounds will be brought to the attention of parents and perhaps motivate them to raise funds in order to better furnish their children's outdoor school environments.

Lastly, in terms of academia, evaluating the relationship between theory and practice could help reconceptualise our understanding of types of play, playground design, and schoolyard layout amid the unique outdoor environments of elementary schools.

Definition of Terms

The italicized terms listed below have been ordered alphabetically.

Adventure Playground - a playground that children build under the supervision of adults.

Adventure playgrounds were popular in the 1960s, especially in Europe. (Thompson,

Hudson, & Olsen, 2007, p. 203)

Blind Spot - a place in the playground where adults cannot see children. Blind spots can

be created by vegetation and solid pieces of equipment, and they may also be corners

and alleyways. (Thompson, Hudson, & Olsen, 2007, p. 203)

Ethical - conforming to accepted standards of social or professional behaviour.

(WordNet, 2010)

Green Space - for the purpose of this qualitative research study includes: grass and

natural landscaping.

Instrument - any device for systemically collecting data, such as a test, a questionnaire, or

an interview schedule. (Fraenkel & Wallen, 2003, p. G-4)

Non-probabilistic Sampling - a set of sampling techniques in which the probability of

selecting each sampling unit is unknown or unknowable. These techniques are

optimal when a sampling frame is unavailable, when creative means must be used to

locate "closet" samples, and/or when the research objectives would be best fulfilled by

a strategically chosen sample. (Palys, 1997, p. 420)

Observation - is the process of gathering firsthand information by observing people and

places at a research site. (Creswell, 2005, p. 595)

Observer Bias - the possibility that an observer does not observe objectively and

accurately, thus producing invalid observations and a threat to the internal validity of

a study. (Fraenkel & Wallen, 2003, p. G-5)

Outdoor Environments - the grounds surrounding a school building, inclusive of the

schoolyard and any formal playgrounds.

Play - in the absence of an exact definition, the characteristics are: (1) play is active, (2)

play is spontaneous, (3) play is fun, (4) play purposeless, (5) play is self-initiated, (6)

play is serious, and (7) play is linked to exploratory work/play behaviors and to

learning. (Frost & Klein, 1979, p. 21 - 22)

Playground - a designated area, which has been designed and equipped with apparatus for

children's play.

Qualitative Research - is an inquiry approach useful for exploring and understanding a

central phenomenon; to learn about this phenomenon, the inquirer asks participants

broad, general questions, collects the detailed views of participants in the form of

words or images, and analyzes the information for description and themes; from this

data, the researcher interprets the meaning of the information, drawing on personal

reflections and past research; the final structure of the final report is flexible, and it

displays the researcher's biases and thoughts. (Creswell, 2005, p. 596)

Recess - a break period, typically outdoors, for children. (Pellegrini & Smith, 1993, p. 51)

Schoolyard - the large open area with a hard surface just outside a school building, where

the schoolchildren can play and do other activities. (Collins, 2003)

Textual Data - data that comes in the form of written material. Visual sources may

include writing within them. They are considered textual data if written text is the

primary formatting of the document. Thus, written or typed fieldnotes are considered

textual data, but a table with columns of words based on analysis of those fieldnotes

are considered visual data because of the format in which they are presented.

(Davidson, Dottin, Penna, & Robertson, 2009, p. 4)

Visual Data - this term refers to tables, charts, graphs, or other visual materials that

provide interpretation of data from a study. (Davidson, Dottin, Penna, & Robertson,

2009, p. 4)

Visual Text - visual items such as photos, drawings, and paintings that are single or 'stand

alone' in nature. (Davidson, Dottin, Penna, & Robertson, 2009, p. 4)

CHAPTER II

Review of Literature

Introduction

The following literature review will utilize a multifaceted approach to tackle the broad topic of *outdoor school environments*, which for purposes of this research study will encompass the grounds surrounding a school building, inclusive of the schoolyard as well as any formal playgrounds that may be present. The reader will begin their journey exploring concepts of play and its fundamental relationship with learning. From here, the focus will quickly shift to social movements that helped shape the first playgrounds in America. Subsequently, the reader will be introduced to modern aspects of school architecture as they relate to the design and construction of outdoor spaces. At this point, the commonly overlooked, but noteworthy, perceptions of children will be discussed. Thereafter, concepts of place shall further illustrate for the reader children's unique point of view. Lastly, the writer will consider contemporary issues that affect outdoor school environments, including: natural landscapes, playground safety, and financial implications. Although, there may be other mitigating factors which influence outdoor school environments, this research study has opted to concentrate solely upon the abovementioned aspects in the interest of time.

Background

In its most simple form, education can be the acquisition of knowledge gained through personal experiences. For children, these individual moments can occur within any number of settings, but more importantly, they are often associated with some form of *play*. While searching for a universally accepted definition of play, Frost and Klein (1979) discovered that:

Although the importance of play has long been appreciated, theorists have

presented contrasting definitions of play and have disagreed about the biological

and psychological motivation and utility of play. At first it would seem that play

would readily lend itself to definition. Unlike abstract constructs such as

intelligence, self-concept and motivation, play can readily be observed and

measured. However, after examining various definitions of play it appears that

there is little general agreement. (p. 2)

Research by Mitchell and Mason (1948, p. 103-104) was able to support the findings of J.

L. Frost and B. L. Klein through their compilation of the following definitions:

- Schiller (1875): The aimless expenditure of exuberant energy.

- Froebel (1887): The natural unfolding of the general leaves of childhood.

- Spencer (1873): Superfluous actions taking place instinctively in the absence

  of real actions . . . Actively performed for the immediate gratification derived,

  without regard for ulterior benefits.

- Groos (1898): Instinctive practice, without serious intent, of activities that will

  later be essential to life.

- Dewey (1922): Activities not consciously performed for the sake of any result

  beyond themselves.

- Gulick (1920): What we do because we want to do it.

  (as cited in Frost & Klein, 1979, p. 2)

It is important to acknowledge these early definitions of play, as they provide

contemporary researchers with a starting point on the subject. In addition, throughout the

past, many researchers had not only sought to define play, but they often attempted to

also connect it with learning. For example, Miller (1972) asserted that "play and learning are synonymous terms and constitute an integrated, continuous process in the lives of children" (p. 4). As well, educational practitioner, Friedrich Froebel (1967), and psychological theorist, Jean Piaget (1969-1970), have both associated the activity of play with the learning development of children.

As mentioned at the outset of this discussion, it is believed that education can occur within any given setting. Thus, in an attempt to go beyond the established relationships between play and learning, this research study will focus its attention on a familiar childhood locale - outdoor school environments, in order to assess the extent to which these places reflect contemporary theories and methodologies about play, how they relate to students needs, and whether an opportunity for improvement exists.

In the next section, I will discuss classical concepts of play so that the reader can appreciate the underlying principles behind child development as it relates to play.

Concepts of Play

At this time, I will explore several important theories of child development within the context of play. Some of the theories and concepts which shall be discussed later in greater detail include: *surplus energy theory*, *reconceptulation theory of play*, *evolution of humans* and *kindergarten*. It should be noted from the outset, that over the years extensive research has been conducted in this area. Consequently, for purposes of this research study, analysis will only concentrate on the most significant contributions made by the following theorists: Charles Darwin, Frederick Froebel, Jean Piaget, George Herbert Mead, Karl Groos and Lev Vygotsky. It will soon become evident to the reader that many classical theorists looked to their surroundings for inspiration and encompassed examples from nature to support their ideas.

To begin, Frost and Klein (1979) argued that the main idea behind the surplus energy theory of play was that the organism (both animal and human) expends energy either in a goal-directed activity, which becomes work, or goalless activity, which becomes play. They rationalized that play occurred when the organism had more energy available than it needed to expend for work.

The research of Groos attempted to decipher Spencer's (1875) theory about energy suggesting that "the animal works when some want is the motive for his activity, and plays when the superabundance of energy forms this motive – when overflowing life itself urges him to action" (Groos, 1898, p. 2).

In addition, according to Tolman (1932), sensory-motor-hunger accounts for a behaviour left over after satisfaction of food-, sex-, contact-, and rest-hungers. Tolman put forth the idea that the satisfaction of hunger leaves the organism in a condition of unspent energy that must be discharged through play.

In contrast to the abovementioned surplus energy theory of play, Patrick (1916) believed that play satisfied a person's need for relaxation as a relief from mental fatigue. Patrick maintained that work in a modern society called for abstract reasoning, high concentration, and fine-motor activity. Although, Patrick's theory certainly has both appeal and application in today's high-stress society, it does not adequately explain the play of children. More recently, research by Witt and Bishop (2009) suggested that "the relaxation theory seems to have two distinct aspects: relaxation after one is fatigued (restoration-relaxation), and relaxation after one has been involved in activity that is not necessarily fatiguing but has left little time for escape (diversionary-relaxation)". Patrick (1916) originally attempted to explain this theory stating that:

He plays because he is a child and to the child's natural and active life we give the

name 'play' to distinguish it from the life of conscious self-direction, of strain

and effort and inhibition which evolution has imposed on the adult human being.

(p. 79-80)

The recapitulation theory of play has its origins in Darwin's conception of the

evolution of humans from lower species of animals. Frost and Klein (1979) recognized

that this theory maintained play was a result of human biological inheritance; and through

play the evolutionary history of the species is repeated. Additionally, it should be noted

that the research of Gulick (1898) and Hall (1906) had formalized this unique view of

play. However, the reader should note that this theory, which was popular at the turn of

the century, does not take into consideration the social learning aspects of play or play

with modern toys and games.

Karl Groos in *The Play of Animals* (1898) maintained that play in young animals is

preparation for adult life. Groos suggested that although animals inherit instinctive

behaviours, practice is needed to perfect them. Lower forms of animal life are able to be

independent of their parents from the moment of birth. However, Groos (1898) stated that

"higher animals cannot be said to play because they are young and frolicsome, but rather

they have a period of youth in order to play" (p. 76). Thus, it was believed that the higher

up the animal scale, the more important it was for the young ones to have a period of pre-

exercise in which they could practice the skills they would need to use in adult life.

Friedrich Froebel has been credited with launching the original *kindergarten* (garden

of children) in Germany, in 1837. According to Harris (1906), Froebel, as early as 1826,

had described the contribution of play to the growth of a child:

> Play is the purest, most spiritual activity of man at this stage, and at the same time,
> typical of human life as a whole – of the inner hidden natural life in man and all
> things. It gives, therefore, joy, freedom, contentment, inner and outer rest, peace
> with the world. (p. 55)

Froebel regarded the teaching and learning of young children as an opportunity to not only further his investigation of humanity, but also to develop his perception of the connections between the human being, supernatural being and natural world (Froebel, 1887). It was believed at this time that play could be a structure for learning and a means for children to emulate the innate existence of humanity (Spodek, Saracho, & Davis, 1991).

As a result of his serious focus on play, Froebel was able to create one of the most significant contributions to child development and concepts of play – the core curriculum of kindergarten. Froebel argued that "a child that plays thoroughly, with self-active determination, perseveringly until physical fatigue forbids, will surely be a thorough, determined man, capable of self-sacrifice for the promotion of the welfare of himself and others" (Froebel, 1887, p. 55).

Froebel (1887) explained that play should be valued and supported through the family, since an infant, from this liberated selection of self amusement, discloses his or her potential intellectual growth to those who have an understanding of individual behaviour. Detailing the rationale and function of his play resources in the kindergarten, Froebel wrote:

> They are a coherent system, starting at each stage from the simplest activity and
> progressing to the most diverse and complex manifestations of it . . . They cover
> the whole field of intuitive and sensory instruction and lay the basis for all further

teaching. They begin by establishing spatial relationships and proceed to sensory

and language training. (as cited in Lilley, 1967, p. 98)

Therefore, education, according to Froebel, was the behaviour of an individual person

who was developing an awareness and understanding of themselves.

The foundation of contemporary psychology was dominated by three main theories:

psychoanalytical, Piagetian and behaviourism (Frost & Klein, 1979). The psychoanalytic

theories of Freud and Erikson were primarily concerned with dynamics of personality

development. From that theoretical base, play could be viewed as a type of affective

behaviour. The cognitive-developmental theory of Jean Piaget was concerned with the

process and content of intellectual development. Therefore, from a Piagetian point of

view, play could be viewed as a cognitive behaviour. Frost and Klein (1979) noted that

the stimulus-response theories of Hull, Thorndike and Skinner addressed the contingency

relationships between organism and environment. From a stimulus-response position,

play was not viewed as a special type of behaviour, but simply part of the response

repertoire of the organism.

Even though Jean Piaget was not a teacher, he embarked upon the pursuit of learning

how society could best teach their young. In his research, Piaget acknowledged that a

number of activities which could invoke a child's impulsive happiness would be

commonly identified as play. Piaget (1969-1970) commented that play is "a typical case

of the forms of behaviour neglected by the traditional school because it appears to them to

be devoid of functional significance" (p. 155). It is very important to recognize that in his

encouragement of play, Piaget never suggested that children be allowed total autonomy.

Piaget (1948-1973) argued against such perspectives by stating:

> A few years ago the main trend, especially owing to the widespread influence of psychoanalysis, was carefully to avoid frustrating the developing child in any way. This led to an excess of unsupervised liberty which ended in generalized play without much educational benefit. (p. 6-7)

Piaget's investigations would lead him to conclude that the starting place for understanding, aptitude and moral's rests with play.

Play is only one facet of a child's complex development. Elkind (2007) was able to illustrate this point by comparing the work of two researchers – Jean Piaget and George Herbert Mead. In the quote that follows, the author presents information from each researcher's individual writing:

> Jean Piaget as a result of his study of children's games: "It is through game playing, that is, through the give and take of negotiating plans, settling disagreements, making and enforcing rules, and keeping and making promises that children come to understand the social rules which make cooperation with others possible. As a consequence of this understanding, peer groups can be self governing and their members capable of autonomous, democratic and moral thinking".... George Herbert Mead wrote that when playing games "children learn social responsibility, to relate to others and to integrate themselves within the social collective. In playing a game the child must be ready to take the attitude of everyone involved in the game." (Elkind, 2007, p. 149)

The work of Piaget has often been compared to that of Soviet developmental psychologist Lev Vygotsky, but it must be stated that the two men maintained distinct viewpoints. Research by Chang (2004) highlighted that Vygotsky in *Mind in Society* published in 1978 "considered play as the main source for children's development

because it creates a zone of proximal development" (p. 95). In addition, a similar study done by Pellegrini (2009) titled *The Role of Play in Human Development* the author noted that "Vygotsky considered children's cogitative development to vary as a function of social activity and of corresponding forms of language with a more-competent other, usually an adult" (p. 26). What's more, the author noted that it is very difficult for researchers to identify with certainty the purposeful role of play in human development.

Lastly, Holmes, Pellegrini and Schmidt (2006) identified some of the benefits associated with elementary students receiving a recess break:

> Young children do not process information as effectively as older children. The immaturity of their nervous systems and lack of experiences render them unable to perform higher-level cognitive tasks with the same efficiency as older children

and adults, and this directly influences their educability. As a result, young children are especially susceptible to the effects of interference and should experience the greatest gains from breaks (which recess provides) between focused intellectual activities. (p. 737)

At this point, an interesting assortment of questions have emerged from the theories and concepts discussed thus far in this literature review. What theoretical frameworks about play drive the design of outdoor school environments? Is there actually any connection between, theories of play and schoolyard or playground design? Furthermore, is the entire schoolyard conceptualized as the playing area by its designer or just the parts with the formal play equipment? Finally, what is the focal point of outdoor school environments? What age groups do these outdoor places cater to? For example, is there anything in the design of elementary schoolyard or playground for the junior and intermediate student? These questions and concerns will be explored in greater detail during the data collection portion of this research study.

Origins of the Playground Movement

To quickly recap, the last section explained several definitions of play, theories of child development related to play, and detailed concepts of play. The information outlined above should provide the reader with a base of knowledge in order to think about playgrounds. As stated in the introductory paragraph, the focus of this literature review will now shift to the social movements that helped shape existing playgrounds throughout the United States and Canada. In this section, the reader will come to understand which factors helped to spark playground movements during the early 19th century and recognize elements of its early design which resonate to this day.

At the outset, it should be acknowledged that research by Thompson, Hudson, and Olsen (2007) recognized that "organized play environments for children in the United States were first created in the early 19th century in part as a response to the Industrial Revolution" (p. 11). Although, evidence exists that suggests several attempts were made by different groups across the United States to create a formal play environment for children . Chronologically, these endeavours were undertaken well in advance of any visions for an organized playground movement. Mero's (1908) study which explored the start of playground movements in America found that:

> The first outdoor playground and gymnasium with supervision and instruction
> were constructed at Round Hill School in Northampton, Massachusetts, in 1825
> (see Figure 1). The first park playground was built in 1876 at Washington Park in
> Chicago (see Figure 2). However, the Boston sand gartens, or sand gardens,
> developed in 1885, are generally cited as the first time a public play area was set
> aside for young children (see Figure 3). (as cited in Thompson, Hudson & Olsen,
> 2007, p. 11-12)

Hence, it ought to be said that scores of researchers consider these three unique initiatives

to form the foundation of the playground movement in North America.

The playground movement appears to have evolved at a rather slow pace, undergoing

a number of changes in its focus throughout the early years. Research by Rainwater

(1922) attempted to document and categorize each of these different transformations into

several distinct phases. As such, this research study advanced the following rationale and

timeline:

> A survey of the history of the play movement discloses seven periods in its
>
> evolution that are characterized by the incorporation of particular features in its
>
> structure correlative with an emphasis upon given changes in the concept of its
>
> function . . . The titles chosen by the present writer to designate the 'stages' of the
>
> play movement and the dates that roughly approximate the periods of their
>
> respective manifestations are as follows:
>
> 1. the *sand garden* stage, dominant during the 1885-95;
>
> 2. the *model playground* stage, about 1895-1900;
>
> 3. the *small park* stage, about 1900-5;
>
> 4. the *recreation center* stage, 1905-12;
>
> 5. the *civic art and welfare* stage, 1912-15;
>
> 6. the *neighborhood organization* stage, 1915-18; and
>
> 7. the *community service* stage, since about 1918.
>
> (Rainwater, 1922, p. 45-46)

It can be argued that each of the seven stages identified above reflect a variety of issues

affecting social order in the 19th century. Moreover, Rainwater's descriptive titles for

each period capture the reactive nature of the playground movement during its formative

years. Within a span of almost three decades the playground movement was able to

forever change the public's outlook on play and learning in the midst of outdoor

environments.

In addition, research by Rainwater (1922) credited five urban centres - Boston, New

York, Chicago, Providence, and Philadelphia, with being the first cities in America to

adopt the playground movement's original concept of the sand gardens. Though, a lot of

mitigating factors influenced each of the five locations to move forward with their

separate initiatives, the three main reasons involved include the following:

> The first and most frequently mentioned reason for providing sand gardens was
>
> the belief that the streets were unsuited to play, since they were narrow, hot in
>
> summer, unclean, poorly surfaced for games, and even dangerous to the health,
>
> life and morals of children. Attention was called to the many accidents that
>
> happened to children at play in the streets. Parents, consequently anxious for the
>
> safety of their children while playing in the streets, welcomed the sand gardens in
>
> settlement yard, tenement court, or school grounds. A second explanation was the
>
> statement that children were frequently annoying, both to their parents and their
>
> neighbors, in their unsupervised activities on the street. They were often noisy,
>
> destroying property, and injuring one another. Consequently the sand court was
>
> accepted as a way of escape from childish disturbances . . . The third explanation,
>
> a corollary of the first and second, was a sense of the maladjustment of childlife to
>
> the social situation in congested districts of the cities, evidences of which were
>
> seen in the delinquent behavior of children. (Rainwater, 1922, p. 53-54)

This school of thought continues to resonate with parents and educators today given the

fact that the many contemporary playgrounds continue to have a sandbox on hand for

children. Moreover, its low maintenance costs and high return-on-investment for play

opportunities provide elementary schools with limited financial resources an excellent

resource for their outdoor play environments.

    Research by Rogers, Sheppard and Burch (1998) credit Dr. Marie E. Zakrzewska

with introducing the concept of sand gardens to members of the playground movement in

America. In their research, the events surrounding the inception of this concept are

outlined as follows:

> The Boston Sand Gardens was the first supervised playground for children. It was
>
> built in 1885 by the Boston Women's Club. The playground provided sand piles
>
> for the children to play in while under supervision of a volunteer during the day.
>
> The concept was introduced to the Women's Club by Dr. Marie E. Zakrzewska
>
> from Berlin, Germany. The idea of the sand gardens came from the need for a
>
> 'safe' and value enriching place for the children of Boston. (Rogers, Sheppard &
>
> Burch, 1998, Boston Sand Gardens section, para. 1)

However, in light of this recognition, it should be noted that a study by Oliva (1985)

suggested that "the first sand garden was built in the yard of the Children's Mission on

Permenter Street in the North End of Boston," adding that "it became a huge success and

many other similar sites were developed in Boston and around the United States" (p. 39).

    Moreover, the real origin of this European influence on the introduction of sand

gardens into North America can be traced back to Berlin, Germany. Carlisle (2009)

asserted that:

> The first known use of sand for play is the heaps of sand called *sand bergs* in the
>
> public parks of Berlin in 1850," adding that "the kindergarten movement in
>
> Germany included sandboxes in their design in the latter half of the century, and

in 1889 the newspaper of Pestalozzi/Froebel children's houses described how to

build a sandbox. (p. 208)

Further, a more recent study by Bachrach (2005) outlined some differences in the

abovementioned timelines about how these historical events transpired. The study

summarized its findings as follows:

Although the first sandlot opened in Boston in 1886, the playground movement

didn't begin to develop until the mid-1890s, when playgrounds were opened in

nine major cities including Chicago. Settlement houses or civic groups opened

early play lots, often modest dirt lots, on land donated or lent by philanthropists. A

wide coalition of child-saving reformers including social settlement house

workers, progressive educators, and child psychologists urged municipal

governments to construct playgrounds where the city's youth could play under

supervised and controlled conditions. Playground reformers believed that

supervised play could improve the mental, moral, and physical well-being of

children. (Bachrach, 2005, Playground Movement section, para. 1)

Despite these slight variances in the literature pertaining to specific dates, it is apparent

that the playground movement was an important authority with respect to the

development of sand gardens in the 19th century. Additionally, it should be emphasized

that the historical records referenced by many researchers always tend to include Boston

among those cities that originally pioneered playgrounds.

Although its legacy has stood the test of time, those initial sand gardens in Boston

have unfortunately deteriorated into history, as outlined in the following account:

All that exists of that first play space today is a sign on a wall in the North End to

commemorate the site. The importance of sandboxes as a place where children

can use their imagination can still be seen today in public play areas and private

homes. (Thompson, Hudson & Olsen, 2007, p. 12)

According to Mero (1908) "from these humble beginnings, setting aside play areas for

children became a national movement" (as cited in Thompson, Hudson & Olsen, 2007, p.

12).

Given the evidence outlined above, it can be concluded that contemporary

playgrounds and their predecessors provide children with open-air learning environments.

According to Miller (1972):

The majority of outdoor play areas are places of tradition, basically unchanged in

design since the late 1800s and early 1900s when playgrounds were first built in

this country [United States], they are today as they were then – equipment of steel

or iron bars, surfaces of concrete or asphalt, with steel fencing around everything.

(p. 2)

Moreover, it should be acknowledge that the first documented playground located in a

school yard was established in 1896 by a Civic Club in Pittsburgh, Pennsylvania (Mero,

1908, p. 242). Today, playgrounds can be found outside almost every elementary school

building in North America. As such, these outdoor spaces give students an opportunity to

gain knowledge through their personal experiences by way of play.

Consequently, it is very important that outdoor learning environments, which are a

significant aspect in a child's development, continue to be studied and enhanced.

School Architecture

At this point, the reader will be introduced to modern aspects of school architecture

as they relate to the design and construction of outdoor spaces.

The importance attached to the physical environment of learning has varied considerably from one educator to another. However, I believe that there are moments when the importance of school architecture might be used to its fullest potential in securing optimal conditions for teaching to be effective. Teachers and children are almost certainly much more influenced by their physical environment than they often realize, at any rate consciously (Seaborne, 1971). A study by Wyra and Lawson (2008) found the following:

> Students spend most of their non-class time in the school yard participating predominantly in three activity categories: engaging in social interactions, undertaking physical activities (play/games/sports), and attending to physiological needs (eating, drinking, resting etc.). (p. 2)

It may seem obvious, but should be stated nonetheless, that without a school building there can not be a schoolyard that surrounds it. Armitage (2005) stated that "the nature and very shape of the outside playground space at any school is dictated by the design of the inside of the school and the nature and location of the school buildings in relation to the playground" (p. 539).

Naturally, the human factor must be taken into account as well as the architectural. The first thing a student sees or feels every morning at school is the environment in which she or he is supposed to learn (Jones, 1981). Seaborne (1971) noted that "school buildings, and particularly elementary or primary schools, have always taken close account of their functional purpose: very rarely has sufficient money been available to spend on architectural embellishments" (p. 5).

Hutchison (2004) described in his book *A Natural History of Place in Education* what many scholars have defined as the first modern sc50

hool, writing that:

> During the heyday of the school construction craze in the 1950s and 1960s, there
> was one school that epitomized for many the transition to the modern age of
> school design. Crow Island Elementary School, which opened its doors in
> Winnetka, Illinois in 1940, marked an early effort to design a school that was both
> innovative for its time and consciously responsive to the needs of the children and
> educators who would populate its halls for years to come. The single-story school,
> which houses some 350 students, was planned with collaboration in mind and it
> was only after an extended period of consultation with educators, designers, and
> other stakeholders that construction began. (p. 53)

The evolution of school architecture has significantly evolved since the 1950s and
1960s with the integration of technology into school structures. However, the schoolyards
and playgrounds have not kept pace with the abovementioned advances, and Armitage
(2005) suggested that:

> It would appear that exploring the subject of the school playground from a
> historical architectural and design perspective provides a number of interesting
> learning lessons for the designers and builders of the of schools today. The
> principle lesson of this may be a simple question: Why do we continue to build
> modern schools with a playground space that does not support the way that
> children play - naturally and without prompting - if given the opportunity to do
> so? Perhaps the solution to this would be the promotion of greater cooperation
> between teachers, educationists, and designers, researcher and play specialists. (p.
> 553)

In order for change to occur successfully, all parties involved must work collaboratively. More importantly, the perspectives of teachers and students must be included. Butz (2002) contends that "this collaboration had not reached its full potential in education - educators are important contributors but have not been as actively involved in the past and are novices to the process" (p. 53).

Baskerville (1981) asserted that at the heart of any design for a learning environment is the 'school climate'. The climate of a social system, such as a school district, must be understood if all institutional and individual dimensions are to succeed in creating the best possible learning environment. Jones (1981) notes that "when planning a new school, most systems hire an architect first... from then on the scope of vision of that school is limited to the architect's and his consultant's perspectives and background experiences" (p. 47).

Stine (1997) highlighted the architectural challenges in building a new school writing that:

> Designers are further distanced from understanding clients because projects are often large, overwhelming in the kinds of decisions that must be made and the complex technologies and regulations that impact a setting. Intimate knowledge is especially difficult in outside play areas because even though children are the primary users, their needs are usually interpreted through adults. (p. 7)

Playgrounds have been traditionally attached to schools, yet they have been consistently excluded from any curricular function, except for a few physical education programs. Taylor & Vlastos (1975) suggested that "the yards are the most neglected areas of a school... playgrounds seem to be placed on them as an afterthought" (p. 73).

Lucas (1994) commented that the term playground "is misleading on account of a number of special associations" (p. 81). He identified those associations as follows:

- it suggests that they are solely intended for play;

- it reinforces unhelpful educational conflicts between play and learning;

- it is inappropriate for the secondary sector;

- it carries associations with unsupervised public playgrounds and introduces a whole set of other 'play' words, like 'play equipment', which are not necessarily appropriate for school grounds; and

- for reasons of architectural and legislative history, playground has almost become a synonym for hard-surfaced areas. (Lucas, 1994, p. 81)

Armitage (2005) asserted that "much of children's play is, and has been environmentally based, in that the environment dictates to a large extent what is played and how" (p. 547). In this regard, space should be conditioned around the schools by using trees and plants which will improve the microclimate; trees could screen out sun in the summer and permit it in winter (Wilson, 1981).

The designers, teachers and students have been identified as three major parties with a vested interest pertaining to the schoolyard and playground. Stine (1997) suggested that:

Although designers must be concerned with how children will mess about in what they create, with how teachers will maintain the environment, these are future activities. Children and teachers are able to develop a relationship to a place that evolves with use over time. The designer is not. He or she will be viewed by them as someone who came, made an impact, and left. The work for the designer is often seen as a past action difficult to change. (p. 9)

Stine (1997) makes a specific notation about experiential knowledge and quotes Hart (as

cited in Shell, 1994) writing that "most people who care about child development know

nothing about design, and most people who design know nothing about child

development" (p. 81). The Windsor Essex County District School Board has built a

number of new elementary schools over the past five years with more slated to come in

the next few years. These schools are considered to be models of modern architecture and

green technology each with a particular thematic identity. The recently opened school

which bears the name of noted Canadian environmentalist David Suzuki has been

heralded as the forerunner to a new breed of environmentally focused schools. The

question in terms of this research is how has the design of outdoor school environments

changed to better respond to students needs? Is outdoor space design keeping pace with

school building architecture? This study will explore these critical questions.

Child Perceptions

At the outset, it should be noted that an important consideration when discussing a

child's point of view is the concept of perspective. More specifically, the manners in

which children's perspectives differ from those of adults is instructive. Tai, Haque,

McLellan and Knight (2006) contend that "children are intrigued by the miniscule details

that give an object beauty or interest; adults often take the simple and small elements for

granted, preferring to see the 'big picture' from a more distant standpoint" (p. 25).

A contemporary example of how researchers' are exploring educational issues from a

student perspective is the *Oakland School Yards Initiative* (OSYI). The California Pan-

Ethnic Health Network (2009) acknowledged that the OSYI was "inspired by similar

efforts in Boston," adding that "the Oakland Unified School District created the Oakland

School Yard Initiative in December 2007" (p. 3). Moreover, the initiative's three basic

goals are to:

1. Engage parents, youth, and teachers in the redesign of play-yards to create a
   sense of ownership and ensure they are conducive to play.

2. Leverage and make the best of existing money and find new resources to
   ensure maximum impact.

3. Develop structured programming to help with safety and maintenance as well
   as create lasting forums for student engagement. (California Pan-Ethnic Health
   Network, 2009, p. 3)

Furthermore, the Open Architecture Network (2012) acknowledged that "the Oakland

Schoolyard Initiative is engaged in with the process of developing a schoolyard that

meets the needs and challenges of this diverse student body [150 students of which 20-30

children have autism]" (para. 1). In addition, the Architecture for Humanity (2010), had

previously indicated that the OSYI have "revitalized schoolyards from barren and

dangerous places into active, green and healthy spaces" (p. 1). This organization has

evolved, through hands-on experience, the skills needed to design and construct

playground features which meet the needs of children (Architecture for Humanity, 2010).

By listening to the feedback of students, the Oakland School Yards Initiative has learned

that:

Play structures that are endemic to schoolyards look like chutes and ladders built

by plumbers to satisfy risk managers not children. They are boring and do not provide for

vigorous exercise. Typically, children wait a while to climb a few steps then slide down

and repeat. (Architecture for Humanity, 2010)

As it relates to the way in which adults understand the perceptions of children, Armitage (2005) argued that "both historically and in the modern day, adults at school have a limited understanding of what happens during playtimes: they perceive playtimes and playgrounds as being essentially anarchistic, difficult to control and a place of negative learning experiences" (p. 538).

Wachs and Plomin (1991) explained that "researchers define the environment by events that they observe or manipulate, but the functional environment may depend on how individuals perceive those circumstances" (p. 155). The stark reality that not all schools are created equally resonated when Armitage (2005) commented that:

It would appear that the school child of today is remarkably capable of making 'the best of a bad job' - even on a school playground that is devoid of definable spaces and has no physical connection with the school buildings. (p. 553)

Conyne and Clack (1981) purported that "environmental components are obviously not independent but synergistic. Change in one component brings about changes to a greater or lesser extent in others"; adding that "it follows that although individuals may be more aware of certain parts of their environment than others at any one point in time, the environment is usually experienced and reacted to as a whole" (p. 3).

A research study conducted by Schoggen (1989) exploring the effects of behaviour on perception, concluded that:

An important factor in molding standing patterns of behavior within behavior settings is the coercive influence on perception of some configurations of stimuli originating in the geographical-physical milieu. Children everywhere appear to see a smooth level area free of obstructions, such as a long, shinny corridor, a school gymnasium, or a bare or closely mowed field, as a place for running and romping in

unorganized, exuberant activity. These milieu features appear via perception to demand

this kind of behavior. Open spaces seduce children; just as a ball induces rolling,

throwing, and bouncing behavior, smooth open spaces elicit running and romping freely.

The environment is well endowed with these perceived, seductive characteristics. (p. 44)

The question now is: To what extent are schoolyards and playgrounds in Windsor

and Essex County reflective of adult conceptualizations and adherence to building codes,

as compared to children's developmental needs? This research will consider how

playground design could better reflect the views and needs of students along the age

maturity continuum in the outdoor environments of elementary schools.

Concepts of Place

Siegel et al. (1978) state that "the child's construction of frames of reference seems to

progress through a series of stages from egocentrism to flexible objectivism" (p. 236). In

addition, Moore (1975) prior to this had described the abovementioned progression as

going:

- from undifferentiated egocentric;

- to differentiated and partially coordinated into fixed subgroups; and

- to abstractly coordinated and hierarchically integrated.

Hutchison (2004) contended that "a developmental perspective of place could, on its

own, provide a wealth of material for the study of place in education" (p. 23). The child-

environment relationship has been conceptualized using different techniques. Rutter and

Pickles (1991) argued that:

At one (broad) extreme, they have been viewed in terms of the variety of ways in

which individuals act upon and respond to their psychological and physical

environment. At the other (narrow) extreme, the concept is restricted to some kind

of synergistic interaction in the chemistry of the movement, by which individuals

with a particular set of biologically determined characteristics either respond to

environments in a qualitatively different way (disordinal interactions) or in a

quantitatively greater or lesser way (ordinal interactions). (p. 105)

Tai, Haque, McLellan and Knight (2006) stated that "many [children] find the allure

of technological entertainment indoors more appealing than active play outdoors in these

manicured, homogenized environments, which further decreases their activity levels...

this decline in exercise compounds child health problems" (p. 14). Further, related to the

topic of physical activity, Frost (2010) argued that "voluminous evidence suggests that

outdoor play deprivation contributes to obesity and, over time, the social and physical

effects of obesity contribute, in circular fashion, to play deprivation" (p. 4).

Tai, Haque, McLellan and Knight (2006) argued that "children should not only be

folded into the adult-scale greenscape, but should have special spaces of their own" (p.

18). Armitage (2005) argued that:

> The physical environment of the school playground proves to be highly significant
>
> to children's play during playtimes, as children informally allocate particular parts
>
> of the playground to a form of play, or often a specific game, that is then not
>
> played anywhere else on the school site. Children are therefore able to gain
>
> distance between different types of play, which in turn reduces the potential for
>
> conflict. The overall shape of the playground seems to be a highly significant
>
> factor in children's success in doing this and changes in models or patterns of
>
> school design have resulted in an identifiable change in the shape of the
>
> playground. (p. 540)

In addition, Hutchison (2004) reviewed the research pertaining to children's perceptions of naturalized spaces and noted that:

> Despite the school ground naturalization movement's success, few studies have explored the impact of naturalized play spaces on children's place perceptions (e.g., Bell, 2001; Center for Ecoliteracy, 1999; Harvey, 1989; Moore, 1989; Moore & Wong, 1997). Most literature tends to be anecdotal, qualitative, or instructional in nature. Of particular note is Wendy Titman's (1994) research on elementary schools in Britain. Titman found that naturalized sites were heavily favored by children over the concrete playgrounds that they replaced. (p. 105)

In conjunction with the Worldwide Fund for Nature, Wendy Titman (1993) interviewed hundreds of students exploring the "hidden semiotic messages contained in the school environment" (Lucas, 1994, p. 87). Their joint findings included the following:

- The school environment signifies a particular range of things to children. These are their readings of the school's landscape.

- Some of these readings are very powerful and exert a negative influence on the life of the school. Schools which ignore them when designing or managing their grounds are unlikely to achieve successful results.

- Very few school grounds or 'play area' within them meet children's needs in terms of what they would like to be and do.

- In the main, children see many signifiers in the school landscape of a *lack of care* towards them; 'all horrible concrete', for example, which they take very personally. It is not what they expect from their grounds.

- Included in a longer list of positive elements are: 'natural' colours; trees; woods; flowers; shady areas; places with different levels; places where you can climb; hide and explore.

- Included in a longer list of negative elements are: Tarmac; concrete; dirt; rubbish; 'unnatural' colour; places with nowhere to sit hide or shelter.

- In terms of two specific features often associated with school playgrounds - fixed play equipment and Tarmac - there are particular comments:

  - fixed play equipment rarely satisfies children, and the purchase of it may not, therefore, be good use of scarce resources; and

  - open concrete or Tarmac is universally disliked. There would seem to be a clear need to soften such spaces and their edges, introducing more varied landscapes as a *priority*, not as an extra.

- Simple items, whether informal seating from the edges of raised beds or old tyres, are often highly valued.

- Children are not as enamoured of murals and playground markings as adults tend to think they are. (Lucas, 1994, p. 87)

Hutchison (2004) stated that "differences in the way in which a teacher and child view a playground are related not only to the unique role each plays in a school, but also to differing developmental experiences" (p. 20).

David Brown published in 1994, that in the course of his research he noticed "children often played a particular game in one location in the playground, the 'right' place for this game" (as cited in Lindon, 2001, p. 84). In addition, Lindon (2001) noted that:

In one primary school, Brown spoke with the parents and grandparents of the

current school population. He established that the game 'Round and Round the

Stew Pot' had taken place in the same area of this school playground for three

generations. (p. 84)

Moreover, Brown's research "confirms what children will often say, that spaces and

places are important in the school playground (or any other play spaces)" (as cited in

Lindon, 2001, p. 84). Therefore, it could be speculated that in the scenario mentioned

above, the first generation of children was the group that formally established a location

for 'Round and Round the Stew Pot' and subsequently was suggested to future generations

as its proper spot when explaining rules to other children.

In addition, Lindon (2001) noted that:

Conflict can also erupt over play space. Large open spaces can actually give rise

to more conflict, because the boundaries to different games overlap and so

territory becomes an issue. Play is supported, and avoidable conflict reduced when

playgrounds have some protected areas. Boundaries can create quiet areas in

which social activity and conversation can proceed undisturbed. Corners and

seating areas also allow children to gather and to talk. Narrative games often need

a corner as the base from which play can begin and small sheltered spaces tend to

be preferred for clapping games and individual skipping. (p. 84)

While discussing the spaces in which children have a stake, for example -

playgrounds, Hutchison (2004) argued that "these places belong as much to children as

they do to adults... both children and adults inhabit, play, and learn in these spaces" (p.

151).

The literature discussed above has illustrated the importance of *place* on a child's interaction with a schoolyard or playground. In addition, the research has proven that children prefer natural spaces rather than manmade structures. Thus, this research study is charged with the task of establishing through field observations the extent to which green spaces have been included at each of the elementary schools being studied. Furthermore, this research study now faces the challenge of determining whether school board officials and school designers have accounted for students' perspectives of place in their school designs.

Natural Landscapes

The focus for this discussion centres on synergy between natural landscapes and student experiences. Broda (2007) studied the effects of incorporating natural landscapes into the school curriculum, and discovered that "confining learning exclusively to the four walls of a classroom just doesn't make sense... increased academic achievement and heightened enthusiasm for learning, coupled with decreased discipline problems, all have been associated with learning that happens beyond the school walls" (p. 2).

Tai, Haque, McLellan and Knight (2006) stated that "children benefit from interaction with nature in all aspects of their development" (p. 2). However, research has illustrated that outdoor school environments are often ignored as potential venues for student enlightenment (Marcus & Francis, 1998). The traditional theory "no longer holds that kids... need the Darwinian terrain of the asphalt jungle/playground on which to exhaust their fierce energy and then return, spent to the traditional classroom" (Raraport, 2007, p. 36). Another study explored the circumstances in which natural landscapes were incorporated into the didactic structure and concluded that most often these spaces were

deficient facets compared to other school architecture endeavours (Cohen, McGinty & Moore, 1978).

Conyne and Clack (1981) studied the effects of how environments may affect the behaviour of an individual and concluded that:

> An environment has potent effects upon its inhabitants. This observation has been widely accepted by applied behavioral scientists for a number of years. Environment is so pervasive in its effects upon human behavior that its very magnitude and complexity cause it to be ignored, taken for granted, or broken down into such miniscule subunits for study that application of results to human behavior becomes inappropriate, irrelevant, or of little consequence. (p. 1)

The abovementioned perspective can be illustrated by the initiative of *Tule Elk Park - Child Development Center*, an urban initiative in San Francisco which integrated environmental education into childhood curriculum. The basis for this initiative were projects "designed to meet the interests of the children within the context of the environment that is revealing and renewing itself every day"; additionally, "these experiences are what influence the cognitive, physical, emotional, and social development of children and support their future success in school" (Tule Elk Park, 2010).

Some researchers have argued that when students cease to experience nature in its original form, designers and administrators should develop sufficient opportunities for the students to gain knowledge of natural landscapes and nurture their intrinsic connection to nature (Tai, Haque, McLellan & Knight, 2006). Kellert (2002) proposed that there were three types of contact with nature:

- Direct, physical contact, free of human controls;

- Indirect contact, which is the product of human manipulation, such as a zoo, museum, or arboretum; and

- Vicarious or symbolic experience, with the absence of actual contact with nature. This could consist of watching a nature program on television or reading a book, magazine, or web site.

Louv (2005) established the phrase *nature-deficit disorder* to express the probable effects which children may experience as result of minimal exposure to nature. Although not a known psychological diagnosis Louv's characterization profoundly describes what many observers see as the growing disconnect between children and nature. Frost (2010) contends that "outdoor play deprivation can be associated with physical and emotional illnesses, depression, violence, diminished impulse control, addictive predilections, reduced school achievement and social abnormalities" (p. 4). Tai, Haque, McLellan and Knight (2006) contend that "nature's impact is also significant on the physical development of a child, but is perhaps best observed in terms of the negative effects suffered when that child is isolated from nature" (p. 12). Orr (2002) argued that children spend a significant amount of time watching television indoors, in effect isolating them from nature and contributing to a passive behaviour amongst this group.

Typically, children attending elementary school are brought out-of-doors to the schoolyard by their teachers for exercise, play, and recess periods. Frost (2010) stated that "the benefits of outdoor environments and nature experiences are remarkable and extensive... These include: inner peace, stress reduction, fitness, healing, mental health, and creativity; physical, emotional and intellectual development; bonding with nature,

appreciation for nature, and heightened sense of beauty" (p. 4). In addition, Tai, Haque, McLellan and Knight (2006) indicated that:

> In some ways, educators have used nature as a major teaching tool. Nature is a dominant theme in many of the stories, fables, myths, and legends of childhood, which adds excitement to the discovery of nature and stimulates the imagination. Nature is a major teaching tool in the first stage of cognitive development, as evidenced by the majority of young children's books that rely heavily on anthropomorphized animals as opposed to objects, to teach counting, naming, and categorizing. (p. 12)

Nixon (1997) discovered that although exposure to nature may be limited, research has demonstrated that children yearn and look for these experiences. There has been significant debate about children's disconnect with nature and often the role of technology, as discussed above, becomes an issue. However, Nabhan and Trimble (1994) contend that a significant factor limiting a child's exposure to nature may be that child's location in urban environments. Tai, Haque, McLellan and Knight (2006) argue that:

> A lifeless landscape of concrete is no substitute for natural spaces and gardens… it is through a partnership between eager children and supportive adults that nurturing landscapes can be created and provided so that no child will suffer the void of a desolate landscape. (p. 3)

Frost (2010) studied the effects of natural versus manmade features which together shape the schoolyard and playground. He found that "children need both nature study and free, spontaneous play in and on physically challenging play spaces and equipment... schoolyard gardening and nature study provide healthy physical activity and build knowledge" (p. 10). Tai, Haque, McLellan and Knight (2006) contend that "for some

children, bonding with nature can be a spiritual experience, and it will make an impact on

their lives" (p. 15).

In 1994, a unique public/private initiative was started in Boston, Massachusetts

which would come to be known as the *Boston Schoolyard Initiative* (BSI). In a historical

account, Schoolyards (2012) explains that:

> The Boston Green Space Alliance and the Urban Land Use Task Force
>
> approached Mayor Thomas M. Menino to initiate a dialogue about the state of
>
> Boston's public schoolyards and the possibility of public and private sectors
>
> cooperating to revitalize these historically neglected spaces. (para. 1)

BSI established the following goals, which still hold today:

- Touch every neighborhood in the City and every Boston Public Schools

  student;

- Create attractive public spaces for recreation, education and civic activity;

- Support meaningful and innovative educational use of schoolyards; and

- Cultivate significant public participation, including many community-

  based organizations, in both the design and stewardship of the schoolyards.

  (Schoolyards, 2012, para. 2)

The BSI provides school administrators everywhere with a model for transforming

the barren asphalt spaces at their schools into potential outdoor classrooms. The Christian

Science Monitor (2008) reported that "it [Boston Schoolyard Initiative] started with

transforming asphalt wastelands into colorful structures, landscaped walking paths, and

space for public art... [then] began adding outdoor classrooms - mini wilderness zones,

gardening areas, and other features that teachers use for everything from science to writing projects" (para. 4).

Another popular initiative is the implementation of food gardens, which are a viable source of greening for schoolyards and a natural bridge which could connect the outdoor learning environment to the curriculum. Moreover, the Food and Agriculture Organization of the United Nations (2010) argued that:

> In the North [North America], 'garden-based learning' has predominated, using gardens as laboratories for hands-on learning of science, environmental studies, and other subjects such as art and language. More recently, garden enthusiasts have been especially concerned at the growing alienation of urban youth - not only from nature but also from the sources of the food they eat - and have rekindled an interest in food gardening and nutrition: the 'edible school yard'. Much has been done to promote school gardens and to integrate them into the existing curriculum, but the battle for recognition of their education value continues. (p. 7)

In Canada, certain barriers exist which have hindered the prospect of food gardens at school. Bell and Dyment (2006) summarized these aggravating factors as follows:

- Provincial policy and leadership – wide-spread adoption of school food gardens will only develop and flourish when provincial Ministries of Education provide a promotional policy and financial push. While we anticipate the key support will be needed from the Ministries of Education across the country, we realize that there is also a role for coordinated support from the provincial Ministries of Health and Agriculture.

- School board administration – At most boards, there is no central coordination or organized support for gardens. Nor is there budget or on-the-ground expertise to effectively manage these projects. They don't fit neatly into the standard board infrastructure and are seen as a problem rather than an enhancement.

- Garden maintenance and volunteer participation – More hands-on participation in weeding and watering is necessary in order for both the gardens to thrive and to gain greater support from senior school officials. We have a chance of moving past this set of barriers by establishing working agreements about garden maintenance standards between boards and schools. Maintenance usually succeeds when a range of people, including students, teachers and parents are involved. While the average garden committee is comprised of six participants or less, the real issue seems to be ensuring that the committee can work effectively and avoid burnout.

- Teacher turnover and time crunch – High rates of teacher and principal turnover came up consistently as a key barrier. When the main driver behind a project moves on, the momentum goes with him or her. Heavy demands on teachers' time are also seen as an important issue. Gardens are major work for teachers to take on when other supports aren't there. The solution are in recruiting garden coordinators, providing release time for training and making it simple to integrate the garden with the curriculum. (p. 8)

Evergreen's perspectives on the barriers are quite accurate. Another argument used, which is related to the issue of schoolyard maintenance, is what happens to these gardens

during summer when schools are out. The structure of the academic school year does not facilitate easy gardening. By the time school starts in September, the optimum growing season for most plants and crops is over. However, possible solutions to alleviate the aforementioned circumstances could include the following:

1. Introduce year-round schooling for all children which would allow for the integration of gardening into their curriculum; or

2. Include gardening as a program option for summer camps hosted by schools in order to allow some children the benefit of this experiential learning; and/or

3. Extend the natural growing season into the established school year through the construction of a greenhouse on school property.

Given the evidence presented herein, it is obvious that natural landscapes have become a topical issue within the playground movements of the 21st century. Thus, this research study will explore the naturalization of outdoor school environments and investigate if elements identified within the Boston Schoolyards Initiative are present amongst the schoolyards and playgrounds of elementary schools in Windsor and Essex County, especially in the recently built schools.

In sections that follow the reader will explore contemporary issues in education related to the outdoor environments of schoolyards and playgrounds including: the varying abilities/disabilities of children within the context of an alternative playgrounds design; the essential aspects of playground safety; and financial implications associated with the development and maintenance of playgrounds.

Children of All Abilities/Disabilities

An important facet to consider when contemplating the layout and design for outdoor

school environments is to review the accessibility for children of all abilities/disabilities.

Thompson, Hudson and Olsen (2007) argued that:

> Along with the so-called normal developmental abilities of children, playground
>
> planners should also consider children who have special needs due to some
>
> physical, emotional, social, or intellectual disability. It is important to remember
>
> that they are more similar to children without special needs than they are different
>
> from them. (p. 16)

Frost and Klein (1979) noted that "handicapped children have the same need to play

as do nonhandicapped children, but, because of personal, social, and physical barriers, it

is more difficult for these needs to be fulfilled" (p. 220). Research studies have shown

that outdoor spaces are often adapted on a case by case basis to better accommodate the

special needs of its users (Frost & Klein, 1979). However, at this point, it should be

recognized that many of the fundamental characteristics derived from the concepts of play

overlap both groups of children mentioned above. Moreover, Sutherland and Soames

(1984) asserted that:

> Through play children learn to grow and develop emotionally, intellectually and
>
> physically. Mobility, co-ordination, perception, balance, sharing, relating,
>
> awareness of space, colour, sound, touch and other people - all of these and more
>
> are integral parts of the play process. (p. 11)

In this example, the researcher does not attempt to make any distinctions between the

abilities/disabilities of the children, but rather describes a model scenario.

Thus, when designers attempt to construct playgrounds they should attempt to account for the end-users by allowing for flexibility in their chosen landscape features and play apparatus if necessary. Research by Thompson, Hudson and Olsen (2007) suggested that:

> In developing a playground based on the developmental needs of children, it is necessary to provide a universal playground that will fit children of varying abilities, including those with disabilities. It is only when we put the equipment first and then try to adapt the children to the equipment that a problem occurs. It is easier to change equipment than change a child. (p. 76)

Additionally, if school architects are able accept the idea that play is an essential part of any child's development, including those with disabilities that may face insurmountable challenges they will learn to appreciate the positive impact resultant from adapting the play environment to their needs. Research by Sutherland and Soames (1984) argued that:

> The restricted environments and experiences that many disabled children and adults come from or know place pressures upon them - pressures ranging from having to live highly organised lives to relying on other people for such basic facilities as transport. An adventure playground, however temporarily, can relieve that pressure; indeed it should be designed to do so. Of course there are important areas to be aware of, such as toileting and drug needs, but these must not cloud the purpose of the children's attendance at an adventure playground, a purpose which revolves around the concepts of fun, enjoyment and personal fulfilment in a free and permissive atmosphere. (p. 15-16)

Michelman (1974) developed a comprehensive listing of the specifications deemed necessary when designing a play environment for children with disabilities. The following criteria were considered to be important:

1. Provide a match between the child's abilities, interests, and environmental expectations. Play equipment should adjust to more than one purpose, more than one child, and more than one developmental level.

2. Provide substantial sensory-cultural enrichment that arouses curiosity and stimulates investigation.

3. Include play materials and activities that meet the requirements of children at different cognitive, kinesthetic, and play stages and foster growth and learning. (as cited in Frost & Klein, 1979, p. 222).

A special type of play environment referred to as *adventure playgrounds* has been connected with significant advancements in the design of play apparatus for children with disabilities. An adventure playground can be described as "a playground that children build under the supervision of adults" (Thompson, Hudson, & Olsen, 2007, p. 203). Moreover, Thompson, Hudson and Olsen (2007) noted that these adventure playgrounds were fashionable during the 1960s, in particular throughout Europe.

Sutherland and Soames (1984) recognized through the results of their research that:

The need for adventure play opportunities for children with disabilities quickly becomes apparent when we start to look at their disabled experience: enclosed indoor environments; a life bounded much of the time by the four walls of school, hospital, home, hostel or training centre. (p. 13)

Also, research by Frost and Klein (1979) asserted that "playgrounds for handicapped children should be super-enriched environments that provide many opportunities for

cognitive learning (symbolizing, conceptualizing, problem solving) as well as opportunities for physical learning (vestibular, kinesthetic, proprioceptive, and sensory" (p. 230). Therefore, when contemplating the features that will be included in a playground catering to children with physical disabilities, its overall accessibility becomes the paramount concern.

Sutherland and Soames (1984) suggested that "three words sum up what an adventure playground can offer: exploration, experimentation and expansion" (p. 12). Thus, when designers begin to think about children with disabilities using an adventure playground, the prospect of them fulfilling basic concepts of play becomes a central aspect of the playground experience. Moreover, the research by Sutherland and Soames (1984) also noted that:

> Many of the environments familiar to children with disabilities are those where noise, untidiness and freedom of movement and expression are limited. An adventure playground offers a change, and the maximum opportunity for users to give vent to their thoughts, feelings and ideas. (p. 13)

Lastly, it has been argued that adventure playgrounds provide unique opportunities for children of all abilities/disabilities to engage in their fundamental right to play. Moreover, these outdoor environments ensure that children are provided with appropriate settings in which to explore their potential. Researchers have acknowledged that "the benefits to be gained from adventure play are by no means nebulous: it brings about changes that are concrete, observable and in some cases dramatic - particularly so in the case of children with disabilities" (Sutherland and Soames, 1984, p.14). Thus, in the context of this research, the question is to what extent does schoolyards - including

playground designs, reflect universal designs which would cater to the needs of disabled children?

Playground Safety

It appears that playground safety was not a major concern for the playground movement of the early 19th century. Many researchers have acknowledged that around the late 1890s equipment designated for play began to materialize. According to Thompson, Hudson, and Olsen (2007) "no attention was given to safety in these areas [playgrounds] . . . rather, adults considered the children to be safe because they weren't playing in the streets, where their play spaces conflicted with the growing traffic from automobiles and trolleys" (p. 12). It is believed that those individuals who lead the way in playground development seldom considered the "relationship between height and injury or play value . . . rather, in many cases, they tried to imitate what had been lost in the natural environment by re-creating it in the artificial environments of the playground" (Thompson, Hudson and Olsen, 2007, p. 99).

Given the disregard for safety, it was not long before children unfortunately began to experience injuries while at play in their newly designated areas. In fact, Frost et al. (2004) noted that "the first recorded lawsuit involving playground equipment and surfacing was in 1915, when parents of a child sued the school board of Tacoma, Washington, over an injury that their child sustained from a fall from a swing" (as cited in Thompson, Hudson and Olsen, 2007, p. 99).

It comes as no surprise then, that an interest group would eventually emerge during this period focussed on improving the safety of playground equipment. Paired with the mounting number of reports collected which accounted for injuries and deaths of children

as a result of unsafe playground equipment. It did not take long for this new movement to

voice their concerns (Frost and Klein, 1979).

 Research by Butwinick (1974) found that data gathered about the injuries sustained

by children while at play, were almost entirely attributed to moments while they

attempted to climb a playground structure, or rather, subsequent to their fall from the

aforementioned equipment. What is more, Thompson, Hudson and Olsen (2007) noted

that "it wasn't until 1974 that the first definitive study linked equipment height to injury"

(p. 100).

In addition, Frost and Klein (1979) argued that "since methods of study and study

sites differ across independent studies, it is difficult to make meaningful comparisons, but

there are some general conclusions that appear." These include:

- falls are the most common factor contributing to injury;

- the head, face, and neck are the body parts most frequently injured; and

- lacerations are the most frequent type of injury. (p. 56)

However, another study uncovered that injuries sustained by children may be attributed to

more causes than just a disregard for safety. Research by Mahajan (1974) identified that

hazards related to playground equipment could be grouped into three noteworthy

categories:

- Hazards attributable to defects in construction design.

- Hazards resulting from improper installation and maintenance.

- Hazards associated with function (resulting from human error). (p. 2)

Research has established that a variety of early play equipment was deemed unfit for

children to use (Frost and Klein (1979). As a result, action needed to be taken by those

responsible in order to address potential hazards. Thompson, Hudson, and Olsen (2007) noted that " creating safe play spaces is not a haphazard process; rather, it should be based on principles gathered from the growing literature and research on child development, play, and design . . . it should also be apparent that the development of safe play areas has experienced a positive evolution" (p. 21).

In order to ensure that the risk of injury was significantly reduced Sutherland and Soames (1984) suggested that safety guidelines be established and applied during three specific stages of any playground development:

1. In the design of structures;

2. In the actual building; and

3. In maintenance. (p. 127)

Moreover, Sutherland and Soames recommended that "a regular health and safety check of the entire playground should be held at least once every six months, with any faults that are revealed being promptly sorted out" (2007, p. 128). Similarly, it should be noted that this practice is also adhered to by the elementary schools located in Windsor and Essex County.

Lastly, research by Frost and Klein (1979) found that:

Making the playground safe for children is only one side of the safety picture. Making the children safe for the playground is the more important factor. What we intend to say here is that safety consciousness and safety ability are developed in children. These traits develop from repeated risk-taking experiences on a playscape carefully designed for gradually increasing complexity of movement. Children learn to exercise good judgement in risk taking by having many opportunities to risk at their present level of ability. (p. 100)

Financial Implications

The financial implications associated with the development of schoolyards and playgrounds are often integrated into the original capital budget set out by a Board of Education, for the construction of any new school buildings. However, a lot of times contractors go over budget during the initial building phase and nonessential expenditures must be reduced or removed from the original plan in order to keep the financial plan within its objective. Unfortunately, the outdoor environments sometimes fall victim in this scenario to the decisions of administrators.

Moreover, there are always maintenance costs associated with any school building and its outdoor environments require their share. Research by Thompson, Hudson, and Olsen (2007) argued that:

> Nothing's built to last forever, but some adults think that playground equipment is the exception. It's true that equipment made of steel can last 50 years, but many playgrounds in the United States have pieces that are already this old or older. Similarly, wooden equipment will rot, and plastic equipment will crack . . . we also need to approach this myth from the other direction. Sometimes equipment should be replaced even when it's in good condition so that we can take advantage of new technology and new insights into child development. We must modify older playgrounds to keep with advancements. (p. xix)

Likewise, Frost and Klein (1979) suggested that "the materials used in construction of playground equipment must be durable . . . materials selected should have a demonstrated record of durability or they should be tested" (p. 171). Consequently, this raises an important issue for the playground designer as they select construction materials and any

apparatus that will be included in their master plan, which also affects the overall cost involved.

Lastly, according to Thompson, Hudson and Olsen (2007) "the safety of children trumps the costs of creating or renovating appropriate play areas, but the fact is that such efforts do come with some expense" (p. 172). As a result, school administrators may need to look beyond their shrinking operating budgets, and organize fundraisers in order to generate the funds needed to put up or repair play equipment as well as maintain their schoolyard in the future.

Characteristics of Schoolyards and Play

Considering the lack of technical information available in the literature that I reviewed in the previous text, it seems appropriate at this time to discuss in greater detail aspects of schoolyard layout and playground design, selection of building materials, and unique applications of outdoor spaces.

At the outset, it should be highlighted that the schoolyard in most cases encompasses the entire outdoor space that surrounds the main school building. However, the assortments of materials that shape its ground cover are more complicated. Traditionally, elementary schools were entirely covered with hard surfaces such as concrete, asphalt or black top, or perhaps a combination of the aforementioned with some grassy areas in order to conduct organized sports.

With architects becoming more informed about aspects of playground safety, other materials have started been introduced to this outdoor application. Some of the more recent resources have included the following: sand, pea gravel, wood, and rubber, which all help to soften the playing surface for children that use outdoor spaces for recreation. Benefits from changing to the softer materials include less risk for injury when children

fall, improved drainage of rainfall, and helps devise boundaries to prevent the overlap of activities.

In the course of my literature review, I identified a comparative chart created by Safe Kids Canada (2005), which listed different types of materials used to cover schoolyards and playgrounds. Below is an adapted version of this chart that draws information pertaining to the characteristics of material types, as well as its advantages and disadvantages (see Chart 1). What is more, I believe that many elementary schools could improve their outdoor spaces simply by adding a softer ground cover to designated play areas. The creators of this chart contend that it is for information purposes only and that proper consultation and testing should be undertaken in specific situations. I should highlight that an important aspect when installing loose materials is to determine the optimal depth require for each specific material type. A downside to this is that regular maintenance will be required to ensure to ensure safety standards can be maintained. I think in this regard, architects would have to somehow contain the loose materials from spilling into other areas and perhaps becoming hazards for those outdoor spaces.

Chart 1

Comparison of Playground Surfacing Material

Material Type	Characteristics	Advantages	Disadvantages
Loose Fill Materials			
Sand	A natural, clean and non-packing material. Size, texture and composition of particles may vary. Some sand types may not be appropriate for playground use due to their tendency to compact (pack down) quickly. Should be installed at minimum depth of 12 inches (30 cm). Installation over asphalt or concrete can cause poor impact results. Sub-surface preparation is essential.	• Low to medium in cost • Easy to obtain • Easy to install • Not flammable • Some types provide excellent impact-absorption qualities • Does not support microbial growth	• Can be hard to walk on and cannot be used with wheelchairs or other mobility aides • Can be swallowed or get into user's eyes, hair, clothes and shoes • Can hide insects, animal excrement and dangerous sharp objects • Can be thrown, scattered or tracked onto other surfaces • High humidity and freezing temperatures can reduce its effectiveness
Pea Gravel	Pea gravel consists of small, clean and rounded particles. Crushed, broken or irregular particle sizes should be avoided. Should be installed at minimum depth of 12 inches (30 cm). Installation over asphalt or concrete can cause poor impact results. Sub-surface preparation is essential.	• Low cost • Easy to obtain • Easy to install • Less attractive than sand to animals • Not flammable • Does not support microbial growth	• Can be hard to walk on and cannot be used with wheelchairs or other mobility aides • Can hide insects, animal excrement and dangerous sharp objects • May be swallowed and put in ears or nose • Potential formation of "hard pan" under surface • Can be thrown or scattered and tracked onto other surfaces – on hard surfaces it may contribute to slip-fall injuries • Rainy weather, high humidity and freezing temperatures can reduce its effectiveness
Wood Chips / Bark Mulch	Bark mulch comes from urban tree management and landscaping programs trees. Bark mulch may contain twigs and leaves. Wood chips generally do not contain twigs or leaves. Wood sources should be checked prior to chipping for toxins or allergens. Should be installed at	• Low cost • Easy to obtain • Attractive natural appearance • Retards insect infestation and fungal growth with its mildly acidic composition • Less likely to be used as play material	• May be swallowed, scattered or thrown into child's eyes • Decomposes and compacts over time • Can conceal animal excrement, dangerous sharp items and other foreign materials • Microbial growth when wet • Can be ignited

	minimum depth of 12 inches (30 cm). Installation over asphalt or concrete can cause poor impact results.		• High humidity and freezing temperatures can reduce its effectiveness
Engineered Wood Fibre	More expensive than bark mulch/wood chips, engineered wood fibre is processed new or virgin wood. Contains no twigs, bark or leaves. Wood source should be checked prior to chipping for toxins and allergens. Should be installed at minimum depth of 12 inches (30 cm). Installation over asphalt or concrete can cause poor impact results. Adequate drainage is essential and will lower long-term maintenance costs.	• Wheelchair accessible • Fairly durable • Easy to obtain • Less abrasive than sand • Retards insect infestation and fungal growth • Free of bark and leaves • Stays in place better than other loose fill surface material (i.e. sand, pea gravel)	• Initially expensive • Can conceal animal excrement or dangerous sharp items • Microbial growth when wet • High humidity and freezing temperatures can reduce its effectiveness • Decomposes and compacts over time
Loose Rubber Crumb (Shredded Tires)	Rubber crumb is processed through the grinding up of tire material. For playground use, rubber crumb should be free of metal and/or wires. Suppliers should also be able to confirm that the rubber does not contain lead, other toxins or allergens, such as latex. Should be installed at minimum depth of 12 inches (30 cm). Installation over asphalt or concrete can cause poor impact results.	• Durable • Easy to install • Not abrasive • Does not support microbial growth • Less attractive to animals	• Can be ignited • Not appropriate for wheelchairs or other mobility aids • Wide variation in quality – may contain wire or metal; may also contain lead or other toxins • May be thrown or scattered • May hide foreign matter • Can be lodged in ears or nose or dust particles may enter and remain in lungs
Unitary Synthetic Materials			
Tiles	Synthetic tiles and mats are a combination of a chemical binder and rubber filler. Intertwining strands create a "trampoline effect" that cushions falls. Installation over asphalt or concrete can cause poor impact results without adequate sub-grade. Tiles must be installed according to the manufacturer's instructions and are available in various thicknesses, lengths, colours and patterns.	• Wheelchair accessible • Stays in place • Easy to clean • Consistent impact-absorbing qualities • Lower maintenance costs over long term • Decomposes slowly	• Less attractive to animals • Initially expensive • Requires professional installation • May be vandalized or burned • Wide variation in quality • Can become hard over time, tiles may curl on the edges, seams may tend to expand and cause tripping • Must be swept free of dirt and other debris that can collect and decrease its shock absorption • A blower or vacuum

			may be required to remove debris from air pockets found in tile surface
Poured-In-Place	Poured-in-place is a seamless synthetic surface that is formed with a chemical binder and rubber filler. Air pockets in the surface create the shock-absorbing properties. Can be installed on concrete or asphalt but must be used at suitable thickness and be well anchored. It is available in a variety of patterns and colours.	• Wheelchair accessible • Stays in place • Easy to clean • Consistent impact-absorbing qualities • Lower maintenance costs over long term • Decomposes slowly	• Initially expensive • Requires professional installation • May be vandalized or burned • Wide variation in quality • Can become hard over time • Must be swept free of dirt and other debris that can collect and decrease its shock absorption

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The safety of children, while at play in schoolyards and playgrounds, is an important

concern for architects as they create a layout and design to be applied in an outdoor space.

Research in this area of study, has assisted in reducing the number of potential risks for

injuries in outdoor playgrounds. In my opinion, the most significant contribution relates

to our current understanding about the importance of playground surfaces. What is more,

I noticed during the review of literature that Kids Health (2013) suggested the following

when considering different types of outdoor surfaces:

A proper playground surface is one of the most important factors in reducing

injuries - and the severity of injuries - that occur when kids fall from equipment.

The surface under the playground equipment should be soft enough and thick

enough to soften the impact of a child's fall. (p. 2)

Furthermore, the function of these different types of outdoor surfaces can also be

affected by the changing weather conditions during a school year. For example, rain can

cause the more outer most regions of a schoolyard to become saturated with water if

proper drainage does not exist. What is more, these pools of water will later transform

into mud puddles once the ground begins to absorb the large amounts of water. Thus,

administrators restrict the use of the schoolyard usually to hard surfaces after periods of

extensive rain, which in turn, causes the asphalt surfaces to become overcrowded causing

administrators to again influence the outdoor experience of children by usually instituting

a no running policy. In my opinion, the literature reviewed did not provide enough

information about the impact of weather conditions on outdoor school environments.

In addition, the climatic changes that students experience while attending school in

Windsor and Essex County can range from periods of extreme heat to that of extreme

cold within the duration of an academic year. During extreme heat, asphalt absorbs and

retains the heat generated by the sun causing students to experience aliments such as

dehydration and heat stroke. Moreover, extreme cold also brings with it the dynamic of

wind chill which can burn exposed skin in a matter of moments, and without the

instillation of proper wind breaks throughout the schoolyard students become more

susceptible to hazard. I should note, that since these extreme situations do not constitute

what is considered normal most of the time, administrators tend to take a reactive

approach when managing these situations. More often than not, they will decide on

having students stay indoors to avoid the risks caused by climate outside.

Also, I should mention that teachers prefer an unobstructed view of the entire

schoolyard in order to more efficiently monitor student play during their recess yard

duties. What is more, architects purposely design playgrounds with an element of

openness in order to provide children with lanes of traffic to access the playground

equipment, as well as provide visibility for adult supervision. A research study conducted

by Kids Health (2013) found that:

> Adult supervision can help prevent injuries by making sure kids properly use
>
> playground equipment and don't engage in unsafe behavior around it. If an injury
>
> does occur, an adult can assist the child and administer any needed first aid right
>
> away. (p. 1)

Having identified this significant gap in the literature reviewed, I believe that the

amount of time in which students are prevented from enjoying the outdoors, due to

various issues associated with weather and climate change, should be documented in

order to provide architects with an insight into this dynamic which has the potential

adversely impact their layout and design plans. In contrast, I observed indicators during

my data collection that would suggest students find shelter amid the niches found along

exteriors of school buildings.

I believe that an important aspect in the design of playgrounds revolves around

choice of materials used the construction of these outdoor spaces. As mentioned above,

weather and climate can have adverse effects on how children engage their outdoor

environments. For example, a common material used in the construction of playground

structures is steel, which can become an extremely slippery surface when wet or covered

in snow. However, Blue Imp (2013) contends that "steel products are more vandal-resistant, easier to repair, and simply outlast other products" (p. 1). Other materials used in the construction of playgrounds also include wood and plastic, each of which has softer properties than steel, which perhaps explains why architects prefer these materials in areas where children have direct physical contact with the play structure.

Alberta Health Services (2013) propose that a playground should provide a variety of different play equipment in order to cater various groups of children. They put forth the following recommendation:

> Children need different types of equipment depending on their age and development. Examples of safe equipment for preschool age children (18 months – 5 years) include easy climbers, low stairs and platforms, and small tunnels. Examples of safe equipment for school age children (5 -12 years old) include track gliders, sliding poles, and chain and net climbers.

Lastly, it should be noted that research by Kids Health (2013) contends that children should only use play equipment appropriate for their age groups, recommending that:

> Younger children should not play on equipment designed for older kids because the equipment sizes and proportions won't be right for small kids, and this can lead to injury. Likewise, older kids shouldn't play on equipment designed for younger ones. Smaller equipment and spaces can cause problems for bigger kids. (p. 3)

Summary

In conclusion, this literature review has highlighted eight important factors that must be considered when evaluating the outdoor environments of elementary schools - specifically the schoolyard and playground. The information discussed herein should

serve as a basis to further our understanding and knowledge in relation to the outdoor

environments of elementary schools, inclusive of their schoolyards and playgrounds.

CHAPTER III

Methodology

Introduction

This was a qualitative research study that investigated the outdoor environments of elementary schools in Windsor and Essex County. For purposes of the study, outdoor environments were conceptualized as the grounds surrounding the school building, inclusive of the schoolyard and any formal playgrounds.

The investigation attempted to identify and explore the outdoor spaces allocated for students during their assigned recess periods or any other out-of-doors classroom time. It should be noted that this data was collected during one weekend in order to avoid disrupting the school communities at large. Also, this study endeavoured to chronicle natural landscape features, playground equipment, and outdoor spaces which were unique to each research location; assess the quality of the outdoor environments using an established checklist; and compare the data collected with contemporary education literature to assess if the knowledge put forth by scholars was being applied into practice.

Qualitative Research

Qualitative research has been defined as "a type of educational research in which the researcher relies on the views of participants, asks broad, general questions, collects data consisting largely of words (or text) from participants, describes and analyzes these words for themes, and conducts the inquiry in a subjective, biased manner" (Creswell, 2005, p. 39). Moreover, Fraenkel and Wallen (2003) suggested that the qualitative researcher "is concerned with understanding situations and events from the viewpoint of the participants" (p. 16). In the case of this study, I observed the outdoor environments of elementary schools in order to determine the methodology and rationale used in their

development.

This study's research design was intended to achieve a holistic understanding of elementary schools outdoor environments, through observation with data and documented through photography. In addition, I utilized field notes to chronicle any aesthetic qualities that the camera was unable of document. Data collected was later compared with a collection of academic literature to determine if the outdoor environments investigated had modelled any of the theories and methodologies posited by scholars.

Lastly, Starks and Trinidad (2007) had explained that "grounded theory develops explanatory theories of basic social processes studied in context" (p. 1372). On the basis of this idea, I designed this study with an expectation that a conclusion might be established which was "grounded in data systematically gathered and analyzed" (Creswell, 1998, p. 51).

Grounded Theory

In their research study, *Philosophical Roots of Classical Grounded Theory*, Aldiabat and Navenec (2011) explored the groundwork for grounded theory and noted the following:

> Grounded Theory is a systematic qualitative research approach emphasizing the generation of middle range theory from data at a substantive or formal level (Glaser, 1978) was developed by two sociologists, Barney Glaser and Anselm Strauss in their book *The Discovery of Grounded Theory* (1967). (p. 1067)

Moreover, Aldiabat and Navenec (2011) discuss in their research the significant evolutionary changes that have transformed grounded theory from its early inception into its manifestation now. As such, these two researcher's recognized that:

> Grounded Theory has undergone considerable development during the past four
>
> decades. The first one (1960-1970) was called the discovery decade, the second
>
> one (1970-1980) was called the development decade, the third one (1980-1990)
>
> was called the diffusion decade, and the fourth one (1990-1996) is called the
>
> diversification decade (Benoliel, 1996). (p. 1067)

Aldiabat and Navenec (2011) acknowledge that the two different facets of grounded theory are rooted in the origins of their creators, "Glaser's background was in quantitative research from Columbia University and Strauss's background was in qualitative research from the University of Chicago" (p. 1067). Moreover, Walker and Myrick (2006) suggest that "Grounded Theory integrates the strengths inherent in the quantitative method with the qualitative method" (Aldiabat & Navenec, 2011, p. 1067).

Åge (2011) conducted a research study titled *Grounded Theory Methodology: Positivism, Hermeneutics, and Pragmatism*, and was able to identify that "some authors have classified grounded theory methodology as a positivist methodology (Charmaz, 2006), whereas others have considered it to be an interpretive methodology (Brown, 1995; Goulding, 1998)" (p. 1599). Rich (2012) identified that "grounded theory takes researchers through a series of steps that leaves them constantly comparing data with other data and the emerging concepts" (p. 3).

Within the context of elementary schools outdoor environments, the literature review prepared for this research study had exposed a gap amid the knowledge related to the application of theory into practice. Nonetheless, Rich (2012), suggested that "many grounded theorists believe that it is distracting and possibly harmful to conduct extensive reviews of the literature before beginning to collect and analyze data" (p. 2).

It should be noted that there is an abundance of literature on the design of playgrounds as well as elementary school architecture. Moreover, there is also considerable literature on play and playgrounds as learning environments. However, there is virtually no literature that gauges the features of present-day elementary schools outdoor environments; especially, in comparison to the scholastic contributions of researchers in education. As such, Goulding (2002) contends that many researchers have illustrated that grounded theory is an appropriate research method when "the topic of interest has been relatively ignored in the literature or has been given only superficial attention" (as cited in Thai, Chong, & Agrawal, 2012, p. 4).

Typically, literature on playgrounds focuses on the educational attributes of play equipment contained within. However, pilot field observations and anecdotal evidence, suggested that as students grow older and move up through the grades, playground equipment may lose its appeal and other areas of the schoolyard become sites of interest, socialization, reflection and solitude (Frost & Klein, 1979). Therefore, the data collected for this study was analyzed for any evidence that students may be using the outdoor spaces differently from there intended purpose.

Research by Creswell (2005) argued that "for the beginning qualitative researcher, grounded theory offers a step-by-step, systematic procedure for analyzing data" (p. 396). In the absence of relevant theories, I elected to adopt a grounded theory approach so as to develop an understanding, albeit at a conceptual level, of this substantive topic. Moreover, Rich (2012) noted that "grounded theory takes researchers through a series of steps that leaves them constantly comparing data with other data and the emerging concepts" (p. 3).

This research study followed a more qualitative approach with respect to its data collection. As such, I played a significant role in the data collection process through site observations, gathering of photographs, and recording of field notes. Grady (1998) points out that "the researcher-as-data collector has the advantage of being flexible" (p. 8). However, it should also be noted, that this investigation also employed a playground checklist which utilized quantitative techniques in the collection of its data. A significant characteristic of the playground checklist, is that this instrument was the identical for each research site study, and as such, has the "advantage of consistency" (Grady, 1998, p. 8).

Grounded theory has also been described as "a theory grounded in observation" (Fraenkel & Wallen, 2003, p. 414). It should be acknowledged that Barney G. Glaser and Anselm L. Strauss were credited with the development of grounded theory (Creswell, 2005). In 1967, Glaser and Anselm published *The Discovery of Grounded Theory* which became a useful directive for qualitative researchers. Moreover, Creswell (2005) suggests that, "grounded theory generates a theory when existing theories do not address your problem or the participants that you plan to study" (p. 396).

In terms of its sequential progression, grounded theory exhibits the attention-to-detail that quantitative researchers insist ought to be built into deductive educational research (Creswell, 2005). In addition, research by Fraenkel and Wallen (2003) explained that "exploratory research has historically played a minor role in published research, because the deductive mode has dominated traditional sciences" (p. 79).

Grady (1998) contends that "researchers often find the information from qualitative studies easier to communicate," adding that "quantitative results often are too specialized for an audience of teachers and parents, and so quantitative researchers often seem only to be talking among themselves" (p. 10).

Creswell (2005) stated that "because a theory is 'grounded' in the data, it provides a better explanation than a theory borrowed 'off-the-shelf' because it fits the situation, actually works in practice, is sensitive to individuals in a setting, and may represent all of the complexities actually found in the process" (p. 396).

This research study adhered to the investigative steps established by Strauss and Corbin. The various steps used included the following: coding, memoing, classification, categorization, and finding patterns (Strauss & Corbin, 1990). The raw data collected at each elementary school was coded in order to assist with the identification of concepts. During this initial step, I simultaneously created memos about the concepts that emerged in order to record any inconsistency that was discovered. From this point, I classified the data into clusters of similar types, which ultimately formalized the refined data into broad categories of information. Lastly, I searched for patterns in these categories in order to provide meaning from the raw data collected at the outset of this investigation.

A researcher from Brigham Young University, Rich (2012), identified a possible limitation with respect to the application of grounded theory analysis within qualitative research methods. This researcher noted that:

> A critical eye will quickly reveal that there are problems with such an approach [grounded theory analysis]. First because of the way qualitative data are often collected, the analytical method used actually influences data collection. Thus, applying an analysis post-hoc may violate epistemological and methodological assumptions. Second, as rich as the data may be they may be insufficient for satisfying the concerns or recommendations of a particular approach. (p. 1)

Moreover, research by Grady(1998) explored the data collection process in qualitative

research and identified that "qualitative data-collection strategies employ the researcher

as the major data-collection instrument" (p. 8).

In summary, a qualitative approach was included into the research design in order to

facilitate the collection of grounded information from various research locations.

Additionally, this design had integrated data from several sources including: my personal

observations; field notes; and photographs taken. It was hoped that researcher's

observations would negate any weaknesses in the research design due to limitations in the

instruments. Thus, for the reasons provided herein, the current study incorporated

grounded theory into its research methods.

Photography as a Research Method

Research by Ketelle (2010) found that "the public realism of the photographic image

is fundamentally grounded in a belief that photographs are reproductions of reality" (p.

551). In Moreover, Schwartz (1989) suggested that:

> Viewed as works of art, photographs are thought to embody the personal concerns
>
> of the photographer-artist. These concerns can range from the exploration of
>
> formal aesthetic issues to the expression of the photographer's inner emotions.
>
> Viewed as records, photographs are thought to reproduce the reality in front of the
>
> camera's lens, yielding an unmediated and unbiased visual report. (p. 120)

In 1998, a study by Prosser argued "images are undervalued in research where the

emphasis is on the written word with other forms of evidence being considered doubtful

validity" (as cited in Walker, 2000, p. 16). However, not even a decade later, research by

Noland (2006) found that "in many academic settings there is a growing acceptance of

photography and other more advanced video technologies in research" (p. 4).

Additionally, in a study that investigated which qualitative researchers had incorporated photography into their research methods, Onwuegbuzie, Leech, and Collins (2010) noted that:

> Numerous qualitative researchers have advocated the use of photographs to portray the insights of several disciplines, including cultural anthropology (Collier & Collier, 1986), visual sociology (Becker, 1995), visual ethnography (Pink, 2001), visual culture, visual critical theory (Fuery & Fuery, 2003), marketing and consumer research (Heisley & Levy, 1991), and the social sciences in general (Banks, 2001). (p. 718)

However, despite the abovementioned list of academic researchers adopting photography into their research techniques; another study by Cappello (2001) identified that "researchers in education have not been as quick to accept visual methodologies as tools for inquiry," Cappello added that "use of photography in educational settings has been limited" (p. 5).

Other research has discovered that there are many ways to make use of photographs in research. Schell, Ferguson, Hamoline, Shea, and Thomas-Maclean (2009) identified that "existing literature makes it clear that there are a variety of ways images can be used in research: as documentation; in analysis; as a catalyst to create knowledge and develop understanding; to track data; and as data themselves" (p. 341).

In the context of this study, I utilized photography as a "catalyst to create knowledge and develop understanding", plus the photographs that I captured also produced part of the "data themselves". In the former circumstances, it was hoped that photography could serve as a medium to observe and document the outdoor environments of elementary schools; and thereafter become the data from which to compare theories and

methodologies found in academic literature with the knowledge gathered from a variety

of functioning schools. Moreover, Nordeman (2007) discussed that photography as a

research method:

> Is to record and demonstrate what is important about any sort of event, people or
>
> place . . . the finished project should contain selected excerpts from the entire
>
> observational experience - the excepts are (in the mind of the author) the most
>
> crucial aspects of his/her research or observations that best represent the whole.
>
> (para. 1)

In writing about photo-elicitation, Ketelle (2010) argued that "the importance of this

pioneering work [*Balinese Character* by Bateson & Mead, 1942] remains relevant today

because of its use of visual and written texts" (p. 552). Additionally, Bateson and Mead

(1942) wrote that:

> We are attempting a new method of stating the intangible relationships among
>
> different types of culturally standardized behavior by placing side by side
>
> mutually relevant photographs . . . By the use of photographs, the wholeness of
>
> each piece of behavior can be preserved, while the special cross-referencing
>
> desired can be obtained by placing the series of photographs on the same page. (as
>
> cited in Ketelle, 2010, p. 552)

Research by Davidson, Dottin, Penna, and Robertson (2009) argued that visual texts -

consisting of photographs and tables, could assist a researcher in the collection of data by

providing a form of 'unobtrusive or non-reactive measures,' as noted by Emmison &

Smith (2000, p. 43). Moreover, the photographs taken should only focus on objects and

places in order to protect the privacy of people. Furthermore, the photographs were taken

over one weekend so as to not disrupt the students' school day. In addition, Walker (1993)

suggested that "photography is offered as a researcher's dialect for discussing complexities that cannot be sufficiently captured in oral or written language" (as cited in Cappello, 2001, p. 7).

In addition, a study by Heisley (2001) noted that:

> Using visual methods can be independent and need not be considered extra add-ons to research. In fact, it can be the central part of research methodology. From a theoretical perspective, a photograph can both reflect and develop theory in several ways. (as cited in Ketelle, 2010, p. 553)

Roberts (2011) suggested in his writing that research by Ball and Gilligan (2010), Riessman (2008), and Hurworth (2003) had highlighted quite a few issues which should be considered when deciding on the use of photographic images in a research study. Roberts (2011) cited the following issues should be considered:

- *The nature of the photograph*: Photographs should be recognised as both "representative" and "material" objects. So, as researchers, we should ask what a particular photographic portrait "tells us" - as both a "record", a "unique" individual portrait *and/or* as "representative" of others.

- *Memory and time*: Researchers should keep in mind the complexities of memory and time in using photographs. Photographs "preserve" or "stimulate" memories in various ways and affect current experiences. Photographs are not simply "visual" in memory but are experienced according to our "moods", all the senses, and current preoccupations; they appear to arrest, collapse, or extend time through content and memory.

- *Photographic genres*: Photographic "genres", e.g. documentary, street, and portrait photography, are "impure", due to overlapping in content and formal description. Portraits and self-portraits can be taken by the researcher, requested of the "researched", or jointly made with the individual or a participant/group (as in participatory/collaborative research). "Found" photographs (e.g. taken from an archive, or from family albums) may be used in some research (or as the main object of the research itself). A photographic archivist may also be required in some research.

- *Equipment, skills, and training*: Questions regarding the standard of equipment, skills and training and thereby, the "quality" of photographs, required in the research can arise. A professional photographer may be needed to advise, assist or take the research photographs to meet the research objectives. Of course, it may well be that "quality" of production is not particularly important. So, research choices have to be made on how photographs are obtained, and who by according to the advantages/disadvantages for the proposed research, in terms of its objectives, ease of procurement, cost, etc.

- *Use of photographs*: Photographs have various uses in research, for example, to aid interviewing or as part of conceptual formulation/induction; they can be related to text and other imagery in multiple ways, or be part of the investigator's "research diary" and act as an "aide memoire".

- *The interpretation of photographs*: A wide variety of interpretive approaches can be used - but, reasons are needed for choosing a particular interpretive procedure. It is clear that a complex relation between theory "construction" and "application"

exists. Photographs may be used for more "illustrative" than "inductive" purposes. Also, the research "subject's" understandings of the photographs used and the researcher's (and audiences') may differ. Finally, researchers should remind themselves that interpretation is multiple and shifting - according to changes in interpretive approach, research purpose, and movement in the researcher, "subject" and audience perspective. For example, a researcher returning to material after a period of time might "find" fresh insights. The interpretation of photographic images can engage all the senses.

- *Legal and ethical issues*: Here are very important questions of "consent" regarding photographic images, including: who can be photographed and under what conditions or safeguards; the restrictions on use of existing private, archive and public photographs; and where photographs can be taken, stored (and who has access and on what basis) and presented. Particular care is needed in taking and using of personal images and information to adhere to legal, institutional, and professional, etc. procedures and rules. (para. 67)

Moran and Tegano (2005) purported that "photography has the potential to be a visual language with which we can chronicle and represent reality, a research method that can be used to generate knowledge and effect change, and provide a bridge between the two" (as cited in Close, 2007, p. 35).

Lastly, Emmison and Smith (2000) suggested that photographs used in the form of visual texts have the potential to become as significant as the written text in relation to critical analysis. Moreover, research by Prosser (2003) noted that:

Taken cumulatively images are signifiers of a culture; taken individually they are artefacts that provide us with very particular information about our existence.

Images provide researchers with a different order of data and, more importantly,

an alternative to the way we have perceived data in the past. (p. 1)

Likewise, Ketelle (2010) argued that "research, after all, attempts to assist in the forming

of images through words, numbers, charts, graphs, quotations and more" (p. 553).

In the context of this study, photography has allowed me, as an observer, to explore

different design aspects and outside features pertaining to each elementary school, albeit

framed by the my individual perspective. The photographs collected herein endeavour to

go beyond any possible written description about observations and experiences

documented during this study. Also, I hope to empower the reader by allowing them to

make their own independent judgement based on the photographs they are given.

Moreover, the photographs taken in this study attempted to document each schoolyard's

outdoor space, as well as highlight specific play apparatus and structures that contributed

to the overall experiences of its users. Furthermore, I also surveyed the collection of

images that were gathered for trends in the data, as well as any outlier data that may differ

from the norm.

Research Questions

The catalyst of this qualitative research study centered around the following question:

Are the contemporary theories and methodologies of scholars represented in the outdoor

environments of elementary schools? It should be noted that the outdoor environments

will consist of the grounds surrounding a school building, inclusive of the schoolyard and

any formal playgrounds. It is believed that answers to this question will bring about

another dimension to the academic literature pertaining to schoolyards and playgrounds.

In addition to the central question, this study set out to answer several secondary

research questions that related to the outdoor environments of elementary schools. I

divided these additional questions into three categories: schoolyards; playgrounds; and unconventional outdoor spaces.

Schoolyards:

- What elements and/or features are found within schoolyards?

- Do schoolyards have defined boundaries and/or sections?

- Are there any identifiable hazards in the schoolyards?

- Are the needs of students with disability accounted for?

Playgrounds:

- What equipment or apparatus are found within playgrounds?

- Are the playgrounds in any form of disrepair?

- Does the outdoor environment cater to the needs of older students?

Unconventional Outdoor Spaces:

- Is there evidence that children may be using an outdoor space differently from their original purpose?

Sample and Site

The sample for this qualitative research study consisted of elementary schools from Windsor and Essex County. The schools selected for inclusion within this study were derived from a non-probabilistic sampling. Moreover, I selected twelve elementary schools in order to capture the following distinct characteristics: urban and rural surroundings; new and old school construction; as well as high and low income neighbourhoods. The aforementioned combinations have been purposefully formed to expand the scope of this research study. The data collected from each pairing was compared both independently and collectively.

Research sites included the entire outdoor school environment within the elementary school's property lines. Review of a site map for each elementary school provided me with requisite knowledge of where property lines were situated at each location. For example, maintenance structures, parking areas, and neighbouring properties are examples of outdoor spaces that extended beyond the scope of this study.

Administering Data Collection

At the outset, it is necessary to fully understand the concept of data, and appropriately described it, seeing that the principle research method with consist of photography. Fraenkel and Wallen (2003) stated that data refers "to the kinds of information researchers obtain on the subjects of their research" (p. 118). In the administration of this research study, data was collected through my personal observations, field notes, and photographs taken of the research sites.

    Photography.

In a study by Fang (1985), role of camera equipment in data collection was discussed, Fang identified that "the camera is the data collection instrument, and the photos are the data . . . corresponding field notes provide technical data (e.g., time, frame number, length of exposure, lens)" (p. 4).

An important decision for me was the manner in which I would capture the photographs at each research site. Moreover, it was my goal to capture the entire outdoor environments of elementary schools being studied. This issue was resolved by adopting a method used in the research of Davidson, Dottin, Penna, and Robertson (2009), in which the "first set of pictures create a 360º random view . . . followed by researcher-selected subjects," keeping a sense of balance between the subject matter (p. 29).

Research by Fang (1985) argued that "the time of day and location will also determine what kind of picture will be taken . . . if the picture is planned outside during daylight, the time of day will determine the angle of light" (p. 9).

Walker (2000) argued that "photos do not need to be sophisticated works of art in order to speak to a viewer or generate discussion . . . in fact it could be argued that a technically 'poor' photograph is easier to engage with and respond to" (p. 6). Moreover, Schwartz (1989) noted that:

> Using pictures in social research requires a theory of how pictures *get used* by both picture makers and viewers. In order to use photographs either as data or as data generators we need to have some notion of how viewers treat and understand photographic images, whether those viewers are informants or researchers. (p. 119)

The data collection process is contingent on photographs being taken and organized. A study by Fang (1985) argued that "the greater the number of photographs, the larger the base on which to choose for presenting evaluation findings," Fang added that in order to keep accurate logs, "as soon as the photograph is taken, note the negative/slide frame, date, time, subject or name(s) or persons(s) photographed, location, and situation" (p. 6.). However, in the end all information needs to be presented in a manner that can add voice to the subject matter. Collier and Collier (1986) argued that:

> The analysis of photographs includes the decoding of visual components into verbal (usually written) forms of communication. No analysis of photographs can ignore this crucial translation process, although it may be that some research insight and knowledge cannot be fully transferred to verbal form. (as cited in Ketelle, 2010, p. 548-549)

Lastly, Templin (1982) explained that in order to add meaning to photographs in a report "it is helpful if the evaluator writes a caption that corresponds to each photograph . . . the text should also refer to the photographs, and these should be incorporated in the text in places that are most appropriate (as cited in Fang, 1985, p. 9-10).

In a study by Wellhousen (2002), the researcher examined other studies that incorporated photography in their methodology and discussed techniques for using this approach in the following example:

> Savage and Holcomb (1999) introduced cameras to second-graders and developed a complete project around the idea. They learned that children are highly motivated to Thoroughly study topics when they use photography as the basis for their investigation. Children can use photography to capture familiar sites and objects around their school and later select, organize, and use photos to communicate ideas, information and feelings to others. (p. 143)

Barone (2002) contended that "regardless of the genre or tradition of a piece of research, its formal elements must be chosen carefully and purposely toward the aspirations of the researcher for her or his work" (p. 258). It was in this spirit that the methodology presented herein has been shaped in the tradition of qualitative research.

Observation Using the Playground Rating System.

Creswell (2005) established a "process of observing" that is outlined below. It should be mentioned here, that these specific steps were adhered to in my data collection - observations.

1. Select a site to be observed that can help you best understand the central phenomenon.

2. Ease into the site slowly by looking around; getting a general sense of the site; and taking limited notes, at least initially.

3. At the site, identify who or what to observe, when to observe, and how long to observe.

4. Determine, initially, your role as an observer.

5. Conduct multiple observations over time to obtain the best understanding of the site and the individuals.

6. Design some means for recording notes during observation.

7. Consider what information you will record during an observation.

8. Record descriptive and reflective field notes.

9. Make yourself known, but remain unobtrusive.

10. After observing, slowly withdraw from the site. (p. 212-214)

This research study attempted to follow the abovementioned criteria in the subsequent manner: research locations were purposely selected to reflect a variety of different types of schools; upon arriving at elementary school included in this study, I took panoramic photographs to capture a sense of the entire research site and then recorded field notes which were intended to describe the images taken; the focus of observation reflected criterion found in the *Playground Rating System*, as well as items that I found of interest; descriptive and reflective field notes were recorded in a notebook during observations at each location; lastly, the basis for this research study was to assess the layout and design of outdoor environments - specifically schoolyards and playgrounds, therefore, data was collected on weekends in an attempt to avoid any possible interaction with students while the research was onsite.

Playground Rating System.

A research method commonly used in data collection is the survey instrument. In this research study, I elected to utilize a proven and well established research instrument commonly referred to as the *Playground Rating System* which was created by Joe L. Frost in 1979 (Frost & Klein, 1979).

It should be noted that, the instrument used in this study was adapted from part of the *Playground Rating System* revised by Joe L. Frost in the year 2010 - see Appendix A. Nonetheless, this research instrument aided me in recording my personal observations and to capture the essence of each schoolyard and playground during the data collection process. I would described Frost's *Playground Rating System* as a check list which utilized the Likert scale with the aim of gathering raw data.

Bhattacharya et al. (2003) noted that "Frost published a rating system [*Playground Rating System*] that merged equipment, and playground purpose considerations to form a more complete rating system" (p. 60).

Moreover, Wellhousen and Kieff (2001) in their writing discuss the *Playground Rating System* and explain that:

The *Playground Rating System* provides a means for evaluating the outdoor play environment. It enables the observer to evaluate in detail an existing playground and provide information for developing a master plan for improvement. The three sections are labeled as follows:

    i.   What does the playground contain?

    ii. Is the playground in good repair and relatively safe?

    iii. What should the playground do?

A few strengths identified by this research study concerning the *Playground Rating System* developed by Frost consist of:

- Variety in the type of assessment questions that were utilized.

- Provided a standard from which to tabulate a comparable score.

- Updated version [Revised in 2010] of the instrument from the original created by Frost in 1979.

Some weaknesses noted in the application of Frost's *Playground Rating System* during the course of this research study included:

- Outdated in its relation to modern playground theories.

- Overlapping and conflicting criteria in the checklist items being asked.

- Improper portrayal of the outdoor classroom.

- Subjective to individual perspective and interpretations.

Observation and Field Notes.

Furthermore, this research study attempted to mitigate observer error and observer bias by the incorporation of the following techniques suggested by Mitchell and Jolley (2010):

- Reduce the possibility for memory errors by making it very easy to immediately record their observations. For example, give your observers checklists so they can check off a behavior when it occurs, or give observers mechanical counters that observers can click every time a behaviour occurs;

- Photograph, tape record, or videotape each participant's behavior so that observers can recheck their original observations;

- Carefully define your categories so that all observations will be interpreted according to a consistent uniform set of criteria;

- Keep observation sessions short so observers don't get tired. (p. 136)

In the context of this study, I carried a notebook while onsite at each research location and immediately recorded personal observations, in an attempt to reduce the possibility for error. Moreover, the *Playground Rating System* checklist was also utilized during each school visit to ensure the accuracy of information being recorded therein. As well, the checklist made certain that observations followed consistent categories and a uniform set of criteria. Furthermore, photographs were also taken to document the outdoor environments being researched and again to later on recheck original observations.

Lastly, it should be noted that a valuable source of information to this research study came from Google Maps and online database that allowed me to establish school property lines using aerial photographs.

Chart 2

Data Collection Strategies

Adapted the checklist created by Frost (2010)

↓

Documented observations

↓

Recorded field notes

↓

Took photographs in accordance with Davidson, Dottin, Penna & Roberston (2009)

↓

Reviewed the literature to determine if it was represented in the field
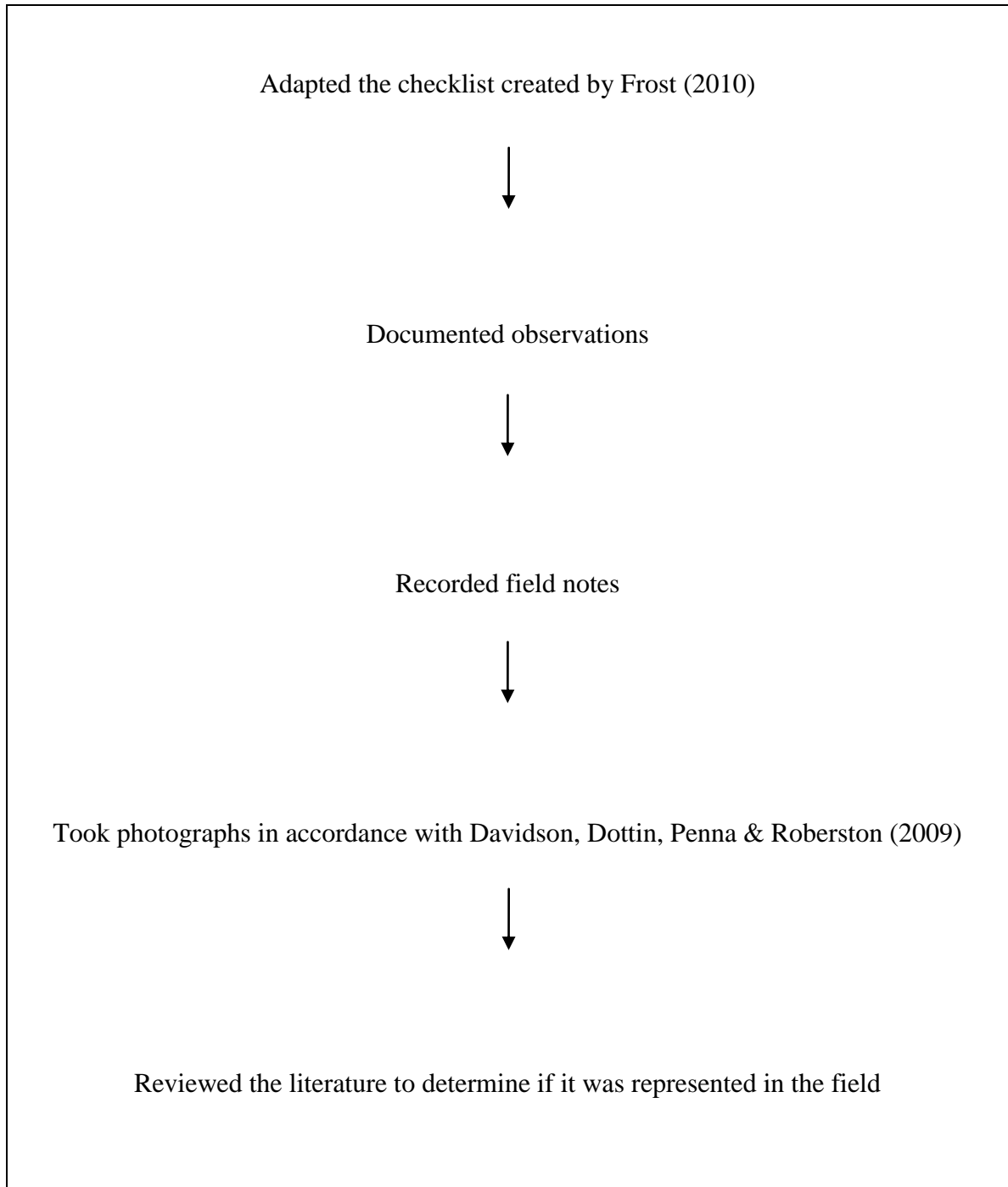
Data Analysis and Interpretation

Data analysis searched for trends in the data and emergence of common themes in outdoor environments. At the observed sites, I initially coded the data in a general manner; consequently a more in-depth analysis reduced the codes into a few major themes. Below, Creswell (2005) details a variety of themes which may emerge from the analysis process:

- Ordinary themes: themes that a researcher might expect to find;

- Unexpected themes: themes that are surprises and not expected to surface during a study;

- Hard-to-classify themes: themes that contain ideas that do not easily fit into one theme or that overlap with several themes; and

- Major and minor themes: themes that represent the major ideas, or minor, secondary ideas in a database. (p. 243)

Additionally, Creswell (2005) argued that "the objective of the coding process is to make sense out of text data, divide it into text or image segments, label the segments with codes, examine codes for overlap and redundancy, and collapse these codes into broad themes" (p. 237).

The results of the study have been presented using a several different techniques. It is hoped that this approach has allowed the findings to be displayed through different lenses. Moreover, Creswell (2005) suggests using five different methods to display data "create a comparison table; develop a hierarchal tree diagram; present figures; draw a map; and develop a demographic table" (p. 247-248).

For purposes of this study, I interpreted the data using the following strategies: summarize the findings; compare results to the academic literature; and offer suggestions for future research. Furthermore, Creswell (2005) suggested interpretation means that "the researcher steps back and forms some larger meaning about the phenomenon based on personal views and/or comparisons with past studies" (p. 251).

Ethical Considerations

Princeton University provides academic researchers' free access to WordNet an online lexical database for English. I utilized this search engine to ascertain a definition for the term ethical. WordNet defined ethical as "conforming to accepted standards of social or professional behaviour" (WordNet, 2010). Accordingly, this definition will serve as the starting point for discussion on ethical considerations.

The ethical issues which needed to be addressed included the settings where the pictures were taken. I had to ensure that the privacy, confidentiality, and anonymity of all research locations were considered. Moreover, data collected in the form of field notes, photographs, and my personal observations, needed to be kept in confidence. The photographs included within this research study were selected under careful scrutiny in an attempt to protect the identity of elementary schools. When feasible I would take a photograph with the camera pointing away from the elementary school building. However, I did have to discard some photographs as a result of individuals accidently walking into the image. I took the aforementioned measures in order to protect the public's identity and privacy.

The analysis and interpretation of photographs collected within this research study were an important concern. Research by Davidson, Dottin, Penna, and Robertson (2009) suggested that the purpose of the visual texts be included within the study as a whole and

the researcher should predefine indicators of key concepts they are looking for within the

photograph (p. 29). Additionally, the *Playground Checklist* by Joe L. Frost was adapted

and integrated into this research study, in order to define key concepts that I was looking

for within the photographs.

Lastly, although human subjects were not included within this study, I elected to

follow the University of Windsor's, Research Ethics Board protocol, successfully

completed the Tri-Council Policy Statement – On-Line Tutorial, in order to ensure ethical

procedures were followed.

Limitations

Fraenkel and Wallen (2003) explained that limitations are "an aspect of a study that

the researcher knows may influence the results or generalizability of the results, but over

which he or she has no control" (p. G-4). In contrast, Creswell (2005) stated that

limitations are potential weaknesses in the research design that "often relate to inadequate

measures of variables, loss or lack of participants, small sample sizes, errors in

measurement, and other factors typically related to data collection and analysis" (p. 593).

In addition to the abovementioned weaknesses, the most noteworthy limitation of a

qualitative research study is that its findings cannot be generalized. In this regard, the

research study only represents the twelve elementary schools investigated and should not

be generalized to cover experiences for an entire school board. Furthermore, the data

collected was unique to each individual elementary school based on their outdoor

environments. It should be mentioned that limitations are inevitable in research design, as

researchers are naturally constrained as a result of various factors including: time,

resources, goals and objectives etc. In other words, limitations do not necessarily mean

that the research methodology is flawed. All research has some limitations even the ones with solid design.

Creswell (2005) defines observation as "the process of gathering firsthand information by observing people and places at a research site" (p. 595). In this instance, as an observer, I became the instrument for gathering data. As well, it should be noted that a natural margin for error was expected to occur. Fraenkel and Wallen (2003) explained this error as "the possibility that an observer does not observe objectively and accurately, thus producing invalid observations and a threat to the internal validity of the study" (p. G-5). Mitchell and Jolley (2010) suggested that "if you can't eliminate observer error by eliminating the observer, you may still be able to reduce observer error by reducing the observer's role" (p. 135).

The research approach utilized in this research study was subject to its own particular and inherent weaknesses. While this should never invalidate the overall value of the results that were realized, it must be acknowledged, since the limitations could have affected the generalizations made from the data.

In summary, I was able to identify potential problems in the collection of data through observation; insufficient inclusion of elementary schools; and the risk of requiring a more purposeful collection of photographs for the study. The detection of these weaknesses provides a constructive insight for future studies and may be useful to other potential researchers who may choose to replicate this study.

<div align="center">**CHAPTER IV**</div>

<div align="center">**Findings**</div>

Introduction

In the following section, I will provide findings from the data collected during this investigation. Moreover, I have elected to present this information in the following manner.

Each checklist item will be presented independently, with significant findings being highlighted in point form. Thereafter, the data collected will be illustrated in a bar graph to show the score achieved for each elementary school from the Likert scale.

Additionally, in the bar graph legend each school has its own unique code and colour identifier. It should also be noted that the elementary schools were paired in the following order (from left to right): New School Construction; Old School Construction; Urban Surroundings; Rural Surroundings; Higher Income Neighbourhoods; and Lower Income Neighbourhoods.

Images have also been included in order to provide specific examples pertaining to the elements discussed in the various checklist items. Furthermore, I have decided not to include more than four images per checklist item due to limitations of space.

Lastly, I will provide samples from academic literature which outlines theories and/or methodologies related to the checklist item being explored.

Qualitative Data

Playground Rating System - Item #1.

In looking at the data collected for *Playground Rating System* - Item #1 (An open area with marked spaces for games, and goals for such activities as basketball and soccer. A network of marked paths or rubber conveyor belts for wheeled toys, linked to key play

zones.); Bar Graph 1 illustrates that none of the schools included herein attained the

lowest possible score of zero. In contrast, the schools that attained the highest achievable

outcome of five consisted of the following: ES-01, ES-02, ES-05, ES-07, ES-08, ES-09,

and ES-10. Moreover, there were five other schools which had achieved numbers that

were between the highest and lowest scores; the schools in this group included: ES-03

(3), ES-04 (3), ES-06 (4), ES-11 (4), and ES-12 (4).

Bar Graph 1

Open Area
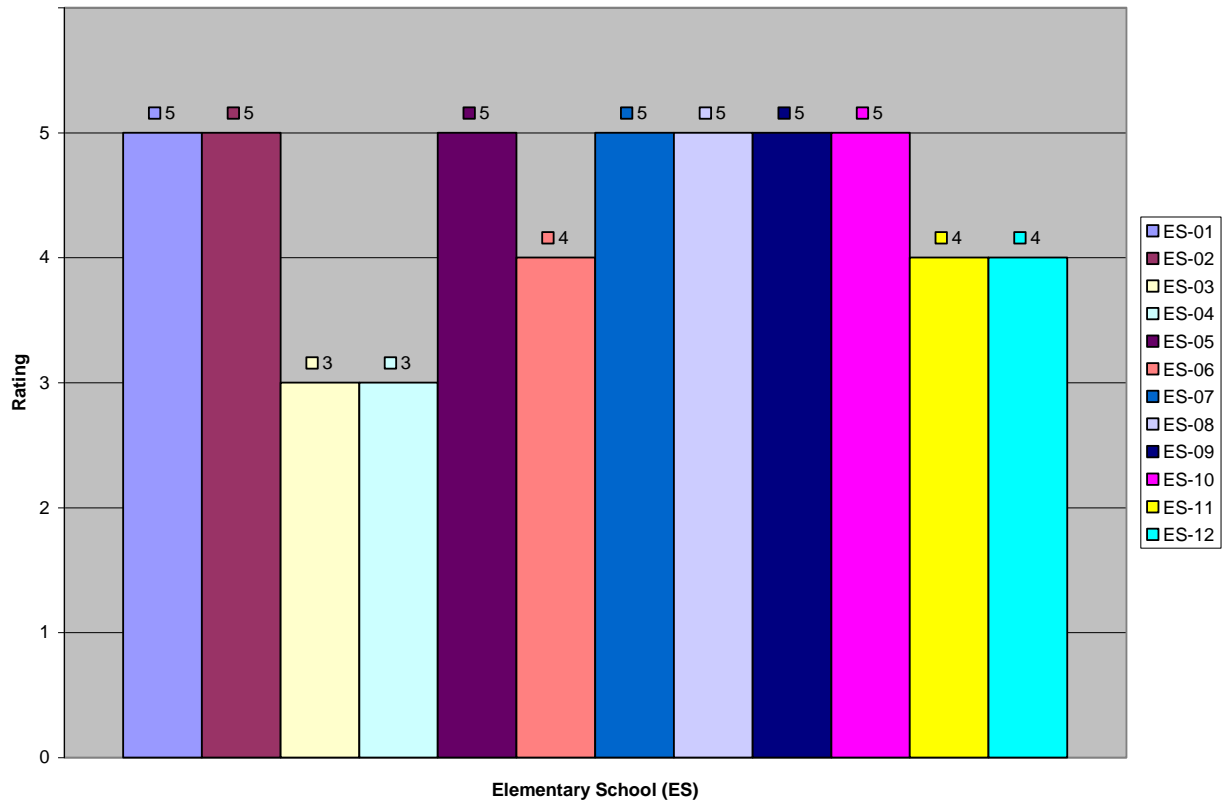
Note. An open area with marked spaces for games, and goals for such activities as
basketball and soccer. A network of marked paths or rubber conveyor belts for wheeled
toys, linked to key play zones. (Frost, Wortham, & Reifel, 2012)

At the outset, it is important to consider the work of Roberts, Arth and Bush (1959) which made distinctions between "games" and "amusements". In their view, a game was "characterized by organization, competition, two or more sides, criteria for determining a winner, and agreed upon rules, whereas noncompetitive activities are described as amusements". More importantly, there research suggested that games could be organized into three different types based on the following "outcome attributes":

    (1) games of physical skill, in which the outcome is determined by the player's motor activities;

    (2) games of strategy, in which the outcome is determined by rational choices among possible course of action; and

    (3) games of chance, in which the outcome is determined by guesses or by some uncontrolled artifact such as dice or wheel.

    (as cited in Frost & Klein, 1979, p. 30).

When I think about schoolyards, there tends to always be a point in which organized sports, such as: soccer, baseball, or basketball, come to mind. This first "check list" item not only explored the presence these games mentioned above, but also it looked for other activities which required specialized gear and a proper outdoor space. Research by Doll and Brehm (2010) found that:

    Three things are needed for games to be truly available for students: they must have the facilities and equipment to play the game, they must know how to play the game, and there must be someone to play the game with. (p. 31)

Further, many of the elementary schools investigated in the course of this research study possessed the requisite space and outdoor structures in order to carry out organized games. However, there were a few locations in which I observed evidence that students

had used chalk on the asphalt or outside school walls with the intention of adapting their

outdoor spaces to attain marked spaces. In light of this observation, it must be noted that

Frost and Klein (1979) discovered:

There is no simple rule of thumb for determining the optimum space for a

playground . . . such factors as numbers of children, type of soil, type and number of

natural features, and types of structures available tend to influence the user/space ratio. (p.

81)

It should be noted that every elementary school involved in this studied possessed a

significant amount of asphalt surface that was attached to the back of each school

building. I speculated that these spaces would allow children to engage in a variety of

activities and games. Furthermore, in the event of inclement weather, schools' sometimes

restrict student play during recess to the asphalt surfaces, in order to preserve green areas

from possible damage. Figure 1 demonstrates an open area with marked spaces for games

at ES-05. It was noted that, stencilled images were also painted at other schools for

activities such as hopscotch, which could be useful to organize students into activities

when those areas become overcrowded during bad weather.

Figure 1. ES-05: Open area with marked spaces for games.

In one case, the elementary schoolyard did not have any green space. As such, Figure

2 reveals that an open area with goal posts and markings painted on asphalt for soccer at

ES-05.In addition, lines were painted throughout these asphalt surfaces to indicate the

designated play area for games such as basketball and soccer.

Figure 2. ES-05: Open area with goal posts and markings painted on asphalt for soccer.

Moreover, I observed that each school studied had basketball nets either attached to the main school building or erected on posts amid their hard surface areas. Figure 3 shows evidence of a playground with the requisite markings for basketball at ES-07.

Figure 3. ES-07: Playground with the requisite markings for basketball.

Beyond the abovementioned asphalt surface, that was included in the schoolyard of each elementary school, not every school had the luxury of having green areas and grassy fields. Of those schools that had a green spaces, some had added trees to provide shade for children while outside, while others had included large mounds of dirt forming rolling hills throughout the open areas. It should be noted that the most common ground cover utilized for these large open spaces was grass, but in what appeared to be high traffic areas the grass had became almost eroded exposing dirt and rocks that lay below this green surface. Figure 4 displays a network of marked paths linked to key play zones at ES-07.

Figure 4. ES-07: A network of marked paths linked to key play zones.

Several schools that were studied had created outdoor classrooms with the placement of rocks, logs, and benches to replicate a class setting for students to sit and learn out-of-doors. However, in one case I did observe that the designated outdoor classroom was flooded from rain that had fallen the night prior, rendering the site unusable for teaching and learning purposes and perhaps a serious hazard for children that may come upon while at play. Furthermore, it was also observed that none of the spaces designated for outdoor classrooms had integrated a sound barrier into their design in order to dampen the outside noises from interfering with the learning of students. I believe that the absence of sound reducing materials is important to note because research has suggested that when a child cannot hear the teacher's instructions it adversely affects their learning progress.

In addition, it should be noted that each school did possess some form of seating for children to rest outside during play. However, it was also observed that none of the schools included in this study had a water fountain outside for children to rehydrate while

at play. It can be speculated that the children would be allowed to enter the school building to obtain a drink, but in many cases this would require permission from a teacher or adult supervisor on yard duty.

Lastly, as it relates to open spaces, every school included in this study had some form of natural barrier or fencing surrounding the perimeter of schoolyard. The enclosure of these open spaces not only allows for better control of students while outside, it also obstructs the entry of outsiders and even perhaps animals into the schoolyard. However, despite the natural and manmade obstacles, entry points such as gates or passages into the schoolyard were unlocked and easily accessed the public.

Playground Rating System - Item #2.

In looking at the data collected for *Playground Rating System - Item #2* (Sand and sand play equipment including a variety of loose parts - toys, blocks, scoops, and containers.); Bar Graph 2 illustrates that the elementary schools which scored the lowest possible score of zero were: ES-03, ES-04, ES-05, and ES-11. In contrast, the only school which successfully attained the highest achievable outcome of five was ES-06. Moreover, there were seven schools that achieved numbers which were between the highest and lowest possible scores; these schools included: ES-01 (1), ES-02 (4), ES-07 (3), ES-08 (2), ES-09 (3), ES-10 (3), and ES-12 (4).

Bar Graph 2

Sand and Sand Play Equipment
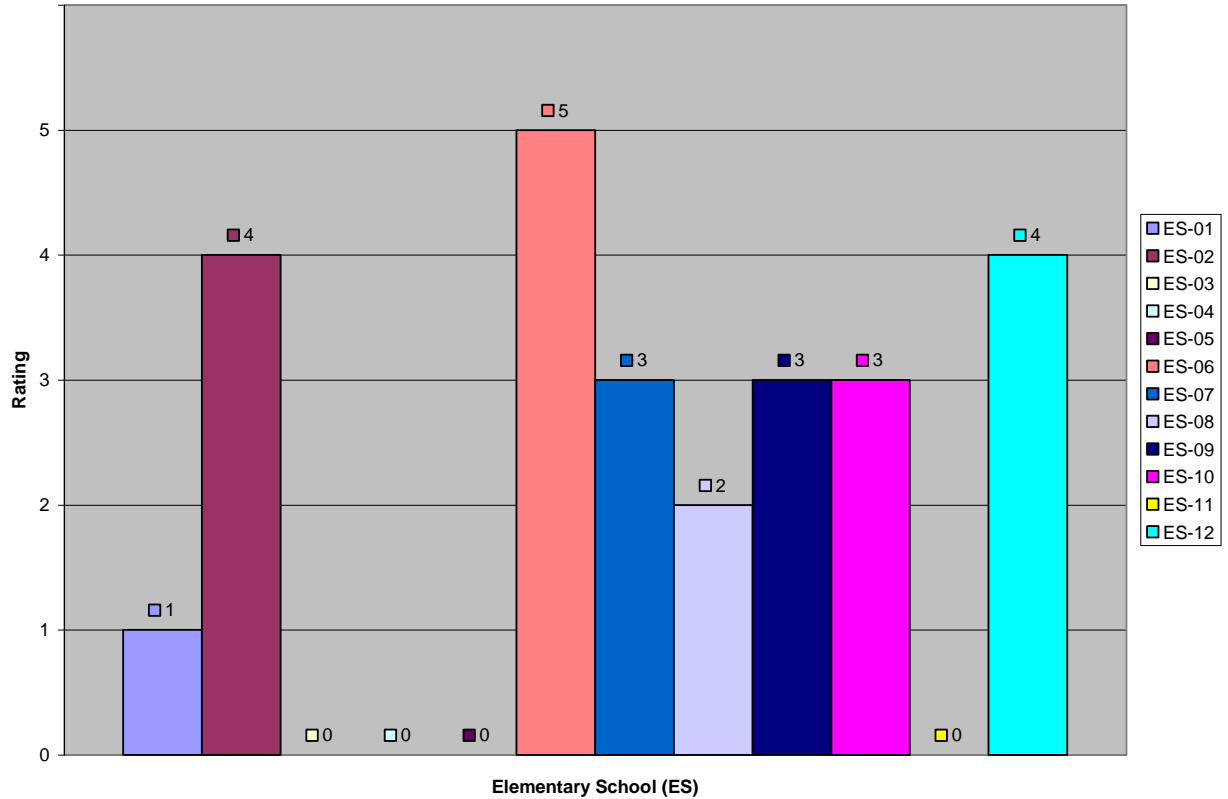
Note. Sand and sand play equipment including a variety of loose parts - toys, blocks, scoops, and containers. (Frost, Wortham, & Reifel, 2012)

As discussed earlier in the literature review for this research study, sand was the first natural resource incorporated into the design of playground equipment. Howe (2011) noted the historical significance of this material writing that:

Educators have long valued sand as an important material for exploration, play and learning. In 1847, Friedrich Froebel, German founder of the kindergarten movement, discovered the adaptability of sand as a material for play and built a sand box for his 'children's garden'. In the late 1800s, the sand heaps, and sand bergs and sand gardens of Germany inspired the first playground in America, the

Boston Sand Gardens. Froebel's sandbox has withstood the test of time and is an

iconic symbol of early childhood. As playgrounds continue to evolve, there is a

movement today towards more natural play spaces for children. Sand continues to

command a prominent role because of its direct connection to nature and its

unlimited potential for play and learning. (Pedagogy of Sand Play section, para. 1)

Moreover, research by Kienitz and Kent (1996) identified that "important components for

play landscapes for everyone include water, sand, and grass made accessible" (p. 137).

In this research study, of the twelve elementary schools examined, two-thirds actually

had a designated sandbox with the accessories suggested within this check list item (albeit

in varying amounts). In the course of their research, Sutherland and Soames (1984)

recognized that:

A playground also needs a constant supply of toys, and you should be able to

obtain most of these free or very cheaply. Teachers and parents who use the

playground will probably be willing to donate toys that their children have grown

out of. (p. 92)

Additionally, it should be acknowledged, toys were available at almost all elementary

school which had a sandbox in their outdoor environments.

Lastly, in discussing the educational value associated with sand and its physical

applications in the playground Howe (2011) explained that:

Sand is familiar to most children. It is instantly, richly sensorial in texture and,

coupled with water, allows children to manipulate and transform it. Sand play is

multidisciplinary and provides young children with many opportunities to make

discoveries, express their thoughts and ideas, test their theories and gain important

physical, emotional, and cognitive and social skills. In addition, sand play

promotes a strong connection to the natural world, grounding children to a

primordial element, one they instinctively want to explore. Fortunately, sand is

inexpensive and abundant, thereby making it a readily available play material for

children all over the world. (Pedagogy of Sand Play section, para. 2)

When evaluating the presence of sand and sand play equipment at the elementary

schools studied within this research project; I noticed that there were four schools that did

not possess any type of structure or apparatus for children to engage in play with sand.

Moreover, in every other circumstance in which sand was present in the schoolyard or

playground it was contained within some type of box or storage place in order to protect it

from being dispersed into the other play areas. Figure 5 displays an open sandbox for play

and learning at ES-06.

Figure 5. ES-06: Open sandbox for play and learning.

In addition, there were a few sandboxes observed in this study had included a cover in

order to protect its contents from the elements. Figure 6 demonstrates a sandbox with

cover to protect it from the elements at ES-06. In the situations in which the sand was not

covered this research study noted that the sand was often compacted and hard to the

touch.

Figure 6. ES-06: Sandbox with cover to protect it from the elements.

In a unique case, there was three sandboxes located at one school that were filled

with pea gravel. Figure 7 reveals three plastic sandboxes (with lids), filled with pea gravel

at ES-08. Perhaps this was a substitute for the sand or rather served an entirely different

purpose than that which I was evaluating. Nonetheless, these three sandboxes were

located in the same manner as many others observed in this study amongst other play

apparatus and structures. Furthermore, the sandboxes in questions also had their lids

located on the ground nearby; however, it was not possible to discern the reason for these

containers remaining uncovered.

An important aspect of sand play is the equipment that children may use to engage this natural material. The equipment most often used by children during sand play include items such as: toys, blocks, scoops, and containers. However, in this study, none of the schools that boasted a sandbox in their schoolyard stored the requisite equipment at hand. Perhaps, these items were gathered inside the school building for safe storage. In any event, this practice would require that someone bring the toys, blocks, scoops, or containers outside during playtime for children to utilize when in the sandbox.

Moreover, the placement of sandboxes was usually close to the main school building, perhaps this was to accommodate the transport of equipment from inside out. Another, significant observation that I made with regard to placement of sandboxes, was that they were situated on both asphalt and green surfaces, also it was noted that there were no obstructions nearby as well. Furthermore, the size and shape of each of the sandboxes included in this study varied from square or round, and from small individual play spaces to large communal ones.

Figure 7. ES-08: Three plastic sandboxes (with lids), filled with pea gravel.

It was observed that none of the sandboxes had any type of seating near the play area. However, I suspected that children could find makeshift seating along the edge of the sandboxes in order to rest during play. Although it would be expected that some children may choose to stand in and amongst the sand itself. More often than not, the sandboxes were located out-in-the-open and exposed to direct sunlight. Figure 8 shows evidence of a partitioned area of schoolyard adjacent to playground for sand play activities at ES-12. It can on be speculated that this layout was chosen to assist the sand in drying after wet weather. Furthermore, this hypothesis may be supported by the fact that when under tree cover a sandbox in this study possessed a lid to ensure shelter from the weather.

Figure 8. ES-12: Partitioned area of schoolyard adjacent to playground for sand play activities.

Lastly, given the numbers of children that populate an elementary school, I found the magnitude of these sandboxes to be very limiting if a lot of children wished to engage this activity at the same time. Again, this concern transcends to the amount of play equipment to children that are engaged in this activity. Furthermore, I noticed that those sandboxes with lids positioned atop them had cleaner sand (free from debris such as sticks, stones, and leaves) than those without coverage.

Playground Rating System - Item #3.

In looking at the data collected for *Playground Rating System -* Item #3 (Water play areas with fountains, pools and sprinklers, and water play materials.); Bar Graph 3 illustrates that every elementary school included within this study scored the lowest possible score of zero for this check list item.

Bar Graph 3

Water Play Areas

ES-01
ES-02
ES-03
ES-04
ES-05
ES-06
ES-07
ES-08
ES-09
ES-10
ES-11
ES-12

Rating

□0 ■0 □0 □0 ■0 ■0 ■0 □0 ■0 ■0 □0 □0

0

Elementary School (ES)
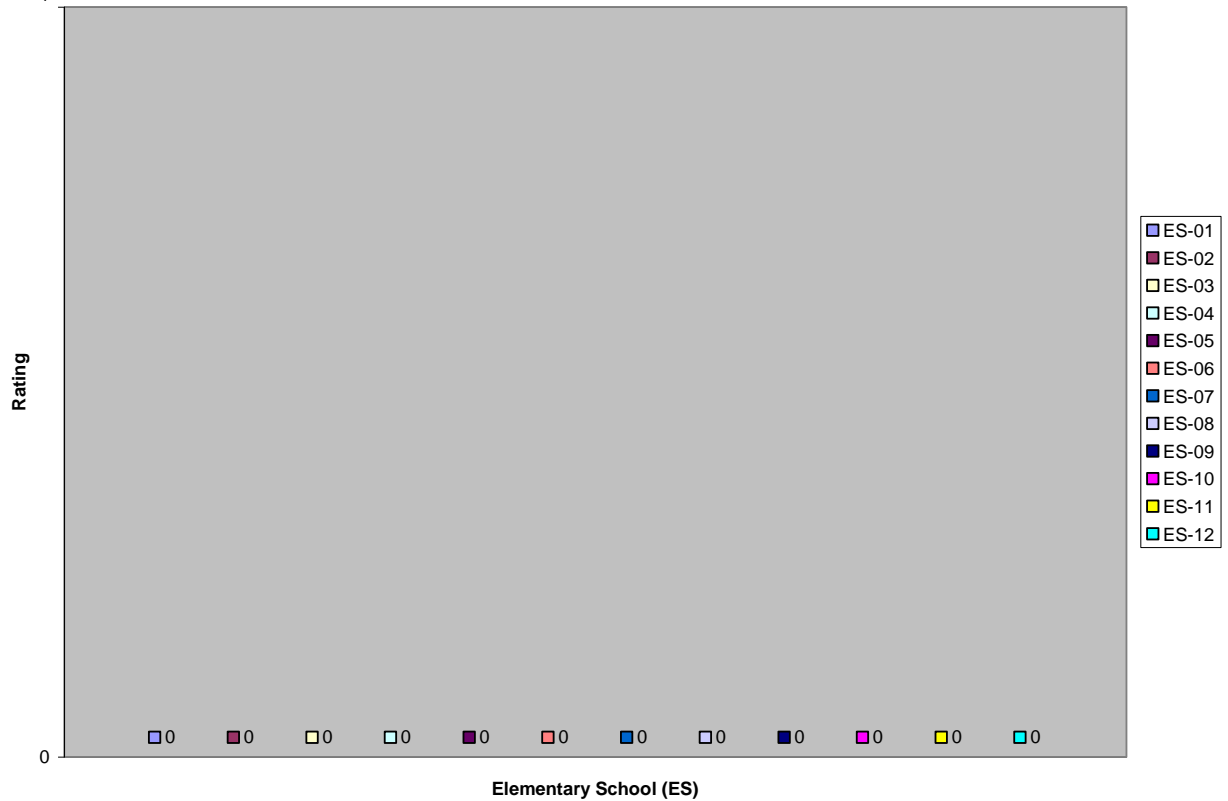
Note. Water play areas with fountains, pools and sprinklers, and water play materials. (Frost, Wortham, & Reifel, 2012)

Surprisingly, this was the first of only two check list items in which none of the 12 schools possessed any of the features listed. In addition, considering the high educational value attributed to water play, I could only speculate that child safety was a major factor for its absence.

Research by Gabrielsen (1969) suggested that "it would be ideal to have a small 'training' type pool in every elementary school . . . if this were possible, every child would learn to swim by the age of six" (p. 47). Idealistic as this may be, many communities have opted to integrate large capital projects in order to save the taxpayers money. For

example, Brock Public Elementary School in Windsor, Ontario integrated a detachment from the local police department as well as a branch of the public library into its structural design. Thus, it would not be implausible for another elementary school development to incorporate a swimming pool into its vision.

Sayre (1995) explored the educational value of water play and concluded that:

Water is a wonderful environment for children. It stimulates children to broaden their outlook and to engage in problem solving. It excites the senses of the children, and it heightens their awareness. Children should be exposed to various water environments from an early age. (p. 3)

Also, Ataov (1996) conducted a research study that investigated the perceptions young children related to their interaction with water. Ataov concluded that "the use of water enables children to discover new forms of comprehensive stimuli of the senses, facilitates mental development and physiological skills, and yields opportunities for children to create play situations" (p. 13). In addition, I acknowledge the contributions from other studies including: Lynch and Banerjee (1990); Lynch and Lukashok (1990); and Carr (1992), all of which shared a similar perspective in that "water, waterfalls, and waterfronts stimulate children to explore, enable them to *relax* and to be *physically* and *visually* in contact with nature" (Ataov, 1996, p. 12).

Areas for water play were largely absent from every schoolyard and playground included in this research study. The initial speculation for this missing aspect to children's play, may be attributed to the potential for risk and the hazard water poses for children when they are not properly supervised. Furthermore, I estimate that the cost associated with insurance related to water features on the school property may have been a hindered this attribute from coming to fruition within those outdoor environments.

In one instance though, I did observe an empty water tub outside against a fence located within an enclosed area. Figure 9 displays an empty water tub, filled with leaves and debris, that was located outside in fenced play area at ES-07. Although this tub was not filled with water, the tub was chock-full of debris such as dirt and leaves. I assumed that due to cooler weather perhaps this water feature was no longer being used and maybe was being stored in this outdoor location for convenience. Nonetheless, I did not tabulate the tub as an actual water play feature, since it was missing the most important component - water.

Figure 9. ES-07: Empty water tub, filled with leaves and debris, that was located outside in fenced play area.

When it rains, the puddles that form could provide impromptu water play areas. Perhaps, an example of this might be the image of a child dressed in rain gear jumping into a puddle on a wet day. However, more often then not, students miss this play opportunity because they are kept indoors during rain. As well, it should be noted that

some schools relegate their students to playing on hard surfaces after it has rained in order to avoid injuries to children and damage to fields.

Although outside the scope of this research study, I did observe natural water features such as ponds and creeks adjacent to several school properties. Thus, it could be possible that these neighbouring spaces could be used for educational purposes by the teachers. Moreover, the birds, animals and insects that are obviously drawn to natural habits would provide children with arms length interaction with these creatures.

Of the schools included within this study, ES-01 had been celebrated as a leader in the advancement of green technology within their school board. Unfortunately, at the time of this study, the schoolyard and playgrounds of this flagship school did not reflect the environmental themes celebrated within. Sadly, its outside environments were just average in comparison with those of other schools in this sample group. Although abundant with trees and green spaces, this "modern" school did not include any type of water play feature or waterscape into its design.

Lastly, the absence of opportunities for water play at almost every school in this study did surprise me, especially in view of the fact that kindergarten classrooms often have an area for children to play with water.

Playground Rating System - Item #4.

In looking at the data collected for *Playground Rating System - Item #4* (Dramatic play structures [playhouses, cars or boats with complementary loose parts such as adjacent sand and water and housekeeping equipment].); Bar Graph 2 illustrates that the majority of elementary schools scored the lowest possible score of zero, these schools included: ES-01, ES-03, ES-04, ES-05, ES-06, ES-09, ES-11, and ES-12. In contrast, the

remaining schools all successfully attained the highest achievable outcome of five, included in this group were: ES-02, ES-07, ES-08, and ES-10.

Bar Graph 4

Dramatic Play Structures

Dramatic Play Structures
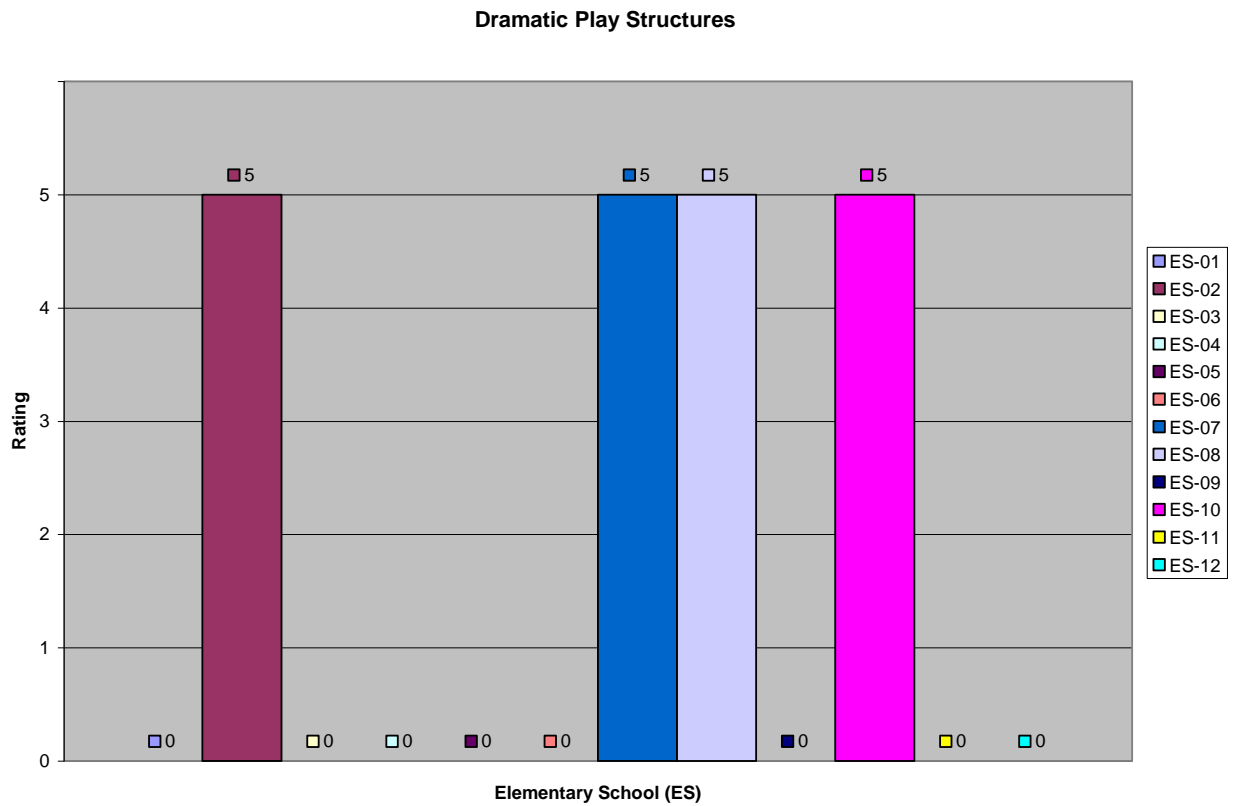
Note. Dramatic play structures (playhouses, cars or boats with complementary loose parts such as adjacent sand and water and housekeeping equipment). (Frost, Wortham, & Reifel, 2012)

Much research has been conducted related to the role of dramatic play in a child development. For example, Johnson (1998) suggested that:

Sometimes referred to as 'pretend play', 'imaginative play' or 'symbolic play', dramatic play will be referred to here as the process by which 'children assume an identity in role enactment, relating to other persons or objects as if they are other

than themselves, or altering time and space in the form of situational

transformations'. (p. 148)

In addition, Frost and Klein (1979) contend that:

Symbolic play, frequently called dramatic play, involves representation of an

absent object . . . They [children] construct a system of symbols for self-

expression including both language and actions from information transmitted to

them by adults and peers. Through language and their actions children resolve,

through symbolic play, the conflicts they meet. They also explore and resolve role

conflicts with and unsatisfied needs, leading to increased mastery of their

environment and extension of self. (p. 12-13)

Given the importance attributed to dramatic play, I was surprised to realize that only four

elementary schools had introduced dramatic play structures into their outdoor school

environments.

A research study by Olsen and Sumsion (2000) explored the probable causes that

motivated administrators to leave dramatic play out of the curriculum of elementary

schools. They cited the work undertaken by Kagan (1990) which postulated that:

There are three types of barriers inhibiting the implementation of dramatic play in

the early years of school:

- *Attitudinal* barriers largely derive from the value teachers place on play;

- *Structural* barriers to implementing dramatic play involve limitations

imposed by curricula, such as time, space, and materials; and

- *Functional* barriers are closely associated with attitudinal barriers. As

children progress through the grades, Principals and administrative staff can

often place less importance on play. (as cited in Olsen and Sumsion, 2000, p.

4)

Furthermore, according to Simpson and Lynch (2003):

The dramatic play area provides an excellent opportunity to enhance children's

social and language development. Dress-up clothing, props, and a mirror help

children to use their imaginations and interact with each other. For children with

disabilities, closures with large buttons or Velcro are helpful. For those children

with limited attention spans, the dramatic play center can be sectioned off with

sheeting hung from the ceiling to reduce distractions. (p. 7)

It should be noted that the abovementioned research study appears to be discussing facets

of dramatic play from an indoor perspective. However, these findings could easily be

applied to the context of an outdoor environment provided that adequate outdoor storage

was made available to keep materials stowed when not in use.

Within this sample group of elementary schools, dramatic play structures as

described in the *Playground Rating System* were not a common occurrence. Only four

schools had included this type of play structure into their schoolyard design for children

to use. Although, it should be noted that in its functional definition used by the

Playground Rating System water play could have contributed to the dramatic play of

children. Hence, as mentioned earlier, almost none of the schools included herein had any

kind of water play apparatus, and thus this factor was negligible in the evaluation of this

playground feature.

Moreover, I observed that dramatic play structures often attempted to replicate items

found at the adult level. For example, Figure 10 demonstrates a dramatic play structure

modeled to replicate a storefront at ES-02. Moreover, a design element that was noted in

several elementary schools studied herein, was that their play structures were often painted in a variety of colours in order to catch the attention of children at play.

Furthermore, I did observe that some elementary schools kept their play equipment associated with dramatic play outdoors and close to playground structures. However, this practice was the exception for the most part and not the norm. What is more, I speculate that this practice of securing "complementary loose parts" indoors or within storage sheds may be associated with the high risk for theft of these items.

Figure 10. ES-02: Dramatic play structure modeled to replicate a storefront.

In regards to dramatic themes, I observed three different types amongst the four schools including: a playhouse, a pirate ship, as well as an automobile. Moreover, I believe that each of these independent themes contribute to creative growth in level of play. In essence, these structures "set the stage" from which children will engage in their imaginative dramatic play scenarios.

It was noted that imaginative play could be easily be enhanced with the inclusion of themed play structures. Figure 11 reveals a dramatic play structure characteristic of a pirate ship at ES-07. I believe that this design concept, could provide children with a catalyst for their dramatic play as well as form a tangible backdrop for any role-playing that may occur.

Figure 11. ES-07: Dramatic play structure characteristic of a pirate ship.

It should be highlighted, that each of the four dramatic play structures identified in this study were located within close proximity to their main school buildings. However, some differences existed with respect to the foundational surfaces on which they were placed on. In one instance, the dramatic play structure was secured atop the asphalt surface itself, where in another case pea gravel was used, and in contrast the last structure had adapted a rubberized surface.

There were a few instances during the course of this study in which the dramatic play structures were integrated within another play apparatus. For example, Figure 12 shows

evidence of dramatic play features (storefront) integrated into superstructure at ES-08.

However, I noticed that dramatic play structures observed while conducting field research

were mostly freestanding features. As such, Figure 13 displays a dramatic play structure

constructed to replicate an automobile at ES-10.

Figure 12. ES-08: Dramatic play features (storefront) integrated into superstructure.

Figure 13. ES-10: Dramatic play structure constructed to replicate an automobile.

Research by Drucker et al. (1999) identified that "learning that first takes place in pretend play forms the basis for later intellectual and social developments," what is more, they itemized the developments as follows:

- Academic work as it draws on reasoning and the capacity to represent experience through the use of symbols, especially with regard to literacy.

- The ability to think hypothetically and test out ideas, to imagine what does not yet exist in both aesthetic and scientific realms.

- The development of narrative construction in storytelling, non-fiction, and historical study.

- All forms of collaborative work that involve the sharing of ideas, planning, negotiation and compromise.

- Pretend play is the basis on which interests and capabilities, imaginative and intellectual strengths are formed. It is the most fertile area for the development of the child's mind. (p. 10)

Last of all, it is important for educators to understand the best scenarios in which to apply dramatic play to capitalize from its intrinsic worth. Smilansky (1968) outlined the subsequent six decisive factors for significant socio-dramatic play:

(1) *Imitative role play*. The child undertakes a make-believe role and expresses it in imitative action and/or verbalization. Example: "I am the daddy, you will be the mommy, and the doll is out baby."

(2) *Make-believe in regard to objects*. Movements or verbal descriptions are substituted for real objects. Example: "I am drinking from the bottle," when the child is drinking from his fist.

(3) *Make-believe in regard to actions and situations*. Verbal descriptions are substituted for actions and situations. Example: "Let's pretend I already returned from work, I cooked the food, and now I am setting the table," when only the last activity is actually imitated.

(4) *Persistence*. The child persists in a play episode for at least ten minutes.

(5) *Interaction*. There are at least two players interacting in the framework of the play episode.

(6) *Verbal communication*. There is some verbal interaction related to the play episode. (as cited in Frost & Klein, 1979, p. 14)

Playground Rating System - Item #5.

In looking at the data collected for *Playground Rating System - Item #5* (A superstructure with room for many children at a time and with a variety of challenges and exercise options [entries, exits, and levels].); Bar Graph 2 illustrates that very few elementary schools scored the lowest possible score of zero, included within this small group was: ES-01, ES-03, and ES-09. In contrast, all the remaining schools successfully attained the highest achievable outcome of five, these schools included: ES-02, ES-04, ES-05, ES-06, ES-07, ES-08, ES-10, ES-11, and ES-12.

Bar Graph 5

Superstructure
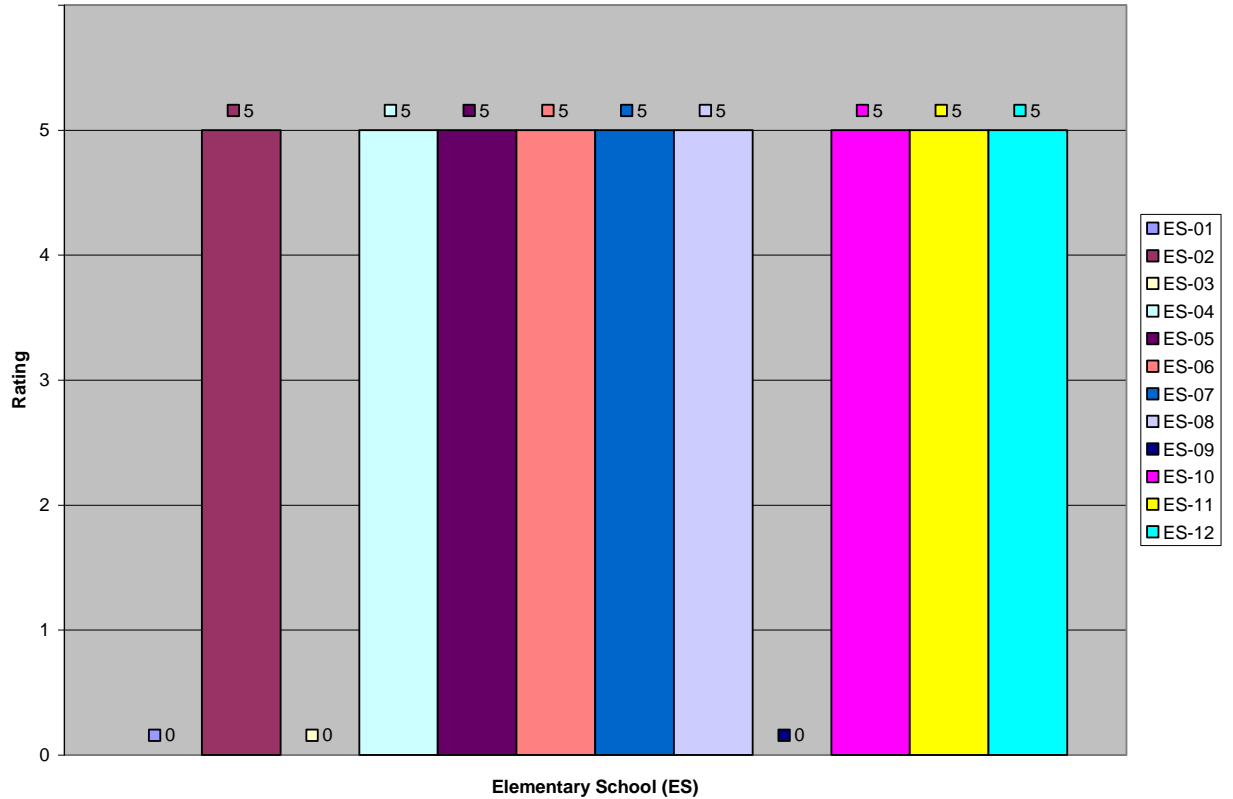
Note. A superstructure with room for many children at a time and with a variety of challenges and exercise options (entries, exits, and levels). (Frost, Wortham, & Reifel, 2012)

The academic literature has looked extensively into playground equipment and apparatus. Moreover, it has explored which features are most essential for playgrounds to provide children with a valuable learning experience. Research by Sutherland and Soames (1984) noted that:

The three basic elements of structures are slides, swings and opportunities for climbing ... link them up, so there's more to do than simply climb up one side and down the other. Include things like tunnels and little cubbyholes that kids can treat

as private spaces. Try to build a variety of challenges into the same structure, so

that as children develop greater self-confidence or physical prowess they can

progress from one to another. (p. 129)

Another study by Doll and Brehm (2010) stated that "physical features of a

playground predispose students to particular kinds of play ... structures that are colorful

and attractive draw students onto the playground, inciting a joy that is infectious and that

fuels more exciting and delighted play" (p. 29). This was reflected in most of the

playground equipment documented in this study. However, it was noted with time the

vibrant colours which originally had covered the playground equipment had started to

fade. However, this was the case more with plastic as opposed to metal or wood

materials.

I observed that there were several elementary schools within this study that had

included a superstructure in their playground layout. However, it should be noted that

three schools did not install a superstructure in their outdoor playground, but had other

types of play apparatus' for children to engage during their playtime.

During my observations, I did notice that steel, wood, and plastic were the most

common building materials used in constructing these superstructures. This material

choice may be due to the large number of children that these play apparatus must endure

while in use. Moreover, in the elementary schools' studied, the large superstructures were

always outfitted with some type of ground material such as pea gravel, sand, mulch, or

rubberized substance in order to soften the surrounding surface for children at play.

In a few cases, it was evident that the superstructure had been elevated in order to

assist with drainage and avoid standing water. Figure 14 demonstrates a superstructure

built from metal/plastic and located atop pea gravel at ES-02. It should be noted, in high

traffic areas a shortfall to using pea gravel as a ground cover is that the material is easily

displaced when children's' feet come in contact with the ground at landing sites around a

superstructure.

Figure 14. ES-02: Superstructure built from metal/plastic and located atop pea gravel.

In those instances in which the superstructure was note elevated above ground level,

it was observed that other materials such as dirt and debris tends to become mixed along

with pea gravel and mulch ground covers. For example, Figure 15 reveals a

superstructure constructed of metal and stationed atop sand mixed surface at ES-04. It

should also be noted, that I identified some rust on metal surfaces of various

superstructures. In contrast, those parts that were made of plastic also experienced some

discolouration as a result of prolonged exposure to the sun.

Figure 15. ES-04: Superstructure constructed of metal and stationed atop sand mixed surface.

It was noted, that due to their large footprint, few superstructures had shade protecting children from the sun. However, it was thought that the open spaces situated below different play apparatus could provide children with protection from the sun. Figure 16 shows evidence of a superstructure fabricated from metal/plastic and placed atop woodchip ground cover at ES-05. I discovered while collecting data, that woodchip ground cover was a cooler surface for children to play compared to asphalt.

Figure 16. ES-05: Superstructure fabricated from metal/plastic and placed atop woodchip ground cover.

It was noted that the rubberized substance used below superstructures provided the most effective coverage, compared to pea gravel and wood chips that tended to become displaced as a result of children at play. Figure 17 displays a superstructure made using metal/plastic components and situated atop a synthetic rubber surface at ES-07. What's more, I also observed that the reddish rubberized substance did not show any signs of discolouration as with plastic parts of the superstructure.

Figure 17. ES-07: Superstructure made using metal/plastic components and situated atop a synthetic rubber surface.

Playground structures encourage children to interact with one another and establishes social relationships amongst peers. Sutherland and Soames (1984) suggested that "try also to build structures that will encourage children to play together; this is particularly important with children with disabilities, whose experience of socialising with other children is often much more limited than that of able-bodied children" (p. 129).

Lastly, I observed that the inherent design and layout of every superstructure studied herein was reminiscent of an independent island for play within the broader context of its schoolyard.

Playground Rating System - Item #6.

In looking at the data collected for *Playground Rating System* - Item #6 (Mound(s) of earth for climbing and digging.); Bar Graph 6 illustrates that several schools included herein attained the lowest possible score of zero, those schools belonging to this group

were: ES-03, ES-05, ES-06, and ES-07. In contrast, only one school attained the highest

achievable outcome of five, this school was ES-01. In addition, there were six other

schools which had achieved numbers that were between the highest and lowest scores;

these schools were: ES-02 (3), ES-04 (4), ES-08 (3), ES-09 (3), ES-10 (1) and ES-11 (2).

Bar Graph 6

Mounds of Earth
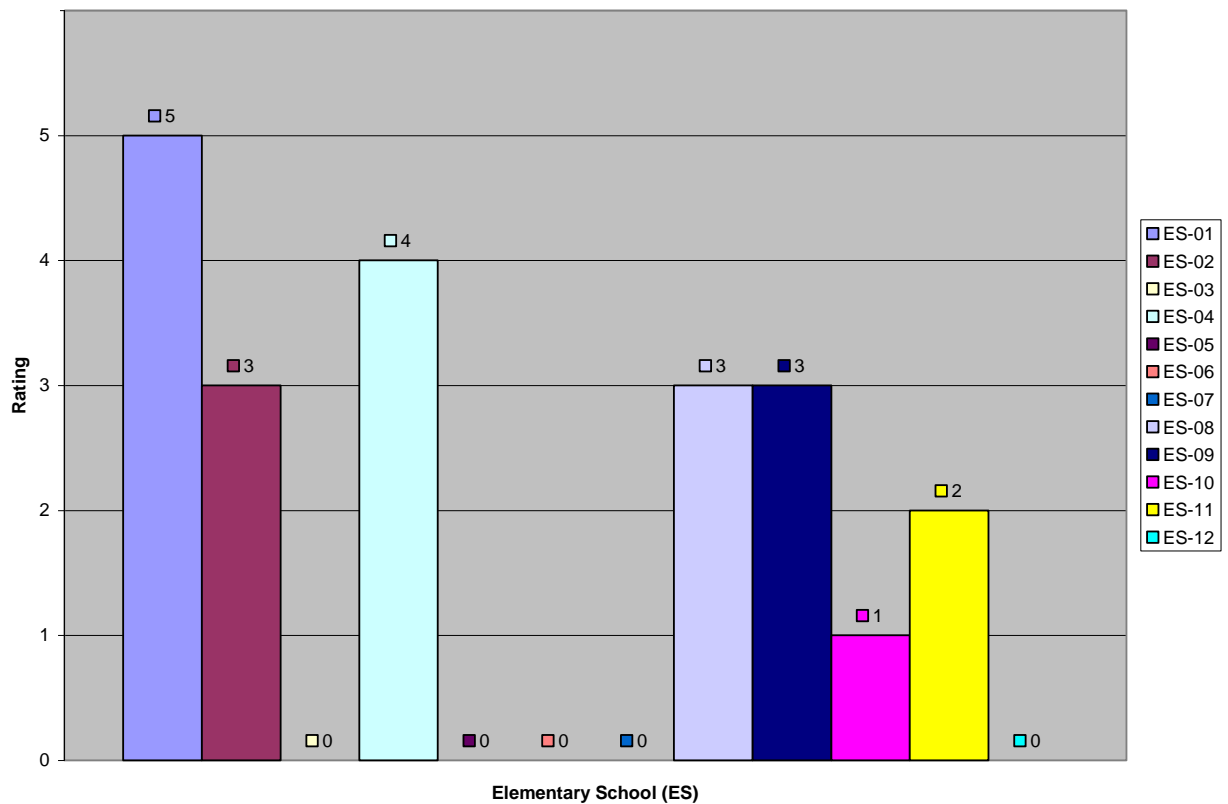
Note. Mound(s) of earth for climbing and digging. (Frost, Wortham, & Reifel, 2012)

More often than not, the schoolyards and playgrounds studied herein were mostly

situated on flat surfaces. However, some schools had developed there outdoor landscape

to include mounds of earth for children to use during their playtime. Furthermore, it was

also noted that those schools which had mounds of earth on their property also

experienced a significant amount of flooding at the mound's base. It is believed that this

accumulation of water poses a potential risk to students that may frequent these outdoor

spaces during their recess periods after rain has stop.

Bar Graph 6 clearly illustrates that five elementary schools within this study did not

have any type of earth mound included in their schoolyard. Even though the other seven

schools were recorded as having some form of mound, only one (ES-01) was allocated

full points since they provided students an abundant amount of opportunities to both

climb and dig. Figure 18 displays several mounds of dirt cascading along each other and

featuring designated walking paths at ES-01.

Figure 18. ES-01: Several mounds of dirt cascading along each other and featuring
designated walking paths.

The majority of schools in this category had only one of the two facets situated on the

schoolyard. For example, ES-04 had a large mound of dirt located near the rear of the

schoolyard for students to climb, but did not provide an area for them to dig. Figure 19

reveals a large mound of dirt located near rear of the schoolyard at ES-04.

Figure 19. ES-04: Large mound of dirt located near rear of the schoolyard.

In contrast, ES-08 and ES-09 both had areas for students to dig, although it was on rather

flat surfaces. However, these two schools lacked the presence of earth mounds on the

property for children to climb. Figure 20 shows evidence of a sloped dirt embankment set

aside for digging ES-08.

Figure 20. ES-08: Sloped dirt embankment set aside for digging.

Moreover, Figure 21 demonstrates a triple-jump pit, adapted to the function of digging

when not in use at ES-09. In addition, I believe that this dirt patch also had attributes of a

sandbox.

Figure 21. ES-09: Triple-jump pit, adapted to the function of digging when not in use.

Mounds of earth are commonly associated with tobogganing during the winter months, but this activity may prove treacherous for teachers or parent volunteers to navigate during recess. In addition, issues of accessibility and mobility become a concern for students which have physical limitations that could cause them difficulty in finding their way on a mound of earth.

In spite of the fact that several schools had mounds of earth, only one school (ES-01) had included a paved path to assist those individuals wishing to journey atop the mound of earth a designated route. Moreover, the other schools that did not have a paved path as mentioned above, experienced significant erosion causing ruts in the mounds of earth due to continued foot traffic in the same place.

Lastly, I had also noticed that once atop the mounds of earth an observer was privy to a unique vantage point, which in some cases encompassed the entire schoolyard and playground.

Playground Rating System - Item #7.

In looking at the data collected for *Playground Rating System* - Item #7 (Trees and natural areas for shade, animal habitats, nature study, and play.); Bar Graph 7 illustrates that none of the schools included herein attained the lowest possible score of zero. In contrast, only one elementary school was able to attain the highest achievable outcome of five, this school was ES-01. Moreover, the remaining eleven schools achieved numbers that were between the highest and lowest scores; the schools and their results are as follows: ES-02 (3), ES-03 (2), ES-04 (3), ES-05 (1), ES-06 (3), ES-07 (3), ES-08 (3), ES-09 (3), ES-10 (2), ES-11 (3), and ES-12 (2).

Bar Graph 7

Trees and Natural Areas
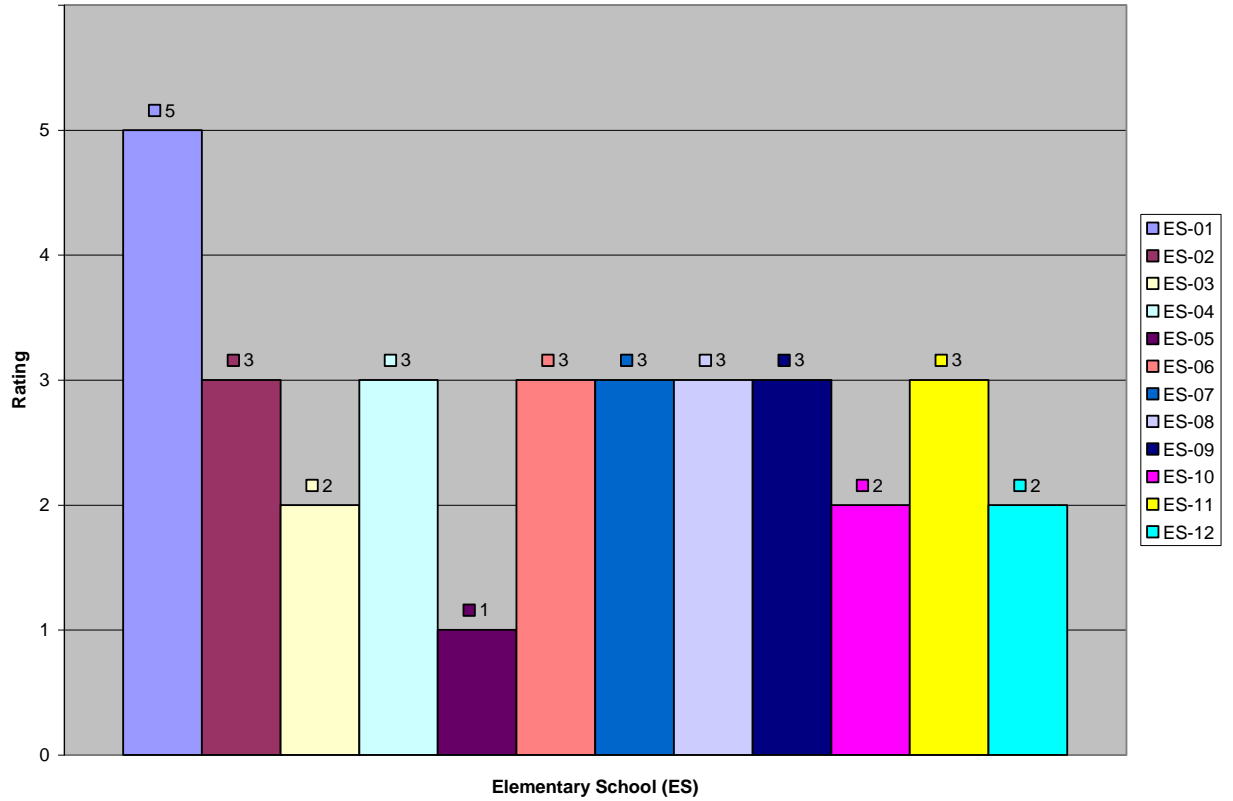
Note. Trees and natural areas for shade, animal habitats, nature study, and play. (Frost, Wortham, & Reifel, 2012)

During the course of this study, I observed that trees and natural areas were included in the layouts of all the elementary schools sampled. Moreover, it was also noted that mature trees were predominantly situated at the front of school properties, with newly planted juvenile trees the norm in schoolyards.

It was noted above that only one elementary schools possessed all attributes listed in the *Playground Rating System* description for this checklist item. As such, Figure 22 displays a natural landscape including: trees, hills, walking paths, and rock features at ES-01. I believe that this variance in landscape features add a sense of depth to an otherwise

flat schoolyard. In addition, these natural screens created by the hills and trees provide

schoolyards with a sound barrier that helps filter noises that originate off school property,

and in turn it also helps keep sound within the school boundaries as well. What's natural

landscapes could also provide children with a sense of privacy while outside during their

playtime.

Figure 22. ES-01: Natural landscape including: trees, hills, walking paths, and rock
features.

I observed that much of the natural landscaping found within schoolyards was not

original to the property, but rather man-made beautification. It was noted during field

research, that the majority of schools had planted vegetation along the front in order to

generate curb appeal. In contrast, a few schools did not have plant life included into their

schoolyard or playgrounds. Hence, creating a mood which I felt was desolate due to the

significant amount of asphalt used throughout their exteriors. Figure 23 demonstrates a

man-made habitat that includes the following natural features: trees, walking paths, rock

features, and natural landscaping at ES-02.

Moreover, the natural area depicted in Figure 23, was also utilized as an outdoor

classroom. The seating was made from cut timer they were positioned in such a way as to

replicate the configuration of a regular classroom inside. What's more, this outdoor space

provides students with a natural environment from which to conduct their nature study.

Figure 23. ES-02: Man-made habitat that includes the following natural features: trees,
walking paths, rock features, and natural landscaping.

A significant characteristic of natural landscapes are the shade that they can provide

children to while out-of-doors. Researchers' have recently started to explore the

temperature levels generated by different playground materials and surfaces during hot

periods. Generally, it has been established that children which play in areas that lack

shade experience more fatigue while playing in these spaces. Figure 24 reveals mature

trees located in the schoolyard that provide children with a small shaded area at ES-06.

Figure 24. ES-06: Mature trees located in the schoolyard that provide children with a small shaded area.

Moreover, research by Freeman (1995) identified that:

Hart (1979), Moore (1986), Coffin and Williams (1989), and Parkinson (1987) clearly indicates that children prefer to play in natural places, places where they have the freedom to explore and manipulate their environments. Natural open space contains elements that are of greatest interest to children, elements such as water, sand, soil and mud, trees to climb, long grass, rugged terrain, materials to build with, resources such as berries, stones and flowers, and wildlife. (p. 167)

I noticed that many schools had recently planted seedlings in their schoolyard and playgrounds to generate shaded areas for students. As such, the amount of shade generated from the foliage would be contingent on how mature these trees were when planted. Figure 25 shows evidence of mature trees located along the edge of this

schoolyard provide the children with shade for a few hours during of the school day at

ES-08.

Figure 25. ES-08: Mature trees located along the edge of this schoolyard provide the children with shade for a few hours during of the school day.

Playground Rating System - Item #8.

In looking at the data collected for *Playground Rating System - * Item #8 (Continuous

challenge, linkage of areas, functional physical boundaries, vertical and horizontal

treatment [hills and valleys].); Bar Graph 8 illustrates that there was only one elementary

school which scored the lowest possible score of zero, this school was ES-09. In contrast,

only two elementary schools successfully attained the highest achievable outcome of five,

those two schools were ES-01 and ES-07. In addition, there were nine elementary schools

that achieved numbers which were between the highest and lowest possible scores; the

schools and results are as follows: ES-02 (2), ES-03 (1), ES-04 (2), ES-05 (3), ES-06 (1),

ES-08 (2), ES-10 (1), ES-11 (4), and ES-12 (1).

Bar Graph 8

Continuous Challenge
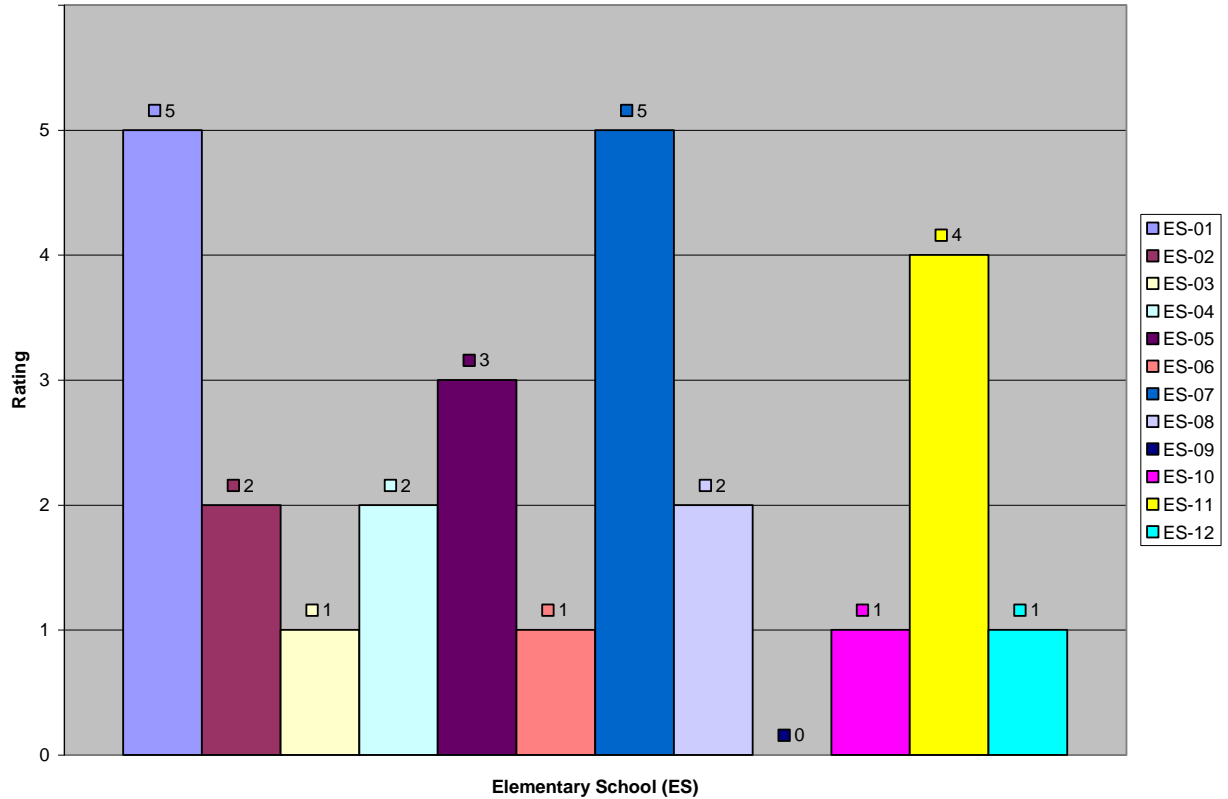
Note. Continuous challenge, linkage of areas, functional physical boundaries, vertical and horizontal treatment (hills and valleys). (Frost, Wortham, & Reifel, 2012)

During the course of this research study, I observed natural landscapes that connected different areas of the schoolyard through a network of paths. However, it should be noted, that there was various typed of materials used to create these paths including: asphalt, wood chips, and pea gravel. Consequently, I concluded that contingent on the material used [asphalt being the best choice] to create a path, the continuous challenge for students of all abilities/disabilities would not be achieved. For example, it would be difficult to transport a those students in wheelchairs through dense woodchips and pea gravel. Moreover, when the aforementioned paths become waterlogged after heavy rainfall they

become a maze of mud puddles. Figure 26 demonstrates a natural landscape including

hills and valleys provide children with an assortment of functional physical boundaries at

ES-01. It can be seen in the image that the mud puddles have formed throughout the paths

which connect this schoolyard.

Figure 26. ES-01: Natural landscape including hills and valleys provide children with an assortment of functional physical boundaries.

In addition, I noticed that some play structures had been designed to allow children

an opportunity to climb and then perhaps slide down, which produce vertical and

horizontal challenges. Figure 27 displays an artificial structure that attempts to replicate

mounds found within a natural environment at ES-02. For example, the pink rock

climbing wall provides children with a challenge that otherwise would only be found

within a natural landscape.

Figure 27. ES-02: Artificial structure that attempts to replicate mounds found within a natural environment.

Academic literature has suggested that play equipment should provide children with a continuous challenge in order to sustain the children's interest. However, a number of playground equipment observed within the course of this study had been placed in the primary area of those schoolyards. Moreover, there was frequently some type of fence or barrier that limited access to those areas. Although, it should be noted that, a common practice amongst educators is to divide the school population into smaller groups based on their age group. The abovementioned method of separating students on the playground could perhaps limit a student's opportunity for continuous challenges. Figure 28 reveals a man-made superstructure provides children in this flat urban setting with an opportunity for continuous challenges at ES-05. It should be noted, that this superstructure was fenced in and had limited its access to students in the primary grades that were under direct supervision. Once more, this superstructure is another example of man-made design that

allows children an opportunity for vertical and horizontal challenges that would otherwise
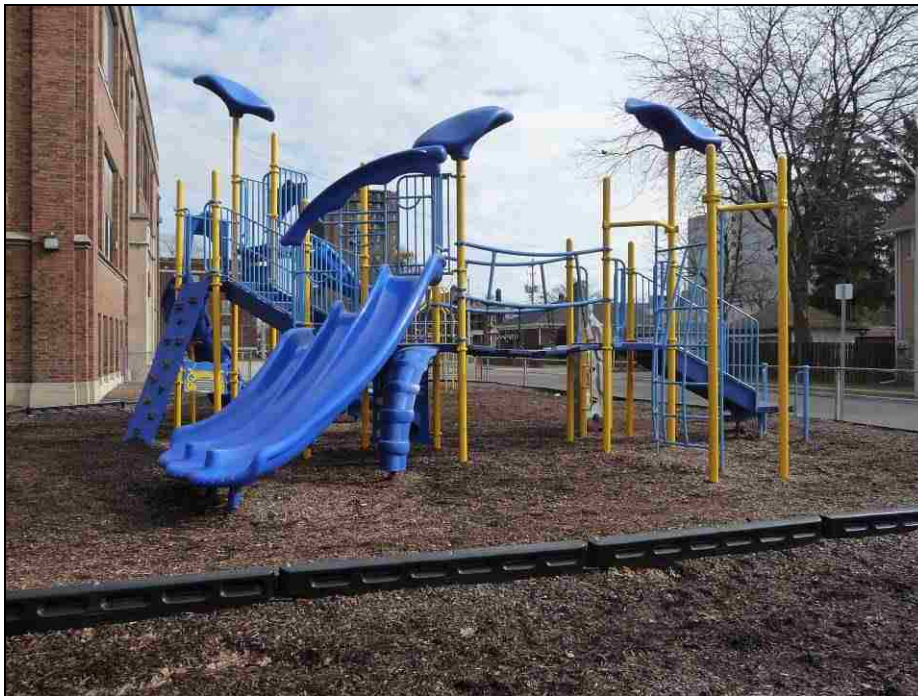
not be possible on a flat schoolyard.

Figure 28. ES-05: Man-made superstructure provides children in this flat urban setting
with an opportunity for continuous challenges.

A study by Sanoff (1989) noted that:

> Typically perceived as a staging area for large muscle development, the outdoor
>
> play area is not only important for the child's health but contributes to the child's
>
> learning experiences (Threlfall, 1986). Outdoor play space offers opportunities for
>
> adventure, challenge, and wonder in the natural environment (Frost & Klein,
>
> 1983). The only substantial difference between indoor and outdoor activity is that
>
> one has a roof over it. Both, however, need architectural and landscape definition,
>
> and both need to provide for the multiplicity of children's developmental needs.
>
> (p. 37).

Figure 29 shows evidence of a synthetic superstructure that allows children to have opportunities for continuous challenges at ES-07. First, the ground cover is adequate for wheelchairs to navigate. Second, the overall layout and design of this superstructure allows children of all abilities/disabilities to adapt their play with the different challenges. Lastly, although not evident in the photograph, this superstructure was connected with other areas of the schoolyard using an asphalt path.


Figure 29. ES-07: Synthetic superstructure that allows children to have opportunities for continuous challenges.

Playground Rating System - Item #9.

In looking at the data collected for *Playground Rating System -* Item #9 (Construction area with junk materials such as tires, crates, planks, boards, bricks, and nails; tools should be provided and demolition and construction allowed.); Bar Graph 9 illustrates that every elementary school included within this study scored the lowest possible score of zero for this check list item.

Bar Graph 9

Construction Area
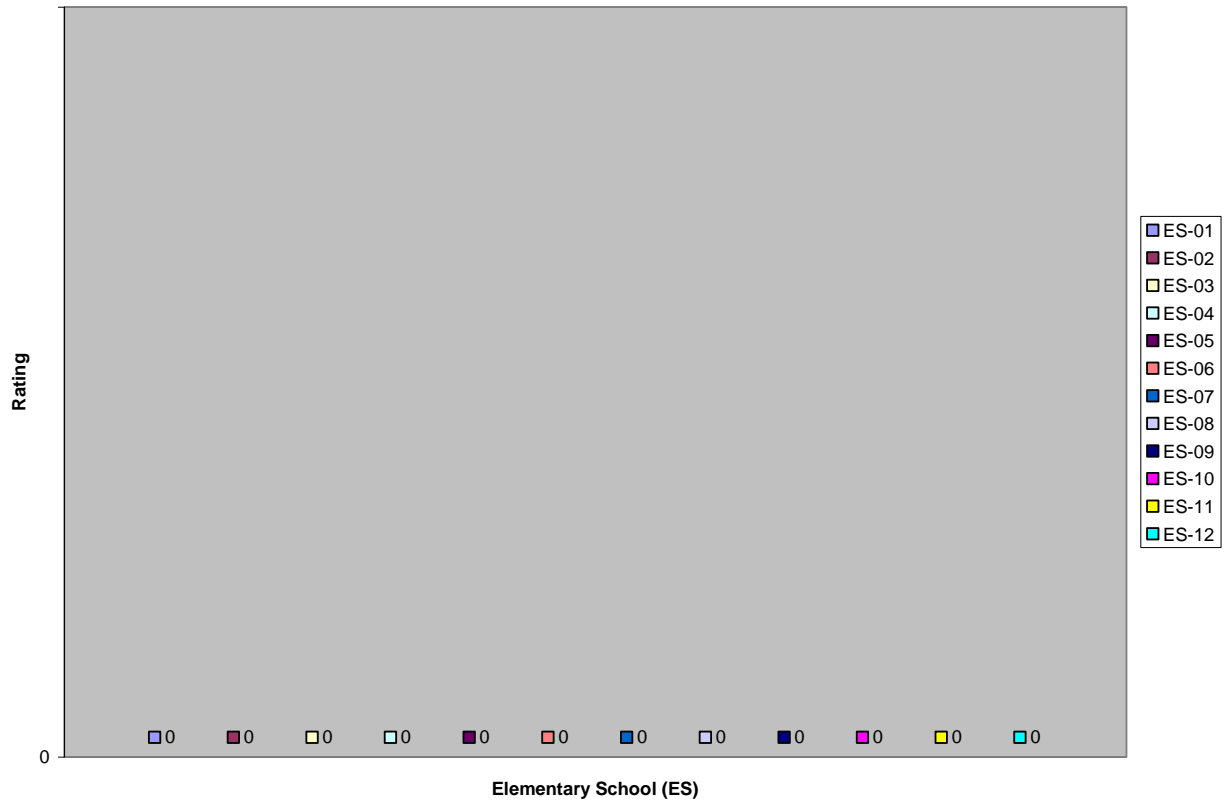
Note. Construction area with junk materials such as tires, crates, planks, boards, bricks, and nails; tools should be provided and demolition and construction allowed. (Frost, Wortham, & Reifel, 2012)

Adventure playgrounds are an example of how construction areas can be included

into the layout and design of play areas so that children are able to engage in the building

of things. However, I speculate that their absence from the schools included within this

study may be attributed to children's risk of injury when playing in this type of

environment.

Research by Sutherland and Soames (1984) noted that:

> The beginnings of the concept of adventure play were formulated in the early
> 1930s by the Danish landscape architect C. Th. Sørensen. Sørensen had designed
> a number of playgrounds, but noticed that children preferred to play in places like
> junk yards and building sites, where they could invent their own activities with
> that materials that were lying around. Where many adults would have simply
> dismissed such activities, Sørensen realised that there were good reasons for their
> choice: these places gave children opportunities that were not present in the
> playgrounds that were being purpose-built for them: opportunities to build, to dig
> holes, to experiment, to exercise their imagination and to get on with the serious
> business of play with a minimum of adult intervention. (p. 18)

Playground Rating System - Item #10.

In looking at the data collected for *Playground Rating System* - Item #10 (A
purchased or built vehicle, airplane, boat, or car that has been made safe but not stripped
of its play value [should be changed or relocated after a period of time to renew
interest].); Bar Graph 10 illustrates that the majority of elementary schools scored the
lowest possible score of zero, these schools included: ES-01, ES-02, ES-03, ES-04, ES-
05, ES-06, ES-08, ES-09, ES-11, and ES-12. In contrast, the remaining elementary
schools both successfully attained the highest achievable outcome of five, these two
schools were ES-07 and ES-10.

Bar Graph 10

A Purchased or Built Vehicle
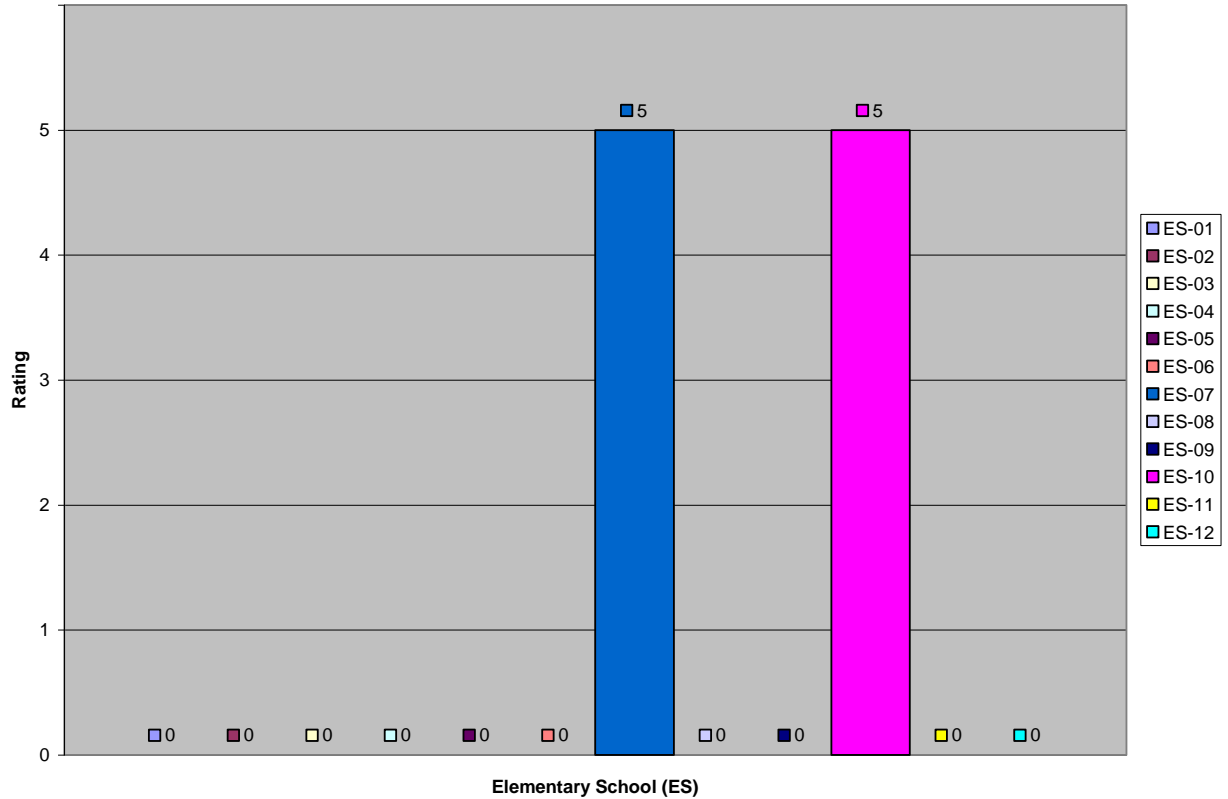
Note. A purchased or built vehicle, airplane, boat, or car that has been made safe but not stripped of its play value (should be changed or relocated after a period of time to renew interest). (Frost, Wortham, & Reifel, 2012)

While conducting field research, I noticed that most of the play structures installed in schoolyards and playgrounds appeared as though they were manufactured by a commercial entity. In addition, I did observe signage at several schools which indicated that some apparatus had been installed through funding by corporate sponsorship. There were very few instances in which a play structures or apparatus appeared to be constructed by members of the school community. Figure 30 demonstrates a purchased boat feature with complimentary playground equipment at ES-07. I speculate that an

incentive for schools to purchase equipment, rather than constructing it on their own, would be the rigorous safety standards and testing commercial pieces would have undergone during their design process.

Figure 30. ES-07: Purchased boat feature with complimentary playground equipment.

 A study by Frost and Klein (1979) noted that:

> The novelty of a toy is a primary reason for children to explore it. The
> introduction of a novel object stimulates the child to get to know its properties.
> Exploration ceases once these properties are known. At that point play begins.
> This transition from exploration to play is apparent by the gradual relaxation of
> mood, evidenced not only by changes in facial expressions, but in greater diversity
> of activities with the object. (p. 43)

 Within the course of this research study, I was hard pressed to find a schoolyard or playground that had included a purchased or built vehicle into their layout and design. Although there was one instance in which I did observe a manufactured play structure

designed to replicate a vehicle. In fact, this particular play structure was intended to

imitate the silhouette of a vehicle using metal piping. Figure 31 reveals a playground

apparatus designed to replicate an automobile at ES-10. This play structure provides

children with a unique opportunity to emulate the world around them through dramatic

play. In addition, I speculate that this play structure could also serve as a climbing

apparatus, and perhaps a bench for children to rest during recess.

*Figure 31*. ES-10: Playground apparatus designed to replicate an automobile.

Playground Rating System - Item #11.

In looking at the data collected for *Playground Rating System - Item #11* (Equipment

for active play: a variety of overhead apparatus, climbers, slides, balancing devices,

swings, etc.); Bar Graph 11 illustrates that only two elementary schools scored the lowest

possible score of zero, these schools were ES-01 and ES-09. In contrast, the majority of

elementary schools successfully attained the highest achievable outcome of five, included

in this group were: ES-02, ES-04, ES-05, ES-06, ES-07, ES-08, ES-10, ES-11 and ES-12.

In addition, there was one elementary school that attained a score that was between the highest and lowest possible scores, this school and its score was ES-03 (2).

Bar Graph 11

Equipment for Active Play
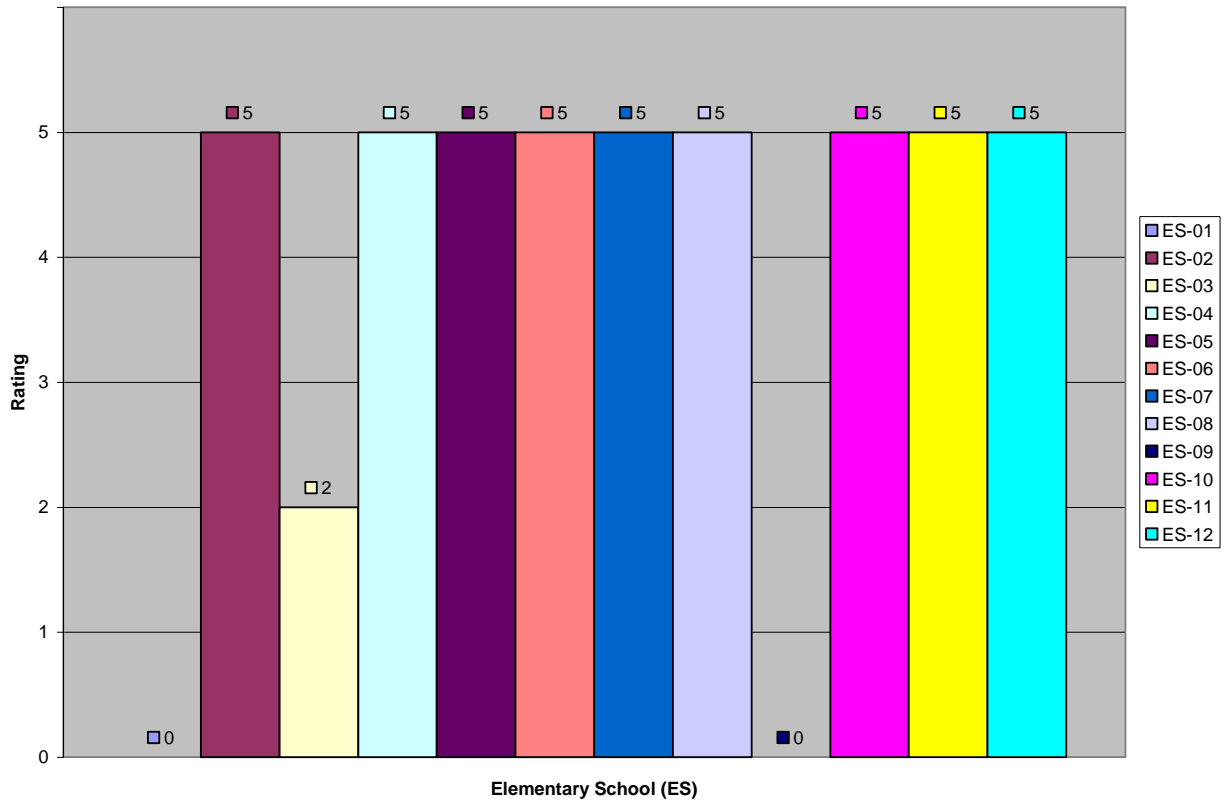
Note. Equipment for active play: a variety of overhead apparatus, climbers, slides, balancing devices, swings, etc. (Frost, Wortham, & Reifel, 2012)

Equipment for active play can become an integral part of the overall outdoor experience for children. This type of equipment allows children to play independently or with others. Moreover, equipment for active play provide children with a continuous challenge that help develop their abilities. Figure 32 displays a balance apparatus and tunnel designed to mimic organic matter at ES-01. The play equipment in this photograph easily blends with the natural landscape that surrounds it. In addition to active play,

children can utilize the assortment of balance posts for seating during recess. Moreover,

the flat rubberized ground cover that surrounds the equipment permits it to be utilized by

children of all abilities/disabilities.

Figure 32. ES-01: Figure 32 displays a balance apparatus and tunnel designed to mimic organic matter.

In the past, swings were considered to be a staple of almost every playground. Thus, I

was surprised that very few schools included in this study had equipped their playgrounds

with this play apparatus. Figure 33 demonstrates a traditional swing set constructed of

steel tubing at ES-04. I can only speculate that safety may be a contributing factor in the

exclusion of swings from most schoolyards. For example, a child may run in front of the

swings without looking and be struck as is comes towards them.

Figure 33. ES-04: Traditional swing set constructed of steel tubing.

Playground architects have included "monkey bar" type play features into their designs in order to provide children with an opportunity to develop their upper body strength. However, their ability to reach the overhead play apparatus is contingent on their height as well. Thus, monkey bars appear to be more favourable for children that can reach the play apparatus.

Research by Doll and Brehm (2010) noted that:

> Many schools have removed some play structures altogether from the playground rather than adapt these to be consistent with the Consumer Product Safety recommendations. For example, seesaws, merry-go-rounds, and even swings are now missing on many school playgrounds. Still, the prospect of risk-free playgrounds is controversial (Moore, 2006). An essential purpose of play is for students to refine their physical prowess and experiment with physical challenges (Beckwith, 2003). Removing all risk from playgrounds simultaneously limits the

opportunities that they provide for students' physical growth and development. A

more appropriate standard is to ensure that the playground structures are

developmentally appropriate for the students who play there. (p. 29)

Figure 34 reveals an overhead apparatus located at centre of the playground and

positioned atop pea gravel at ES-10. Moreover, this type of play equipment was a

common occurrence in the playgrounds of schools studied. Lastly, I did speculate that

there is some risk for injury of children due to falling from fatigue.

Figure 34. ES-10: Overhead apparatus located at centre of the playground and positioned atop pea gravel.

I noticed that equipment for active play was often located in an open areas of the

schoolyard. Moreover, it was also observed that this equipment always had some form of

protecting ground cover below the equipment. Figure 35 shows evidence of a climbing

structure placed in an open area of the schoolyard and placed atop pea gravel at ES-12. In

this photograph, the scattered pea gravel could suggest that this equipment is utilized by

many students during the recess period. Lastly, I had noticed that wet metal surfaces have

a tendency to become slippery and may could cause injury during play.

Figure 35. ES-12: Climbing structure placed in an open area of the schoolyard and placed atop pea gravel.

Playground Rating System - Item #12.

In looking at the data collected for *Playground Rating System - Item #12* (A large

open, sandy or grassy area for organized games.); Bar Graph 12 illustrates that none of

the schools included herein attained the lowest possible score of zero. In contrast, the

majority of elementary schools attained the highest achievable outcome of five, this group

consisted of the following schools: ES-01, ES-02, ES-04, ES-06, ES-07, ES-08, ES-09,

ES-10, ES-11, and ES-12. In addition, there were two elementary schools which achieved

numbers that were between the highest and lowest scores; these schools and their scores

were ES-03 (3) and ES-05 (3).

Bar Graph 12

A Large Open Area for Organized Games
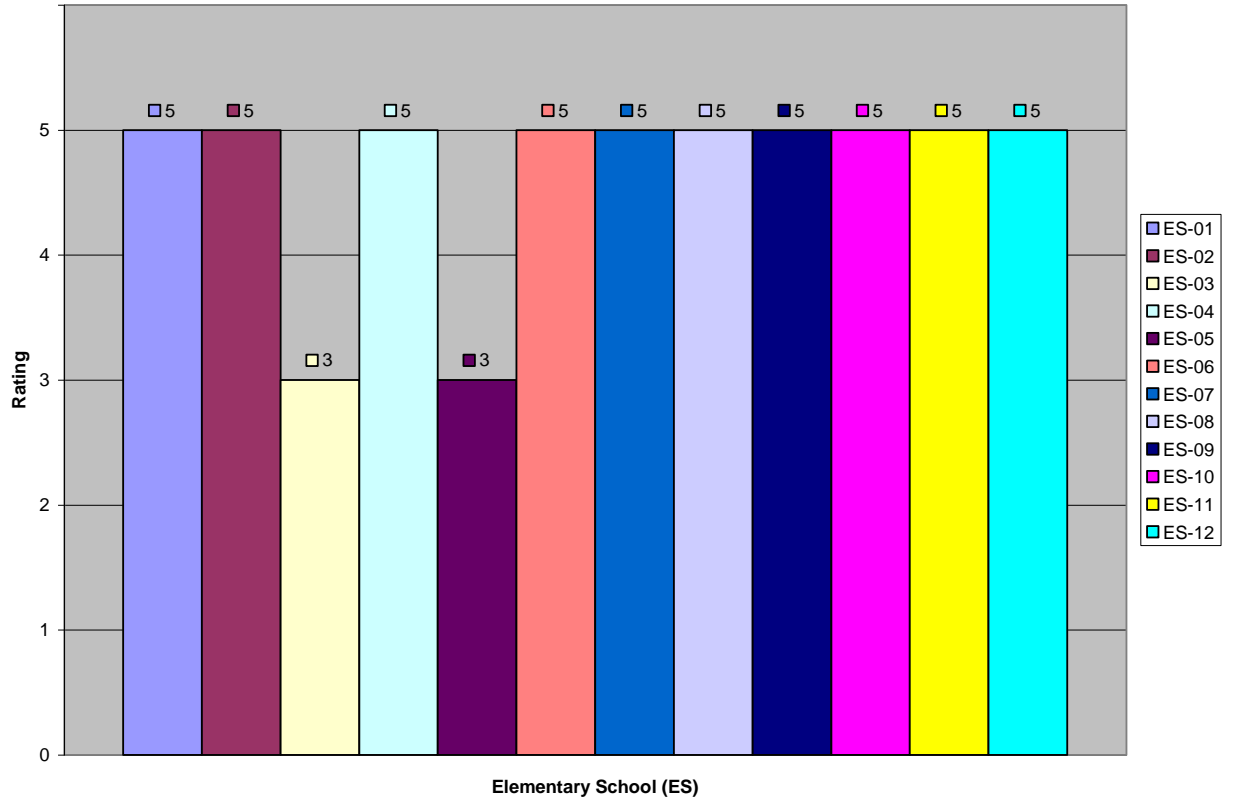
Note. A large open, sandy or grassy area for organized games. (Frost, Wortham, & Reifel, 2012)

Outdoor school environments are normally associated with large open areas that allow for organized games. As discussed earlier, the surface materials commonly used in the construction of these outdoor spaces are most often grass or asphalt. I speculate that the lower building costs associated with these two materials make them so popular. Nonetheless, builders have begun experimenting with alternative materials (for example, recycled rubber), albeit on a smaller scale, to provide children with play surfaces that have soft contact during play.

I noticed during data collection that every school included within this study had installed the requisite back-stop fencing for baseball. Figure 36 displays a large open space with essential backstop structure for baseball at ES-07. However, it should be noted, that some baseball diamonds were overgrown with weeds and in a state of disrepair. More importantly, the back-stop itself does not allow children to play a game of baseball. To a certain extent, children would need the requisite bat and ball at minimum to play a game of baseball, something that I did not observe to be stored outside at any school in this study.

Figure 36. ES-07: Large open space with essential backstop structure for baseball.

I noticed that at one school they had installed the necessary posts to erect a volleyball net. Figure 37 reveals an open area with wooden posts to support a volleyball net at ES-08. No other school included within this study had included outdoor volleyball as an option for their students. Again, children would require the net and ball at minimum to conduct a game of volleyball. However, given the wearing away of grass in immediate

vicinity of the volleyball court, I speculate that this activity was popular amongst the

students that attended this school.

Figure 37. ES-08: Open area with wooden posts to support a volleyball net.

Soccer could arguably be described as the most played sport in the world. What is

more, the most important piece of equipment required to take part is a ball, since the goal

can be created using any object to mark their place. In addition, an abundant amount of

space is required for children to play this game safely. Figure 38 shows evidence of a

huge grassy field with soccer goal posts at opposite ends at ES-12. As seen in this

photograph, the appropriate surface to play soccer is grass, although soccer may also be

played on any flat surface (Figure 2, illustrates soccer goal posts situated atop an asphalt

surface). In addition, the number of children involved in soccer may vary; a child may

develop their skills on an individual basis, as well as partake in a game or practice with

other children.

Figure 38. ES-12: Huge grassy field with soccer goal posts at opposite ends.

Lastly, a study by Frost and Klein (1979) suggested that:

The most desirable ground cover for the open spaces on a playground is grass. It is

highly desirable for organized games. In selecting or organizing the site one of the

initial tasks is to select a relatively level area for this purpose. In most contexts

this portion of the playground requires least supervision and can be located in an

area farthest from the building. (p. 82)

Playground Rating System - Item #13.

In looking at the data collected for *Playground Rating System* - Item #13 (Small semiprivate spaces at the child's own scale: tunnels, niches, playhouses, private or special places partially enclosed by trellises, plants, and berms.); Bar Graph 13 illustrates that there were two elementary schools which scored the lowest possible score of zero, these schools were ES-04 and ES-09. In contrast, only three elementary schools successfully attained the highest achievable outcome of five, those schools were ES-06, ES-07, and ES-08. Moreover, the remaining seven elementary schools all achieved numbers which were between the highest and lowest possible scores; these schools were: ES-01 (4), ES-02 (3), ES-03 (4), ES-05 (2), ES-10 (1), ES-11 (2), and ES-12 (2).

Bar Graph 13

Spaces at the Child's Own Scale
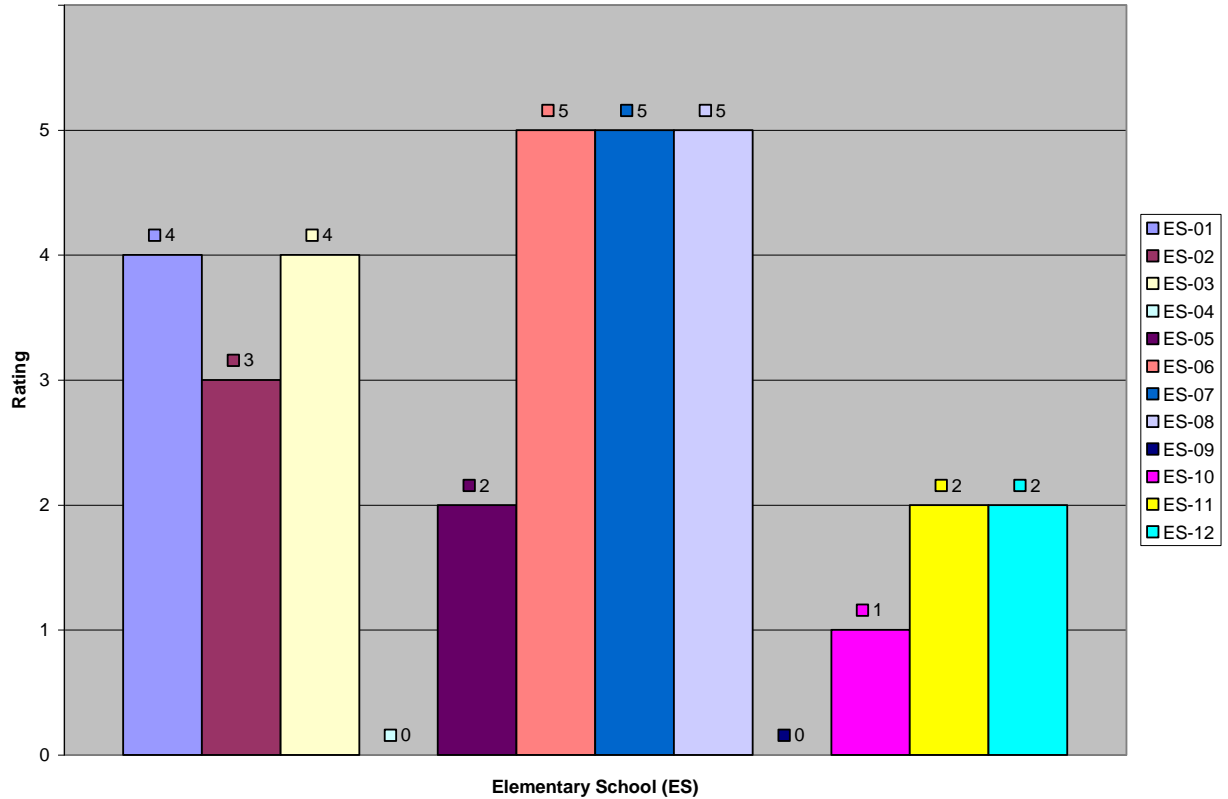
Note. Small semiprivate spaces at the child's own scale: tunnels, niches, playhouses, private or special places partially enclosed by trellises, plants, and berms. (Frost, Wortham, & Reifel, 2012)

While conducting data collection, I noticed that a small number of schools had allocated outdoor spaces for children at their own scale. Figure 39 reveals an open play area that provides children with seating proportioned to their size and tunnels which may also serve as semiprivate spaces at ES-01. In addition, I observed that much of the outdoor seating available to children was manufactured at an adult scale. Furthermore, fencing permits the abovementioned space to be restricted and thus more private for those children using that outdoor space.

Figure 39. ES-01: Open play area that provides children with seating proportioned to their size and tunnels which may also serve as semiprivate spaces.

In principle, the layout and design of a schoolyard is created by an architect with a specific purpose for each outdoor element and space. However, children sometimes develop their own use for outdoor spaces, which was not anticipated by the architect. Figure 40 demonstrates that the school building architecture can create niches along corners and create unintended semiprivate spaces for children at ES-03. The spaces identified in the photograph can provide children with some shelter to protect them from the weather, or perhaps a semiprivate space to conduct dramatic play. Nevertheless, the opportunity for children to use these niches would only be limited to their imagination.

Figure 40. ES-03: School building architecture can create niches along corners and create unintended semiprivate spaces for children.

The type of resources that are placed in an outdoor area for children to play with can significantly transform it into a space that is at the child's own scale. For example, Figure 41 shows evidence of a special place created with the use of toys that are at the child's own scale at ES-06. Moreover, I noticed that many schools included within this study had installed play houses and toys that were often scaled for use by children in the primary grades. In addition, I also observed, that in a few circumstances the school had provided children with quite a few of the same plaything. I speculate that this would allow more children to play at the same time and reduce wait times while taking turns.

Figure 41. ES-06: Special place created with the use of toys that are at the child's own scale.

It should be mentioned that the amount of outdoor space available to children on a

schoolyard is certainly finite. I observed many instances in which portable classrooms

were installed to accommodate growing school populations and at the same time reducing

available outdoor space for children on the schoolyard and playground. Hence,

opportunities for children to play may occur in unconventional places in the schoolyard.

Figure 42 displays the architectural layout of the school building that creates a nook

which children can easily transform into a semiprivate niche at ES-05. Painted lines can

be seen in this photograph, which I suspect were intended to provided children with a

designated space for an organized activity. Nonetheless, I suspect that this outdoor space

was originally intended for play but rather adapted due to limited space considering that

there is maintenance equipment situated nearby. Moreover, it was not evident in the

photograph, but there was also a yellow painted line that reached from wall-to-wall in this

small space. I suspect this was painted to help keep children away from the maintenance

equipment.

Figure 42. ES-05: The architectural layout of the school building that creates a nook
which children can easily transform into a semiprivate niche.

Playground Rating System - Item #14.

In looking at the data collected for *Playground Rating System -* Item #14 (Fences,

gates, walls, and windows that provide security for young children and are adaptable for

learning/play.); Bar Graph 14 illustrates that none of the schools included herein attained

the lowest possible score of zero. In contrast, four different elementary schools were able

to attain the highest achievable outcome of five, these schools were: ES-02, ES-06, ES-

07, and ES-08. Moreover, the remaining eight elementary schools achieved numbers that

were between the highest and lowest scores; these schools and their results are as follows:

ES-01 (3), ES-03 (4), ES-04 (3), ES-05 (4), ES-09 (4), ES-10 (4), ES-11 (4), and ES-12

(3).

Bar Graph 14

Security for Young Children
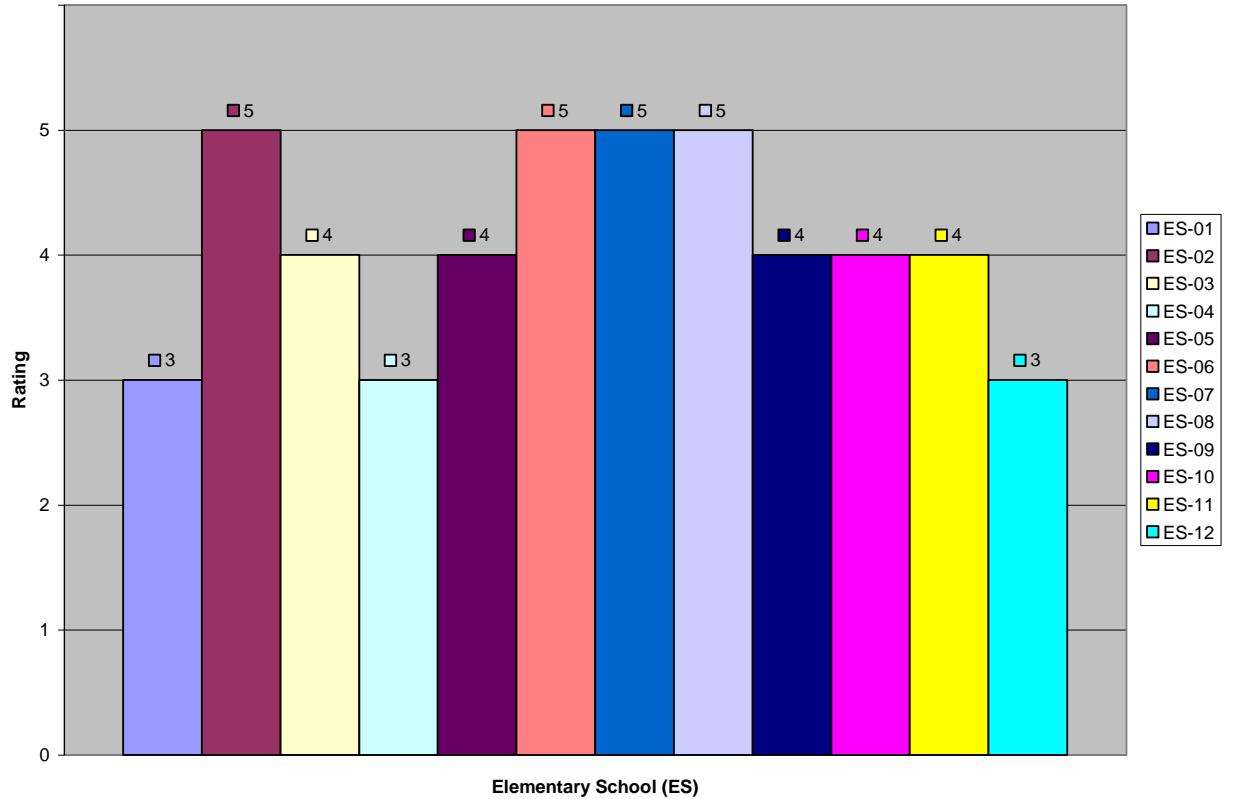
Note. Fences, gates, walls, and windows that provide security for young children and are adaptable for learning/play. (Frost, Wortham, & Reifel, 2012)

I observed that fencing was the most common method for elementary schools to provide security for young children. It should be noted that very elementary included within this study had installed a fence along the perimeter of their property. Moreover, in some cases schools put in fencing within the schoolyard to act as a divider for different age groups. For example, Figure 43 reveals that a combination of school building walls and a chain link fence provide important security elements for young children at ES-02. In this case, young children can access their play area from doors connected to the

playground. In addition, it can be seen from the photograph, that the lock on the gate has

been elevated above a child's reach to assist with security in this play location.

Figure 43. ES-02: Combination of school building walls and a chain link fence provide
important security elements for young children.

I noticed that sometimes a lack of available outdoor space caused schools to

transform their front property into playgrounds for students. Hence, the placement of

playgrounds at the front of school properties require additional precautions be added from

the original layout and design of these spaces. For example, Figure 44 demonstrates that

open sightlines and chain link fences provide significant protection from individuals and

traffic passing by the playground at ES-06. Moreover, it cannot be seen from the

photograph, but the only access into this play area is located near the main school

building for added security.

Figure 44. ES-06: Open sightlines and chain link fences provide significant protection from individuals and traffic passing by the playground.

I noticed that many schools included herein had designated a specific area for younger children to play. In addition, the majority of these outdoor spaces consisted almost entirely of hard asphalt surfaces. Moreover, a chain link fence was the only method used to segregated these outdoor spaces. Figure 45 shows evidence that younger children are separated and protected from older youth with a simple chain link fence at ES-07. Further, it can be seen in the photograph, that this elementary school went above the standard asphalt courtyard and planted a patch of grass, bordered it with concrete, and then secured this outdoor space using a chain link fence. It should be noted that access to this outdoor space can be gained from either the main school building or a gate that connects to the schoolyard.

Figure 45. ES-07: Younger children are separated and protected from older youth with a simple chain link fence.

Moreover, research by Frost and Klein (1979) noted that:

> A fence must be constructed around playgrounds for children through the primary grades and also for older children if play space is immediately adjacent to a hazard such as a busy street of a drop off (ditch, wall, etc.) . . . In addition to providing a measure of safety, the type of fence selected will determine what children will be able to see and, to some extent, what they will hear. Solid wood fences (use cedar or redwood for durability) cut down traffic or other undesirable noise to some extent, but simultaneously, they may also prevent the children from viewing activities relevant to conceptual development. (p. 85)

Security for young children is contingent on their teachers being able to see them during yard duty supervision. Moreover, I speculate that chain link fence was the most common method to divide a school since it allows teachers the ability to see through it.

Figure 46 displays the schoolyard and playground are partitioned using structural features of the school building and a chain link fence at ES-08. Although, the fence depicted in the photograph appears in good condition, a shortfall that I noticed at another location was that it has a tendency to rust over time. The accumulation of rust is not only unattractive, but could develop into a safety concern for children that decide to climb the fence.

Figure 46. ES-08: The schoolyard and playground are partitioned using structural features of the school building and a chain link fence.

Playground Rating System - Item #15.

In looking at the data collected for *Playground Rating System - Item #15 (A garden for flowers, vegetables, and herbs located so they are protected from play but with easy access for children to tend them.); Bar Graph 15 illustrates that the elementary schools which scored the lowest possible score of zero were: ES-03, ES-04, ES-09, ES-10 and ES-11. In contrast, the only school which successfully attained the highest achievable outcome of five was ES-12. Moreover, there were six elementary schools that achieved

numbers which were between the highest and lowest possible scores; these schools and

their results were as follows: ES-01 (3), ES-02 (4), ES-05 (3), ES-06 (3), ES-07 (2), and

ES-08 (3).

Bar Graph 15

Special Nature Areas
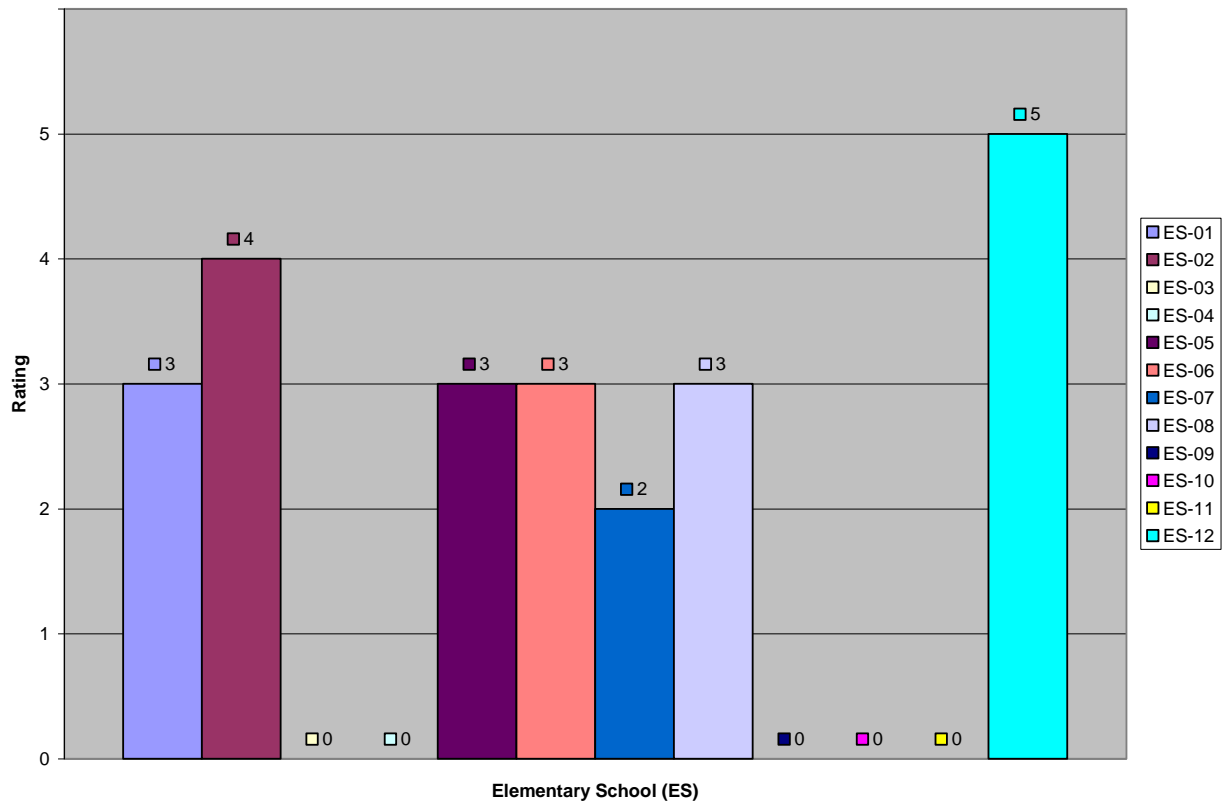
Note. A garden for flowers, vegetables, and herbs located so they are protected from play but with easy access for children to tend them. Special nature areas such as butterfly gardens. Gardening tools are available. A greenhouse for plants greatly enhances nature study. (Frost, Wortham, & Reifel, 2012)

The inclusion of different types of plants into a schoolyard can mitigate hard surfaces

such as asphalt that may have been used around the schoolyard. Figure 47 displays a tiny

nature spot adjacent to the school building that incorporated plants to help attract wildlife

at ES-01. Moreover, I noticed that by adding plants to the schoolyard depicted in this

photograph, the vegetation also attracted birds, insects, and small animals to the nature

area. Furthermore, while conducting field research, I observed several butterflies and

different types of birds inhabiting this special natural area.

Figure 47. ES-01: A tiny nature spot adjacent to the school building that incorporated plants to help attract wildlife.

I noticed that by adding plants to otherwise desolate schoolyards children were given

an opportunity to interact with nature. Figure 48 reveals an area with trees and plants that

allow children to have contact with nature at ES-02. It was also established that this

natural area also served this school as an outdoor classroom. I also suspect that the many

trees which were planted in this outdoor space could provide children with additional

shade during the warmer months. Another significant observation was that this natural

space was flooded in and around the outdoor seating due as a result of rainfall from the

night before. As such, I speculat that the layout and design may not have been completed

by a professional.

Figure 48. ES-02: An area with trees and plants that allow children to have contact with nature.

I observed that several schools included within this study had constructed planter

boxes in which to grow vegetation. Figure 49 shows evidence of a wooden planter box

that provides children with the opportunity to participate in growing plants at ES-06.

Although this planter box was small in scale, the number of children that could share in

its hands-on knowledge of growing plants was enormous. I speculate that teachers at the

school may also use this space to complement their science lessons. Furthermore, as can

be seen from the photograph, there is no vegetation in this planter box at this time of year.

As such, I believe that seasonal weather conditions play an important role as to when

children may interact with this garden.

Figure 49. ES-06: A wooden planter box provides children with the opportunity to participate in growing plants. Note - this photograph was censured to protect the identity of this school.

It is important that children understand where the food they eat comes from. As such, it was noted that a few schools included herein had planted food plots in their schoolyard. Figure 50 demonstrates a garden located at the front of this school building enhances nature study for children at ES-12. I was able to determine that this garden was intended for planting food based on several labelled stakes which were set aside. Moreover, I speculate that the tools needed to care for this garden were perhaps stored inside the main school building since a storage shed was not seen nearby. In addition, I also noticed that this garden was located in front of the school in an area that was protected from play but provided easy access for children to tend it.

Furthermore, a study by Medeiros (2011) noted that:

Just as the benefits of nature are held high by the landscape design community,

the advantages of school gardens and gardening weigh in heavily in the field of

education. Studies link school gardening activities with improved science

achievement scores, as well as greater parental support and participation

(Klemmer et al., 2005; Henderson & Mapp, 2002; and Alexander et al., 1995).

Gardening activities have been shown to successfully integrate with a wide variety

of subject areas (Canaris, 1995), offering opportunities for diverse tie-ins with

different teachers, subjects and teaching styles. (p. 49)

Figure 50. ES-12: A garden located at the front of this school building enhances nature study for children.

Playground Rating System - Item #16.

In looking at the data collected for *Playground Rating System -* Item #16 (Provisions

for housing of pets. Pets and supplies. Special areas to attract birds and insects. Storage

for supplies.); Bar Graph 16 illustrates that the majority of elementary schools scored the

lowest possible score of zero, these schools included: ES-01, ES-02, ES-03, ES-04, ES-

05, ES-07, ES-09, ES-10, and ES-11. In contrast, only one elementary school successfully

attained the highest achievable outcome of five, that school was ES-12. Moreover, the

remaining two elementary schools both achieved numbers which were between the

highest and lowest possible scores; these two schools and their results were ES-06 (4) and

ES-08 (4).

Bar Graph 16

Special Areas to Attract Birds and Insects
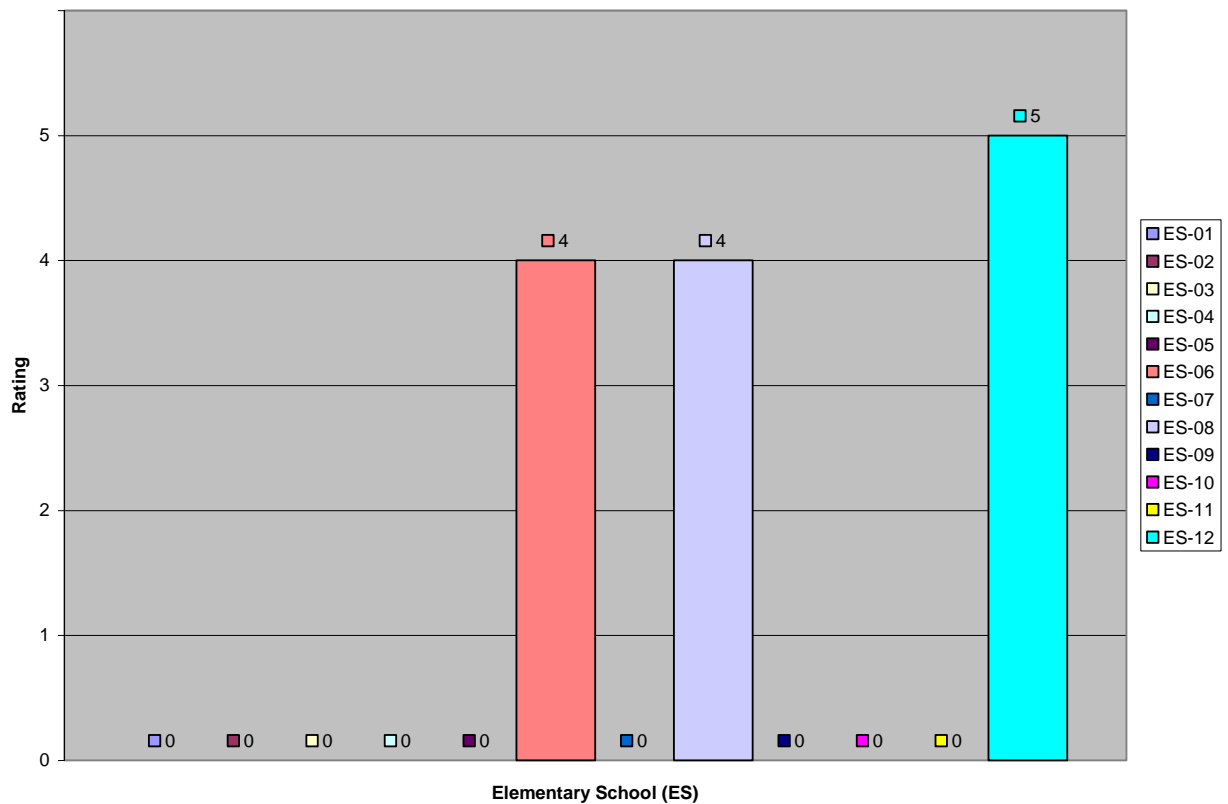
Note. Provisions for housing of pets. Pets and supplies. Special areas to attract birds and
insects. Storage for supplies. (Frost, Wortham, & Reifel, 2012)

In a few instances, I noticed that bird houses were hung on trees in order to attract

birds into the schoolyard. Figure 51 reveals that a tree in the schoolyard plays host to a

bird house at ES-06. The majority of birdhouses observed were located near children play

areas, but situated high enough in the trees so that children would not be able to reach

them. There was one instance in which I heard a bird signing while seated atop a

birdhouse. I believe that sounds from nature can only add value to the outdoor experience

of nature.

Figure 51. ES-06: A tree in the schoolyard plays host to a bird house.

While gathering data, I noticed that an important facet to attracting birds into the

schoolyard was the placement of birdhouses in manner that could help keep predators at

bay. Figure 52 shows evidence of multiple bird houses can be seen hanging from the

branch of a tree located in this schoolyard at ES-08. The birdhouses depicted in this

photograph are not only positioned high and out-of-reach, but they are also suspended

with wire making it difficult for climbing animals to reach. Lastly, the research also

observed that bird feeders tended to be located near birdhouses in the majority of cases

noted. Thus, I speculate that by providing the proper sustenance birds and insects would

be more inclined to inhabit the special areas created for them.

Figure 52. ES-08: Multiple bird houses can be seen hanging from the branch of a tree located in this schoolyard.

Nature areas are fundamental if schools hope to attract birds and insects into the

schoolyard for children to observe. In addition, the placement and preservation of these

special areas is also important in order to sustain their educational value. As such, Figure

53 reveals a bird house can be seen hanging from a tree located beside an outdoor

classroom at ES-12. It should be noted that this natural habitat was created at the front of

this school and perhaps to ensure that children do not entre without adult supervision.

Although not in illustrated in this photograph, flower gardens were also observed

surrounding this space, which were suspected to attract insects such as butterflies into this

nature areas as well.

Moreover, research by Danks (2010) noted that:

> Birds are present near most schools but do not always spend time in the schoolyard. Providing food is one of the easiest ways to attract birds. Some schools use feeders filled with seeds specific to the bird species they wish to invite. Feeders are somewhat controversial among bird enthusiasts, however, because they often attract aggressive or invasive types like blackbirds, cowbirds, and pigeons that are already well adapted to urban environments. Feeders can also spread disease among bird populations, and they attract cats that may prey upon birds that eat in the same location every day... The best way to feed birds is to grow native plants that produce seeds, berries, nuts, and fruits, and to create conditions that encourage birds to forage on their own. Plantings take a little more work to set up than feeders, but they provide the added benefits of shelter for the birds and aesthetic appeal for the school community. (p. 30)

Figure 53. ES-12: A bird house can be seen hanging from tree a located beside an outdoor classroom.

Playground Rating System - Item #17.

In looking at the data collected for *Playground Rating System* - Item #17 (A covered outdoor space.); Bar Graph 17 illustrates that several schools included herein attained the lowest possible score of zero, schools belonging to this group were: ES-01, ES-03, ES-04, ES-05, and ES-12. In contrast, three elementary schools attained the highest achievable outcome of five, these schools were: ES-07, ES-09, and ES-11. Moreover, there were four other elementary schools which had achieved numbers that were between the highest and lowest scores; these schools were: ES-02(1), ES-06 (1), ES-08 (4), and ES-10 (1).

Bar Graph 17

A Covered Outdoor Space
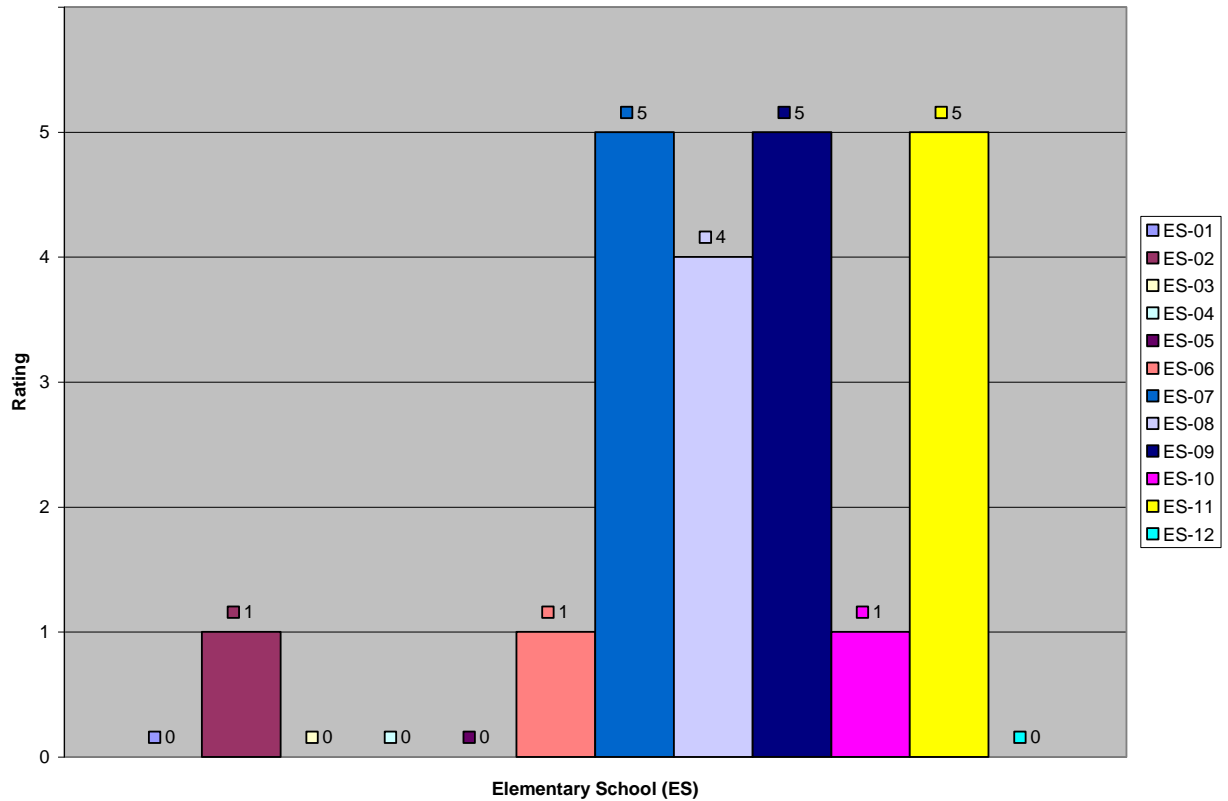
Note. A covered outdoor space. This can be a covered play area linked to the playroom, which will protect children from the sun and rain and extend indoor activities to the outdoors. (Frost, Wortham, & Reifel, 2012)

During the data collection process I noticed that very few schools included within

this study had installed any type of covered outdoor space. More often than not, the only

protection students had from the weather outside came from foliage on the trees. Figure

54 reveals a covered outdoor space located in a schoolyard at ES-07. Moreover, it should

be noted that this space was also attached to an asphalt path which allowed children of all

abilities/disabilities to access this area. Moreover, it was noted that a significant benefit to

having a covered outdoor spaces was the shade they provided, as well as shelter from

inclement weather.

Figure 54. ES-07: Covered outdoor space located in a schoolyard.

It was observed that some schools utilized their structural overhangs in order to

shelter toys as well as other play materials which were left outside when not in use.

Figure 55 shows evidence that overhang along school building provides children with

protection from the weather at ES-08. What's more, the overhang depicted in this

photograph could also provide children with protection from the elements while outside

during periods of play.

Figure 55. ES-08: Overhang along school building provides children with protection from the weather.

I noticed during field research, that contemporary school architecture provided children with purposeful covered outdoor spaces that could be used for shade in warm weather and protection from wind-chill during the cold months. Figure 56 demonstrates an architectural design that attached a large roofed space to main school building ES-09. Although not apparent from this photograph, it should be noted that children had drawn a hopscotch grid and a baseball pitcher's box using chalk; thus suggesting that this outdoor space is used for various types of activities.

Figure 56. ES-09: Architectural design that attached a large roofed space to main school building.

I speculate that a few schools did not have a covered outdoor space in their original layout or design; and as such, added this feature to their schoolyard after-the-fact. Figure 57 displays an architectural feature that provides nominal shade and protection from the weather is situated along school building at ES-10. In addition, I noticed a limitation of this covered outdoor space, which was that the covered portioned of this outdoor space also consisted of unprotected open sections.
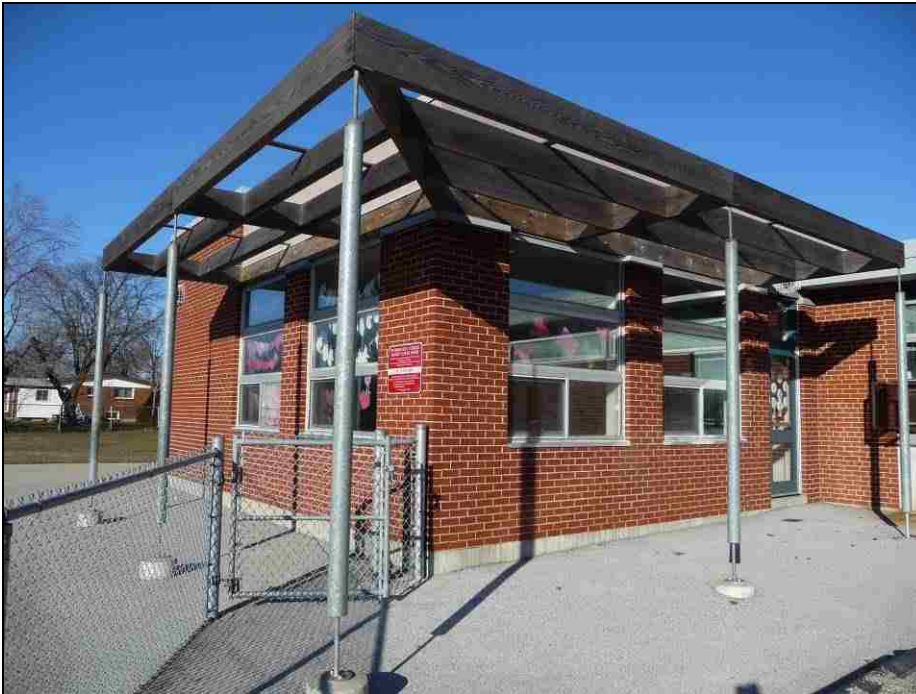
Figure 57. ES-10: Architectural feature that provides nominal shade and protection from the weather is situated along school building.

Playground Rating System - Item #18.

In looking at the data collected for *Playground Rating System - Item #18* (Storage building for outdoor play equipment such as tools for construction and garden areas, maintenance tools, wheeled toys linked to the track, sand play equipment, and tools for children's building. Storage can be next to the building or fence and should not block view of children. Storage should aid children's picking up and putting away equipment at the end of each play period.); Bar Graph 18 illustrates that there were only three elementary schools which scored the lowest possible score of zero, these schools were ES-01, ES-09, and ES-11. In contrast, only two elementary schools successfully attained the highest achievable outcome of five, those two schools were ES-06 and ES-10. Moreover, there were seven other elementary schools that achieved numbers which were

between the highest and lowest possible scores; those schools and their results are as

follows: ES-02 (3), ES-03 (3), ES-04 (3), ES-05 (3), ES-07 (1), ES-08 (2), and ES-12 (3).

Bar Graph 18

Storage Building for Outdoor Play Equipment
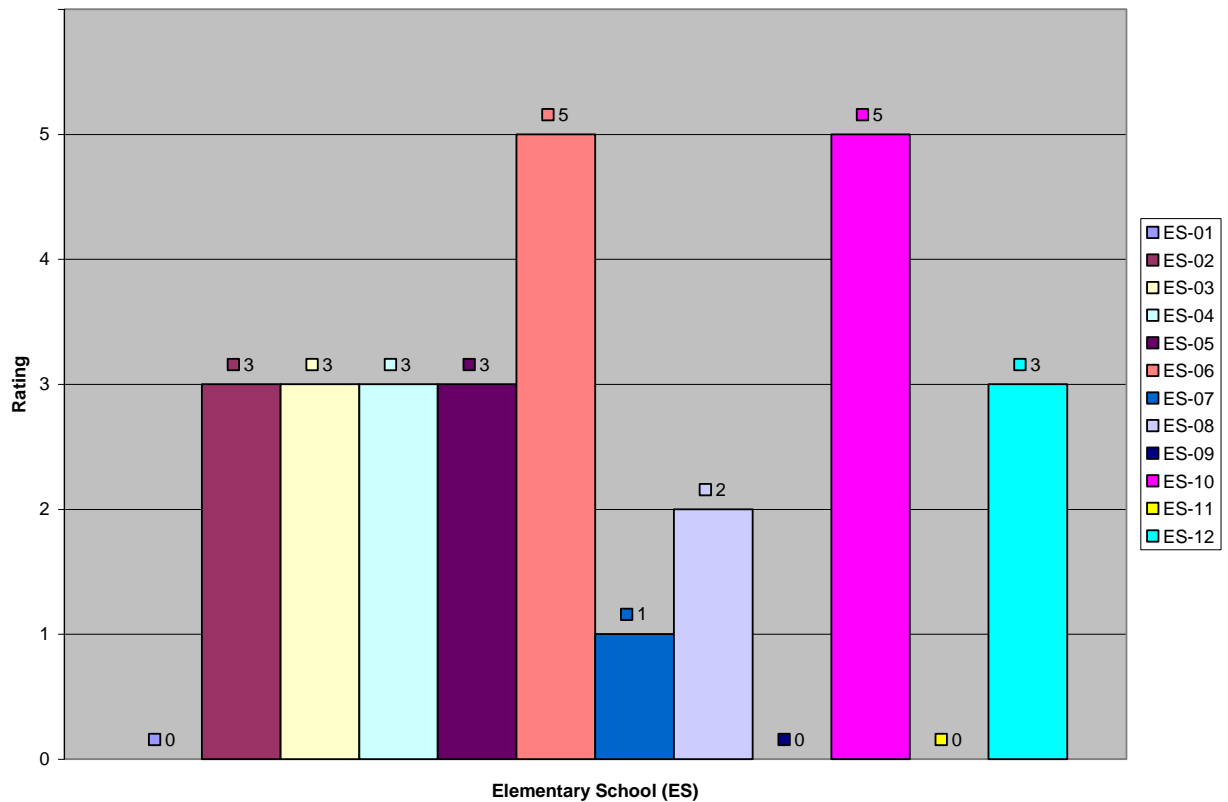
Note. Storage building for outdoor play equipment such as tools for construction and
garden areas, maintenance tools, wheeled toys linked to the track, sand play equipment,
and tools for children's building. Storage can be next to the building or fence and should
not block view of children. Storage should aid children's picking up and putting away
equipment at the end of each play period. (Frost, Wortham, & Reifel, 2012)

Research by Sutherland and Soames (1984) suggested that it is important to have:

Adequate storage space for the various items of equipment that are normally in

use on the playground during the day, such as ropes and mobile equipment. It

might not seem important to have space set aside for items which are normally

only brought into the building when it is not being used by children. Your cleaner

will soon tell you different, however, if you are in the habit of simply dumping

them on the playroom floor! You should also remember that there will be

occasions when the weather is unfit for outside play: it is not a good idea to have

the inside of your play building cluttered up with outdoor equipment at the very

times when all the children in the playground will be playing indoors. (p. 115)

While out gathering data, I noticed a variety of storage buildings on school property.

However, several of these structures were found to be maintenance buildings that

provided the grounds keeper with a place to store tools and equipment. Nevertheless, I

was able to establish that some of the buildings were being used for storage of outdoor

play equipment. For instance, Figure 58 shows evidence of two storage sheds integrated

into the playground setting at ES-06. It appeared to me that these two storage buildings

were already over capacity considering that there was an assortment of play equipment

kept outside of these structures. As such, the play equipment that is not secured becomes

susceptible to being lost or stolen.

Figure 58. ES-06: Two storage sheds integrated into the playground setting.

Even though, each of the storage buildings identified during data collection was

tasked with keeping outdoor play equipment safe; the manner in which each of them were

able to achieve their goal was unique in and of itself. For example, Figure 59 reveals a

storage locker located adjacent to playground equipment at ES-06. However, a unique

aspect of this storage building was it location in front of the school building. Perhaps, it

locale was the reason to keep outdoor play equipment secured within heavy metal

construction. Nevertheless, it was difficult for me to determine its purpose, since it was

positioned away from the playgrounds on this schoolyard.

Figure 59. ES-06: Storage locker located adjacent to playground equipment.

Moreover, another study by Frost and Klein (1979) noted that:

The location of storage facilities is critical. If children and/or teachers must carry

everything from the classroom for each play period, it is doubtful that a wide

range of play activities will be accommodated. Storage must be directly accessible

to the outdoors for outdoor equipment. Ideally there will be several facilities, each

serving a particular area of the playground that best accommodates the use of the

equipment stored there. (p. 85-86)

I noticed that storage buildings which were made of plastic had experienced some

discolouration, as well as cracking at some their seems. Figure 60 demonstrates that a

storage shed that is located inside playground location at ES-10. The photograph provides

evidence how the plastic material has started to fade above the doors; additionally, its

rough panels have started to buckle and come apart. Moreover, if this storage building

continues to deteriorate without the requisite maintenance to keep it in good condition; it

could become a hazard for children as well as result in unusable play equipment.

Figure 60. ES-10: Storage shed that is located inside playground location.

I established that schools tended to use metal storage containers when securing

outdoor play equipment in front of the school building or in places that were generally

accessible by the public. Figure 61 displays a storage container located within a fenced

schoolyard and near playground at ES-12. This photograph was taken in the middle of a

playground that was in front of this school. Moreover, it was established that none of the

storage buildings indentified within this research study had posted any signage which

indicated the contents stored inside. As such, perhaps the lack of signage was intended to

reduce chances for vandalism and theft.

Figure 61. ES-12: Storage container located within a fenced schoolyard and near playground.

Playground Rating System - Item #19.

In looking at the data collected for *Playground Rating System* - Item #19 (Easy access from outdoor play areas to coats, toilets, and drinking fountains. Outdoor classrooms, shaded areas, benches, tables, and support materials for group activities (art, reading, etc.); Bar Graph 19 illustrates that none of the elementary schools included herein attained the lowest possible score of zero. In contrast, only one elementary school attained the highest achievable outcome of five, that school was ES-06. Coincidently, all the remaining eleven elementary schools achieved the identical number between the highest and lowest scores; that number was four.

Bar Graph 19

Easy Access from Outdoor Play Areas
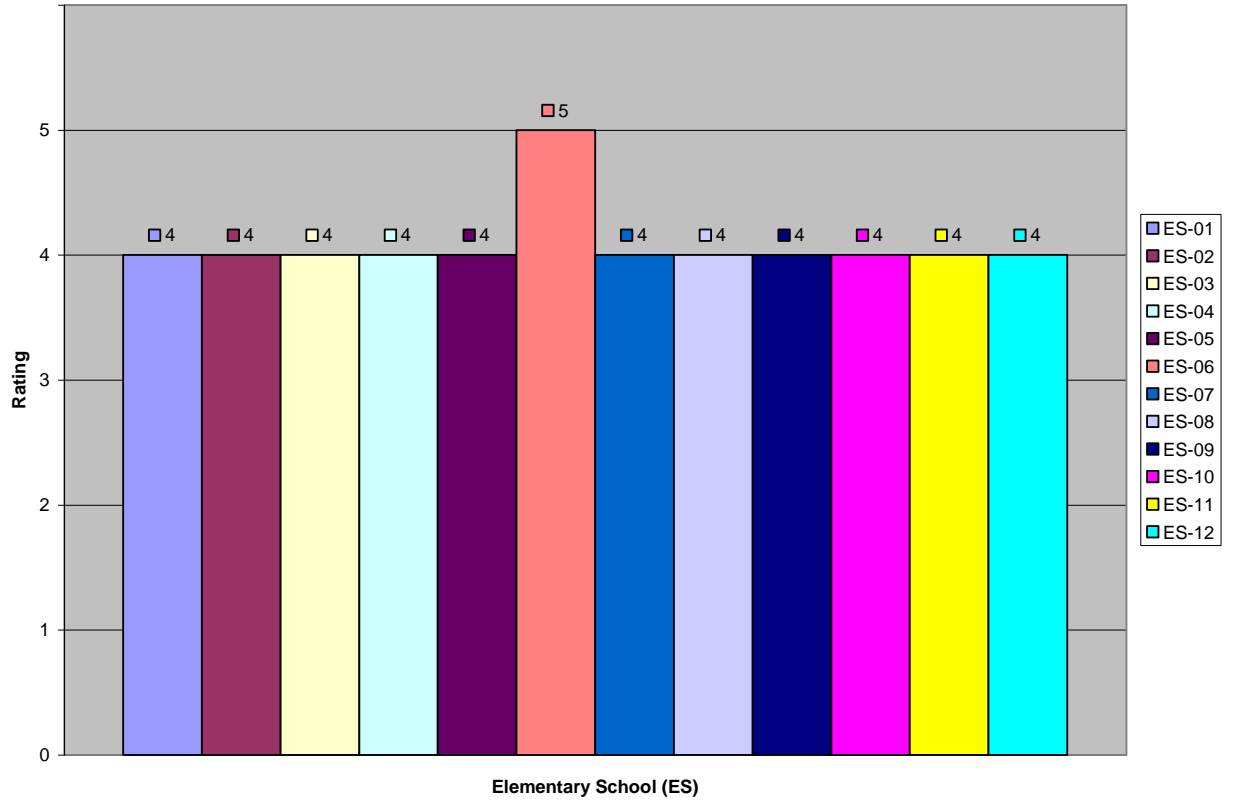
Note. Easy access from outdoor play areas to coats, toilets, and drinking fountains. Outdoor classrooms, shaded areas, benches, tables, and support materials for group activities (art, reading, etc.). (Frost, Wortham, & Reifel, 2012)

Outdoor classrooms were popular amongst the schools evaluated in this research study. Although, it should be noted that each school approached their outdoor classroom from different perspectives - materials varied from logs, rocks, to metal tables, the each adopted layout which positioned the teacher in front of student seating. Figure 62 reveals a shaded area with log benches and individual seating for group activities at ES-02. A problem that I identified while assessing this outdoor classroom was the significant

amount of water accumulated at the centre. Essentially, the flooded area renders this

outdoor resource useless until the ground is able to dry thoroughly.

Research by Kienitz and Kent (1996) argued that:

Drinking water and shade in proximity to play are not only needed for rest and

refreshment, but also by some children with disabilities who have trouble with

photosensitivity or body temperature. Accessible benches are needed both for social play

and supervising adults. (p. 137)

Figure 62. ES-02: Shaded area with log benches and individual seating for group
activities.

It was noted that the majority of schools included within this study had installed

outdoor seating for their students during recess and other out-of-door activities. However,

the most common approach to providing students with rest spots was benches. Although,

it was observed that tables with attached seating had been installed as well. Figure 63

demonstrates metal tables (without shade protection) located along schoolyard perimeter

at ES-05. I would like acknowledge that these tables could allow children to conduct a

broader range of activities while seated outdoors. As such, many teachers divided their

students into groups and create centres for learning, I believe this layout and design are

well suited for these practices.

Figure 63. ES-05: Metal tables (without shade protection) located along schoolyard
perimeter.

The tend amongst schools studied herein was to located their outdoor classrooms in

the middle of the schoolyard and playground. This unfortunately, subjects the space to

adverse weather conditions, as was illustrated with significant flooding in the example

mentioned above. However, one school decided to create their outdoor classroom near the

main building, perhaps to allow easy access from outdoor play areas to coats, toilets, and

drinking fountains. This unique outdoor space is the focus of Figure 64 which shows

evidence of wood benches situated under mature trees and with immediate access to

school building at ES-06. It was noted that this outdoor space protected from the elements

using three exterior walls from the main school building. Moreover, its open-air

atmosphere is complemented by mature trees which could provide shade during sunny

periods. Furthermore, I did notice a sewage drain situated amid the wood chips which

also absorb water themselves, and thus reducing any possible risk of flooding.

Figure 64. ES-06: Wood benches situated under mature trees and with immediate access
to school building.

   A study by Medeiros (2011) noted that:

   Outdoor classrooms, as I am calling such places, may have much in common with

   playgrounds, as they may double as such, or need to provide avenues for creative

   play as part of a given curriculum. They also need to provide certain aspects of a

   classroom: a place for presenting, organized seating, and a certain degree of

   shelter from distraction and inclement weather. Often, outdoor classrooms feature

   elements that illustrate key concepts or ideas in a given curriculum. Such spaces

offer fantastic opportunities for educative design; however they also present a

consistent challenge. (p. 48)

A few schools included within this research study attempted to mixed both natural

and man-made seating in their outdoor spaces. Figure 65 displays rocks organized under

tree cover for seating and near two benches for additional seats at ES-07. Moreover, it

was noted that this outdoor classroom was positioned beneath trees in order to benefit

from the shade they produce. Further, it may not be apparent when looking at this

photograph, but the rocks are actually positioned in small clusters that create a circle.

Consequently, the layout and design of this outdoor space appears to have accounted for

various scenarios for classroom seating.

Figure 65. ES-07: Rocks organized under tree cover for seating and near two benches for additional seats.

In another study, Jelmberg and Goodman (2008) argued that:

> There are many compelling reasons why the outdoor classroom is an ideal
>
> learning environment. Being in the outdoors is highly motivating because it is
>
> filled with so many natural opportunities for stimulation. In an outdoor setting, all
>
> of our senses are aroused. Hearing the sound of the wind, bird calls, and other
>
> natural noises (or silence) all comprise integral part of the sensory stimulation.
>
> Also, the fresh air, rain or blue sky, and other environmental stimuli can help to
>
> create an excitement in the senses. the combined effect of visual, auditory, and
>
> kinaesthetic stimulations can afford multimodality invitations for learning. (p. 6)

Playground Rating System - Item #20.

In looking at the data collected for *Playground Rating System* - Item #20

(Accessibility, materials, and equipment for children of all abilities/disabilities.); Bar

Graph 20 illustrates that none of the elementary schools included herein attained the

lowest possible score of zero. In contrast, three elementary schools were able to attain the

highest achievable outcome of five, these schools were: ES-01, ES-05, and ES-07.

Moreover, the remaining nine elementary schools achieved numbers that were between

the highest and lowest scores; these schools were: ES-02 (4), ES-03 (3), ES-04 (3), ES-06

(4), ES-08 (4), ES-09 (3), ES-10 (3), ES-11 (3), and ES-12 (3).

Bar Graph 20

Accessibility for Children of all Abilities/Disabilities
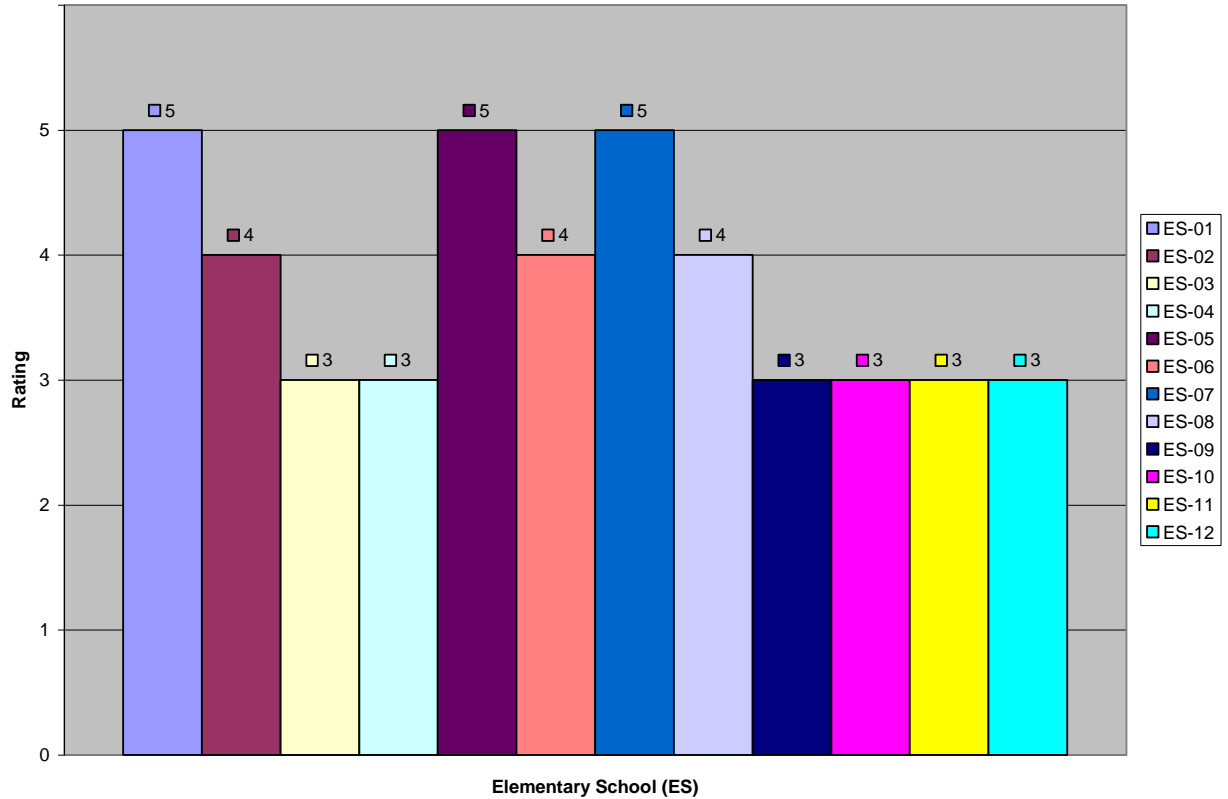
Note. Accessibility, materials, and equipment for children of all abilities/disabilities. (Frost, Wortham, & Reifel, 2012)

It is important for children of all abilities/disabilities to get around the schoolyard and playground in a safe manner. I noticed that very few schools from this research study had provided their students with any type of path or walkway to navigate their school property. Moreover, it was noted that natural ground cover was perhaps too difficult for children with disabilities to navigate when wet. This speculation was based on trails of mud which were observed leading into the school - these markings were perhaps made by a child using a wheelchair. Figure 66 reveals a maze of concrete paths run through this schoolyard providing unobstructed access to all children at ES-01. It should be noted that

some of the sidewalks which appear in this photograph seem to be leading to dead ends

on the schoolyard. Perhaps those areas will be developed at a later point in time and the

school resolved installing this path system at the same time to save money.

Figure 66. ES-01: A maze of concrete paths run through this schoolyard providing
unobstructed access to all children.

By adding a paved walkway to the schoolyard children are given a designated route

with which to navigate outdoor spaces safely. However, it should be noted that at some

schools the pathway was elevated above the grass in certain areas causing the route to

become a hazard to children that may not be looking down when crossing the concrete.

Figure 67 shows evidence of paved pathways that travel around this schoolyard providing

easier access to play equipment and outdoor structures at ES-07. This photograph

illustrates how it is possible to connect areas of the schoolyard especially areas that may

be situated on natural ground cover such as grass. Moreover, this picture is a good

example of the various materials used in surfacing a schoolyard, including: grass, asphalt, concrete, and rubberized materials.

Figure 67. ES-07: Paved pathways that travel around this schoolyard providing easier access to play equipment and outdoor structures.

I noticed that one school had installed play equipment in their schoolyard that was not only appropriate in size for children, but also considered the accessibility for children of all abilities/disabilities. As such, Figure 68 displays specialized swings atop a synthetic rubber material provide extra support for children with physical disabilities at ES-07. It appeared to me that the two oversized swings would be used by children whose current size would be too big for a standard swing.

Figure 68. ES-07: Specialized swings atop a synthetic rubber material provide extra support for children with physical disabilities.

Moreover, Figure 69 demonstrates the lower features of play equipment make it more accessible to a larger assortment of children at ES-07. As mentioned earlier, it can be observed from the picture that this playground equipment was connected to other outdoor places in the schoolyard via a network of asphalt paths.

While discussing the accessibility of a multi-level play structure, Kienitz and Kent (1996) stated that:

> Important types of learning occur on the upper level besides physical development. They are: (1) social play, the ability to join other children playing above, and (2) the development of kinesthesia, the sense of oneself in relation to one's environment. People in wheelchairs particularly enjoy the sense of looking down onto something from above, after spending so much time looking up. (p. 137)

Figure 69. ES-07: The lower features of play equipment make it more accessible to a larger assortment of children.

Playground Rating System - Overall Results.

It should be highlighted from the outset, that each schoolyard and playground studied within the context of this research was entirely different from every other in terms of their layouts and designs. This uniqueness, became apparent to me while walking through each of the school grounds during data collection. That being said, there were many commonalities evident in the play theories and methodologies displayed at each of the schoolyards and playgrounds included within this study.

Bar Graph 21

Overall Checklist Results
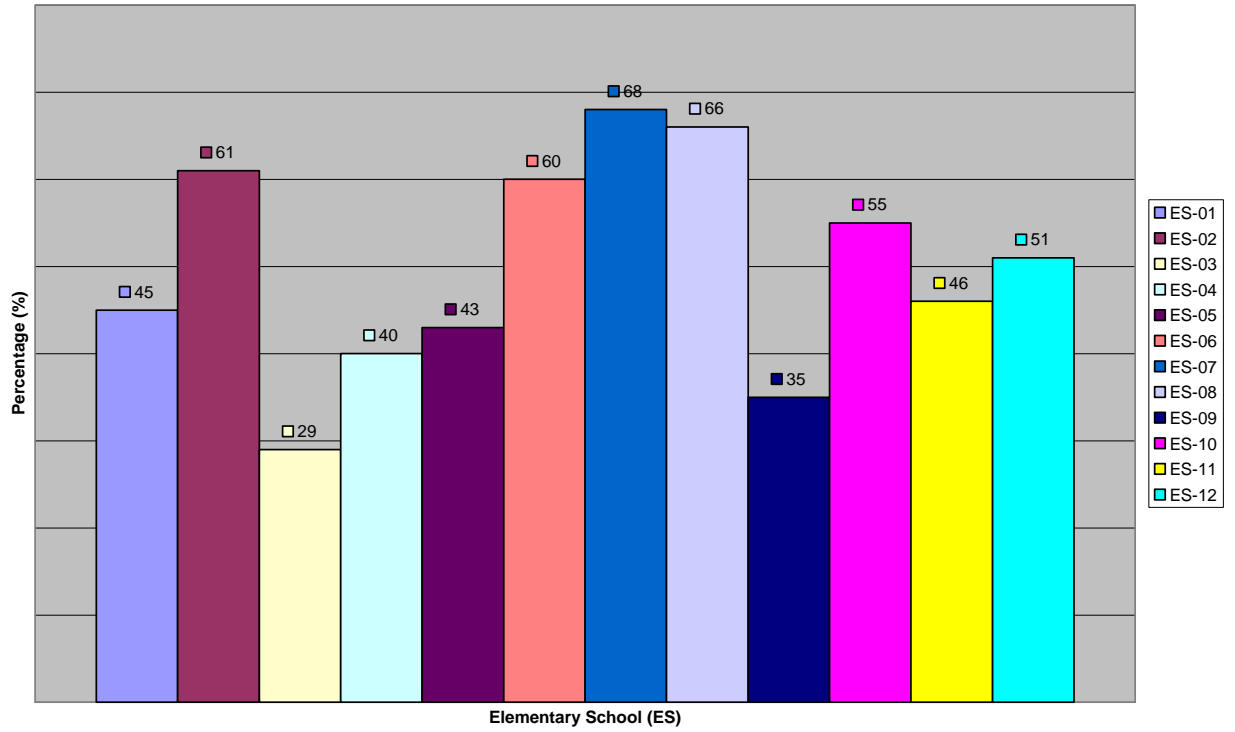
Note. Computation of all factors tabulated as percentage. (Frost, Wortham, & Reifel, 2012)

Summary.

The *Playground Rating System* allowed data collected to be tabulated as an overall

percentage, and as such provided the research with information about each elementary

school on the whole. The basis for this calculation was that each checklist item in the

Playground Rating System had a maximum attainable score of five for each of the 20

items included its checklist.

Thus, in looking at the overall data from *Playground Rating System* (tabulated as a

percentage), it becomes apparent that none of the elementary schools included within this

study was able to attain a perfect score. Moreover, although some schools had individual

scores of zero for some checklist items, none of the schools included herein had a zero

when converted into a percentile. However, it should be noted that the elementary school

with the lowest rating achieved was ES-03 at 29 percent. Notwithstanding the low

achievement on the part of ES-03, this elementary school did not have a perfect score in

any of the different categories evaluated.

It should also be highlighted that none of the elementary schools included within this

study achieved any type of score when being evaluated on water play (*Playground Rating

System* - Item #3) or construction areas (*Playground Rating System* - Item #9). Thus, with

regards to the research instrument used herein, specifically the two checklist items

mentioned above, may have negatively contributed to the overall results for every

elementary school. As such, sometimes a professor may curve the class grades due to an

error or common mistake in their testing instrument, and on that basis, if the

abovementioned checklist items were removed the overall results perhaps the new results

would better reflect the individual attributes of each elementary school.

Furthermore, the highest rating achieved overall was ES-07 at only 68 percent, which

typically translates to a C+ on most grading scales; and thus, not a stellar result in and of

itself. Although, when looked at more closely, almost more than half the elementary

schools achieved a failing grade on an overall basis. Therefore, much can be improved

upon with regards to the outdoor environments of the elementary schools included within

this study.

In summary, I believe that based on the overall checklist results, the *Playground

Rating System* appears to be a deductive instrument in nature. The instrument simply

accounts for items that are lacking from the outdoor environment and rewards those

elementary schools that have satisfied the narrow definitions for each independent

category being assessed. However, despite its obvious shortcomings the *Playground*

Rating System has been around for more than quarter of a century and has certainly been

refined throughout the years.

CHAPTER V

Discussion

Principle Research Question

This research study set out to explore the outdoor environments of elementary schools throughout Windsor and Essex County to assess the extent to which if their schoolyards and playgrounds reflect consideration of philosophies and theories of child development and play. The investigation looked at contemporary theories and methodologies of scholars as they relate to schools' outdoor environments. In order to conduct this study, I adapted the checklist created by Frost (2010); documented observations; recorded field notes; took photographs in accordance with Davidson, Dottin, Penna & Robertson (2009); and, lastly reviewed the literature mentioned above to determine if it was represented in the field.

This study's initial findings would suggest that elementary schools located in Windsor and Essex County are representative of the theories and methodologies found in the literature, albeit, at varying levels. During the data collection process, I established that the outdoor environments of each elementary school studied, were in fact, entirely different from each other. Furthermore, the only standard within this collection of schools was that the outdoor environments were situated outside the main school building. Each location varied in terms of their natural landscapes, to the playground equipment and apparatus that were installed.

It should be noted that based on the checklist used in this study, there was quite a substantial range in scores between the highest and lowest ranking elementary schools. Thus, it suggests that the resources available are not equally spread amongst the elementary schools in this region. Moreover, it creates a sense of inequality between

children related to their outdoor experiences. In this regard, the overall educational system has failed to provide equal learning opportunities for children out-of-doors.

This studied found that one of the most significant areas of improvement for outdoor school environments over the last century has come from the establishment of safety guidelines. Although, it was identified that some elementary schools had equipment and apparatus that were in disrepair, the overall level in regards to safety was extremely high. Moreover, the findings also showed that hazards attributed to the weather may develop, however, elementary schools have responded with appropriate safety equipment to prevent children from accessing dangerous areas.

In attempting to gauge the importance associated with outdoor environments, a study by Jelmberg and Goodman (2008) identified that:

> The philosophy of outdoor education is an essential component of its practice.
> Sometimes referred to as pedagogy, the philosophical foundations of outdoor
> education work to inform the practice or praxis (critical application of
> pedagogy) - experiential learning. The principal questions concerning outdoor
> education philosophy pertain to the epistemological basis for using the outdoor
> classroom: Why outdoor education? How can outdoor education improve
> student achievement? What student outcomes are provided in the outdoor
> classroom? Answers to these questions form the foundation and philosophical
> underpinnings of outdoor education. (p. 19)

Lastly, the current study also noted that outdoor classrooms were prevalent in the majority of elementary schools studied. Once again, the approaches adopted with respect to outdoor classrooms varied from one location to the next. I could only speculate, based on signage observed in the field acknowledging the generosity of donors, that this

variance in the degree of investment may be attributed to the lack of financial resources available to some elementary schools.

Secondary Research Questions.

This study also explored several secondary questions that I thought were relevant to an investigation pertaining to the outdoor environments of elementary schools. For convenience, these questions have been organized into the following three categories: schoolyards, playgrounds, and unconventional outdoor spaces.

Schoolyards

An important aspect pertaining to the definition of outdoor environments included the inclusion of schoolyards as one of its main characteristics. This space is traditionally found at the rear of most school buildings. However, this investigation noted that many schools today have adapted other areas, including the sides and front of their properties, for purposes of outdoor classrooms and playground equipment.

In this section, I will answer three questions that were posed related to schoolyards. These questions are as follows:

What elements and/or features are found within schoolyards?

Do schoolyards have defined boundaries and/or sections?

Are there any identifiable hazards in the schoolyards?

The first question outlined above was interested in the elements and/or features found within schoolyards. It should be noted right at the outset, that a distinctive feature of the schoolyards studied was the large area that they occupied. Often, grassy fields encompassed the majority of their functional space. However, there was one elementary school within this study that did not adopt grass into its outdoor environment. This school was identified in the coding as: ES-05. In this situation, the majority of its usable space

was covered with an asphalt surface and complimented by small pockets of soft material located under playground equipment and outdoor tables. Despite this obstacle, the schoolyard in this example maintained designated areas for organized games by means of painting the requisite markings onto its asphalt surface. Moreover, as indicated above, the grassy fields identified at the majority of schoolyards studied were outfitted with goal posts for soccer and backstop fencing for baseball.

Further, the second question explored if schoolyards had defined boundaries and/or sections. It appeared to me that schoolyards were divided into various sections using two different approaches. First, the ground cover provided a natural transition from one outdoor space to another. For example, children could move from a grassy field, to an asphalt surface, to an area with soft surface materials, or any other combination thereof. In contrast, in situations in which asphalt formed the majority if not all the ground cover, the schoolyards would be partitioned using painted lines identify specific outdoor spaces. Further, based on the literature surveyed, I believe that schoolyards are often divided in order to organize the children into age appropriate groups when at play.

The last question related to schoolyards wondered if there were any identifiable hazards within the schoolyards. At first glance, the schoolyards studied appeared relatively hazard free. However, I did notice in one case that the elementary school had stationed orange cones along an area of grassy field that been flooded due to rainfall the evening prior to data collection (see Figure 69). Hence, during the analysis process, this simple observation was able to draw attention to other photographs which captured areas that were also flooded (see Figure 70 and Figure 71).

It was noticed that at several research sites, rain from the previous evening had accumulated during the night and caused flooding throughout a variety of areas in the

schoolyards. Hence, it appears that changes in the weather can be attributed to the

development of natural hazards within schoolyards. However, this important finding was

not the central focus of this study. In Appendix G, I provide the reader with the weather

conditions observed during the collection of data. This step was taken under the foresight

that an outdoor environment transitions in appearance with the changing seasons, and that

the photographs collected during this study may have a totally different manifestation

during the winter or summer seasons. For this reason, this study cannot establish

generalized findings with regards to the weather conditions observed.

Figure 70. ES-02: Orange cones along a flooded section in the schoolyard.

Figure 71. ES-02: Outdoor classroom and nature space submerged in water.

Figure 72. ES-10: Flooded area of schoolyard.

Playgrounds

In this section, I contemplate about the types of equipment or apparatus that would be found within the playground. As well, the research explored the condition and consequently safety of playground fixtures and equipment.

Research by Doll and Brehm (2010) acknowledged that:

> The playgrounds of the mid-1800s were intended to be instructional, and teachers would join students in playing games that explored the physical properties of objects in movement and at rest. By the early 1900s, large cities developed playgrounds to be safe havens where urban youth could play cooperatively and engage in healthy physical exercise away from urban traffic hazards. By the 1950s, most schools and community parks had paved playgrounds furnished with durable steel slides, swings, see-saws, merry-go-rounds, and jungle gyms. Many of these prototypic playgrounds were dismantled as evidence accumulated that students were often injured when they ran into, fell from, jumped from, or were pinched by metal play structures. These have been replaced by playgrounds in naturalized settings, with custom play structures, and softer and safer designs and materials. Today's playgrounds have also been shaped by a renewed interest in the potential of play environments to foster cognitive growth and imaginative play. (p. 2)

In the case of this study, each of the elementary schools investigated possessed each of the following items: goal posts for soccer and nets mounted for basketball. However, the children would only be able to be play these games if they had the equipment necessary to engage in either activity. This aforementioned comment is only mentioned as sometimes schools tend to reserve their athletic equipment for organized sports or gym

classes in order to preserve their finite resources. In addition, many of the playgrounds had a formal play structures that acted as centrepieces in the schoolyard. These pieces of equipment and apparatus allow children an opportunity to engage in a variety of different physical activities.

This emphasises an important point, which is that almost every playground equipment and apparatus are designed around physical activities. Although, in the literature review it was noted that when children utilize playgrounds with others they also develop their social skills. A study by Pellegrini and Blatchford (2000) suggested the playground at recess is "one of the very few places in school where there is minimal adult direction, where students can interact with each other on their own terms" (p. 21). However, despite the fact teachers and parent volunteers are in attendance patrolling the schoolyard and playground during recess, their actions are mostly reactive to the behaviour of children as opposed to authentic adult direction.

With respect to the condition of playgrounds investigated within this study, it was observed that there was some equipment in disrepair (broken/missing sports equipment - see Figure 73; as well as disassembled plastic structures left inside the children's play area - Figure 74). As a result, in most cases the objects lose their intrinsic educational value and may pose an unnecessary danger to children. Moreover, the review of literature identified that educators should regularly inspect the schoolyard and playground for potential problems so as they can be identified and fixed. Further, elementary schools are at risk for vandalism, which normally occurs after business hours and can contribute to the issues noted above. Evidence of vandalism can be seen in Figure 75.
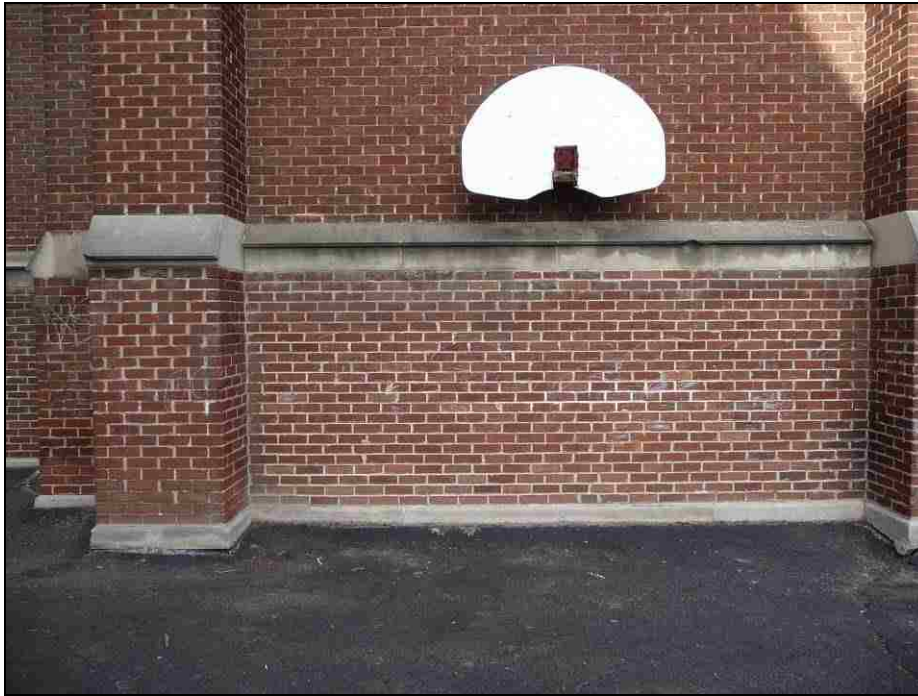
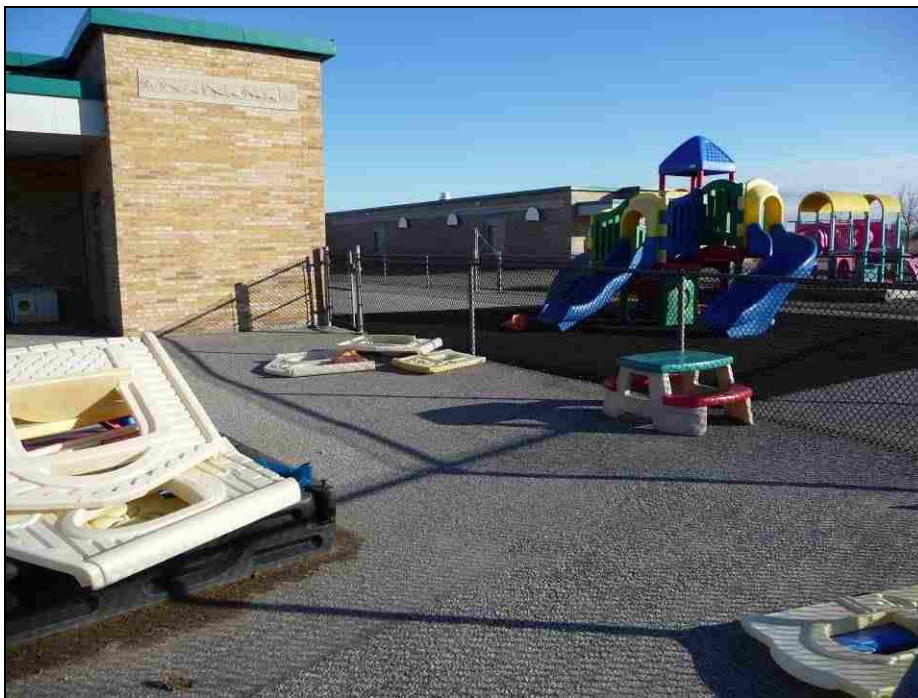*Figure* 73. ES-03:This basketball net is missing the rim and thus renders it useless.

Figure 74. ES-02: Equipment has been left disassembled throughout the playground creating potential risks for children.

Figure 75. ES-10: Evidence of vandalism along an exterior wall of the school building.

Doll and Brehm (2010) incorporated their own understanding of playgrounds with that of several other researchers including: Marshall (2006); Moore (2006); and the U.S. Consumer Product Safety Commission (2008), and were able to create a practical set of guidelines in order to gauge the 'adequacy of any single playground's location':

- The playground ought to have clearly defined boundaries so that every adult and student knows exactly where the playground begins and ends, and understands where the playground rules apply. Where school grounds infringe upon dense urban community, with its accompanying traffic and pedestrian activities, playgrounds will need to be fenced so that the students can play undisturbed.

- It should be possible for students to move easily from the school onto the playground and back without crossing traffic lanes or access roads. In some

cases, schools have erected temporary barriers during the school day to close off traffic lanes or shut down parking lots that run too close to the playground.

- When students are busy playing during a typical school recess, they should be spread out horizontally across the playground. If too many students are crowded into dense clusters, it is a sign that play spaces need to be reassigned so that students' games do not bump into one another and cause unnecessary risks (as when balls from one game accidently hit nearby students) and disagreements (as when students from one game interrupt the play of other students).

- There should be some places on the playground where physically active students can run, jump, wriggle, and roam - burning up the energy so that hey can return to their classrooms refreshed and ready to work.

- Wherever possible, playground structures should be appropriate for students with physical disabilities, including students who use wheelchairs or other assistive devices.

- There should be some places on the playground that are shaded and out of the wind, so that students can play in comfort even on hot, sunny days or on cold and windy days.

- Every space within the playground boundaries should be visible to and within easy calling distance from adult supervisors who are arranged strategically around the space.

- In the best of all worlds, every school playground would also have some natural settings that teachers can use for science experiments, fostering student's naturally inquiring minds. (p. 27 - 28)

Unconventional Outdoor Spaces

Finally, "unconventional outdoor spaces" was the manner in which I elected describe the outdoor spaces that did not fit within the context of conventional schoolyards and playgrounds, specifically the places children had adapted for play. In this regard, the research examined if there might be evidence that children had used an outdoor space differently from its original design.

Moreover, I did observe evidence that children had adapted their outdoor environments in order to play. Within this study, every situation that identified some type of adaption used chalk in its development. Some examples in which chalk was utilized to transform conventional outdoor spaces can be seen in Figure 76 and Figure 77.

Figure 76. ES-03: Chalk lines have been drawn on the wall to create a soccer goal, and also on the ground to replicate creases used in hockey.

It should also be pointed out that these imaginative adaptations occurred in the middle of

this dreary schoolyard that did not offer playground equipment or apparatus for children

to engage. Furthermore, I was not able to discern only through observation if children

also played invented or imaginary games amid this particular outdoor space.

Figure 77. ES-03: Chalk lines have been drawn on this architectural feature of the school building to craft a pitching target for baseball.

New and Old School Construction

This research study purposefully selected elementary schools from both new and old construction to determine if their architectural designs had any influence on the outdoor school environments. The data collected suggests that a significant difference exists between the two categories of elementary schools (see Bar Graph 22). A significant distinction between new and old, related to the tangible space of their outdoor environments. In this study, the new schools both had the luxury of ample space for their children to play, and only one old school enjoyed a large outdoor space. The other old school had the smallest outdoor environment of all the elementary schools studied. Moreover, asphalt comprised the majority of its ground cover, increasing the risk of injury (as a result of falling on this hard surface) for children that chose to engage in organized sports.

Additionally, the playground equipment and apparatus of the old schools were minimal to say the least, as well as mostly dated in the type of design. Surprisingly, one of the two new schools did not have a playground structure for children to play atop. In fact, the only installed equipment was goal posts for soccer, a backstop fence for baseball, and several basketball nets. Thus, beyond those items just mentioned the children were immersed in an outdoor environment without learning opportunities.

One of the significant attributes that can be associated with the new schools was their integration of large amounts of natural landscaping into their outdoor environments, as well as the addition seating for outdoor classrooms.

Lastly, it was evident at one of the old schools studied that children had adapted their outdoor environments to engage in organized sports. Moreover, it was the architectural contours found along the exterior walls of the school building that may have inspired this creativity. It should be noted that no evidence was observed at the new schools that would suggest children at those locations were also adapting their outdoor environments.

Bar Graph 22

New and Old School Construction
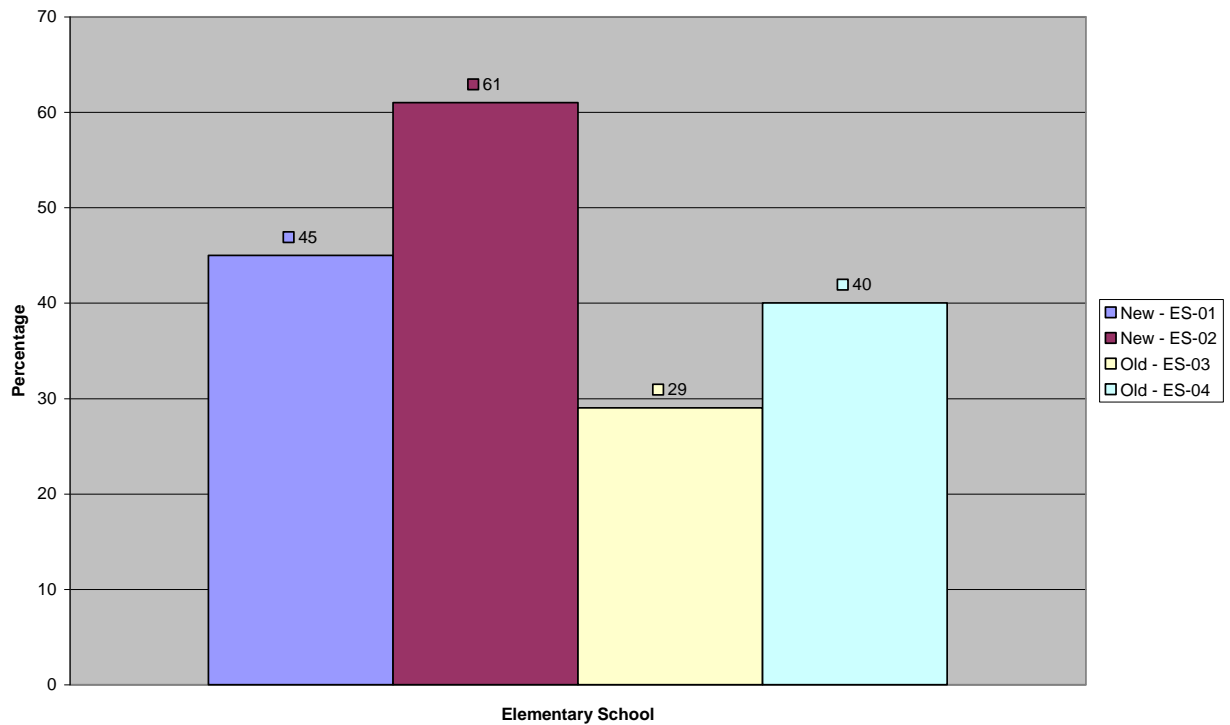
Note. Results for the new and old school construction comparison.

Urban and Rural Surroundings

Another comparative analysis looked at urban and rural surroundings and the

possibility that this factor may influence the outdoor environments of elementary schools.

It should be noted from the outset, that the two rural schools examined in this study were

in fact the highest ranking research sites based on their checklist scores as can be seen in

Bar Graph 23.

Bar Graph 23

Urban and Rural Surroundings
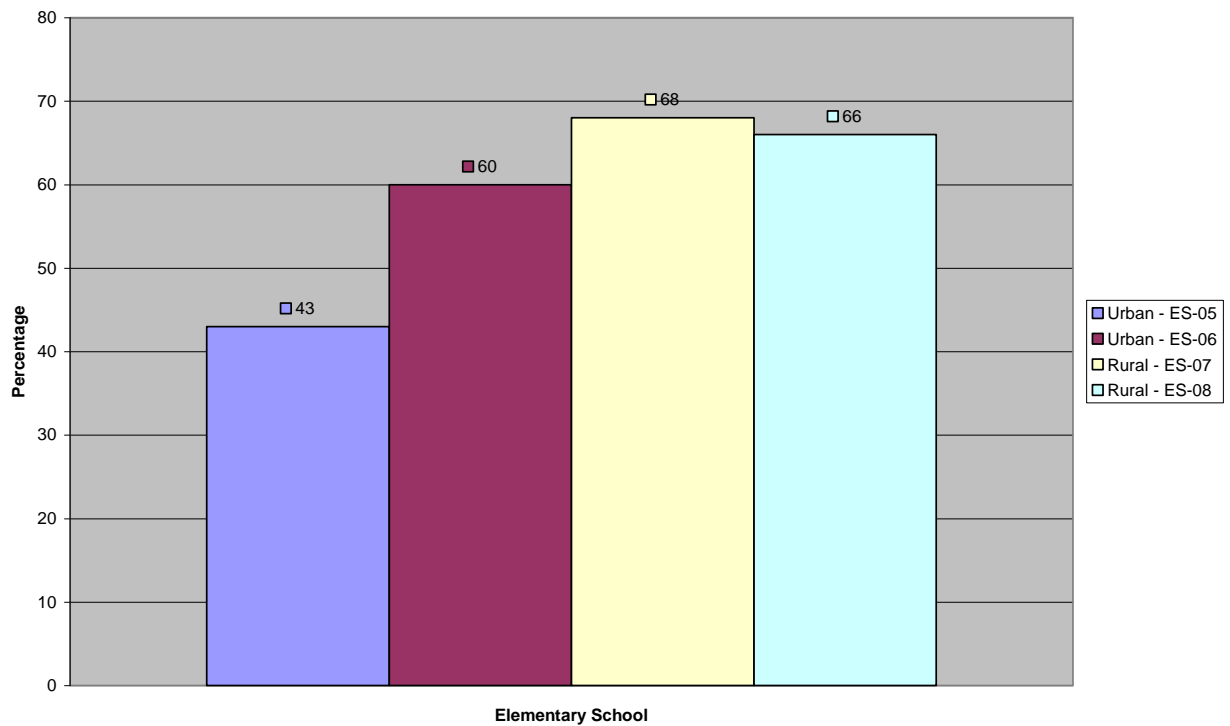
Note. Results for the urban and rural surroundings comparison.

Despite the differences in scores, I did notice that both urban sites had made good use of theories and methodologies identified in the literature in order to compliment their weak points. For example, even though, one urban outdoor environment was almost entirely covered in asphalt the school had painted markings for games throughout the schoolyard. In addition, to create more outdoor space for their children one urban school developed the formal gardens in front of their school building into an outdoor classroom and also installed playground equipment.

In contrast, I noticed one of the most inclusive outdoor environments for children of all abilities/disabilities at a rural school. Moreover, the playground had utilized innovative materials to make the equipment and apparatus also available to those children with

physical disabilities without minimizing the over learning experiences for other users. Another, significant feature of the rural site was that it had installed an asphalt path throughout its schoolyard making it accessible to everyone.

Finally, it appears from the findings that surroundings do not entirely affect the quality of an outdoor environment. Albeit in different ways, both urban and rural elementary schools were able to put theory into practice in many ways at their respective locations.

Higher and Lower Income Neighbourhoods

In its last combination, this research study investigated the outdoor environments of elementary schools from higher and lower income neighbourhoods in order to determine if this factor had any impact on the subject matter being studied.

Surprisingly, the findings presented in Bar Graph 24, illustrate that the schools located in lower income neighbourhoods scored better than their counterparts in the more affluent areas. However, it should noted, that at both lower income sites, signage displayed in the schoolyard acknowledge that organizations had donated money to help develop their outdoor environments.

Of the two elementary schools located in higher income neighbourhoods, I observed that playground equipment was almost non-existent. Only a superficial amount of sports equipment was installed at this research site. It behoves me, how the areas that supposedly contribute more money into the educational system, in fact, had received less of a return in terms of equipment and apparatus in their playgrounds. Again, this situation suggests that not enough money is being allocated to the outdoor environments of particular elementary schools, thus raising another question. Where are there resources

being allocated? Especially, if every school has an expectation to provide the similar

educational experiences.

Bar Graph 24

Higher and Lower Income Neighbourhoods
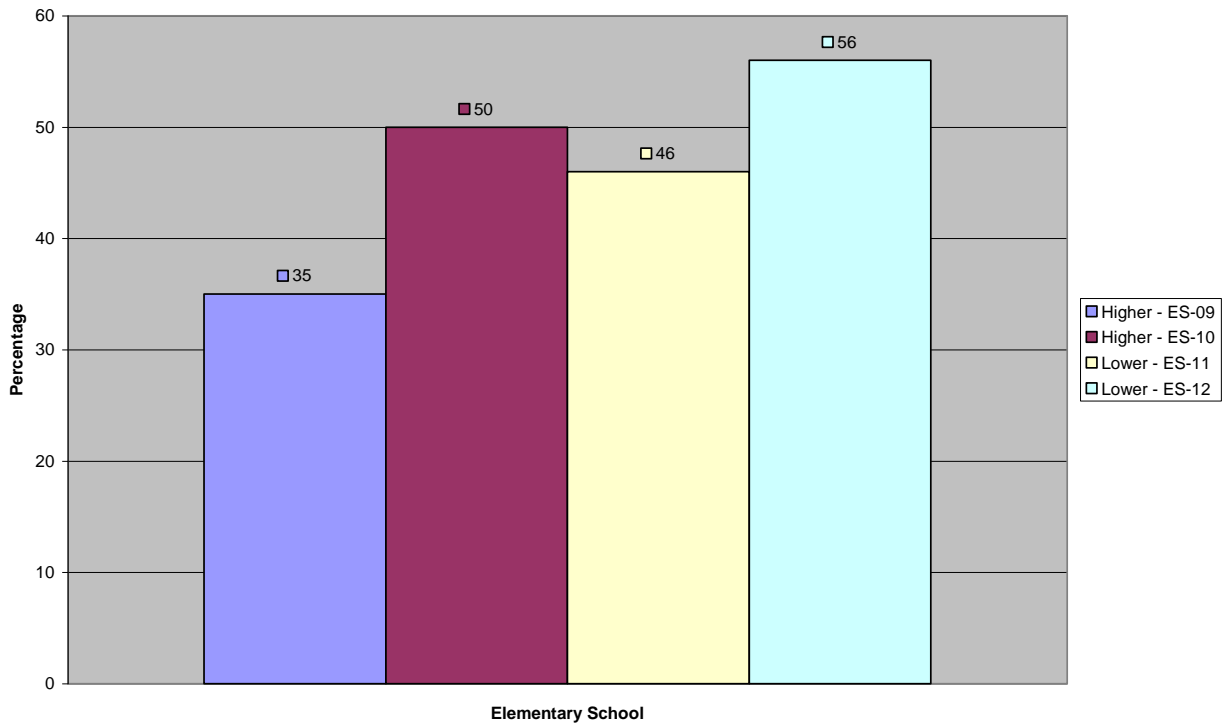
Note. Results for the higher and lower income neighbourhoods comparison.

Conclusion

To close, the comparative analysis arranged within this research study were not able

to establish any generalized conclusions from its findings. However, evidence gathered in

the course of this investigation, does suggest that the outdoor environments of the schools

studied are significantly different from each other with respect to their available resources

and approaches of developing schoolyards and playgrounds; but more importantly in their

application of the many theories and methodologies found within the literature reviewed

for this study.

Contributions and Further Research

I think an important part facet of the research process is when the researcher takes a moment at the end and assesses their contributions and considers further research that may evolve from their work. As such, I would take this opportunity in order to reflect upon my contributions to the field of education, as well as explore further research prospects that may come from the data collected herein.

Contributions.

The information collected in this research study will provide educators and administrators with valuable knowledge related to the developmental stimulus found within schoolyards and playgrounds. Moreover, they will understand the profound impact that their decisions may have on the outside spaces that children explore during their recess periods. In addition, they should also realize the importance of regularly maintaining their outside equipment to ensure that it will provide students with meaningful developmental stimulus. For example, developmental stimulus can be found in the choice of play structures put into service, as well as the decision to include natural green spaces within areas that children would make use of. What is more, I think that educators and administrators play a fundamental role in providing unique outdoor learning opportunities for children through their decisions. Also, I believe that these decision makers should ensure that children are afforded a multitude of choices in their outdoor play experiences in order to prevent these outdoor spaces from becoming boring and underutilized.

Moreover, the data collected herein will assist architects tasked with the development of outdoor learning environments for elementary schools, to understand that their designs must allow for change in the future. I believe, that out of necessity, schools are choosing

to repurpose their available outdoor space in order to satisfy the changing needs of their students. For example, some of the most comprehensive schoolyard layouts and playground designs identified in this study were found at elementary schools that transformed their historical footprint to make better use of outdoor spaces. Although, these adaptations were more evident in the older schools included within this study, I did observe some newer schools that had installed portable classrooms in their available outdoor space in order to alleviate overcrowding in the main school building.

Furthermore, the findings hinted that some schools make significant investments into enriching their outdoor spaces and then fall short on the maintenance required to keep these installations in good working order. I believe that decision makers at the elementary level; be they administrators, teachers, or parents, will all benefit to know that a regular inspection of the schoolyard and playground equipment to identify concerns with the equipment will not only make these outdoor spaces safer for children, but will also ensure that their learning experiences are not stifled by equipment that may not be functioning properly. For example, this study identified many unusable play apparatus at a variety of locations throughout the course of data collection. I would think that the expense to repair rather than replace would be more cost effective for those concerned. However, it should also be noted that some schools have taken proactive measures in order to avoid vandalism and thefts from outdoor play spaces by installing lockable storage sheds in these areas. I believe this forward thinking should serve a model for other elementary schools in order to protect their capital investments in the future.

Lastly, I think that the findings outlined within this research study will provide other scholars with a significant information, in order to establish a base from which to launch their own examinations into the outdoor spaces of schoolyards and playgrounds.

Further Research.

I believe that this research study has three unique opportunities from which it can conduct further research related to its subject matter. First, the inclusion of students' perceptions of their outdoor environments should be considered. Second, it was noted in the data collected that weather has a significant impact in how outdoor spaces can be used, and as such require further consideration. Third, without a doubt, this research study relied heavily on the researcher to serve as the principal data collection tool, which creates an opportunity to replicate this study using the perspectives of those individuals which may have an interest in how outdoor spaces are used.

In considering the first opportunity for further research, I recognize that my research study was limited in scope without an understanding of what students thought about their outdoor spaces. Also, I identified the lack of firsthand knowledge about the manner in which students used their outdoor spaces and if it was in context of the architects/designers intended purpose. Elkind (2007) studied the perceptual development of children and demonstrated that "children indeed see the world differently than we [adults] do" (p. 99). What is more, Palys (1997) illustrates the relevance of perception by using a quote from W. I. Thomas' book *The Child in America: Behavior problems and programs* published in 1928, that "perceptions are real because they are real in their consequences" (p. 16). Perhaps, in this subsequent study, I would have students draw their ideal schoolyard and playground to better illustrate their viewpoint with regards to this subject matter. Furthermore, I would ask the students questions about their pictures during interview sessions in order to help me decipher the meaning within the students' drawing.

The second idea relates to dynamics of weather and how it can change the functionality as well as appearance of the outdoor space. Moreover, I would assume that this type of research study would require data collection from specific outdoor spaces at various points throughout the academic school year. I would explore the effects of different weather conditions at designated schoolyards and playgrounds, and return to these outdoor spaces during various types of weather in order to document through photographs the manner in which students are required to adapt to factors such as: heat, cold, rain, wind, snow and so forth. In addition, I believe the information collected in this type of research study would also need to identify the situations in which students are not permitted to go out-of-doors and document the activities that student engage while indoors for their recess period.

Lastly, I recognized that my research study experienced a limitation in researcher bias during the data collection process. Perhaps, then the third opportunity for further research should focus on the perspectives of others concerned with outdoor spaces. I think this could be achieved through the inclusion of individuals that are representative of their unique interest groups. For example, this type of research study could adhere to the research methods of the original research study, however the fundamental difference would be look at research sites through the eyes of three unique groups: teachers, architects, and students with each having an opportunity to conduct their own assessment of the outdoor spaces. Perhaps then the data collected would lend itself to being triangulated and analysed from various perspectives which could also be compared and contrasted with the initial results from my research study.

In closing, these suggestions are only a sampling of the possible approaches in which I could continue my exploration into the realm of outdoor spaces and the manner in which they influence the students that use them.

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Appendix A

Interagency Advisory Panel on Research Ethics: Certificate of Completion

Certificate of Completion

This is to certify that

Oscar Vicente

has completed the Interagency Advisory Panel on Research Ethics'
Introductory Tutorial for the
Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS)

Issued On: **January 01, 2011**

http://www.pre.ethics.gc.ca/english/tutorial/create/cert/index.cfm?name=Oscar+Vicente&... 01/01/2011
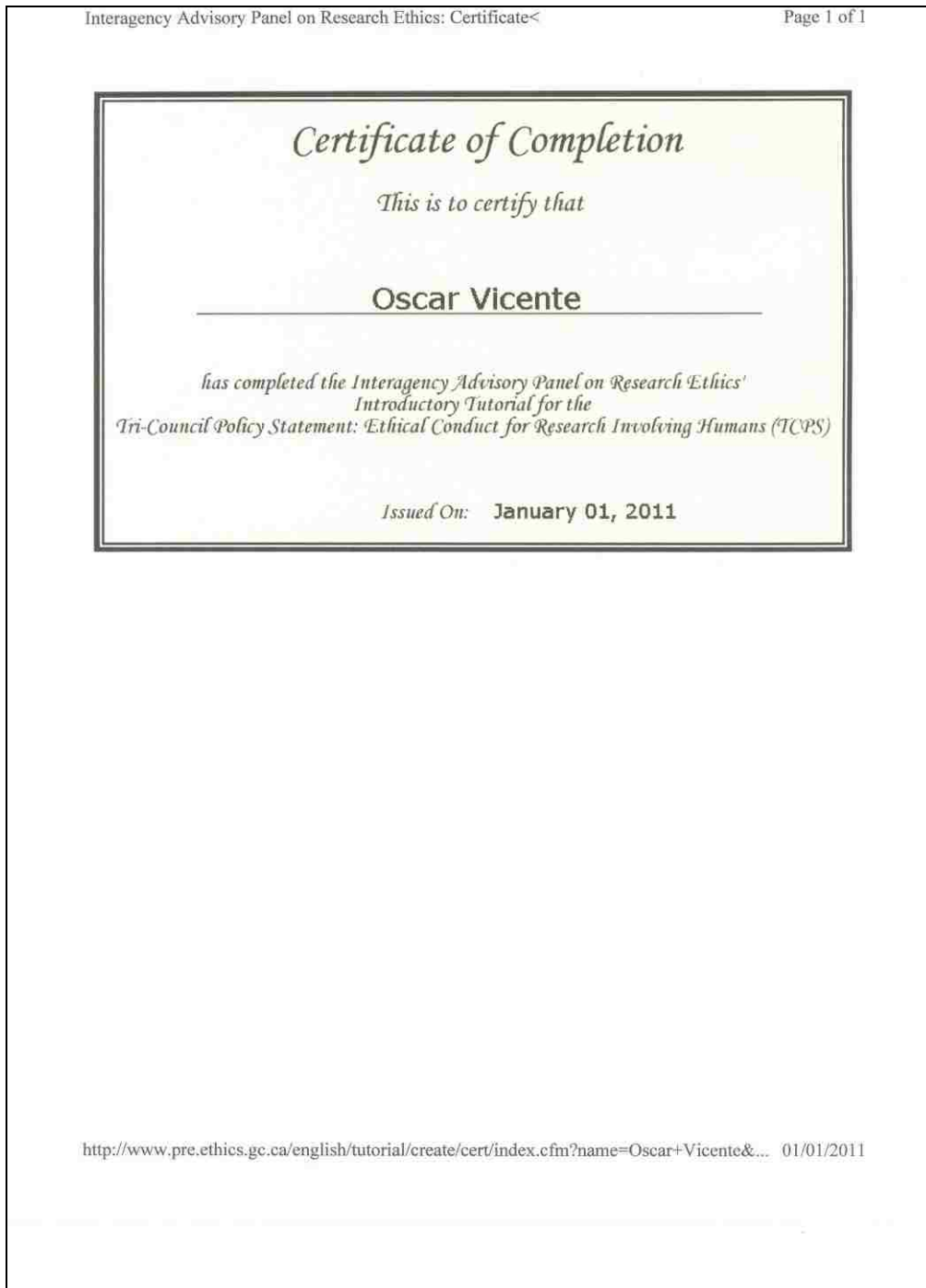
Appendix B

Playground Checklist

(Joe L. Frost, 2010 - Revised)*

Elementary School
_____

Instructions: Rate each item for existence and function on a scale from 1 to 5.

> *0 = not existent*
> *1 = some elements exists but not functional*
> *2 = poor*
> *3 = average*
> *4 = good*
> *5 = all elements exist (excellent function).*

The highest score possible is 100 points.

1. An open area with marked spaces for games, and goals for such activities as basketball and soccer. A network of marked paths or rubber conveyor belts for wheeled toys, linked to key play zones.

    0   1   2   3   4   5

2. Sand and sand play equipment including a variety of loose parts - toys, blocks, scoops, and containers.

    0   1   2   3   4   5

3. Water play areas with fountains, pools and sprinklers, and water play materials.

    0   1   2   3   4   5

4. Dramatic play structures (playhouses, cars or boats with complementary loose parts such as adjacent sand and water and housekeeping equipment).

    0   1   2   3   4   5

5. A superstructure with room for many children at a time and with a variety of challenges and exercise options (entries, exits, and levels).

    0   1   2   3   4   5

6. Mound(s) of earth for climbing and digging.

    0   1   2   3   4   5

7. Trees and natural areas for shade, animal habitats, nature study, and play.

    0   1   2   3   4   5

8. Continuous challenge, linkage of areas, functional physical boundaries, vertical and horizontal treatment (hills and valleys).

    0   1   2   3   4   5

9. Construction area with junk materials such as tires, crates, planks, boards, bricks, and nails; tools should be provided and demolition and construction allowed.

    0   1   2   3   4   5

10. A purchased or built vehicle, airplane, boat, or car that has been made safe but not stripped of its play value (should be changed or relocated after a period of time to renew interest).

    0   1   2   3   4   5

11. Equipment for active play: a variety of overhead apparatus, climbers, slides, balancing devices, swings, etc.

    0   1   2   3   4   5

12. A large open, sandy or grassy area for organized games.

    0   1   2   3   4   5

13. Small semiprivate spaces at the child's own scale: tunnels, niches, playhouses, private or special places partially enclosed by trellises, plants, and berms.

    0   1   2   3   4   5

14. Fences, gates, walls, and windows that provide security for young children and are adaptable for learning/play.

    0   1   2   3   4   5

15. A garden for flowers, vegetables, and herbs located so they are protected from play but with easy access for children to tend them. Special nature areas such as butterfly gardens. Gardening tools are available. A greenhouse for plants greatly enhances nature study.

    0   1   2   3   4   5

16. Provisions for housing of pets. Pets and supplies. Special areas to attract birds and insects. Storage for supplies.

    0   1   2   3   4   5

17. A covered outdoor space. This can be a covered play area linked to the playroom, which will protect children from the sun and rain and extend indoor activities to the outdoors.

    0   1   2   3   4   5

18. Storage building for outdoor play equipment such as tools for construction and garden areas, maintenance tools, wheeled toys linked to the track, sand play equipment, and tools for children's building. Storage can be next to the building or fence and should not block view of children. Storage should aid children's picking up and putting away equipment at the end of each play period.

    0   1   2   3   4   5

19. Easy access from outdoor play areas to coats, toilets, and drinking fountains. Outdoor classrooms, shaded areas, benches, tables, and support materials for group activities (art, reading, etc.).

    0   1   2   3   4   5

20. Accessibility, materials, and equipment for children of all abilities/disabilities.

    0   1   2   3   4   5

Total Score =   / 100

*Adapted from "Playground Checklist" by Joe L. Frost (2010) as reprinted in Frost, J. L.; Wortham, S. C.; and Reifel, S. (2012). *Play and Child Development, Fourth Edition*. Columbus, Ohio: Merrill. (p. 467 – 471)

Appendix C

Instructions for Taking Photographs

(Davidson, Dottin, Penna, & Robertson, 2009 - Revised)*

Objective: To take pictures that depict the outdoor environments of elementary schools including schoolyards and playgrounds.

Guidelines for taking pictures:

- Utilize the camera of your choice.

- Take a set of pictures that create a 360º random view of each research site.

- Photograph the outdoor environments of elementary schools.

- It is acceptable to take multiple pictures of a single space or object.

- When taking pictures of a space where there are other individuals, capture the photograph before or after they pass by so as not to take pictures of them.

- Make use of the *Photograph Log* to record notes for yourself on what you took pictures of. This can serve as a reminder or a memory aid. Additionally, it will be helpful during data analysis and interpretation.

- For purposes of confidentiality, it is strongly recommended not to take pictures of signage that would identify the locations used in this study.

*Adapted from "Instructions for Taking Photographs" as printed in Davidson, J., Dottin, J. W. Jr., Penna, S. L., & Robertson, S. P. (2009). Visual sources and the qualitative research dissertation: Ethics, evidence and the politics of academia - Moving innovation in higher education from the center to the margins. *International Journal of Education & the Arts*, *10*(27). Retrieved from http://www.ijea.org/v10n27/.

Appendix D

Photograph Log

(Davidson, Dottin, Penna, & Robertson, 2009 - Revised)*

Photograph Identification Number:

Elementary School:

Date:

Time:

Description of Photograph:

Field Notes:

*Adapted from "Instructions for Taking Photographs" as printed in Davidson, J., Dottin, J. W. Jr., Penna, S. L., & Robertson, S. P. (2009). Visual sources and the qualitative research dissertation: Ethics, evidence and the politics of academia - Moving innovation in higher education from the center to the margins. *International Journal of Education & the Arts*, *10*(27). Retrieved from http://www.ijea.org/v10n27/.

Appendix E

Photographic Equipment Utilized in Data Collection

DMC-TZ5K

Lumix® Digital Still Camera

Feature Highlights

- 9.1 megapixel
- 10x optical zoom
- 28 mm wide-angle Leica DC VARIO-ELMAR lens
- 3.0" Intelligent LCD (460K pixels)
- Intelligent auto mode
    - MEGA O.I.S. (Optical image stabilizer)
    - Intelligent ISO control
    - Intelligent scene selector
    - Intelligent exposure control
    - Digital red-eye correction
- Venus engine IV image processor
- HD movie mode with audio and zoom
- Li-ion rechargeable battery powered

Source:
https://panasonic.ca/english/audiovideo/camerascamcorders/digitalstill/DMCTZ5.asp#

Appendix F

Elementary School Profiles

Identification Code
ES-01

Unique Feature
New school construction

Note. The aerial photograph to the right was retrieved from Google Maps.

http://maps.google.ca/

Identification Code
ES-02

Unique Feature
New school construction

Note. The aerial photograph
to the right was retrieved
from Google Maps.

http://maps.google.ca/

Identification Code
ES-03

Unique Feature
Old school construction

Note. The aerial photograph to the right was retrieved from Google Maps.

http://maps.google.ca/

Identification Code
ES-04

Unique Feature
Old school construction

Note. The aerial photograph to the right was retrieved from Google Maps.

http://maps.google.ca/

Identification Code
ES-05

Unique Feature
Urban surroundings

Note. The aerial photograph
to the right was retrieved
from Google Maps.

http://maps.google.ca/

Identification Code
ES-06

Unique Feature
Urban surroundings

Note. The aerial photograph
to the right was retrieved
from Google Maps.

http://maps.google.ca/

Identification Code
ES-07

Unique Feature
Rural surroundings

Note. The aerial photograph
to the right was retrieved
from Google Maps.

http://maps.google.ca/

Identification Code
ES-08

Unique Feature
Rural surroundings

Note. The aerial photograph to the right was retrieved from Google Maps.

http://maps.google.ca/

Identification Code
ES-09

Unique Feature
Higher income
neighbourhood

Note. The aerial photograph
to the right was retrieved
from Google Maps.

http://maps.google.ca/

Identification Code
ES-10

Unique Feature
Higher income
neighbourhood

Note. The aerial photograph
to the right was retrieved
from Google Maps.

http://maps.google.ca/

Identification Code
ES-11

Unique Feature
Lower income
neighbourhood

Note. The aerial photograph
to the right was retrieved
from Google Maps.

http://maps.google.ca/

Identification Code
ES-12

Unique Feature
Lower income
neighbourhood

Note. The aerial photograph
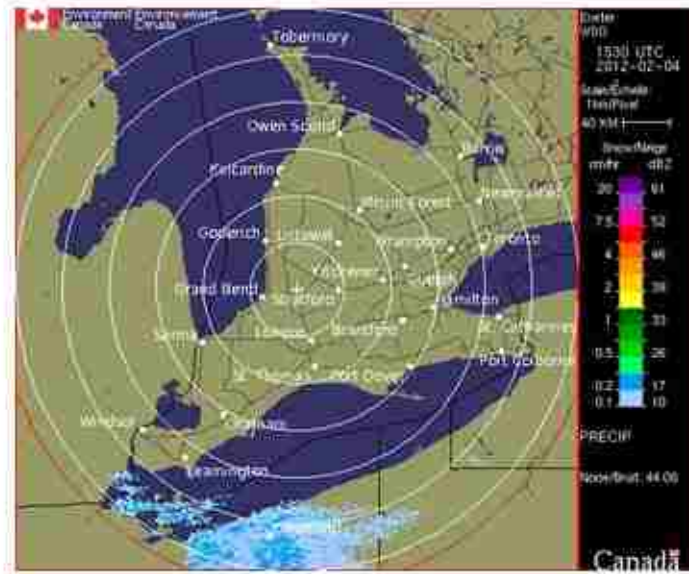to the right was retrieved
from Google Maps.

http://maps.google.ca/

Appendix G

Weather Conditions in the Course of Data Collection

Date: February 4, 2012
Conditions: Mostly Cloudy
Temperature: 3 °C
Dew Point Temperature: -2 °C
Relative Humidity: 68%
Wind Speed: 15 km/h
Visibility: 24 km
Station Pressure: 100 kPa

Date: February 5, 2012
Conditions: Mostly Clear
Temperature: 5 °C
Dew Point Temperature: -3 °C
Relative Humidity: 58%
Wind Speed: 7 km/h
Visibility: 24 km
Station Pressure: 100 kPa

Source: www.climate.weatheroffice.gc.ca

Vita Auctoris

Oscar Vicente was born in Chatham, Ontario, Canada in the year 1977. He attended Blessed Sacrament Catholic Elementary School and Christ the King Catholic Elementary School (Wallaceburg, Ontario). He graduated from Wallaceburg District Secondary School in 1997. He then attended the University of Windsor and completed a Bachelor of Arts (Honours Political Science) in 2001, Bachelor of Commerce (Honours Business Administration) and Certificate in Public Administration in 2003, Bachelor of Education and Certificate in Arts Management in 2004, and Master of Education in 2006. He has been employed as a Public Servant with the Government of Canada since 2003.