ELEMENTARY SCHOOLYARD LANDSCAPES AS OUTDOOR LEARNING ENVIRONMENTS: NORTH TEXAS STAKEHOLDERS' PERCEPTIONS OF THE NO CHILD LEFT INSIDE ACT

by

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ABSTRACT

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So that children can be exposed to a more stimulating outdoor educational experience, the United States public education system developed and implemented strategies to accomplish an integrative approach between indoor and outdoor learning (Gardner 1991; Wells and Evans 2003; Titman 1994; Moore 1986). One of these strategies is to allow for an enhanced connection between children and the outdoor environment through the betterment of school landscapes. As described by Wohlwill (1983), the outdoor environment is "that vast domain of organic and inorganic matter that is not a product of human activity or intervention."

The purpose of this study is to obtain descriptive opinions from North Texas public school stakeholders regarding integration in their respective schools of the Federal No Child Left Inside Act of 2009 (NCLIA). The study explores the perceptions of administrators, school designers, and parents regarding the benefits of children's exposure to and interaction with the outdoor environment in general. This qualitative study provides a better understanding about the

importance of incorporating the outdoor environment into children's educational experience in North Texas public schools.

The No Child Left Inside Act aims to expand the understanding of public school stakeholders about the importance of outdoor experiences in elementary education. This initiative gives incentives to schools to encourage learning through various educational activities in the outdoor environment, which provides opportunities for children to enhance their physical abilities and intellectual development and to use multiple sensorial experiences to strengthen their learning. A connection with the outdoor environment has health, social, psychological, intellectual, and physical benefits for children (Kellert 2005; Louv 2008; Maller 2006; Malone 2003; Orr 1992; Taylor 2000; White 2004). Successful implementation of NCLIA strategies requires the cooperation and engagement from various sectors in the educational community, including administrators, teachers, and parents.

The design of this research study combined a review of relevant literature with personal interviews. The interview sample was composed of 12 subjects, including four school principals, four school designers, and four parents. The sample represented schools that were built after introduction of the NCLIA in 2009.

The study revealed that in only three of the schools do children use the outdoor environment extensively (the outdoor environment is an extensive part of the children's education experience). Half of the respondents expressed that the outdoor environment is only used for physical education (PE) and play, versus three other respondents who said that the outdoor environment is used mostly to teach science. The majority of the respondents, 11 out of 12, had no prior knowledge of the NCLIA, and only one had knowledge of the NCLI movement.

The study further revealed that the NCLIA has not been implemented or adopted in North Texas schools. Half of the respondents perceived the Texas Assessment of Knowledge and Skills (TAKS) test as the main barrier for NCLIA adoption in schools. However, nine respondents expressed positive opinions about implementing the Act in their schools. The results of this study

strengthened the importance of integrating the outdoor environment into class curriculums and general experiences of children in their schools. It also reinforced the need to establish and sustain NCLI design requirements in the scope of elementary school design planning.

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1.1 Overview

Modern conveniences and the location of schools in cities and suburbs have limited the use of the outdoor environment in children's learning experiences. In recent years, parents and educators have raised concerns regarding the decrease in opportunities for children, ages five to 18, to experience the outdoor environment in their daily life, including their schools (Rivkin 1997; Taylor 2001). Parents and educators have urged for an educational experience that would include active learning by children in the outdoor environment (Fjortoft 2001; Kahn 2002; NFER 2004).

Ecological literacy is the ability to understand the principles that organize and make ecosystems sustainable (Orr 1992). Also referred to as eco-literacy, it is becoming more difficult to integrate into children's daily educational activities or to teach to new generations, because there are fewer opportunities for direct contact and experience with the outdoor environment—soils, plants, wildlife, and all the outdoor elements not created by human intervention (Chawla 2006). Urban and city environments are largely isolated from nature, which is only randomly integrated into those human-made environments (Orr 1992). With changes in technology, urbanization, and increasing demands from classwork and structured activities, the disconnect increases between children and the outdoor environment (Holmes 1998; Johnson 1998).

However, time in the outdoor environment offers benefits to children's development (Titman 1994). Kaplan and Kaplan (1989) suggest that people prefer natural environments and that such environments provide many personal benefits (Moore and Marcus 2008). Research indicates a direct link between nature and children's overall development (Kahn 2002; Kellert 2002; Louv 2008; Opotow 2003; Faber-Taylor, Kuo, and Sullivan 2001). Lynch (1995) observed, "In childhood, we form deep attachments to the location in which we grew up and carry the image of this place with us for the remainder of our lives" (Lynch p. 825). To create attachments with nature, children need to spend time in and have unbridled access to the outdoor environment (1995). The outdoor environments that surround children need to be carefully designed to suit their need to develop and to connect with the outdoor environment, thereby enabling that attachment.

Stemming from the need for children to be more exposed to outdoor educational experiences, the United States public education system, with the assistance and cooperation from the public and private sectors, developed and implemented strategies to accomplish an integrative approach between indoor and outdoor learning, such as the No Child Left Inside Act (NCLIA) of 2009. This strategy provides for the betterment of school landscapes to allow for that *children-nature connection* (NCLIA 2009). For more information on the NCLI Movement and the Act's introduction in Congress, see Appendix A.

Because of the important benefits to the physical, emotional, mental, and intellectual development of children, it is beneficial for educators, administrators, parents, and the community to better understand the importance of incorporating the outdoor environment into children's educational activities (Louv 2005). Integration of the NCLIA into the public school system is to be a team effort between school designers, educators, and parents. This integrated approach is important because all environments to which children are exposed and in which they interact affect many aspects of their development (Clayton and Opotow 2003; Louv 2005; Kellert 2005;

Faber-Taylor, Kuo, and Sullivan 2001). This study focused on elementary schools in the North Texas area and their efforts to incorporate the outdoor environment into their curriculums.

The landscape of North Texas includes the nation's largest urban hardwood forest (the Great Trinity Forest in Dallas), watersheds of four major Texas rivers (Brazos, Sabine, Sulphur, and Trinity rivers), and native prairies. The North Texas region has 6.7 million residents, covers 9,105 square miles, and includes more than 16 counties, with Dallas and Fort Worth as the central cities (Vision North Texas 2008).

The geographic area represented in this study is referred to as the *North Texas region*. The 16 counties in the study are those that form the North Central Texas Council of Governments (NCTCOG): Collin, Dallas, Denton, Ellis, Erath, Hood, Hunt, Johnson, Kaufman, Navarro, Palo Pinto, Parker, Rockwall, Somervell, Tarrant, and Wise (NCTCOG 2010).

Core areas of the North Texas region include the oldest parts of the center cities, Dallas and Fort Worth. Inner Tier Communities include cities adjacent to Dallas and Fort Worth that were largely developed by the 1990s. Parts of Fort Worth and Dallas developed after World War II are also considered Inner Tier Communities. Outer Tier Communities have developed since the 1980s and are further from the region's two central cities. Some Outer Tier Communities are Grapevine, Coppell, Frisco, and McKinney (NCTCOG 2010).

1.2 Problem Statement

Urbanization of lands, a focus on structured activities for children, and an emphasis on the use of technological tools in the classroom have limited children's exposure to the outdoor environment, which is thereby becoming a missing component of children's physical, emotional, social, and intellectual experiences in public schools (Louv 2008; Kellert 2005; Taylor 2001). Research indicates that the lack of contact between children and nature can also lead to health and wellness issues (Louv 2008). A children-nature disconnect, referred to as *Nature Deficit Disorder* (NDD), results from children's restricted access and exposure to nature (2008). Some of the consequences of insufficient exposure and interaction with nature include diminished use

of the senses, attention difficulties, and higher incidences of physical and psychological disturbances such as depression (Louv 2008; NCLI Coalition 2009).

Another major consequence that stems from children's limited access to nature is obesity. A high level of inactivity is one of the causes of childhood obesity. Obesity can lead to other serious health problems, which pose significant risks to the physical development of children and can even lead to death if unresolved. It is important for children to have adequate access to the outdoor environment as part of their educational experience in our school systems.

1.3 Definition of Key Terms

The following terms apply in the discussion of elementary schoolyard landscapes as outdoor learning environments.

Affective learning: The process by which knowledge is gained from understanding how something impacts, impresses, or influences a person emotionally (Kellert 2005).

Biophilia: The inclination to value nature; a presumably inherent biological affinity for the natural environment (Wilson 1984).

Child: Every human being below the age of 18 years, unless applicable laws state otherwise (Tai 2006).

Children's garden: A designed and planned space for children to interact with nature (Tai 2006).

Cognitive learning: An intellectual process by which knowledge is gained from perception or ideas; the formation of thinking and problem-solving skills. (Kellert 2005)

Ecological Literacy (eco-literacy): The ability to understand the principles that organize and make ecosystems possible for their sustainability (Orr 1992).

Experiential learning: "The process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (Kolb 1984, 41).

Nature: In its broadest interpretation, the material world and all of its objects and phenomena. Often, what is considered or termed as "the outdoors" (Louv 2005).

Nature Deficit Disorder: The human costs of alienation from nature, which include the diminished use of the senses, attention difficulties, and higher rates of physical and emotional illness (Louv 2008).

Pattern: The relationship between aspects of the environment and how people experience or react to them (Kaplan, Kaplan, and Ryan 1998).

Playground: A piece of ground for, and usually having special features for, recreation, especially by children (Tai 2006).

Public domain: Shops, restaurants, airports, railway stations, and other public areas that are distinct from the private territory of the family, the home, the motor car, or dedicated institutions for children, such as a school or daycare center (Penn 2005).

Restorative environments: A natural environment that provides a setting for restorative experiences from the fatigue created by processing information (Kaplan 1995).

Stakeholder: The people most affected by the management of a site because their lives are directly affected by what happens to a particular area (Stein 1997, 79).

1.4 Research Method

The study uses a qualitative approach according to Taylor and Bogdan (1998) and explores the perceived attributes of innovation of the NCLIA: relative advantage, compatibility, complexity, trialability, and observability, as defined by Rogers (2003). Semi-structured, face-to-face interviews were used to collect information about the respondents' perceptions regarding elementary schoolyard designs in the region. This study asks the following research questions to explore the opinions of administrators, school designers, and parents regarding the benefits of children's exposure to and interaction with the outdoor environment.

1. What are the opinions held by stakeholders (school principals, school designers, and parents of children in North Texas public schools) regarding the children's experiences with the outdoor environment?

2. What are the opinions held by these stakeholders regarding integration of the outdoor environment in children's educational experience?

3. What opinions are held by stakeholders regarding the No Child Left Inside Act?

4. What are stakeholder-perceived barriers to adoption of the No Child Left Inside Act in North Texas public schools?

5. What are the perceived benefits of the adoption of the No Child Left Inside Act in North Texas public schools?

1.5 Summary

Children need to be more exposed to the outdoor environment as part of their educational experience (Kellert 2005). Changes in technology, urbanization, and the increasing demands from class-work and structured activities have increased the disconnect between children and the outdoor environment (Holmes 1998; Johnson 1998). The benefits of incorporating the outdoor environment into the educational experiences of children are many, including enhanced learning, increased focus, and more effective social interactions (Opotow 2003; Kahn 2002; Kellert 2002; Louv 2008; Taylor 2001). The lack of contact between children and nature can lead to serious health and wellness issues (Titman 1994).

This study provides a better understanding of the importance of incorporating nature into children's educational experience in North Texas public schools. The results of this study strengthen the existing literature on the importance of integrating the outdoor environment into class curriculums and children's general experiences in their schools.

The remainder of this document develops the subject thesis as follows:

- Chapter Two provides literature that supports the betterment of school landscapes to allow for a connection between children and the outdoor environment and adoption of the No Child Left Inside Act in public schools in North Texas. See “Literature Review” on page 8.
- Chapter Three outlines the research methods used in this study and gives an illustration of the process. See “Research Methods” on page 31.
- Chapter Four reports the responses from the interviews and categorizes them for analysis. See “Results and Discussions” on page 38.
- Chapter Five presents conclusions based on the study and the perceptions of the stakeholders of elementary schools in North Texas. In addition, chapter five includes suggestions for future research. See “Conclusions” on page 56.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Chapter 2 provides a review of the literature—first, literature that establishes the connection between children and nature and describes the detrimental effects of disconnection. Additional literature review speaks to the relationship between green schoolyards and multiple aspects of child development.

2.2 Children and Nature Connection

Wohlwill (1983) defined *nature* as "that vast domain of organic and inorganic matter that is not a product of human activity or intervention" (Kellert 2005, 11). This description of nature, although broad, is a good starting point for this research, because it encompasses the outdoor environment referred to in this study. For the purposes of this study, the term *nature* includes the material world and all of its objects and phenomena. In addition, nature is often what is considered as or termed "the outdoors" (Louv 2008, 8). However, this study focuses on the integration of the outdoor environment into children's educational experiences and other experiences of the non-human world that are the deliberate product of human construction and creation, which can affect the well-being of children (Kellert 2005). Understanding the role of the outdoor environment in the holistic development of children has positive short- and long-term effects on their well-being and academic achievement (2005).

In response to increased issues of declining health and wellness, a movement has been emerging to restore children's contact with nature, or outdoor environments (Clayton 2003; Kahn 2002; Kellert 2002; Louv 2008; Taylor 2001). Louv (2005) pathologized the children-nature disconnect, referring to it as *Nature Deficit Disorder* (NDD). This term refers to

how children in modern times are highly restricted from playing outdoors, at home or in the community (2005).

The negative consequences of children's lack of physical activity and connection with nature have been clearly documented (NCLIA 2009) and are supported by the literature. Children spend up to 300 hours in school every year, which makes the school environment one of the most important environments for child development (2009). Naturalization of schoolyards can result in significant health and wellness benefits for children. Research suggests that children seem to be happier, healthier, and more intellectually engaged when they have the daily opportunity to interact in the natural environment (NCLIA 2009; Louv 2008; Kellert 2005). Research also shows that academic performance gets better when children are exposed to the outdoors (NCLIA 2009). The outdoor environment provides opportunities for children to enhance their physical abilities and to use these sensorial experiences to better absorb learning (Sobel 1993). Another main benefit of increased interaction with the outdoor environment is an increased display of creativity. Children's cooperative abilities, as well as their problem-solving skills, are strengthened when they enjoy regular, quality exposure to nature as part of their educational experience (2009).

Reconnection with the outdoors enhances children's perception of nature, promoting understanding and respect for the elements and living things (Sobel 1993; White 2004). One goal of reconnecting children with their outdoor environment is to engage them with all living systems in an organized manner, so they can gain a better understanding of how those systems work and how children fit into all ecosystems (Orr 1992). Schoolyards can provide the resources for enhanced learning through hands-on experiences with nature. Children experience nature through direct, indirect, and vicarious experience (Gardner 1991). A direct experience with the outdoor environment puts children in close contact with the wilderness, which includes plants, animals, and habitats that function independently from human intervention.

Children derive cognitive, affective, and developmental benefits from their exposure with nature (Children and Nature Network 2009). Children can understand concepts and apply new knowledge that stems from their experience with the outdoor environment. They are also better able to understand cause-and-effect relationships from their observations in nature (Orr 1992). Besides acquiring knowledge, children are better able to comprehend ideas and information through their observations and experiments with elements of the outdoor environment (White 2004). As children mature, they can apply their knowledge and comprehension of the natural environment into other aspects of their lives (Chawla 2006; Sobel 2008; White 2004; Wilson 1997).

The outdoor environment allows children to play, which is one of the basic rights of children and one of the activities they like the most. Play enhances communication, promotes cooperation, strengthens interpersonal problem solving, and encourages creativity, personal responsibility, and use of the imagination (Malone 2003; Hart 1994). Exposure to outdoor activities, such as free play in the wilderness, also increases the social awareness of children.

Children learn from nature without human intervention. The natural curiosity of children allows them to learn through immersion in the outdoor environment. By doing, exploring, discovering, trial and error, children learn valuable lessons in the outdoor environment (Malone 2003). Connection with the outdoor environment increases children's concentration and their motor abilities (Malone and Tranter 2003). One of the simplest benefits of the outdoors, and probably one of the most understated advantages of children's interaction with their outdoor environment, is prevention of boredom. Boredom can lead to increased levels of aggression in children, which could pose risks to their social, physical, and cognitive development (2003).

Research shows that children have an innate attraction to natural environments (Chawla 2006; Louv 2008; Sobel 2008). According to Malone and Tranter (2003), children display a preference to play in natural or wild spaces. The diversity of nature and the feelings of freedom and timelessness that nature brings provide an important environment for children's

growth (Louv 2008; Orr 1992; Malone 2003). Children develop a sense of place when they are in direct contact with the natural environment (Malone 2003; Orr 1992). Interaction with vegetation, the earth, other people, and animals enhances children's feelings of belonging with their outdoor environment (Orr 1992). Adults recall that significant experiences of their childhood often involved outdoor environments (Chawla 2006; Gebhard, Ulrich, Nevers 2003; Rivkin 1997; Sobel 2008; Louv 2008).

Experiential learning is facilitated through children's connection with the outdoor environment. Experiential learning is defined as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (Kolb 1984, 41). Kolb (1984) proposes that experiential learning occurs as a result of four factors: concrete experience, reflective observation, abstract conceptualization, and active experimentation. The experiential cycle begins with an experience, followed by an opportunity to engage in reflection of that experience. Children then draw conclusions based on their experience and observations, to apply a behavior toward the current or future situations. The outdoor environment permits children to engage in this learning cycle inconspicuously.

Kellert (2005) proposed that children can experience nature from different perspectives. He proposed nine ways in which children may attach meaning and derive benefit from nature, as defined in table 2.1.

Table 2.1 Typology of Values in Nature (Kellert 2005)

Value	Definition
Utilitarian Value	Practical and material exploitation of nature
Naturalistic Value	Direct experience and exploration of nature
Scientific Value	Study and empirical observation of nature
Aesthetic Value	Physical appeal of and attraction to nature
Symbolic Value	Nature as a source of metaphorical and communitive thought
Moralistic Value	Moral and spiritual relation to nature

Table 2.1 – *Continued*

Value	Definition
Dominionistic Value	Mastery and control of nature
Negativistic Value	Fear and aversion to nature
Humanistic Value	Emotional attachment to nature

A connection with the outdoor environment allows children to adopt utilitarian, naturalistic, scientific, aesthetic, symbolic, moralistic, and humanistic values toward nature (Kellert 2005). By contrast, the lack of connection with the outdoor environment leads to the formation of dominionistic and negativistic values toward everything that has not been created by man's intervention (2005). The result is seeing the outdoor environment as a possession to control or having an aversion toward the environment in which there is a lack of engagement and lack of comprehension about the symbiotic relationship between humans and the elements that exist without human intervention (2005).

2.2.1 Children-Nature Disconnection

Although the benefits of children's contact with the outdoor environment have been well documented and discussed (Kellert 2005; Louv 2008; Malone 2003; Orr 1992; White 2004), the urbanization of living places has limited children's exposure to the outdoor environment. Consequently, children have a shortage of outdoor experiences (White 2004). Opportunities are diminishing for exploration and learning through their immersion in the outdoor environment (Chawla 2006; Freuder 2006; Kellert 2002; Malone 2003; Pyle 2002). Many children have restricted or no access to outdoor environments, and especially a lack of interaction and access to nature on their own (Malone 2003). As a result of the rapid expansion of cities and growth in population, the natural environment is shrinking, thus reducing the possibilities for children to develop a close relationship with nature (Kyttä 2004). Schoolyards have also suffered the effects of growth and urbanization with fewer natural spaces for children.

Development of urban areas and communities has decreased the outdoor environments available for children (Lennard 2000). Parents have limited time to supervise their children's play activities, and safety concerns prevent parents from allowing children to play outside alone. Traffic has also become a safety hazard for children playing in the outdoors, as streets and cities become more populated and motor vehicle transit increases (Frumkin 2004). The safety of children in nature could be in unprecedented danger due to human intervention (Freuder 2006).

Technology has affected how children experience the world (Doherty and Carlson 2003; Weir 2006). The emphasis on the use of technology in the classroom has placed the focus on machines over the outdoor environment (Freuder 2006). Technology also affects the amount of time and the way children interact with nature when they are out of school. TV viewing and playing video games have replaced the times when children could be experiencing the outdoor environment (2006).

Increased pollution, changes in the planet's climate, the decrease in size and availability of the outdoor environment, and shrinkage of natural ecosystems are problems that humanity faces in modern times (Chawla 2006). Children cannot be expected to take a proactive approach to solve the problems of the planet when they do not know their planet (Freuder 2006; Chawla 2006). The disconnection between children and nature has serious implications for children's present and future development and for the future state of our natural environment.

2.2.2 Nature Deficit Disorder

The term *Nature Deficit Disorder* (NDD) was developed by Louv (2005) to describe what happens to young people who become disconnected from their natural world. NDD is defined in terms of the human costs of alienation from the outdoors. Louv (2005) links this lack of nature experience to some of the most disturbing childhood trends, such as the rises in

obesity, attention disorders, and depression (NCLI 2009). Nature deficit disorder is not an official medical diagnosis; however, its implications could be serious.

According to Freuder (2006), the lack of children's outdoor activity is associated with the drastic rise in childhood obesity. According to Louv (2005), two out of 10 children in the United States are clinically obese. The lack of contact with nature could lead to serious effects on children's development and well-being (Freuder 2006; Louv 2008; Taylor 2001; Taylor 2009). Among the consequences of limited exposure to the outdoor environment, is that humans experience diminished use of their senses, attention difficulties, and higher rates of physical and emotional illnesses.

NDD can be detected in individuals, families, and communities. Nature deficit can change human behavior in cities, which could affect their design. Longitudinal studies show a relationship between the absence or inaccessibility to parks and open spaces with high crime rates, depression, and other urban maladies (Louv 2008). Limited access to outdoor activities also increases the prescription of drugs for children. Under or no exposure to the outdoor environment increases the use of drugs to treat conditions such as Attention Deficit and Hyperactivity Disorder (ADHD) (Freuder 2006; Taylor 2001; Taylor 2009). In short, the physical health of children is at risk because of their lack of exposure to the outdoor environment.

2.2.3 No Child Left Inside Movement

Many schools have responded to the requirements of the Federal No Child Left Behind law of 1965 by sacrificing subjects such as environmental education to spend more time on subjects that are found on high-stakes tests. Teachers and parents report that field trips and time devoted to outdoor learning activities have been cut to give more time to tested subjects (NCLIA 2009).

The No Child Left Inside Act addresses this problem by giving new incentives and support to school systems to incorporate environmental education in their curriculums (2009). As it currently stands, the Act authorizes 100 million dollars in 2010–2014 to fund programs that

bring the classroom outside. The Act recognizes that high-quality environmental education requires students to use math, reading, science, and writing skills. However, the Act also aims to expand the understanding of schools about the importance of outdoor experiences in children's education.

The NCLIA was introduced in Congress on Earth Day (April 22) of 2009. The main goal of the NCLIA of 2009 is to provide environmental education in the classroom and to offer schools support to implement outdoor learning programs. Proponents of the Act propose that contact with the outdoors benefits children at many levels. One of the major benefits proposed by the NCLIA is preparing children for a world in which green economies and jobs are increasingly prevalent. The world, and specifically the United States, is transitioning to a green economy (Higgs and McMillan 2006). The future will provide career opportunities for children to apply their ecological literacy. Thus, children need the opportunity to develop a sense of wonder and become excited about their natural environment (Davis 1998). Doing so also makes way for scientific inquiry, which enhances mathematical and scientific skills useful for problem solving (Tai 2006). Besides the cognitive benefits from allowing children to engage in the outdoors, the NCLIA promotes a healthier lifestyle for children, which could benefit them in the present as well as the future.

2.3 Green Schoolyards and Learning

2.3.1 Multi-sensory Learning

Multi-sensory learning happens when more than one sense is involved in the learning experience (Stine 1997). When children are exposed to the outdoor environment, they develop a learning style using multiple senses. According to White and Stoecklin (2006), people find natural environments to be pleasant places, which improves their ability to recall information, enhances creative problem solving skills, and improves creativity. When children are exposed

to the natural environment, they develop their imagination and sense of wonder (Gardner 1991; Fjortoft 2001). A sense of wonder is an important motivator to develop lifelong learning.

Children use more of their senses when they play in the outdoors, and therefore, experience enhanced learning (Armstrong 2009; Bloom 1984). In the outdoor environment, children are free to strip off their expected social behaviors, which in turn encourages their sense of wonder and development of independence and promotes the use of creativity, as well as math, social, and science skills (Leiberman and Hoody 1998). Children experience a freedom to shout, interact with and manipulate the outdoor environment, and do activities that are considered messy and allow for physical freedom, which the indoor environment might not provide (Gardner 1991).

The outdoor environment provides a natural diversity of things to experiment with. White and Stoecklin (2006) indicate that children judge the natural environment, not by its appearance, but by the way they can interact with it. Manipulation of the elements in nature—plants, dirt, sand, water, bugs—help children learn to engage more than one of their senses (Rivkin 1997; Stine 1997). Open-ended play results from their interaction with nature, in which creative exploration leads to learning filled with excitement and stimulation. Sounds, smells, images, textures, and colors are all part of the experience with all the elements of nature, providing a rounded learning outcome (White and Stoecklin 1998).

2.3.2 The Eighth Intelligence

Outdoor learning encourages creative play, which affords different types of learning (Wong 1997). The importance of this variety of learning opportunities is supported by Gardner (1999) in his theory of multiple intelligences. His theory is an alternative to the IQ test, the traditional measure of intelligence for the evaluation of human potential. This theory challenged prevalent beliefs about intelligence that permeated the fields of education and cognitive knowledge. According to Gardner as proposed by Armstrong (1999), intelligence is the ability to

create a concrete product of value for a specific culture, a set of skills that aid in the problem-solving process, and the potential to acquire new knowledge to assist in creating solutions.

In 1983, Gardner used neurophysiology research to identify parts of the brain that correspond to the different categories of intelligence:

1. Linguistic intelligence (being word smart)
2. Logical–mathematical intelligence (being number and reasoning smart)
3. Spatial intelligence (being picture smart)
4. Body-kinesthetic intelligence (being body smart)
5. Musical intelligence (being musically smart)
6. Interpersonal intelligence (being people smart)
7. Intrapersonal intelligence (being self smart)

The latest intelligence category added to his theory is Naturalist Intelligence—being nature smart, a bio-psychological potential to process information that can be activated in a cultural setting to solve problems or create products of value within a culture (Louv 2008; Gardner 1999). Gardner (1999) argues that the educational process that introduces material and builds understanding can be done through multiple approaches to engage students in a particular topic. Development of outdoor learning environments as a hands-on approach to learning allows children to engage through activities where they can build something, manipulate materials, or carry out experiments (Gardner 1999). The naturalist intelligence provides the framework for the child to learn from the natural environment through an experiential approach, rather than from theories in books or the use of artificial media (1999).

Schools and cultures emphasize linguistic and logical-mathematical intelligence, placing higher importance on people who display logical intelligence (Armstrong 2009). On the other hand, society does not attribute equal importance to individuals who display different types of intelligences other than logical and linguistic. This multiple intelligences theory proposes that schools ought to find new and varied ways to appeal to various styles of learning and the unique

intelligences of students. An experience in the outdoor environment is an effective way to appeal to the multiple intelligences of children in a school setting (2009).

2.3.3 Cognitive Development

Bloom et al. (1984) identify six stages in normal intellectual development, moving from relatively simple to more complex levels of understanding, problem solving, and thinking. The taxonomy of cognitive development includes the following stages: 1) knowledge, 2) comprehension, 3) application, 4) analysis, 5) synthesis, and 6) evaluation (Kellert 2005). In the first stage of cognitive development, knowledge, the major task is forming basic understanding of facts and terms, creating rudimentary classifications, and crudely discerning casual relationships. The outdoor environment greatly aids this emerging capacity, because it affords numerous stimulating and engaging opportunities to identify and order basic information, concepts, and ideas. The young child continually confronts opportunities to assign names and categories to basic features of his or her life, including plants, birds, mammals, habitats, and landscapes (Kellert 2005).

Contact with nature in the cognitive maturation of children is also identified in the second stage of intellectual development, comprehension. Both real and imagined encounters with the outdoor environment offer children a wide range of accessible and emotionally salient opportunities to develop the ability to analyze, assimilate, and comprehend facts and ideas from hands-on contact with the outdoor environment (Wells 2000; Wells and Evans 2003).

2.4 Green Landscapes: Social and Behavioral Development

Research offers both theory and evidence to support the notion that the physical and mental well-being of humans inextricably depends on the quality of their experience with the natural environment (Kellert 2005; Cheskey 2001; Leiberman and Hoody 1998). Kellert (2005) considered this explanation of reliance in the notions of ecosystem services, biophilia, and the spirit of place, concepts that are rooted in biology. This theory proposes that the experiences of people with their natural environment shape their experiences, learning, and culture (2005).

Studies propose that early contact with nature has positive effects in children (Leiberman and Hoody 1998; Titman 1994; Moore 1986). As part of their school experience, children apply knowledge gained in the classroom in the outdoor environment, where they engage in multi-sensorial learning experiences.

2.4.4 Environment and Behavior

Attention Restoration Theory (ART) asserts that people can concentrate better after spending time in outdoor environments or just looking at nature scenes (Kaplan 1995b). ART proposes that a person goes through different states of attention: 1) directed attention, 2) directed attention fatigue, 3) effortless attention, and 4) restored attention. Tasks that require mental effort draw upon *directed attention*. People must expend the effort to achieve focus, delay expression of inappropriate emotions or actions, and inhibit distractions. That is, they must concentrate on the higher task. Toward the end of the attention cycle, attention may be restored by changing to a different kind of task that uses different parts of the brain.

Likewise, exposure to outdoor environments and wilderness promotes attention restoration. Natural environments abound with *soft fascinations* that one can reflect upon in *effortless attention*—clouds moving across the sky, leaves rustling in a breeze, or water bubbling over rocks in a stream. The Biophilia hypothesis argues that people are instinctively enthusiastic about nature. Effortless attention (through soft fascinations) gives people a chance to reflect. Reflection has a restorative benefit, which allows further focused attention (Kaplan 1995; Berto 1995; Korpela 1996).

In relation to children's well-being, there is particular focus on the link between contact with the outdoors and alleviation of ADHD symptoms. Taylor (2001) and Kuo (2003) found that outdoor activity as simple as a walk in the park has benefits for children with Attention Deficit Hyperactivity Disorder, by increasing their concentration levels and generally easing ADHD symptoms. The study also found that ADHD symptoms were less severe for children who had the opportunity to play in outdoor settings.

Contact with the outdoor environment has been clearly shown to have stress reducing and attention restoring properties (Taylor 2009; Kaplan 1995b). Outdoor spaces offer a place for reflection and refocus of attention. In other words, terms such as “clearing your head” and “recharging your batteries” in nature have psychological validity (Taylor 2001). Harper (2007) reports positive observations of adolescents participating in outdoor activities. Nature seems to have a calming effect and restores the ability of the brain to think clearly.

2.4.5 Social Development

According to Malone and Tranter (2003), the ways in which children relate to each other can be strongly influenced by the natural elements with which they play in their outdoor environments. Studies note that when children play in structured environments built by humans, they establish hierarchies as a means of physical competence. In man-made environments, children seem to be more concerned with play in which they can display power and dominance. But when children play outdoors, they focus more on fantasy play and socialization. In an outdoor environment, the display of power is replaced by a better command of language and using creativity and inventiveness to imagine transformation of the space (2003). When playing in the outdoors, dominant children are less driven for social dominance.

The outdoors instills patience in children, as well as ignites interest and promotes a sense of presence (Nix 2010). For example, gardening promotes patience because the harvest does not happen overnight. Gardening promotes cooperation between children and allows them to work collaboratively, by assessing and applying their skills and acquiring new ones. In that cooperation, trust is founded and respect rises. The relaxed environment promotes a full integration of the child in seeking cooperation from others and volunteering to work in collaboration (Nix 2010). Interaction with the environment also builds a positive, egalitarian relationship with our ecosystems (Harper 2007).

2.5 Green Schoolyards and Play

2.5.1 Preference for Natural Settings

According to Muñoz (2009), children prefer less-managed spaces. Children have a natural inclination toward the outdoors and are drawn to their outdoor environment, which includes not only their community playgrounds and green spaces, but also forests, wild spaces, and the countryside (Titman 1994). Children are attracted to a natural environment more than they are to playgrounds (Muñoz 2009). Using their imagination, they can manipulate their surroundings without restriction of meaning or use (Harper 2008; Titman 1994). Research proposes that typical playground design fails to satisfy all the needs and expectations of children when it comes to outdoor activities (Moore 2006). Muñoz reports that one study shows children ages 10–14 prefer to play in natural areas, which includes cornfields and the woods.

The research also shows that it is important for children to develop a sense of belonging with outdoor places (Harper 2008; Hart 1994). Children develop a sense of presence with nature, applying their own meaning to their surroundings, when they are able to claim specific places in the outdoors as special or secret. This aids in the construction of their personal identities (Muñoz 2009).

2.5.2 Play Behavior in Natural Settings

Sobel (2008) identifies seven play motifs of all children regardless of socioeconomic status, ethnicity, racial background, or ecological surrounding. One motif is constructing adventures. The experience in the outside environment is kinesthetic. Children stalk, balance, jump, and scamper through natural outside environments. Activities with a physical challenge component engage multiple senses. Children are prompted to use more of their physical abilities when they are outdoors.

The second motif is descending into fantasies. Young children live in their imaginations. They engage in learning through stories, plays, puppet shows, and fantasy. The outdoor environment provides the stimulation for children to fantasize, use inanimate objects

and attribute human or animal characteristics to them, play openly and freely with others, and develop open-ended story lines in which the possibilities are endless (Sobel 2008).

The third motif in outdoor play is developing friendships with animals. Sobel (1996) points out, “In our environmental wars, the emphasis has been on saving species, not becoming them”. But children are better able to relate to nature when they are exposed to it as kindred beings. Education about the ecosystem and the wild acquires a deeper meaning when children learn from experience. Messages such as “save the planet” or wildlife carry a tangible aspect when children have been immersed in the natural environment.

Another motif found in children’s nature play is figuring out shortcuts. Following a map to a secret event, figuring out what follows after a turn, and finding shortcuts are among the strategies children develop and implement when they play outdoors. Children have an innate curiosity to explore their natural habitat. Exploration of their natural places promotes a bioregional sense of place and biospheric consciousness.

Constructing adventures is the fifth motif found in nature play. Children between the ages of eight and 11 engage in play in which they find or create places where they can hide away and retreat. Children are particularly interested in finding challenges in the natural environment or to tackle and find solutions to problems for which they can use their natural instincts and objects found in a natural environment.

Sobel (1993) refers to a sixth motif of shaping small worlds. Children enjoy building small spaces in which to play. They create miniature representations of ecosystems, which allows them to gain an enhanced sense of reality of their world. Creating small worlds allows children to use concrete actions to understand abstract ideas.

As proposed by Sobel (1993), the seventh motif is playing hunting and gathering. By nature humans are hunting and gathering beings. Searching and collecting is a preferred activity of children. According to Sobel (2008), learning opportunities for children should be like treasure hunts.

2.6 Green Schoolyards and Eco-literacy

2.6.1 Environmental Awareness

The relationship between children and the outdoor environment is important, not only for the well-being of children, but also for the health of the planet. For example, cultivating relationships between children and trees could lead to their future efforts toward saving the rainforest. Talking to trees and hiding in trees precede saving trees (Chawla 2006; Sobel 2008; White 2004, Wilson 1997). An *ecological literate* is someone with "the knowledge necessary to comprehend interrelatedness and an attitude of care or stewardship" and who has "the practical competence required to act on the basis of knowledge and feeling" (Orr 1992, 86). Environmental education curriculum is a requirement of 30 states in the United States, and while trips to environmental education centers can expose children to natural systems, these experiences are often disconnected with the natural environments and processes found in their everyday settings (Orr 1992). As a component of curriculum, environmental education should influence the development of school landscapes as places for learning (Orr 1992; Sobel 2008).

2.6.2 Environmental Connection

Wilson (1997) states that we have an "innate affinity for life and life-like process." Humans have evolved with nature. Human evolution involves co-evolving with other life forms on earth as a natural progression of existence. Therefore, people have a deep need to feel connected and rooted with nature (Bunting and Cousins 1985; Harvey 1989; Orr 2009).

Hart (1994) and Sobel (2008) propose that it is especially important for children between the ages of nine and 12 to be in contact with their natural surroundings. To develop the self and an individual relationship with the natural world, it is critical for children to develop a close relationship with their outdoor environment (Sobel 1993).

In the elementary school years, exploration of the landscape is key (Cohen and Horm-Wingerg 1993; Kellert 2002; Phenice and Griffore 2003; Sobel 1996; Wilson 1993). At this stage of development, children are fascinated with what lies beyond their familiar range. Nature

becomes a special place for children to expand the scope of their world and process nature into their development (Sobel 1996).

2.6.3 Environmental Education

Environmental education is the study of the relationships and interactions between dynamic natural and human systems (NCLI 2009). Environmental education includes learning in the field as well as in the classroom. Environmental education incorporates the teaching methods of outdoor education, experiential education, and place-based education. This learning experience is also interdisciplinary and promotes school and community partnerships. Environmental education is hands-on, student-centered, and inquiry-driven and engages higher level thinking skills that are relevant to students' everyday lives. Nature-focused learning develops awareness about the natural environment, increases knowledge in many areas, builds interpersonal, social, and motor skills, and creates the capacity for stewardship and good citizenship regarding the environment, which humans depend upon for survival (Chawla 2006; NCLI 2009; Pyle 2002; Sobel 1996).

Environmental education helps to address the causes of Nature Deficit Disorder by allowing children to have a close, prolonged relationship with the outdoor environment. According to the No Child Left Inside Coalition (NCLI 2009), another benefit of environmental education is that it boosts student performance on standardized measures of academic achievement in math, science, reading, writing, and social studies. According to Orr (1992), "we all have an affinity for the natural world." Orr refers to environmental education as an educational revolution, the goal of which is "the re-connection of the young people with their own habitats and communities. The classroom is the ecology of the surrounding community, not the confining four walls of the traditional school."

Moore and Wong (1997) describe three "domains of education" that should be supported in the design of school landscapes:

- Informal education – encompasses all learning from a child's daily experiences, of which play is a central quality.
- Formal education – characterized as the familiar context of a teacher presenting material to children in a class context.
- Non-formal education – defined as a bridge between these two forms, where people may facilitate learning in non-classroom settings, such as natural outside areas and community facilities. (Moore 1997, 195–196)

In summary, ecological literacy stems from environmental education. By connecting children with nature through experience, schools make an impact as students learn about the problems with the world's ecosystems. Environmental education teaches students to live in harmony with the natural environment. Ecological literacy brings understanding regarding our interdependence with nature: nature needs us and we need nature.

2.7 Green Schoolyards and Health

According to the Sustainable Development Commission (2008), children are one of the key social groups that could gain health benefits from the use of outdoor spaces. Interest is emerging in the development and implementation of research and policies regarding children and the use of outdoor spaces (2008). Maller (2006) proposes that children can experience mental, physical, and emotional benefits from access to the outdoors. Interaction with the outdoor environment reduces behavioral problems in schools (2006). Studies suggest that the role of outdoor spaces in promoting and facilitating their use could be an important component in the fight for enhanced public health and reduced health inequalities (Sustainable Development Commission 2008).

2.7.1 Psychological Benefits of Access to the Outdoor Environment

As discussed, outdoor play has many benefits for children (Harper 2007; Kuo 2003; Maller 2006; Taylor 2001). Among those benefits, children enjoy lower levels of stress when they engage in play in natural environments (Orr 1992). Another benefit is the reduction of

problems such as depression (Taylor 2009; Kaplan 1995). Playing in the outdoors also reduces levels of aggression and violence in children (Orr 1992). One of the major psychological benefits of access to outdoor spaces is the reduction in the severity of attention deficit disorder (Malone 2002; Phillips 2006). Children who engage in outdoor play seem to be happier (NCLIA 2009; Douglas 2005).

2.7.2 Therapeutic Benefits of Access to Outdoor Spaces

Olmsted argued that people's physical and mental health depends on regular contact with attractive natural scenery. Olmsted expressed, "A man's eyes cannot be as much occupied as they are in large cities by artificial things … without a harmful effect, first on his mental and nervous system and ultimately on his entire constitutional organization… The charm of natural scenery is an influence of the highest curative value" (in Williams 2003, 49).

2.7.3 Benefits of Access to Outdoor Spaces on Obesity

Obesity is a growing epidemic in the United States, as children become increasingly obese (NCLI 2009). In the 1960s obesity in children was close to four percent, compared to 2004 when obesity was close to 20 percent, which means one out of five children is seriously overweight (Lin 2008). Children's inactivity and limited access to the outdoors do not help to alleviate the problem with obesity. Obesity has major health implications for children. If left untreated, obesity can promote long-term problems and even lead to death.

Sedentary lifestyles promote the lack of physical activity. One of the keys to tackling contemporary health problems, such as obesity, is to create environments that encourage greater levels of physical activity. Outdoor spaces promote physical activity and provide for cardiovascular activity, which impacts obesity (Chief Medical Officer 2004). Allowing children access to the outdoors could encourage them to increase their physical activity levels, which can positively affect obesity. Higher levels of activity in the outdoors can also help prevent obesity (Chief Medical Officer 2004; Weir 2006).

2.8 Green Schoolyards and Outdoor Learning

2.8.1 Outdoor Classroom

Greater engagement with the outdoors throughout the curriculum for primary and secondary school-aged children can bring benefits associated with a greater connection with nature. Tunnicliffe (2008) gives one example of the merits of investigating a pond as a site of "biology and science education." Among the benefits of this activity are the integration of social learning skills and an increase in eco-literacy. When children learn through the use of natural environments, they can apply many skills and have a multi-sensorial learning experience (2008).

Besides the educational benefits of the outdoor classroom, Groves and McNish (2008) propose that classroom-type schooling that is conducted outdoors increases children's level of physical activity. O'Brien and Murray (2005) suggest that the outdoor classroom promotes creativity and language development. Education that happens out of the classroom has positive effects not only in students, but also in teachers (Moore 1997). Teachers have the opportunity to apply a different set of skills when teaching in the outdoors. Some of the benefits of children's interaction with natural outdoor environments apply also to teachers, who benefit from decreased levels of stress, more creativity, and a refocus of their attention.

Tabbush and O'Brien (2003) point out that outdoor education does not need to be focused in learning about the natural environment. Any subject is viable for teaching in the outdoors. For example, math can be strengthened with illustrations from the natural environment. Social studies can be taught using examples from nature. Reading can be reinforced with the kinesthetic experience of being outdoors (2003).

2.8.2 Wildscapes

Centuries ago, children were raised surrounded by fields, farms, or wild outdoor environments. According to White (2004), throughout history, when children had the freedom to play, they usually chose wild places such as large hardwood trees, shrubs, bodies of water, or

woodland forests in the vicinity of their homes. Berg and Medrich (1980) suggest that children prefer the less-managed places such as the wild.

One of the duties of The Texas Parks and Wildlife Department is to promote the development of *Wildscapes*. Wildscapes are places for restoration and conservation of natural habitats in rural and urban areas (TPWD 2009). By educating the public in the development of wildlife habitats in the places they work, live, and play, the effort enables residents to contribute to wildlife conservation. Wildscapes can be an important component of the outdoor experience (Lester 2006).

Wildscapes provide the means to bring diversity into living spaces (TPWD 2009). Wildscapes provide the space, food, water, and shelter for a variety of wildlife. Wildscapes attract birds and small mammals, among other species, and supply them with the safety and nourishment they need to escape from predators when they are young. Animals can use wildscapes to raise their offspring. All these components of wildscapes can enrich children's learning experiences in the outdoors, especially for those in cities and places where access to the natural environment is limited (Berg 1980; Dannenmaier 1998; Hart 1982).

2.8.3 Edible Gardens

Schoolyard gardens increase the diversity of the wildlife around a school and enrich children's educational experience. Gardens extend and enhance the opportunities for children to socialize, learn from hands-on experience, and participate in a project that allows them to acquire practical skills, as well as apply existing ones (Kawamura 2010). The establishment of gardens in schoolgrounds is an activity that allows educators to impart lessons in science, math, language, social studies, nutrition, environmental sciences, physical education, and agriculture. Multiple intelligences are engaged through gardening (Dannenmaier 1998). Visual stimulation is also one of the benefits of school gardens. Visual images of the garden can reinforce lessons from the classroom and improve memorization.

Produce, flowers, and herbs provide a multi-sensorial experience for students when they are exposed to different textures, smells, and tastes. Gardens can be interesting places in which children can grow the food they eat (Nix 2010). Students learn about food systems and the ecological principles of the food chain. While gardening, children increase their knowledge about health and how to maintain healthier living habits. Gardening can complement nutrition education and improve the attitudes of children toward whole grains, vegetables, and healthier foods in general.

Other lessons to be learned through gardening are the importance of recycling and how to do composting (Tai 2006). Children's sense of morality and ethics is enhanced through the opportunity to engage in school gardening activities (Stone and Center for Ecoliteracy 2009). Research shows that gardening activities reduce absenteeism, decrease discipline issues, and increase grade-point averages (CASEL 2008; CDC 2010).

Through gardening children develop civility, enhance communication and cooperation, engage in decision making, experience delayed gratification, get a sense of independence and ownership, practice patience, exert responsibility, develop teamwork, and assert responsibility, through which self-esteem, self-understanding, self-confidence, and self-discipline can be mastered (Bennett 2010; Tai 2006). As a result, children strengthen their positive environmental attitudes and perspectives as integral parts of the community.

2.9 Summary

The development of urban areas and communities has decreased the outdoor spaces available for children (Churchman 2003; Frumkin 2004; Johnson 2002). Technology has also affected how children experience the world. Some authors have pathologized the disconnection between children and nature, referring to it as *Nature Deficit Disorder*. This term refers to how children in modern times are highly restricted from playing outdoors, at home or in the community (Louv 2008). In response to increased issues of declining health and wellness because of the lack of contact with nature, a movement is emerging to restore children's contact

with nature. The No Child Left Inside Act of 2009 addresses the problem by giving new incentives and support to school systems to incorporate environmental education in their curriculums. The Act aims to expand schools' understanding about the importance of outdoor experiences in children's education (NCLIA 2009).

The outdoor environment provides opportunities for children to enhance their physical abilities and use sensorial experiences to better absorb learning (Sobel 1993). Reconnection with the outdoors enhances children's perception of nature, promoting understanding and respect for the elements and living things (1993). Both real and imagined encounters with outside environments offer children a wide range of accessible and emotionally salient opportunities to develop their ability to analyze, assimilate, and comprehend facts and ideas, from hands-on contact with the natural environment (Leiberman 1998).

Environmental education strengthens lessons learned in science, math, language, social studies, nutrition, environmental sciences, physical education, and agriculture (Chiles 2005). Children engage their multiple intelligences through the use of the outdoor environment, which promotes growth, develops a social conscience, enhances learning, creates a sense of place, and instills moral and ethical values (Chawla 2006; Clayton 2003; Kahn 2002; Kellert 2002; Lindemann-Mathies 2006; Louv 2008; Malone 2003; NCLI 2009; Sobel 2008; Stone and Center for Ecoliteracy 2009; Taylor 2001; White 2004; Wilson 1997).

CHAPTER 3

RESEARCH METHODS

3.1 Introduction

The purpose of this study was to obtain descriptive information from appropriate stakeholders regarding their opinions about integration of the outdoor environment into children's educational experiences and implementation of the No Child Left Inside Act (NCLIA) in North Texas public schools.

Face-to-face interviews were conducted as the method for data collection. This study used a qualitative approach, which allows participants to express themselves freely and openly about the topic. According to Creswell (1994), a qualitative study employs an inquiry process to understand a social problem, forming a holistic picture with the detailed views of the informants and conducted in a natural setting. Qualitative studies are suitable to identify perceptions and attitudes, which are the focus of this study.

Quantitative studies are best suited for testing theories composed of variables, measured with numbers, and analyzed through statistical procedures to make generalizations about the theory (Creswell 1994). For this study, however, the researcher did not want to limit the responses, to allow for full descriptions to be offered, which works best with a qualitative approach. The data from this study lays the foundation for future research, because the open-ended questions led to various sets of responses, worth exploring with further qualitative or quantitative methods.

3.2 Research Methodology

The interview sample consisted of 12 subjects comprising school principals, school designers, and parents. The school principals were selected because of their role as the main

decision makers in the schools. Their participation for NCLIA adoption is important for its successful implementation.

School landscape designers incorporate a school's recommendations and guidelines in the implementation of the NCLIA in such schools. As the people who conceptualize the Act and make it operational and functional, they are a valuable resource for the research.

Parents are the managers of their children's education and one of any school's principal stakeholder groups. The representation of parents in the study is from presidents of the Parent Teacher Associations (PTA) of the participating schools.

The research used a face-to-face, semi-structured interview protocol to gather information from the respondents. The interview questions were open-ended to allow the respondents to offer descriptive information about their knowledge and opinions regarding the topic, without limiting their responses to a specific set of choices. If further clarification was needed or if respondents required additional information about a topic that was unknown to them, an unscripted follow-up question was asked. The interviews were recorded using a (Sony) digital voice recorder.

The interview recordings were sent electronically to a professional transcription service, Verbal Ink Transcription Services, through their website (www.verbalink.com). A Verbal Ink employee transcribed the interviews and sent the transcription in a Microsoft Word document format to the researcher via email. The researcher analyzed the interview transcripts to identify common themes among the respondents' opinions.

The information gathered from the interviews was also analyzed to assess NCLIA adoption according to the attributes of innovations described by Rogers (2003). According to Rogers, five variables contribute to the rate of adoption of any innovation:

- Perceived attributes of the innovation
- Type of innovation decision
- Communications channels

- Nature of the social system
- Extent of the promotion efforts of the agents

This research explored the perspectives of the respondents regarding the first variable in the adoption of innovation—the five perceived attributes: relative advantage, compatibility, complexity, trialability, and observability, described as follows.

3.2.1 Relative Advantage

Rogers (2003, 212) defines relative advantage as "the degree to which an innovation is perceived as being better than the idea it supersedes." In other words, relative advantage is perceived when the innovation contributes to the betterment of the previous condition. These improvements include higher profitability, better performance, enhanced status, return on investment, and increased competitiveness. This study identified the respondents' opinions regarding the perceived relative advantage that could result from NCLIA implementation.

3.2.2 Compatibility

Rogers (2003, 224) defines compatibility as "the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters." According to this definition, when the potential adopter perceives the innovation is familiar the innovation has greater rates of adoption. The study explored the degree of the respondents' familiarity with the NCLIA that would allow for the Act to be well received and successfully implemented in their schools.

3.2.3 Complexity

Complexity is "the degree to which an innovation is perceived as relatively difficult to understand and use" (Rogers 2003, 242). When potential adopters do not understand the innovation and deem it as difficult to implement or incorporate into their lives, the adoptability rate decreases. This study explored the respondents' perceptions regarding the complexity of the implementation and integration of the NCLIA in their schools.

3.2.4 Trialability

Trialability is “the degree to which an innovation may be experimented with on a limited basis” (Rogers 2003, 243). According to this notion, greater trialability of an innovation leads to higher probabilities for adopting it. This study explored the respondents’ perceived trialability of the NCLIA.

3.2.5 Observability

Observability is “the degree to which the results of an innovation are visible to others” (Rogers 2003, 244). Greater observability leads to a greater rate of adoption. Observability is concerned with how the members of a group of study perceive that an innovation can be implemented and how it might work. The study explored the respondents’ perceived observability of the NCLIA in their schools.

3.3 Interview Protocol

After obtaining permission from The University of Texas at Arlington Institutional Review Boards (IRB), the selected subjects of the sample were contacted by email, letter, or phone to secure an interview. For the text used in the email, letter, and phone contacts, see Appendices B, C, and D, respectively. The purpose of the study and the uses of the information they would provide were explained to the subjects. The interviews were conducted in person. Before beginning the interview, the participants were given a privacy and confidentiality agreement to let them know the intended uses of the study and the fact that their personal information will be protected. The participants also signed a consent form in which they agreed to participate in the study for the intended purposes. The interviews were guided by a script, provided in Appendix E. However, the questions remained flexible and open-ended..

3.4 Research Questions

As stated earlier, this study asked the following research questions:

1. What are the opinions held by school principals, school designers, and parents of children in public schools in the North Texas region regarding the children's experiences with the outdoor environment?

2. What are the opinions held by school principals, school designers, and parents of children in public schools in the North Texas region regarding the integration of the outdoor environment in the educational experience of children?

3. What are the opinions held by school principals, school designers, and parents of children in public schools in the North Texas region regarding the No Child Left Inside Act?

4. What are the perceived barriers to the adoption of the No Child Left Inside Act in the public schools in the North Texas region?

5. What are the perceived benefits of the adoption of the No Child Left Inside Act in the public schools in the North Texas region?

3.5 Research Sample

The sample included principals, school designers, and parents who are presidents of the Parent Teacher Associations (PTA) of elementary schools located in the North Texas region, as defined by North Central Texas Council of Governments (NCTCOG). The schools must have been built in 2009 or later, which was after the approval of the No Child Left Inside Act. The participants from each selected property were chosen because they represent the primary decision makers or are major contributors to decisions made within their institutions.

3.6 Assumptions

This study assumed that the respondents have a vested interest in the educational experiences of children. It was also assumed that the three sets of stakeholder respondents can influence the decision making regarding the integration of the outdoor environment into children's educational experiences at their respective school. The study also assumed that the

respondents wanted to offer their responses to the study questions to benefit the children's educational experiences in their schools. Finally, it was assumed that the schools built after 2009 would contain some landscape design elements to conform to the NCLIA introduced in 2009.

3.7 Scope, Limitations, and Delimitations

This study is limited to a very specific geographic area in North Texas. The weather and landscape considerations impact the experiences of the respondents with regard to the integration of the outdoor environment into the children's educational experiences. Therefore, the limited geographic area of the study restricts the applicability and ability to generalize the data to other parts of the state of Texas and the United States.

The participants represented eight of the 16 counties that comprise the North Texas region as defined. This limitation was set because of the study's time constraints and time limitations of the participants. The different roles of the three sets of participants limited their knowledge regarding some of the questions and about the NCLIA in general, which led to varied responses. One important limitation of the study is that it did not include the perceptions of superintendents, teachers, or students, who could have provided an expanded view of the topic.

Because of the years in which the schools were built, this research might not be applicable to schools that were built or designed before 2009 when the NCLIA was introduced. The study only focused on North Texas public schools. Therefore, the findings might not be applicable to the experiences of private schools in the region. The study only gathered information from stakeholders of elementary schools, which limits the applicability of the findings to the experiences of middle and high schools.

3.8 Bias and Error

The participants in the study have similar interests in NCLIA implementation. However, the fact that the respondents have different roles in the decision making does not allow for an even set of responses from a common perspective. Principals, school designers, and parents

would likely have different perspectives regarding the implementation of the Act, stemming from their unique stances and perspectives on the benefits of the Act and how it could benefit them in their particular roles, as well as benefit the school and the children.

The qualitative research design leaves the process open for changes in the dynamics of each interview. The partiality of the researcher toward the benefits of the NCLIA could also play a role in creating bias. To ensure bias was not passed on to the participants, the interview process must be guided but not influenced by the interviewer. The conversational and open-ended style of the interviews resulted in multiple answers to the same questions, thus challenging the interpretation of the results.

3.9 Summary

The study explored the perceived attributes of the No Child Left Inside Act of 2009—its relative advantage, compatibility, complexity, trialability, and observability. The sample for the study included principals, school designers, and parents who are presidents of the PTA of elementary schools that were built after 2009 and located in the North Texas region, as defined by the North Central Texas Council of Governments and Vision North Texas. This research used face-to-face interviews guided by a semi-structured questionnaire as the method for data collection. Bias was constrained by allowing the participants to freely express their perceptions without influencing their opinions.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

The results of this study show that children's experiences with the outdoor environment in the participating schools were varied. But in general, inclusion of the outdoor environment in the schools' educational curriculums was limited. The interview results also show that the opinions of school principals, school designers, and PTA presidents are favorable regarding inclusion of the outdoor environment in children's educational experiences. However, the results raised concerns about the adoption of the No Child Left Inside Act of 2009. The majority of the respondents had no knowledge of the Act. Nonetheless, all respondents have favorable opinions about the benefits of environmental education and NCLIA adoption in their schools. Regarding NCLIA implementation in their schools, one of the barriers that respondents pointed to the most was the lack of time to diverge from a curriculum designed to satisfy the academic requirements of the standardized test, Texas Assessment of Knowledge and Skills (TAKS).

4.2 Analysis of the Interviews

After reviewing the interview transcription, the researcher sorted the participants' answers under each specific interview question. Later, the researcher analyzed the responses for recurring themes among the respondents' opinions regarding adoption of the NCLIA. The rest of this section provides summaries of the responses to each of the interview topics. At the end of each discussion is a table that highlights recurring themes in the responses. A more detailed version of these tables is provided in Appendix F. For the complete interview transcripts, see Appendix G.

4.2.1 Experiences of Children with the Outdoor Environment in their Schools

An introductory question was asked about the current experiences of the children with the outdoor environment in the participant schools. *Describe the experiences that the children have with the outdoor environment at this school.*

In response to this question, the respondents' replies varied. Three of the respondents, R1, R4, and R7, replied that the students occasionally interact with the outdoor environment in their schools. R1 said, "Occasionally, not on a real often basis but occasionally, our fifth grade science teacher will take the kids out and they will walk the creek bed or get down the creek." R4 expressed that their outdoor experience is limited because the school is brand new. However, "The children have their recess time in those areas. And then, on nice days, the PE teacher will do some of her lessons outdoors. That is primarily how we use our yard." R7 spoke about how the location of the school determines the level of outdoor environment involvement in the educational experiences. The respondent also pointed to the particular experience of her children in their schools: "My children went to two different elementary schools, and one had a nurturing environment and the other was more like a prison yard with this concrete courtyard and just really oppressive."

Three of the respondents, R2, R6, and R8, expressed that their schools allow for the integration of the outdoor environment in the children's educational experiences on a regular basis. R6 pointed out that "we are trying to give them (the children) an opportunity to experience something in the landscape that is unique through the choice of plant materials or earth forms or walkway layout." R8 described the ample outdoor space at their school for children to take advantage of: "They have one area dedicated to physical playground equipment, areas for free play. There are trees and benches. Therefore, they have a little bit of everything. And they have one playground that is just for the little kids and one for the bigger kids. I think they have a good experience, most of them."

Three of the respondents pointed out that the outdoor environment is only used for recess and physical education (PE). R4 conveyed that the newness of the campus limits the children's exposure to the outdoor environment: "This school is very limited because we are a brand new campus, so the only actual outdoor experiences our kids have are actually on our fields behind us and our playground areas. We are not doing any types of outdoor classrooms. We are not doing any type of landscape classes or anything like that at this point." R12 pointed out that exposure to the outdoor environment and outdoor education is "limited to recess and exercise periods only."

Two of the respondents expressed that they use the outdoor environment extensively and have an outdoor education program in place in their schools. R3 emphasized that "We certainly believe that outdoor learning is a high priority. Every class has two recess times, a morning and an afternoon. We have an outdoor runners club twice a week that goes around our outdoor area. We have the gardening club and the science club. We have a leadership team that works in helping us to be interactive with the environment. We have classes outside." R10 reiterated that "they love the outdoor environment. The teachers use it extensively, and we have incorporated it into our Fall Festival Carnival as well."

One of the respondents, R5, projected his views about how the school would incorporate the outdoor environment because the school has not been built yet. R5 does think that "outdoor education will be a big part of it (the school)". R5 described an interesting fact about the school design, which is that it has a "courtyard and the interior faces outward." He believes all these elements will make it suitable for the integration of the outdoor environment into the educational experiences of children when the school begins to operate.

Table 4.1 Interview Question 1 Recurring Themes Matrix

Describe the children's experiences with the outdoor environment at this school.

Respondent	Occasionally	Only for PE and Recess	Regularly	Extensively, and Have Outdoor Education Programs
R1	X			
R2		X		
R3				X
R4	X			
R5			X	
R6	X			
R7	X			
R8			X	
R9		X	X	
R10				X
R11			X	
R12		X		

4.2.2 How the Outdoor Environment Has Been Incorporated into the Educational Experience of North Texas Schools

The next question that was asked of respondents pertains to how the school has incorporated the outdoor environment into the academic curriculum: *Describe how the outdoor environment has been incorporated into the educational experience at this school.*

The responses pointed to the integration of the outdoor environment to some degree, and mostly for PE and science education. R2 expressed satisfaction in the setting of the school campus. She said, "we have a lot of wildlife that seems to like to visit us every now and again. Teachers take the classrooms out. We have grade levels working on soil now." R3 described their practice of "mixing up classes" into different age levels and doing "specials outside." She pointed out that "everybody meets outside everyday at least once a day for something other than recess. We do a lot of activities outside." The respondent also conveyed that "classes love to be outside, so we encourage not so much that they are interacting with the environment

because they are just in the outside environment." R5 expressed, "a big part of their outdoor experience is science based." R8, R9, R10, and R11 responded that they use the outdoor environment mostly for exercise and fitness purposes. R8 said, "I know the gym teacher takes them out and does specific activities outside a lot, especially when the weather is nice." R8 also said they have "special events outside." R2 expressed that they take the children out mostly for "exercise and fitness." R9 offered a similar response to the question, adding that it is used for "the recess period." R12 thinks children use the outdoor environment for "play and exercise."

R7 stated that the experience of children with the outdoor "varies dramatically" depending on the school. The respondent emphasized that "there was no real outdoor experience in my children's elementary school, other than going outside for sports and field day, playing games, and whatnot." However, three respondents, R1, R5, and R10, expressed that the children's educational experience with the outdoor environment is more related to teaching science. R1 responded, "they (children) go out sometimes for their science classes. They go outside looking for insects." R1 also said the students use the creek by the school. R5 thinks "a big part of (the outdoor experience of students) is science-based." R10 also pointed to the emphasis of science in outdoor education, with children doing "some scientific experiments on physical activity and looking for bugs."

Two of the respondents, R4 and R6, pointed out that the limitations to the inclusion of the outdoor environment in the educational experiences of children in their schools were that the campus was new and the TAKS test requirements. R4 described the children's educational experience with the outdoor environment as "very little because we are just establishing the cultures and climates of the campus." R6 also expressed that the school being new is a limitation when it comes to integrating the outdoor environment into the educational experiences of children: "the schools are quite new, and [the district] is struggling to just keep up with the enrollment. R5 pointed out that the school is "meeting some of their TAKS requirements" by using the outdoor environment for science education.

Table 4.2 Interview Question 2 Recurring Themes Matrix

Describe how the outdoor environment has been incorporated into the educational experience at this school.

Respondent	For Physical Education	For Science	Extensively	Limited, Due to New School or TAKS Test
R1	X	X		
R2	X	X		
R3	X	X	X	
R4				X
R5		X		
R6				X
R7	X			X
R8	X			
R9	X			
R10	X	X		
R11	X			
R12	X			

4.2.3 Knowledge About the NCLIA

The researcher inquired about the respondents' knowledge regarding the NCLIA: *What do you know about the No Child Left Inside Act?*

When asked this question, two of the respondents, R6 and R8, automatically gave explanations about the No Child Left Behind Act. R7 knew about the NCLI Movement. However, R7 expressed, "about the act itself (I do not know) too much. I know that it provides funding for initiatives that are supposed to help get children outside and whatnot." Out of the 12 respondents, 11 did not know anything about the NCLIA.

The researcher provided a brief synopsis about the NCLIA and then asked a follow-up question: *After learning about the NCLIA, what is your opinion about it?*

Seven of the respondents did not have further comments or opinions about the information they had just learned. R1 pointed the researcher in the direction of another campus

with “an outdoor area attached to it.” R3 responded, “if it is a way to get funding, which is something we desperately need, we definitely would like more information about that.” R7 reiterated, “as far as the actual details and the ins and outs of the legislation, I am not that familiar with it.” R9 emphasized that “the only outside time I am aware of is for recess.”

Table 4.3 Interview Question 3 Recurring Themes Matrix

What do you know about the No Child Left Inside Act?

Respondent	No Knowledge	Very Little Knowledge	Knowledgeable	Extensive Knowledge
R1	X			
R2	X			
R3	X			
R4		X		
R5	X			
R6	X			
R7				X
R8	X			
R9	X			
R10	X			
R11	X			
R12	X			

4.2.4 Incorporation of the NCLIA Goals into the Schools

Following the introduction of the NCLIA questions and explaining it to the respondents who were not familiar with the Act, the researcher proceeded to ask the respondents how the goals of the NCLIA had been incorporated into their schools: *Have the goals of the NCLIA been incorporated into this school?*

In general, the responses were varied. Only four respondents answered the question when asked: R1, R2, R9, and R11. R1 answered the question with a “definitely maybe.” R1 expanded on the answer by commenting, “We try to get them outside as much as we possibly can. But I do not know that there is always a scientific purpose attached to it.” R2 explained

that “as a district, we are now developing our own outdoor learning center, and it is located [near the school].” Outdoor education is a goal for the school represented by R1, who said “we have committees working right now on some curricular ideas for using that property.”

The implementation of the goals of the act can be perceived as something particular to the preferences of specific teachers. R11 responded, “whether the act is part of it, I feel that our school, depending on the activity, they do incorporate it (outdoor education) as much as they can. (Outdoor education) appeals to a certain teacher’s personality or teaching style (more) than another.” Implementation of the goals of the act is not seen as formal by R11, who added to his response: “I have not been aware of this as being a formal policy that it has been instituted at our school.” R4 pointed to the lack of legal obligation to implement the act. “At this point, there is nothing legally binding us to have external activities. Therefore, at this point it is not a focus.” R4 added that the implementation of outdoor education in the classroom “is in my personal long-term vision, though.”

Regarding implementation of the goals of the NCLIA in the school, R9 knows the goals have been implemented. However, the respondent does not know if they have been implemented specifically in the curriculum. The respondent knows there are “multiple activities that they have incorporated to go along with that notion (the NCLIA).”

Table 4.4 Interview Question 4 Recurring Themes Matrix

Have the goals of the NCLIA been incorporated into this school?

Respondent	No Incorporation	Very Little Incorporation	Incorporated	Extensive Incorporation
R1			X	
R2		X		
R3	X			
R4	X			
R5	X			
R6	X			
R7	X			

Table 4.4 – *Continued*

Respondent	No Incorporation	Very Little Incorporation	Incorporated	Extensive Incorporation
R8	X			
R9	X			
R10	X			
R11	X			
R12	X			

4.2.5 Barriers to NCLIA Adoption by North Texas Public Schools

The researcher asked the respondents their opinions regarding barriers to the implementation to the NCLIA in public schools in general: *What do you foresee as to the barriers to the adoption of the NCLIA by public schools in North Texas?*

The responses for this question varied. A recurring theme that was pointed out as a barrier to NCLIA implementation was the emphasis of the schools in preparing students for the TAKS. R1 responded, "we are doing all for TAKS, so the lives of the teachers revolve around TAKS." The emphasis on standardized tests was also pointed out by R2, who replied, "finding the right place for it within the existing curriculum because, obviously, we have so many Texas requirements already embedded." R5 reinforced this answer by replying, "a lot of focus is put on passing certain tests and meeting certain standards." The answer expressed a concern by the responder, who added, "if educators felt like by complying with some of these new standards we are going to pull time away from what they are already struggling to accomplish." R8 shares the same opinion about TAKS being a barrier to NCLIA implementation: "I think the biggest barrier is right now the laws are set up to do testing, the TAKS test. Schools, not that they want to, but because they are mandated to, teach toward getting those tests and not always teach toward the arts and the physical activities." R9 produced a similar answer: "the TAKS test is going to be your biggest barrier because (teachers) are jammed with teaching the TAKS, which I do not necessarily agree with." R10 also sees TAKS as a barrier to NCLIA

implementation in the schools: "I see the biggest barrier is the TAKS test, and because apparently our country and state feel like it is more important to have children pass a test that is specifically taught to, as opposed to giving them the essentials that they need outside: from a little break to reset their minds, getting some vitamin D outside in the sunshine, and blowing off some steam and some energy out playing."

Responses included the element of tradition as a barrier to NCLIA implementation in schools. R1 responded, "probably one of the biggest obstacles with a lot of people is just tradition, the fact that we have not done it that way before." R7 provided a similar answer by saying, "The number one barrier to the adoption of the NCLIA is probably just the inertia of the status quo. We have done things like this for so long, and you have such ingrained attitudes and policies from superintendents all the way down through the teaching ranks."

Safety and the heat were two of the factors of concern to the respondents related to barriers for NCLIA implementation in North Texas public schools. R3 responded, "There are two things that are barriers that I would see. One is heat. The other one is safety." R12 offered a similar response: "I think the barriers might be safety. Both parents and school staff view everything from a safety point of view."

Politics was another issue that surfaced as a barrier to NCLIA implementation. R6 and R4 replied simply, "Politics." However, R4 added, "if an educator can be shown that this (the Act) will increase student achievement and it will increase student learning, I think educators should go for it."

One of the respondents suggested barriers as to the number of hours in the school day and lack of outdoor space at the school. R11 expressed the opinion that "there are not enough hours in the school day to get everything in that they have to get in." The fact that the school does not have enough property surrounding it "beside parking" is also perceived as an obstacle.

Table 4.5 Interview Question 5 Recurring Themes Matrix

What do you foresee as barriers to adoption of the NCLIA by North Texas public schools?

Respondent	Tradition	TAKS Testing	Outdoor Space	Weather	Safety	Too Few Hours	Politics
R1	X	X					
R2		X					
R3				X	X		
R4						X	
R5		X					
R6						X	X
R7	X						
R8		X					
R9		X					
R10		X					
R11			X				
R12					X		X

4.2.6 Opportunities for NCLIA Adoption by North Texas Public Schools

The last question had to do with the respondents' opinions about the future of the NCLIA in their schools: *What do you foresee as to the opportunities to the adoption of the NCLIA by public schools in North Texas?*

The majority of the respondents favor the adoption of the NCLIA in schools and foresee benefits to the Act's adoption. Nine out of the 12 respondents expressed that they see opportunities for adoption of the Act. R1 and R6, however, expressed that full disclosure of the benefits of the Act would ease its adoption. R1 said that the Act should not be mandated, saying, "if you do it by edict, it does not go well." The respondent added that "if they are going to make this thing work, it has to be sold as the benefits." R6 provided a similar response: "I think that they just need to make sure that everybody is clear on what those requirements are." R6 also added that "if the Act is adopted, what are the pros and cons? Everybody should know going in what are their options." The respondent also stressed the importance of assessing the

details about the Act's implementation with the people who put it into practice in terms of "benefit, the costs in time, money, and effort."

In general, the respondents embraced the adoption of the Act for various reasons. R2 mentioned that it is a "fabulous idea", adding that "it is very important that children have a real good appreciation of nature, of the environment. I see it as a real plus if that could become part of what we do on a regular basis." R3 expressed that they are a "brain-based school and that oxygen and exercise really help children think and that being in a different environment and getting children to move, interact, and talk with things is a much better way to learn." R4 responded that implementation of the Act "is going to increase student learning and gives children experiences that they may not typically have at home or anywhere else." R8 views the implementation of the NCLIA as an opportunity to strengthen education because "outdoor education is going to flow into all the subjects." R8 perceives benefits beyond the academic component of the Act's implementation by helping the children "have more energy, be more alert in class, and just be active, not just at the school, but in their community. The more they are active and feel good about themselves, the more they are going to do other things."

A common response expressed by R9 and R12 was about getting the children away from electronics. R9 responded, "it is an opportunity to get children off of the computers, off of the video games for a little while, off of the TV for a little while, if they are doing it at home." R12 offered a similar response as an opportunity to "getting the children outside, unplugging them from the electronics and the structures of the school system."

Two of the respondents, R5 and R9, view the implementation of the NCLIA as an opportunity to enhance the science curriculum in the schools. R5 said, "there are a lot of opportunities outside of a school on a site to learn about, such as physical activities and science-related fields." R9 believes the Act would provide "an opportunity to teach science in a hands-on way."

Increasing the exercise levels to which students are exposed also came up as an opportunity after NCLIA implementation. R3 expressed, “exercise really helps children think”, while R3 sees “a lot of opportunities”, among them, for “physical activity.” Incorporating different learning styles into the educational experience of children also came up as an opportunity related to NCLIA implementation. R3 responded that “to move, interact, and talk with things is a much better way to learn”. R9 expressed there is an opportunity to “reinforce some learning styles that are not just listening, but also touching and seeing.”

Finally, an opportunity that emerged from the data is tackling the obesity problem. R10 responded: “I think just the growing obesity rate of our society is a sign. I am not sure how well the TAKS test is actually helping produce children that are smarter and more prepared for college and life in general. So hopefully, they will take that into consideration and give them (children) a couple breaks throughout the day to play and be children.” R11 pointed out that “most people recognize obesity as a problem” and that attempting to solve the obesity issue is one angle that would help to “get this (the Act) pushed through schools.”

Table 4.6 Interview Question 6 Recurring Themes Matrix

What do you foresee as opportunities from adoption of NCLIA in North Texas public schools?

Respondent	Tackle Obesity	Enhance Student Learning	Gain Appreciation for Environment	Increase Exercise	Incorporate Different Learning Styles	Unplug Children from Electronics	NCLIA Awareness
R1							X
R2			X				
R3		X	X	X	X		
R4		X					
R5		X		X			
R6							X
R7							
R8		X	X	X			
R9		X			X	X	
R10	X						
R11	X						
R12					X	X	

4.3 Discussion

The study revealed important information regarding the integration of the outdoor environment into the educational experiences of children and NCLIA implementation in North Texas elementary schools. The study answered five fundamental questions about the opinions of principals, school designers, and parents regarding the experiences of children with the outdoor environment in their schools, integration of the outdoor environment into the educational experiences of children, the NCLIA, and the possible barriers and opportunities of NCLIA adoption in North Texas schools. A discussion of these questions follows.

4.3.1 Stakeholder Opinions Regarding Children's Experiences with the Outdoor Environment

As related by the respondents, the study revealed that children's experiences with the outdoor environment are not uniform. Each respondent offered a description of experiences that were significantly different from those of the other respondents. In general, the ourtdoor experiences of children are described to be limited to physical education, play, and science. The differences in the school landscapes also came out as a factor that influences the experience of children with the outdoor environment. No descriptions were offered regarding the pros or cons of the current experience of children with the outdoor environment.

4.3.2 Integration of the Outdoor Environment into Children's Educational Experiences

The study revealed that integration of the outdoor environment into the educational experiences of children is not formal. The descriptions offered by the respondents did not reveal that the outdoor environment has been integrated into the design of the academic curriculum, nor did it reveal that integration of the outdoor environment into children's educational experiences is periodic or systematic. There are strong perceptions that the outdoor environment is suitable only for informal school activities, such as play and recess.

4.3.3 Knowledge About the NCLIA

The study revealed the important fact that 11 of the 12 respondents did not have any knowledge abut the NCLIA. Three of the respondents assumed the NCLIA is the NCLBA. Two

of the respondents offered extensive explanations about the NCLBA when asked about the NCLIA. Only one of the respondents was familiar with the NCLIA movement. However, he was not well informed about the Act itself. In general, the NCLIA is unknown to school principals, school designers, and parents.

4.3.4 Perceived Barriers to NCLIA Adoption in Schools

The study revealed a consistent finding among the respondents regarding the perceived barriers to NCLIA implementation. As perceived by the respondents, the biggest barrier is the emphasis on teaching the subjects required to pass the TAKS test. Conformity to old notions of teaching and learning also came up as an important barrier to implementation of the NCLIA in schools. Politics seems to be a concern among respondents—how the act will be presented and mandated by the top levels or imposed as part of a political agenda. In general, the lack of time to implement it due to TAKS and the workload of teachers is perceived as the principal barrier to NCLIA adoption in schools.

4.3.5 Perceived Opportunities for NCLIA Adoption in Schools

The perception about NCLIA adoption in North Texas public schools revolves around the integration of the outdoor environment for science education. Opinions of the respondents about NCLIA implementation are positive. Two respondents expressed concern regarding how the NCLIA should be introduced to the school stakeholders to facilitate the Act's adoption. In general, the respondents find that the Act will help get children away from electronics, increase activity levels, enhance science learning, and contribute to solving the obesity problem.

4.3.6 Perceptions of Relative Advantage Regarding the NCLIA

Nine respondents expressed positive opinions about NCLIA adoption in North Texas public schools, as presented in the interviews. Responses ranged from the importance of children "having a real appreciation of nature" to increasing student learning capabilities, enhancing science learning, increasing exercise, incorporating different learning styles, getting

children away from electronics, and tackling obesity. One of the responses offered "just getting the children outside" as an advantage.

4.3.7 Perceptions of Compatibility Regarding the NCLIA

All of the respondents found compatibility issues regarding NCLIA adoption in North Texas public schools. The schools' emphasis on preparation for the TAKS test was the main compatibility issue that stemmed from the data. "Finding the right place for the NCLIA within the existing curriculum" because of standardized tests was expressed by six of the respondents. Tradition, "the fact that we have not done it that way before", was another compatibility issue expressed by two respondents. Safety issues also came up during the interviews with two of the participants. "From the schools' perspective, there might be a barrier to adopting those kinds of things from a safety standpoint."

4.3.8 Perceptions of Complexity Regarding NCLIA Adoption

The complexity of NCLIA adoption came in the form of finding the time within the schools to implement the Act. Another complexity was two schools being new and lacking the infrastructure to implement a new program when they are trying to increment enrollments. "Establishing new cultures and climates in a new campus" and "struggling to keep up with enrollments" were seen as issues of complexity. Also, the lack of outdoor space - "not enough space surrounding the school beside parking" - could make implementation of the Act difficult in one of the schools.

4.3.9 Perceptions of Trialability Regarding the NCLIA

Interview results revealed that the NCLIA has not been incorporated in the education system of the schools. None of the respondents offered a categorical answer regarding formal NCLIA incorporation in their schools.

4.3.10 Perceptions of Observability of the NCLIA

No perceptions of observability were obtained from the interviews.

4.4 Summary of Findings

Only three of the respondents expressed that children use the outdoor environment extensively (the outdoor environment is an extensive part of the education experience of the children). Two respondents expressed that their schools regularly use the outdoor environment in teaching. Seven respondents said their school uses the outdoor environment occasionally and/or only for PE and recess.

Six respondents indicated that the outdoor environment is only used for PE and play, versus three other respondents who pointed out that the outdoor environment is used mostly for science. Three respondents expressed their schools use the outdoor environment regularly or occasionally. Three of the respondents said the integration of the outdoor environment into the educational experiences is limited. Eight respondents conveyed that outdoor education is incorporated into their education in their PE or science curriculum.

When asked about their knowledge about the NCLIA, two respondents assumed the researcher inquired about their knowledge regarding the NCLBA. Only one respondent had prior knowledge about the NCLI Movement. However, he did not have much knowledge about the Act. Eleven of the respondents did not know anything about the NCLIA.

The question about whether the goals of the NCLIA had been incorporated into their schools did not lead to responses from seven of the respondents. The rest of the respondents expressed that the NCLIA had been incorporated into the curriculum somewhat. However, the respondents who replied to the question pointed out that the Act had not been formally adopted by their schools.

When asked about barriers to NCLIA adoption in North Texas schools, six respondents pointed to the TAKS as the major barrier. The children's safety in the outdoor environment came up with two of the respondents as a barrier to adoption of the Act. Politics and tradition—how the Act will be "sold" to the teachers and administrators and resistance to change—were identified by four respondents as barriers to the adoption of the NCLIA.

Nine of the respondents expressed positive opinions in general about implementing the Act in their schools. The inclusion of outdoor education and its effect on increasing children's learning was a recurring theme in three of the responses. Four respondents expressed increasing exercise and tackling the obesity problem as positive opinions regarding NCLIA adoption. Two of the respondents expressed positive opinions about the incorporation of different learning styles as an opportunity of NCLIA adoption. Two respondents reinforced that to implement the Act, the executors of the Act need to be informed about the benefits of the NCLIA.

CHAPTER 5

CONCLUSIONS

5.1 Introduction

The No Child Left Inside Act has not been enacted into law by the United States Legislature. Therefore, the Act has not been mandated for implementation in North Texas schools. The general perception of the importance of the outdoor environment in children's educational experience is prevalent in the study. Nonetheless, the information about the NCLIA has not permeated the area school systems, which is an obstacle for the implementation and adoption of the Act.

The integration of the outdoor environment in North Texas schools is not uniform throughout the school districts. Schools integrate the outdoor environment in their educational activities according to the views of the leadership of the school about how the outdoor environment fits into the classroom curriculum. Teachers seem to have autonomy and the final authority about how and when to integrate the outdoor environment into the children's educational experiences.

It is not clear if the e study respondents believe the outdoor environment is a proper environment for the application of concepts and learning lessons beyond science and PE, as most of them expressed an inclination and perception that the integration of the outdoor environment has the purpose of increasing children's exercise levels and allowing them hands-on experience when learning science. The experiences of children in the outdoor environment are currently highly concentrated in the areas of physical education and science. However, their exposure to the outdoor environment is not consistent.

In general, the schools of the study have not purposefully and systematically implemented an education curriculum that focuses on the integration of the outdoor

environment into the children's educational experiences. Therefore, there is a lot of improvisation with the outdoor environment when the experience is not circumscribed to physical or science education and recess. Nonetheless, the potential exists in almost every school campus to take advantage of the outdoor environment, because of the availability of open space and green areas that belong to or are near the school.

Incorporation of the outdoor environment into children's educational experience in North Texas public schools is present to some degree. However, the outdoor environment has not been planned to be part of the academic curriculum on a regular basis. The study showed that schools might or might not take full advantage of the outdoor environment, although they are aware of it and attempt to expose the children to it according to how it fits into their academic curriculums.

One of the most important findings of the study is that the NCLIA is a topic unknown among the schools in the study. The Act has not been made known to school principals and parents. The name resonates with the No Child Left Behind Act, with which all participants are familiar. The similarity between the names of the Acts presents confusion and ambiguity in understanding what the NCLIA entails and so delays comprehension of the concept behind the Act. The similar names might also prompt stakeholders in schools to make unfavorable associations between the NCLIA and the NCLBA, especially among those who have negative perceptions and opinions about the latter. To dissipate the confusion between the two Acts, a bigger effort to promote the NCLIA is required.

There is also a lack of knowledge about the NCLI Movement that prompted the NCLIA. School stakeholders will have to be made aware of how the Act emerged and developed so they can understand the purpose behind it. The lack of knowledge about the Act makes it hard for the school principals and parents to embrace the notion of it, because they do not fully understand it. If they perceive that this Act will increase their workload, the state requirements,

and bureaucracy, they might have a negative opinion about the Act prior to its incorporation in the schools, which will increase the resistance to its implementation and adoption.

Comprehensive education needs to be done to inform school principals, school designers, and parents about the NCLIA prior to its introduction and before it is mandated by the state. There was a prevalent feeling that mandates and decrees could potentially increase resistance to change in the participant schools. It is important that the benefits of the Act are presented, documented, and supported by quantitative and qualitative data, to facilitate its introduction and implementation among school stakeholders.

The lack of knowledge about the NCLIA makes it hard for schools to incorporate its goals into the academic curriculum. The goals of the NCLIA have not been communicated, and therefore, have not been incorporated into North Texas schools. The goals of the NCLIA might have been in place or present in some of the activities involving the outdoor environment and the school curriculums. Because there is no direct knowledge about the Act, some schools have incorporated the goals implicitly.

The NCLIA is foreseen to have some resistance from principals, teachers, and parents. The number one barrier to NCLIA implementation in North Texas schools is the TAKS test. Schools devote time and resources to make sure their students are prepared for the standardized test. Great importance is placed on the preparation for and passing of the TAKS. Teachers must comply with regulatory guidelines that mandate they satisfy the passing goals for the test. Therefore, principals and teachers foresee that time will be a limitation for NCLIA implementation in the academic curriculum.

The emphasis on TAKS has forced schools to eliminate or limit the academic curriculum beyond the subjects required to pass the test. Subjects like arts, music, and even PE have been eliminated or shortened to devote more time to TAKS preparation. Requiring schools to increase the time children interact with the outdoor environment seems counterproductive to some teachers and principals. The issue of time—that there are not

enough hours in the day for education in the schools—is linked to the issue of the TAKS. However, strengthening the information about how the outdoor environment fits into all subjects can mitigate concerns regarding time constraints when the NCLIA is implemented in the schools.

The NCLIA will likely face some resistance from principals, teachers, and parents. The safety concerns are real, and schools face challenges to dissipate the concerns about the children's safety while they are engaged in the outdoor environment as part of their learning experience. The challenges regarding safety can make principals and teachers apprehensive about adopting the Act.

In general, the study made evident the benefits of the NCLIA as perceived by school principals, school designers, and parents. The opinions about the implementation and adoption of the NCLIA in the schools are positive. School principals and parents welcome the idea of getting their children more active and giving them opportunity to interact with the outdoor environment on a regular basis. The opinions identified in the study regarding the benefits of NCLIA implementation are mostly related to increasing activity levels and being proactive to help mitigate the obesity problem among children and adolescents.

Enhancing learning by using multiple learning styles, especially science learning, came up as a recurring theme. The study revealed the general opinion that the outdoor environment only fits into certain subjects and only under certain criteria, usually the criteria of the decision maker in the classroom. An important finding of the study is that information about the NCLIA needs to be disseminated, explained, and "sold" to the stakeholders in the school systems, as opposed to mandated as a new law, with which they must comply to facilitate its implementation and adoption.

5.2 Relevance to the Profession of Landscape Architecture

The responsibility of the profession of landscape architecture has been the dedication to facilitate the safety, health, and welfare of our communities and to provide quality design that

is ecologically sensitive to our natural environments. Implementation of the NCLIA would ensure funding to school districts for the design of schoolyards that take advantage of the outdoor environment for educational purposes and ensure that all children have an opportunity to experience the natural outdoor environment on a daily basis. Landscape architecture could assume a lead role in educating both school systems and the public about Nature Deficit Disorder (NDD), benefits of nature-based educational activities, the NCLI Act, design modifications in existing campuses, and design strategies for future campuses.

Landscape architects could assist in education through presentations at schools and conferences. Disseminating ideas for design could take the form of design guideline publications, books, or pilot projects that demonstrate the ideas and principles. The design guidelines could cover a wide range of topics, such as creative partnerships between schools and park departments or schools and nature non-profits and creative site selection of new school campuses.

5.3 Suggestions for Further Research

This study serves as a foundation for further studies about integration of the outdoor environment into the academic curriculums and educational experiences of children in North Texas public schools. The following research is suggested for future studies:

- A quantitative study about the readiness of the stakeholders in public school systems (superintendents, principals, teachers, and parents) to implement and adopt the NCLIA in their schools.
- An assessment of the effectiveness of NCLIA implementation in North Texas public schools after the Act has been mandated.
- A study that compares the academic success indexes of children who study in public schools in which the Act has not been implemented to the indexes of children in schools where the Act has been implemented.

- A study of how the landscape architecture and design of the outdoor environment in the public schools has impacted the academic, emotional, and social performance of the children by age levels.
- A study to gauge the difference in educational benefits realized in truly natural outdoor environments versus a man-made environment designed to emulate the most beneficial attributes of natural outdoor environments.

APPENDIX A

NO CHILD LEFT INSIDE COALITION AND THE NO CHILD LEFT INSIDE ACT OF 2009

About the No Child Left Inside Coalition

The No Child Left Inside® Coalition is composed of environmental, educational, and public health organizations, businesses, civic organizations and other public enterprises, all dedicated to ensuring a comprehensive education for all.

Background: The No Child Left Inside Coalition is a national coalition of over 1800 business, health, youth, faith, recreational, environmental, and educational groups representing over 50 million Americans. The Coalition was formed in 2007 to alert Congress and the public to the need for our schools to devote more resources and attention to environmental education.

Goal: The Coalition is working to support legislation sponsored by Rep. John Sarbanes of Maryland and Sen. Jack Reed of Rhode Island to ensure that every student achieves basic environmental literacy. The No Child Left Inside Act would amend the Elementary and Secondary Education Act (No Child Left Behind) to include environmental education for the first time. The legislation would provide new funding for environmental education, particularly to develop rigorous standards, train teachers and to develop state environmental literacy plans. It also proposes giving states that develop such environmental literacy plans access to additional funds.

As members of the Coalition, groups and organizations:

- Express support for the Coalition's efforts and will be listed as a member organization on the Coalition's website and on letters to Congress, if appropriate.
- Will be kept informed by email as to the status of the NCLI Act and the Coalition's efforts.
- Will be asked to contact the media and write to members of Congress in support of the NCLI Act.
- Will be asked to coordinate all advocacy related to the NCLI Act with the Coalition.

About the No Child Left Inside Act

The Elementary and Secondary Education Act is also known as No Child Left Behind, which in the past few years has fundamentally changed the way that education is delivered in this country. It has defined the core content that all students in the United States must learn to be considered proficient at each grade level. As of 2007, this includes content standards in reading, math, and science. In many school districts, this has translated into teaching only those subjects and standards that are assessed.

If Congress adopts the NCLI proposals, a substantially strengthened Elementary and Secondary Education Act will include:

- Funding to train teachers to deliver high quality Environmental Education and utilize the local environment as an extension of the classroom.
- Incentives for states to develop State Environmental Literacy Plans to insure that every student is prepared to understand the environmental challenges of the future.
- Encouragement for teachers, administrators, and school systems to make time and resources available for environmental education for all students.
- Environmental Education will be integrated across core subject areas.

Source: National NCLI Coalition Website (http://www.cbf.org/Page.aspx?pid=948)

House Bill 2054 and Senate Bill 866 Summary

No Child Left Inside Act of 2009 –

Amends the Elementary and Secondary Education Act of 1965 to require states, as a prerequisite to receiving implementation grants, to develop environmental literacy plans, approved by the Secretary of Education, for pre-kindergarten through grade 12 that include environmental education standards and teacher training.

Directs the Secretary to award Environmental Education Professional Development Grants to states and, through them, competitive subgrants to partnerships that include an LEA and, permissibly, institutions of higher education (IHE), other educational entities, or federal,

state, regional, or local natural resource or environmental agencies, for activities involving, among other things, teacher training and the development of more rigorous environmental education curricula that advance the teaching of interdisciplinary courses.

Authorizes the Secretary to award competitive matching grants to partnerships that include an LEA and, permissibly, IHEs, other educational entities, federal, state, regional, or local natural resource or environmental agencies, or park and recreation departments, for activities to improve and support environmental education that include: (1) advancing content and achievement standards; (2) developing or disseminating innovations or model programs; and (3) research.

Current Senate Actions

4/22/2009: Sponsor introductory remarks on measure. (CR S4581)

4/22/2009: Read twice and referred to the Committee on Health, Education, Labor, and Pensions. (text of measure as introduced: CR S4581-4584)

Current House Actions

4/22/2009: Sponsor introductory remarks on measure. (CR H4667)

4/22/2009: Referred to the House Committee on Education and Labor.

6/4/2009: Referred to the Subcommittee on Early Childhood, Elementary, and Secondary Education.

Source: The Library of Congress THOMAS (www.THOMAS.gov)

APPENDIX B

EMAIL INTERVIEW REQUEST

Dear Mr./Mrs. John Doe, Title: Date xx, 2010

School Name Elementary

Hello my name is Shawn Bookout, and I am a graduate student at The University of Texas at Arlington. I am in the process of completing my Master's of Landscape Architecture degree. My thesis topic is "Elementary Schoolyard Landscapes as Outdoor Learning: Perceptions of North Texas Stakeholders".

Last week I sent you a request for your participation in an interview for my research project. This interview concerns the examination of schoolyard landscapes that foster greater learning opportunities for elementary school children and the amount of contact that children have with these landscapes. This study is an important one that will help landscape architects in their efforts in the future by providing research information to identify design elements needed for elementary schoolyard landscapes to be designed or redesigned as an interactive setting for learning.

I am emailing to see if I could schedule an appointment with you. The interview will take approximately 30 minutes of your time.

Are you available to be interviewed at one of the following dates and times:

October xx, 2010 at xx:00 P.M.

October xx, 2010 at xx:00 P.M.

Thank you for your time and consideration. It is only through the generous support of people like you that our research can be successful. Feel free to call or email me if you have any questions.

Ms. Shawn M. Bookout; Graduate Student
Program in Landscape Architecture
The University of Texas at Arlington
1407 Grape Arbor Ct.
Keller, Texas 76262
Phone: (817) 991-8134
Email: smbookout@gmail.com Email: shawn.bookout@mavs.uta.edu

APPENDIX C

LETTER FOR INTERVIEW REQUEST

Mr./Mrs. John Doe, Title October xx, 2010
School Name Elementary
xxxx Somewhere Dr.
Hometown, Tx 76000

Dear Mr/Mrs. John Doe:

Hello my name is Shawn Bookout and I am a graduate student at The University of Texas at Arlington. I am in the process of completing my Master's of Landscape Architecture Degree. My thesis topic is "Elementary Schoolyard Landscapes as Outdoor Learning Environments: Perceptions of North Texas Stakeholders".

In a few days I will be contacting you to request your participation in an interview for my research project. This interview concerns the examination of schoolyard landscapes that foster greater learning opportunities for elementary school children and the amount of contact that children have with these landscapes. This study is an important one that will help landscape architects in their efforts in the future by providing research information to identify design elements needed for elementary schoolyard landscapes to be designed or redesigned as an interactive setting for learning. I am writing in advance because we have found many people like to know ahead of time that their participation is being requested. The interview will take approximately 30 minutes of your time.

Thank you for your time and consideration. It is only through the generous support of people like you that our research can be successful. Feel free to call or email me if you have any questions.

Ms. Shawn M. Bookout; Graduate Student
Program in Landscape Architecture
The University of Texas at Arlington

1407 Grape Arbor Ct.
Keller, Texas 76262

Phone: (817) 991-8134
Email: smbookout@gmail.com Email: shawn.bookout@mavs.uta.edu

APPENDIX D

SCRIPT FOR INITIAL CALL TO SCHEDULE INTERVIEW

Hello Mr. / Ms. _____

My name is Shawn Bookout. I am a student in the graduate program in landscape architecture at The University of Texas at Arlington. I am working on my master's thesis for my Master of Landscape Architecture degree. I am calling to request your participation in an interview for an important research project.

I would like to schedule an interview with you. It will only take approximately 30 minutes of your time. This interview concerns the examination of schoolyard landscapes that foster greater learning opportunities for elementary school children and the amount of contact that children have with these landscapes. This study will be important in providing research information to identify design elements needed for elementary schoolyard landscapes to be designed or redesigned as an interactive setting for learning.

When would be a good time for me to sit down with you and discuss this subject?

Thank you for your time and I look forward to meeting with you on (Date and Time).

APPENDIX E

INTERVIEW INTRODUCTION AND LIST OF QUESTIONS

Thank you in advance for making time for this interview. This interview will focus on perceptions regarding the elementary schoolyard designs in the region and opinions about the integration of the No Child Left Inside Act in public schools in North Texas. Please give your most candid responses to the questions. Your information will not be directly linked to your name or position and will have no effect on your relationship with the school.

(1) Describe the experiences that the children have with the outdoor environment at this school.

(2) Describe how the outdoor environment has been incorporated into the educational experience at this school.

(3) What do you know about the No Child Left Inside Act?

(4) Have the goals of the No Child Left Inside Act been incorporated into this school?

(5) What do you foresee as to the barriers to the adoption of the No Child Left Inside Act by public schools in North Texas?

(6) What do you foresee as to the opportunities to the adoption of the No Child Left Inside Act by public schools in North Texas?

Thank you for your time today!

APPENDIX F

RECURRING THEMES IN INTERVIEW RESPONSES

Appendix F presents excerpts from the responses to each interview question, in tabular format by respondent number (Rn), and summarizes the recurring themes in the answers to each question.

Table F.1 Recurring Themes in Responses to Interview Question 1

Question: *Describe the experiences that the children have with the outdoor environment at this school*.		
No.	Response	Recurring Themes
R1	Occasionally, not on a real often basis but occasionally, our fifth grade science teacher will take the kids out and they will walk the creek bed or get down the creek.	• Occasionally (R1, R4, R7) • Regularly (R3, R6, R8) • Only for PE and recess (R2, R4, R12) • Use the outdoor environment extensively and have outdoor education programs (R2, R10)
R2	We have two playground areas and a pretty large field. The children have their recess time in those areas. And then, on nice days, the PE teacher will do some of her lessons outdoors. That is primarily how we use our yard.	
R3	Every class has two recess times, a morning and an afternoon. We have an outdoor runners club twice a week that goes around our outdoor area. We have the gardening club and the science club. We have a leadership team that works in helping us to be interactive with the environment. We have classes outside. We certainly believe that outdoor learning is a high priority.	
R4	This school is very limited because we are a brand new campus, so the only actual outdoor experiences our kids have are actually on our fields behind us and our playground areas. We are not doing any types of outdoor classrooms. We are not doing any type of landscape classes or anything like that at this point.	
R5	Well, I think outdoor education will be a big part of it. We have a courtyard, in particular, and the interior spaces face outward.	
R6	We are trying to give them an opportunity to experience something in the landscape that is unique through the choice of plant materials or earth forms or walkway layout.	
R7	It varies dramatically, depending on the environment in which the elementary school is located. My children went to two different elementary schools, and one had a nurturing environment and the other was more like a prison yard with this concrete courtyard and just really oppressive.	
R8	They [children] have a lot of space. They have one area dedicated to physical playground equipment, areas for free play. There are trees and benches. Therefore, they have a little bit of everything. And they have one playground that is just for the little kids and one for the bigger kids. I think they have a good experience, most of them.	
R9	I think all they do here is PE indoors, and then I think they have their recess time outside on the playground, if I am not mistaken. And I am not sure how long that lasts.	

Table F.1 – *Continued*

Question: *Describe the experiences that the children have with the outdoor environment at this school*.		
No.	Response	Recurring Themes
R10	They love the outdoor environment. The teachers use it extensively, and we have incorporated it into our Fall Festival Carnival as well.	
R11	Every day, weather permitting, the children go out for most of their PE period, and they have a recess period which they spend outdoors everyday if the weather is good as well. Lately, they have been doing units in which they are learning about different sports, so they have been golfing outside or bowling outside on the blacktop.	
R12	I think outdoor education is limited to recess and exercise periods only.	

Table F.2 Recurring Themes in Responses to Interview Question 2

Question: Describe how the outdoor environment has been incorporated into the educational experience at this school.		
No.	Response	Recurring Themes
R1	They use the natural environment to some degree. Children would go out sometimes for their science classes, and mainly the fifth grade; third and fourth graders will go out sometimes. They go outside looking for insects—ladybugs and different things they see in the grass. They use the creek. And the children exercise a lot, but only when they go out for exercise.	• PE and Play (R7, R8, R9, R10, R11, R12) • Mostly for science (R1, R5, R10) • Have implemented outdoor education to some degree for PE or science (R2, R3, R5, R8, R9, R11, R12) • Regularly (R1, R2, R3) • Limited due to the school being new or TAKS (R4, R5, R6)
R2	We have a lot of wildlife that seems to like to visit us every now and again. Teachers will take classrooms out. We have grade levels working on soil right now.	
R3	We regularly mix up [classes] for specials outside. Everybody meets outside at least once a day for something other than recess. We do a lot of activities outside. Classes love being outside so we encourage not so much that they are interacting with the environment because they are just in the outside environment.	
R4	Very little, because we are just establishing the cultures and climates of this campus.	
R5	I think a big part of it is science based.	
R6	The schools are all quite new, and [this] ISD is struggling just to keep up with enrollment.	

Table F.2 – *Continued*

Question: Describe how the outdoor environment has been incorporated into the educational experience at this school.		
No.	Response	Recurring Themes
R7	I think it varies dramatically. There was no real outdoor experience in my children's elementary school, other than going outside for sports and field day, playing games, and whatnot.	
R8	I know that the gym teacher takes them out and does specific activities outside a lot, especially if the weather is nice, and then she is bringing them out a lot. And I know they have special events outside. So any time there is an event in which they can get the kids out and active, they bring them out.	
R9	Probably just more for exercise and fitness.	
R10	The school is meeting some of their TAKS requirements and with some scientific experiments on physical activity and looking for bugs for their science experiments. And they have little things that they have to do for PE out there.	
R11	Mostly, it is just used for the physical education or the recess period.	
R12	I think they just use it for play and exercise.	

Table F.3 Recurring Themes in Responses to Interview Question 3

Question: *What do you know about the No Child Left Inside Act?*		
No.	Response	Recurring Themes
R1	Probably nothing. Would you explain it to me?	• Two respondents (R6 and R8) talked about the NCLBA. • One respondent (R7) knew about the NCLI Movement, not the Act. • Eleven respondents did not know anything about the Act.
R2	No Child Left Behind? Inside? Obviously, I do not know anything about that.	
R3	I do not know anything about that Act.	
R4	I have heard about it. I have read about it. Do not know much about it.	
R5	I have heard about it, but I do not know what it is all about.	
R6	[The respondent explained the NCLBA. After clarifying that it is not the NCLBA] Well, from that standpoint, just the idea of getting everybody outdoors, giving them physical space outside.	
R7	About the Act? About the Act itself, not too much. I know that it provides funding for initiatives that are supposed to help get children outside and whatnot. About the No Child Left Inside Movement, I actually know quite a bit.	
R8	[The respondent talked about the NCLBA. After clarifying, he responded]. I do not actually know about the Act.	
R9	Never heard of it.	
R10	I do not know. I have heard of it, but I could not tell you anything about it.	
R11	I do not know anything about that.	
R12	Do not know anything about it. Is that something to do with not leaving the kids in the car or something?	

Table F.4 Recurring Themes in Responses to Interview Question 4

Question: *After explaining the Act, what is your opinion about it?*		
No.	Response	Recurring Themes
R1	There is another campus in our district that used to have an outdoor area attached to them. And off the top of my head, I think there is still an outdoor area for the district.	• One respondent (R1) pointed to another campus for information • Interesting (R2) • Only for recess (R9) • Reiterated no knowledge about the Act (R7) • The other respondents did not comment.
R2	That is interesting.	
R3	If it is a way to get funding, which is something we desperately need, we definitely would like more information about that.	
R4	No comment.	
R5	No comment.	
R6	No comment.	
R7	As far as the actual details and the ins and outs of the legislation, I am not that familiar with it.	
R8	No comment.	
R9	The only outside time that I am aware of is for recess.	
R10	No comment.	
R11	No comment.	
R12	No comment.	

Table F.5 Recurring Themes in Responses to Interview Question 5

Question: *Have the goals of the No Child Left Inside Act been incorporated into this school?*		
No.	Response	Recurring Themes
R1	Definitely maybe. We try to get them outside as much as we possibly can. But I do not know that there is always a real scientific purpose attached to it. It is probably more geared towards that, as opposed to the architectural, scientific aspect of the design.	• Maybe (R1) • District is developing an outdoor learning center (R2) • Not formally in the curriculum (R9) • Depends on the teacher (R11) • Question was skipped by R3, R5, R6, R7, R8, R10, and R11.
R2	As a district, we are now developing our own outdoor learning center, and it is located over in Justin. We have committees working right now on some curricular ideas for using that property.	
R3	Skipped the question.	
R4	Skipped the question.	
R5	Skipped the question.	
R6	Skipped the question.	
R7	Skipped the question.	
R8	Skipped the question.	
R9	I know it is, but I do not know if it is specifically in the curriculum. I know there are multiple activities that they have incorporated to go along with that notion.	
R10	Skipped the question.	
R11	Whether or not the Act has been part of it, I do feel that our school, depending on the teacher and again depending on the activity, they do incorporate as much as they can. Part of that could be specifically because they appeal to a certain teacher's personality or teaching style than another. Personally, I have not been made aware of this as being a formal policy that has been instituted at our school.	
R12	Skipped the question.	

Table F.6 Recurring Themes in Responses to Interview Question 6

Question: *What do you foresee as to the barriers to the adoption of the No Child Left Inside Act by public schools in North Texas?*		
No.	Response	Recurring Themes
R1	Probably one of the biggest obstacles with a lot of people are just tradition; the fact that we have not done it that way before. We are doing all for TAKS, so the lives of the teachers revolve around the TAKS. The thing that would hold [the teachers] back would be the time element, the notion that they have to keep the children in.	• Tradition (R1 and R7) • TAKS (R1, R2, R5, R8, R9, R10) • Heat (R3) • Safety (R3, R12) • Politics (R4, R6) • Not enough hours in the school day (R11) • Not enough outdoor space (R11)
R2	Finding the right place for it within the existing curriculum because obviously, we have so many Texas requirements already embedded.	
R3	There are two things that are barriers that I would see. One is the heat. The other one is safety.	
R4	Politics. But if an educator can be shown that this will increase student achievement and it will increase student learning, I think educators should go for it.	
R5	I do not think there is a barrier from a design perspective, but from schools adopting those kinds of things, I think that is more of an educational barrier, because I think a lot of focus is put on passing certain tests and meeting certain standards nowadays. And I think if educators felt like complying with some of these new standards, we are going to pull time away from what they are already struggling to accomplish.	
R6	Politics.	
R7	I was about to say ignorance, but I will make that number two instead of number one. The number one barrier to the adoption of the NCLIA is probably just inertia of the status quo. We have done things like this for so long, and you have such ingrained attitudes and policies from superintendents all the way down through the teaching ranks.	
R8	I think the biggest barrier is right now (is) the laws are set up to do testing, the TAKS test. Schools, not that they want to, but because they are mandated to, teach towards getting those tests and not always teach towards the arts and the physical activities.	
R9	The TAKS test is going to be your biggest barrier because [the teachers] are jammed with teaching the TAKS, which I do not necessarily agree with.	

Table F.6 – *Continued*

Question: *What do you foresee as to the barriers to the adoption of the No Child Left Inside Act by public schools in North Texas?*		
No.	Response	Recurring Themes
R10	I see the biggest barrier is the TAKS test and because apparently, our country and state feel like it is more important to have children pass a test that is specifically taught to, as opposed to giving them the essentials that they need outside: from a little break to reset their minds, getting some vitamin D outside in the sunshine, and blowing off some steam and some energy out playing.	
R11	There are not enough hours in the school day to get everything in that they have to get in. It seems to me that one of the things that are often cut first are certainly the fine arts, and our school would be an example of that. Another thing is that there is not a lot of property surrounding the school besides parking, and you do not see the large play yards like you once did.	
R12	I think the barriers might be safety. Both parents and school staff view everything from a safety point of view. So I do not think there is a barrier from my perspective, but from the schools' perspective, there might be a barrier to adopting those kinds of things [from a safety standpoint].	

Table F.7 Recurring Themes in Responses to Interview Question 7

Question: *What do you foresee as to the opportunities to the adoption of the No Child Left Inside Act by public schools in North Texas?*		
No.	Response	Recurring Themes
R1	If you do it by edict, it does not go well. I think that, for most things, if they are going to make this thing work, it has to be sold as the benefits.	• Positive (R2, R3, R4, R5, R8, R9, R10, R11, R12) • To tackle obesity (R10, R11) • Will increase student learning (R3, R4, R9) • Unplugging children from electronics (R9, R12) • Enhance science learning (R5, R9) • Better appreciation for the environment (R3) • Increasing exercise (R3, R5) • Incorporate different learning styles (R3, R9) • Clear explanations and benefits about the Act (R1, R6)
R2	I think it is a fabulous idea. I think it is very important that kids have a real good appreciation of nature, of the environment. And I see it as a real plus if that could become part of what we do on a regular basis.	
R3	There are outside environments that we would like to create here, but we have not had a chance to do that yet. We are trying to do an outside wellness area that is kind of for exercise. We also would like to do several kinds of gardens, learning gardens, but we would also like to have a little forest environment. We are a brain-based school and that oxygen and exercise really help children think and that being in a different environment and that getting kids to move and interact and talk with things is a much better way to learn.	
R4	It is going to increase student learning and gives kids experiences that they may not typically have at home or anywhere else.	
R5	I think just getting the children outside. Going back to the structured learning opportunities, I think there are a lot of opportunities outside of a school on a site to learn about, such as physical activities and science-related fields.	
R6	I think they just need to make sure that everybody is clear on what those requirements are. If the Act is adopted, what are the pros and cons? Everybody should know going in what are their options. Too often, when someone passes something at one level, it does not really make it down to the people that are going to implement that to realize there is no benefit, the costs in time, money, and effort.	
R7	Skipped the question.	
R8	I feel like the opportunities are by enacting the Act, outdoor education is going to flow into all the subjects. I think incorporating that is going to help the children have more energy, be more alert in class, and just be active, not just at the school, but in their community. The more they are active and feel good about themselves, the more they are going to do other stuff.	

Table F.7 – *Continued*

Question: *What do you foresee as to the opportunities to the adoption of the No Child Left Inside Act by public schools in North Texas?*		
No.	Response	Recurring Themes
R9	It is an opportunity to get children off of the computers, off of the videogames for a little while, away from the TV for a little while, if they are doing it at home. Those things are positive. It is an opportunity to teach science in a hands-on way that reinforces some learning styles that are not just listening, but also touching and seeing. And I think when you incorporate more learning styles at a time, it tends to increase memory and give a better educational experience.	
R10	I think just the growing obesity rates of our society is a sign. I am not sure how well the TAKS test is actually helping produce children that are smarter and more prepared for college and life in general. So hopefully, they will take all that into consideration and give them a couple breaks throughout the day to play and be children.	
R11	I would say that would be the best offense as far as getting something like this pushed through the schools: focusing on that important health issue [obesity]. I think most people recognize obesity as a problem.	
R12	I think just getting the children outside, unplugging the children from the electronics and the structures of the school system. I think there are a lot of opportunities outside and it would be great to see more outdoor learning outside.	

APPENDIX G

INTERVIEW TRANSCRIPTS

(1) Describe the experiences that the children have with the outdoor environment at this school.

Respondent 1: At this particular campus, we have, I guess, an unusual thing: there is a creek close by to us. Occasionally, not on a real often basis but occasionally, our fifth grade science teacher will take the kids out and they will walk the creek bed or get down, and obviously, not in high water time. They will go out and look for insects and things in the grass. They also go to the playground. So they use it pretty often, but that's more of a springtime activity than a fall activity.

Respondent 2: We have two playground areas and a pretty large field. So the children have their recess time in those areas. And then, on nice days, the PE teacher will do some of her lessons outdoors. So that's primarily how we use our yard.

Respondent 3: Every class has two recess times, a morning and an afternoon, and we call them brain breaks because we want them to go out and get a lot of exercise so that they come back in and their learning is at an optimal place, so we're outside at least twice a day. We have an outdoor runners club twice a week that goes around our outdoor area and runs with parents and kids and everything. We have about 250 in our runners club. We have the gardening club and the science club that are outside, and we are very environmentally friendly.

We have a leadership team that works on the environment and helping us to be interactive with the environment. We certainly believe that outdoor learning is a high priority, so our teachers haven't done as much as they will but we have classes outside, we meet outside, we have a great outdoor area, we do outside assemblies, and I have already had an outside assembly with the whole school. We put our sound system out there and had about 1,000 parents and kids out there participating in our character assembly to begin the year. We've started building gardens.

Parents are coming either this weekend or next to put together the other five gardens that go along with kindergarten. Our after-school program has a gardening program, and once

we get going, we will have a gardening program for our students, too. We have studied butterflies and we do a butterfly garden and we have a scent garden that we always like to put together. We do a lot of those things that are outside for kids, so we're very engaged in the outside.

Respondent 4: This school is very limited because we are a brand new campus establishing new cultures and new expectations, so the only actual outdoor experiences our kids have are actually on our fields behind us and our playground areas. We are not doing any types of outdoor classrooms. We're not doing any type of landscape classes or anything like that at this point. Those are in the plans.

Respondent 5: Well, I think outdoor education will be a big part of it. We have got a courtyard, in particular, and the interior spaces face outward. So I think they are going to experience some passive education, just viewing from inside classes to the outdoor landscape. I think they are going to observe some of the planting programs we have put in place. So I think there is going to be some passive education about rainfall and water harvesting that they can actually see from inside the building.

I think they can see a rainfall event and see how that water collects on the ground, then goes to the creek. So I think there is some passive experience there. I think when they are outside in the landscape, there are going to be some structured learning opportunities. There's an outdoor classroom that I think kids will use for certain outdoor lessons and gatherings.

I think they are going to experience some ownership of the outdoor gardens. There's going to be some raised gardens out there to which kids are going to tend, and so they are going to see how a garden starts and how it's cared for and how it grows. We have some informal places out there that I think they are just going to experience as unstructured play; just places to run around and explore. There are playgrounds in which kids are going to exercise and games and outdoor activities. There is also a nature center that I think they'll experience from a passive perspective just walking down trails and kind of exploring the natural areas of the

site. Those are learning opportunities for science as well and to do little mini fieldtrips outdoors and things like that.

Respondent 6: I think the thing that we attempted to do was to offer them some exposure to the art elements, design principles, colors, textures, things like that, and sense of space. Not only do we just allow them to get back and forth, but we're trying to give them an opportunity to experience something in the landscape that's unique through the choice of plant materials or earth forms or walkway layout and things like that. That is what we were striving for.

Respondent 7: It varies dramatically, depending on the environment in which the elementary school is located. My elementary school experience started with leaving home and walking to school and getting to a campus that had lots of outdoor space. I remember there was a huge pecan tree that was like home base for everybody, and that is where everybody hung out and had conversations, and you caught up with the gossip, passed notes, and all that kind of thing. And that was probably the soul of that particular campus, I remember. And you had the tether ball poles and the sports fields and all those types of things. It seemed like kind of a whole environment that felt good.

My children went to two different elementary schools in Arlington, and one had kind of a nurturing environment like that, and the other was more like a prison yard with this concrete courtyard and just really kind of oppressive. And no matter how much I talked to the principal about the connections between children and learning and environment and those types of things, he always replied that he had other things to do and he did not have time to talk about this.

So I think for better or for worse, it just varies dramatically. There is an elementary school about three blocks from this house in which we are sitting that is in an old building, probably built in the '30s, with wonderful tile and murals on the walls, and the spaces are well crafted. There are really tall windows and probably 14-foot ceilings. Really tall windows with

arched tops, and the proportions and whatnot are just the types of things that make people feel good. That has to somehow translate into a better learning environment than the one in which my kids grew up: an established neighborhood, trees, all that sorts of natural things. Not a lot of sports fields, but I think that's an acceptable tradeoff at that age.

Respondent 8: Well, I think our school is pretty spacious compared to some other schools that I have seen. So they have a lot of space. They have one area dedicated to physical playground equipment, areas for free play in which they can just run around and do tag. There are trees and benches. So they have a little bit of everything, depending on the age of the students. And they have one playground that's just for the little kids and one for the bigger kids. So I think they have a good experience, most of them.

Respondent 9: I think all they do here is PE indoors, and then I think they have their recess time outside on the playground, if I'm not mistaken. And I am not sure how long that lasts. I would guess that is probably 20 to 30 minutes. We have a nice playground outside with playground equipment and a swing set, and not much else. In the future we should probably put in some kind of a basketball court nearby in which children can make use of a concrete surface too. And they have that open field next door, so I could envision the children having a soccer field or something over there as well.

Respondent 10: They love the outdoor environment. The teachers use it extensively, and we have incorporated it into our Fall Festival Carnival as well.

Respondent 11: Every day, weather permitting, the children go out for most of their PE period, and they have a recess period which they spend outdoors everyday if the weather is good as well. There is a certain temperature range—if it's above or below a certain degree, for example—they will not let them go out and play. However, these instances are rare.

I believe the recess time for children is about 20 minutes long or so, maybe longer on really nice days, and their PE period is 45 minutes, but not all of the PE period is spent outdoors. Children may have some instruction indoors in the gym and then go out to perform

whatever task has been instructed or possibly walk laps. Lately, they have been doing units in which they are learning about different sports, so they have been golfing outside or bowling outside on the blacktop.

Respondent 12: Well, I think outdoor education is limited to recess and exercise periods only. I think they are going to get to participate later in some of the planting programs that the school plans to put in place for the playground. There is a lot of outdoor space that I think children will use for certain outdoor lessons.

The playground has some informal places out there that can be used for play; a place in which the kids can explore. Children are really curious about everything. They are always asking what we are doing when we are working on the property. And this school had a committee that the administration put together for the landscape. The administration wanted to get input on the landscape design, but only for the athletics and the education portion, and what they wanted the front of the school to look like.

(2) Describe how the outdoor environment has been incorporated into the educational experience at this school.

Respondent 1: Children would go out sometimes for their science classes, and mainly the fifth grade; third and fourth graders will go out sometimes. They go outside at the appropriate time looking for insects—ladybugs and different things they see in the grass. They use the creek. And the children exercise a lot, but only when they go out for exercise. However, exercising is not taking advantage of all the plants and natural things. Environmental education is just being outdoors, in the great outdoors, experiencing the climate, under the sun. There is some of that, but it is not a daily thing. So they use the outdoor environment to some degree.

Respondent 2: Well, we were very fortunate. We have a lot of wildlife that seems to like to visit us every now and again. So we had a bird nest out there last spring and it laid eggs, and the birds tended it, and there were baby birds. So I had a group of fifth graders who were

like the protectors of the birds. And the whole school talked about it. And we had fun watching the progress and we took pictures. This year we have had a coyote that is very young, and it would stay out in the back, but occasionally we would get glimpses of him. It is all fenced, so we were not very concerned about the coyote being a threat. It was fun to see the children noticing their environment when they are outside, because we do have such a beautiful layout here with the trees and it is great. Teachers will take classrooms out, and they do some science observations out there. We have grade levels working on soil right now. So they have gone out and looked in nature to see if they can find different samples of it in the area. I saw a second grade class outside with chocolate and magnifying glasses. They were studying heat and energy and were having fun trying to make the chocolate melt and making observations about the experiment.

Respondent 3: One of the things that we do is we mix up [the classes] for specials (PE, art, music, Spanish, among others). We regularly mix up for specials outside, so that means every day when kids go to their specials, they do not go with their class, they go with a different group of children, so a whole grade level or a whole vertical team will go outside and they remix up to go to their special classes. Everybody meets outside at least once a day for something other than recess.

Kindergarten teachers talk about gardens, and so that is actually a part of our science curriculum that goes right along with it. Our science room has a door that goes to the outdoors so children can work in the science lab, and that science lab goes immediately outdoors so they can work outside with the experiments that they are doing in the science lab. The same applies for our art room. The art room has a door right to the outside, so students can go outside and do sketches and work right from the art room back and forth. So there is a lot of interaction in those two particular classes in which they do that. Classes love being outside so we encourage not so much that they are interacting with the environment, because they are just in the outside environment.

We do a lot of activities outside. We are getting ready to have mad scientist day on the 21st of October and all the mad scientist day experiments are outside. They do things outside and then come back in and share information, but it is all outside stuff. We really tried to get our whole school, our whole block fenced in, but we could not get that approved by the city. Eventually, though, we will have this whole block so children can be outside and fenced in and safe and they can do all those activities and we are not worried about the outside environment coming in and encroaching on that. I think we are very focused on outdoor learning. We do jump rope club outside and just a lot of things outside.

Respondent 4: Very little, because we are just establishing the cultures and climates of this campus. There are some things we have not ventured into yet, because once we start getting into those things, those are in addition to all the other things we do. Those are supplements to the classroom learning, and at this point we are still establishing the expectations in the classrooms, so we are limiting the scope of what our teachers have the option to do right now.

Respondent 5: I think a big part of it is science based. The science program at this school is pretty strong, and the science teacher had a lot to do with the programming of the site and the design review of the site. So I think we incorporated a lot of that into the outdoor areas, because it is a good opportunity to pump up their science program.

As far as educational opportunities, I think there is a big native area that we worked really hard to preserve on this site. We planned parking and building placement around it. So I think that is a big thing. We preserved native understory and tree canopy. There is natural flora and fauna that the children will go out and explore. They do experiments, catch bugs, ID plants, and do things like that. I think there are science-based opportunities there.

I think there are some opportunities to tend gardens, collect drain water, and observe plants in the structured areas that we have designed and built. And then there are plenty of

active areas for outdoor games and activities, which are not so much educational, I think, in a structured sense, but just as passive learning. I think there are plenty of those areas.

There are a lot of dual-purpose elements to this design. Yes, we have structured "outdoor classrooms". We have raised gardens, but those also double as just little impromptu gathering areas. And children are going to gather in small groups or read a book or just kind of devise their own games and uses for some of these structures. So we have some structured opportunities, but a lot of it is unstructured as well.

Respondent 6: The schools are all quite new, and Northwest ISD is struggling just to keep up with enrollment. But we have interviewed the Northwest ISD people, superintendents and everybody, to find out what they felt they needed in the landscape and try to accommodate their needs. And we also visited with a couple of principals and faculty members just to find out what they felt needed to be in the landscape and the exterior environment.

Some of the schools are going to pursue the outdoor nature center classroom concept. So we allowed them some space in which to do that, let them experiment and do what they wanted to with that space. So we gave them open area. And we modified landscape and irrigation components to allow for that. And we also coordinated with the architects to consider recycling some of the roof water, rainwater, and downspouts and put them in a place in which they can catch the water and use it.

Now, I don't know when they're going to do those things. Like I say, most of the times in schools, we found that probably it takes three to four years for them to get the student enrollment settled into a new school and then begin to experiment into the landscape. So it may be a while before all these nature centers come on board, but that is the intent. We have a goal.

Respondent 7: I think it varies dramatically. There was no real outdoor experience in my children's elementary school, other than going outside for sports and field day, playing games, and whatnot. I thought it was really ironic because in their science classes they were

learning about ecosystems and the rain forest in South America. And I asked the teacher "did you ever think about walking them a block down the street to Johnson Creek and learning about the urban ecosystems there and the urban wildlife and all the cool stuff that happens and flooding?" There are red foxes down there, and there are turtles, and there is all this great stuff. They looked at me like I was from Mars when I asked. They had no idea what I was talking about. Conversely, this outdoor deck classroom that I designed for this school in Louisiana for my little brother's elementary school was a bona fide Palmetto swamp on which the elementary school was on the one little piece of non-floodplain land on that property, and the rest of it was Palmetto swamp. So what do you do to take advantage of that? They used that as a learning environment and actually took the children out over a boardwalk out in the middle of all these Cypress trees with Palmettos all around. And there were snakes and probably alligators and all kinds of things. It was an outdoor classroom in the year 1976 or 1977, long time ago. But again, I do not think that they were trying so much to be cutting edge, as much as they were just trying to take advantage of the cards that they were dealt. They didn't have a lot of outdoor space. They had swamp.

Respondent 8: I know a little bit about it, but not a lot because I just started last couple months as PTA president. So I do know that the gym teacher takes them out and does specific activities outside a lot, especially if the weather is nice, and then she is bringing them out a lot. And I know they have special events outside. So any time there is an event in which they can get the kids out and active, they bring them out. So there are a lot of outdoor field trips. But that's about all I know.

Respondent 9: I think it is just an outlet for when their energies pent up, and they need to get outside and run off some steam. I think that is probably the primary thing right now. I do not know if they are using the outdoors for anything educational. Probably just more for exercise and fitness, but I do not think it is anything organized at this point. It is just unorganized play.

Respondent 10: The school is meeting some of their TAKS requirements and with some scientific experiments on physical activity and looking for bugs for their science experiments. And they have little things that they have to do for PE out there.

Respondent 11: Mostly, it is just used for the physical education or the recess period. However, we also have a courtyard in the middle of our school that is completely enclosed by all the hallways, and there is a gazebo and some benches and a landscaped area. Sometimes the children will go out with their classroom teacher possibly for a reading assignment or maybe for a science observation if they are talking about plants or something of that nature.

Respondent 12: I do not really think they have any incorporation into the education. I think they just use it for play and exercise.

(3) What do you know about the No Child Left Inside Act?

Respondent 1: What do I know about it? Probably nothing, but I can guess what it is. Would you explain it to me?

Respondent 2: No Child Left Behind? Inside? Okay. Well, obviously, I do not know much about that.

Respondent 3: I heard what you said and I do not know anything about that Act.

Respondent 4: I have heard about it. I have read about it. Do not know much about it though.

Respondent 5: Do not know anything about it. I have heard about it, but I do not know what it is all about.

Respondent 6: Well, the idea was to make education available to everyone, and not only to just make education available, but to make the spatial experience or the school experience unique as well. So I think that is about my understanding of what that was all about. So it is not only just to give them a physical plan, but also to give them a space that challenges and encourages them to stay engaged rather than just go to school.

(The respondent talked about the No Child Left Behind Act. When the interviewers made the clarification about the NCLIA, he then responded accordingly, as follows.)

Well, from that standpoint, just the idea of getting everybody outdoors, giving them physical space outside. And not only to just give them that space, but to make that space a little bit more challenging for them. Working with the designer to play with the sculptural qualities of the space, instead of just having everything flat, which makes it easy to mow, but it does not really do much from the children's standpoint of saying, "Hey, here's a little hill. Let's play with that." So the idea of introducing some berms and some hills and outdoor classrooms. Sometimes, if you just berm something up, it could be like a little amphitheater. So playing with the earth forms was just an attempt to get the teachers to get the children out and use the space. Not just let the kids go crazy, but use the outdoor space as a classroom as well.

Respondent 7: About the Act? About the Act itself, not too much. I know that it provides funding for initiatives that are supposed to help get children outside and whatnot. About the No Child Left Inside Movement, I actually know quite a bit. I have been on the Board of the River Legacy Foundation for eight years, and I was president the last two years. And we found the way that Richard Louv thought about things and packaged things and talked about them to people really resonated with folks. He was saying things that we felt like all of us instinctively knew, but he was putting it in such a way and tying it to anecdotal medical evidence and whatnot that made it very, very compelling. It opened the doors to lots of partnerships with us for funding from the medical community, and all of a sudden, the park system got religion, and the schools got religion, and everybody wanted to try to take advantage of these three miles of urban riverfront that we had along out there for outdoor learning opportunities, outdoor classroom, and that type of thing.

I actually saw Richard Louv speak at a conference up in Vermont, and it was really inspiring. This was a teachers' conference. This was not a landscape architecture conference. And he was able to really get those folks worked up and ready to go back to their schools or

their nonprofits or wherever they had come from, all over the country, and start to implement some of those ideas and to insist to their doctors that they need to be thinking in terms of prescriptions for so much time outside and this sort of thing.

Respondent 8: (The respondent talked about the NCLBA. After clarifying, he responded.) I do not actually know about the Act. I do not know anything about it. No.

Respondent 9: Never heard of it.

Respondent 10: I do not know. I have heard of it, but I could not tell you anything about it.

Respondent 11: I do not know anything about that.

Respondent 12: Do not know anything about it. Is that something to do with not leaving the kids in the car or something?

(3.1) After explaining the Act, what is your opinion about it?

Respondent 1: There is another campus in our district that used to have an outdoor area attached to them. And off the top of my head, I think there is still an outdoor area for the district. And you might check with one of our science coordinators, Toni Jenkins, to find out about that.

Respondent 2: That is interesting.

Respondent 3: Okay, so it is a way to get funding, which is something we desperately need, so we definitely would like more information about that.

Respondent 4: No comment.

Respondent 5: No comment.

Respondent 6: (Commented on previous question.)

Respondent 7: As far as the actual details and the ins and outs of the legislation, I am not that familiar with it.

Respondent 8: (The respondent made affirmative comments throughout the explanations about the Act.)

Respondent 9: My child has not come home talking about doing any kind of science experiments outside or that kind of thing. The only outside time that I am aware of is for recess.

Respondent 10: No comment.

Respondent 11: No comment.

Respondent 12: No comment.

(4) Have the goals of the No Child Left Inside Act been incorporated into this school?

Respondent 1: Definitely maybe. We try to get them outside as much as we possibly can. But I do not know that there is always a real scientific purpose attached to it. The children eat, ride, and exercise outside, are exposed to sunshine. It is probably more geared towards that, as opposed to the architectural, scientific aspect of the design. There are some scientific reasons for going outside and studying and catching little creatures, but I do not know that I would say the No Child Left Inside has been implemented at any real strong degree.

Respondent 2: Well, as a district, we are now developing our own outdoor learning center, and it is located over in another part of town. I cannot remember how many acres it is, but it is a very large piece of property. And it has some tanks on it. It has a river going through it. And it is going to be a marvelous learning center, primarily focusing on fourth grade and eighth grade. We have committees working right now on some curricular ideas for using that property, and it is really gorgeous. It has deer and just all kinds of wildlife out there.

If you go onto the district website, I am pretty sure there is a link. I can go in and I can pull up pictures of it, because we have cameras out there that are live all the time. And so occasionally that is updated. And we can show the children now what it looks like. We have captured pictures of the deer and that kind of thing.

Respondent 3: Skipped the question.

Respondent 4: Not yet. At this point there is nothing legally binding us to have external activities, so therefore, at this point it is not a focus. It is in my personal long-term

vision, though. We have places on this campus for the spring. We are going to bring in donations and have kids outside planting stuff around the building. Research has shown that exterior building is just as important, learning-wise and student structure-wise, as the interior of the building. We are all aware of that, but once again this building just opened. It finally got it ready the week before we started. The roads out here are obviously still not done, so there is some constraints that we are working with that are not typical, but long-range visions, bringing in and incorporating those parts of external and landscaping and the outside resources, are what we are going to do eventually. However, we are not there yet.

Respondent 5: Skipped the question.

Respondent 6: Skipped the question.

Respondent 7: Skipped the question.

Respondent 8: Skipped the question.

Respondent 9: I know it is, but I do not know if it is specifically in the curriculum. I know there are multiple activities that they have incorporated to kind of go along with that notion. For example, they have a field day in which they go out and spend all day doing activities outside. They protect their recess time and make sure that they have not cut those, because a lot of schools really have cut those back a lot. So I know a lot of parents are really kind of pushing that. And we are working on trying to get funding through a fundraiser to put together a special event. It is called a Boost-a-Thon, and the organization that does it comes out and spends a whole week talking about physical education and talking about the importance of being active. And then they include the education component to combine it. At the end of the day or end of the week, they have this big event in which all the children run and do a little children marathon. We are trying to get that company to come to us, but it is a money issue. That is something they are doing. And then I do not know if this plays into it.

Environmental education as far as being aware of the environment around them? I did not know if it was all just on the physical aspect because we do have a green team, and it is a

group of students who do all kinds of stuff all over campus. But as you can see, they have the recycle bins in all the rooms and they are really big on enforcing recycling. So that is incorporated. The green team is the one leading it. From what I have seen, they try to get the kids to serve as the examples because if some children are doing it, then others follow, and it is easier for them to do it like that rather than to have adults dictating it.

Respondent 10: Skipped the question.

Respondent 11: Whether or not the Act has been part of it, I do feel that our school, depending on the teacher and again depending on the activity, they do incorporate as much as they can. Now again, part of that could be specifically because they appeal to a certain teacher's personality or teaching style than another. Personally, I have not been made aware of this as being a formal policy that has been instituted at our school. We have a huge school grounds area that is a city block, so I would say well over an acre. Part of the land around our school and part of our playground is actually a city park. It is a joint project from the city as well as from the school, so during school hours, it is the school playground and playground equipment. After school hours, it becomes a city park and it is for public use. As I said, there is a lot of land, just grass area that we do not utilize on a daily basis, but given that we do have so much area that is grass, I do feel that our students are outside quite a bit. Now again, I do not know if the Act is the reason for that or not.

Respondent 12: Skipped the question.

(5) What do you foresee as to the barriers to the adoption of the No Child Left Inside Act by public schools in North Texas?

Respondent 1: Probably one of the biggest obstacles with a lot of people are just tradition; the fact that we have not done it that way before. If there is a new idea, we do not have time for that type of thing. So I think probably most schools that believe in utilizing the outdoors, it will not be a problem. But then the biggest complaint that I receive from teachers anytime we want to add something or change something is that they do not have time. We are

doing all for TAKS – especially the third, fourth, and fifth grade teachers. So their whole lives rotate around TAKS. And if there is anything that is going to interfere with that, it sends them into rigor sometimes. We also have some traditional teachers who do not like to change. But the true people with outdoors at heart and purpose, good purpose at heart, they will embrace it.

The thing that would hold them back would be the time element, the notion that they have to keep the children in. We have to tutor; we have to do this if they are weak in math or weak in another subject, so we have to stay inside. We have to do all this instead of going outside.

Respondent 2: Well, finding the right place for it within the existing curriculum because obviously, we have so many Texas requirements already embedded. I think that would be the biggest barrier is just finding where it fits.

Respondent 3: There are two things that are barriers that I would see. One is the heat. You cannot let children outside for the whole beginning of the school year. It is very difficult and even though we have a shaded playground here, it is still extremely hot and they can only be out there a short time. It is so detrimental. Nothing can grow; nothing can live. It just stifles everything at the very beginning of school and at the very end of school.

Then the other one is safety. You just have to be so sure that when you are outside like that, the community, the surrounding community, is not going to interact with that. At my old school, we were just very close to where there were a number of people who had abused children and we had their names, so parents were very nervous about us being outside and having children outside where somebody could come by and snatch them. I think those are the two huge concerns that I would see for being outside.

Respondent 4: As far as adoption of the policy? Obviously, it is a political policy and a political agenda, so therefore you are always going to have those types of barriers. As far as garnering support from educators, as long as what the research is showing, I think most educators have the child's needs in heart and in mind. Therefore, if an educator can be shown

that this will increase student achievement and it will increase student learning, I think educators should go for it.

Respondent 5: It is possible that some of those funds might have been pursued on this project and we just did not know about it, because it has been initiated but it has not been put into law as far as in the education system where they are making it a mandate. From a design standpoint, I do not think we perceive any barriers to it. I think that is something that architects and landscape architects would love to see. If there were mandatory programs or funding opportunities that would allow us to do more creative things with outdoor spaces or would allow us to put more focus on outdoor spaces, I think we would love to see that.

I do not think there is a barrier from a design perspective, but from schools adopting those kinds of things, I think that is more of an educational barrier, because I think a lot of focus is put on passing certain tests and meeting certain standards nowadays. And I think if educators felt like complying with some of these new standards, we are going to pull time away from what they are already struggling to accomplish. I think that might be one of the biggest barriers.

Respondent 6: Politics. I do not see any reason why someone would not adopt that. If it is a funded element, then there is no reason not to accept that. If it is politics and somebody says, “Okay, we’ll give you those funds, but you got to do this, this and this”, I think those restrictions have to be pretty well figured out before everybody is going to say, “We’re on board.”

But I do not see the reason why anyone would be opposed to that concept. It is just allowing and encouraging the schools and the school districts to promote more of the exterior environment. It does not have to be just exterior. It can be interior as well. What can they do to bring the indoors out and the outdoors in?

I know we did a high school back a couple years ago that, here in Arlington, that had an interior plant space in their big gathering social area inside. And there were a lot of politics

involved with that, and there were a lot of commercials on TV about wasted money. However, over the ages, the students have really used that space more, because it was much more exciting than just a big flat open area. So I think they found that there is a value to that. Now, how you budget that into a project in today's economy is a little tight, but I could see more of that taking place. Bringing more of the outside in, I think, is going to be just as exciting as vice-versa. This is the outside, but let's share the two together. Along with that, we can coordinate with the architects to give them more open window space. You will notice when you go to some of these schools, there are a lot of windows that come to the floor, especially in their social areas. So that was intent to do that, to bring that indoor/outdoor relationship a little closer into the project. And now that is not in the classrooms, of course. That is only in the social areas.

In these major courtyards, a lot of glass opened onto the outdoor space. It seemed like as when we had a lot of windows way back in the '50s. The period changed and we have just walls and no windows. It is like a cave and very isolating and uncomfortable. And they spend eight hours a day in that confined space. They need to spend more in the outdoor environment. I think we are realizing that we have far too little time in school.

Respondent 7: I was about to say ignorance, but I will make that number two instead of number one. The number one barrier to the adoption of the NCLIA is probably just inertia of the status quo. We have done things like this for so long, and you have such ingrained attitudes and policies from superintendents all the way down through the teaching ranks. Something that radically different than the way things have been for decades is just really hard to get off the ground, unless you have a champion at the grassroots level, whether it is a just off-the-charts, enthusiastic, brilliant, fifth grade science teacher or whoever happens to be the president of the PTA that year, who knows about this type of thing and feels really strongly about implementing it and has the kind of charisma that she or he can get lots of other people on board. I think it is an uphill struggle, unless you have individuals like that rather than districts adopting this stuff. I

could be completely wrong about that, but that is just how things seem to happen to me in my life experience.

However, I think once you get one or two successful projects built and off the ground, it becomes the type of thing that can build momentum really quickly just from the standpoint of kind of human nature that people in schools are competitive with one another, and if this one has something, you want that for the school to which your children go.

I could see the Act catching on, but it is almost like you need one or two really great pilot projects to demonstrate how this could work. So I think the barrier is status quo, just long-time ingrained attitudes, and ignorance. I do not think that a lot of superintendents, school district staff, and educators really understand the benefits that can come out of really fully incorporating an outdoor environment as part of a learning experience and how you can take that raw resource that you have, which is the property around the school, and design it in such a way where it can just add layers of richness to the educational experience. I am seeing a lot more in private schools, frankly, than I am in public schools.

Respondent 8: Now, I am not an educator, but from what I see as a parent and PTA and just observing as a substitute teacher, I think the biggest barrier is right now (is) the laws are set up to do testing, the TAKS test, for example. I feel sometimes that schools, not that they want to, but because they are mandated to, teach towards getting those tests and not always teach towards the arts and the physical activities. I think outdoor education is important. I think if it can come down from the top, then the schools will embrace. They want to embrace it, but sometimes I feel like they feel like their hands are tied, and they can only do so much. Money could be a barrier, but I do not think it would. I think they would be creative enough to figure out ways to fund it.

Respondent 9: In Texas in general, I would say the TAKS test is going to be your biggest barrier because, as you mentioned, their schedules are jammed with teaching the TAKS, which I do not necessarily agree with.

I like the idea of them, children getting some outside education. I do not necessarily like the idea of mandating it. I like the teachers to have some freedom to do that kind of thing, which the TAKS does not necessarily allow. But creating another Act that adds more bureaucracy on top of what they are doing probably is not the answer either. I do like the idea of children getting some outside education, maybe some science outside and some of the things you mentioned, but I really do not like the idea of it being forced upon or legislated.

Respondent 10: I see the biggest barrier is the TAKS test and because apparently, our country and state feel like it is more important to have children pass a test that is specifically taught to, as opposed to giving them the essentials that they need outside: from a little break to reset their minds, getting some vitamin D outside in the sunshine, and blowing off some steam and some energy out playing. That is good for every child and it needs to be done, I think, twice a day for a little bit. But instead, we would rather sit inside glued to our desk learning about a test.

Respondent 11: Well I know again I cannot say that this specifically applies to our school. We have very, relatively speaking, small student population of about 350 kids. I know most of my friends that live in other areas and even other PTA presidents with whom I network in my own district have schools that possibly have twice as many students. So with that kind of large student population of 600 or 700 kids, there are not enough hours in the school day to get everything in that they have to get in. It seems to me that one of the things that are often cut first are certainly the fine arts, and our school would be an example of that. We no longer have an art teacher or art program. It is just something that the classroom teachers try to incorporate into their day. I know that in other schools they may rotate. They may not get a PE every day. They have music one day and then PE next and things like that, because they cannot accommodate the number of students that are now being zoned for these large schools.

Another issue I see for many of those schools is that now, because schools are so large, a lot of times we are back to the two-story concept of building a mega school. There is

not a lot of property surrounding the school besides parking, and you do not see the large play yards like you once did. There are a lot of things about our school that are not conducive to carpool pickup and things like that. I could go on about all these things, but land is not something we are short on as far as room and space to spread out and play. But I feel like I know our students get to go to PE every day, and it has never been discussed at our school, to my knowledge, that it would be any less than that. I am always surprised when I hear other friends say their kids only go to PE a couple times a week, because certainly our home lives have changed also, and the children have so many other options today of what they can do besides going outside, ride their bicycle, kick the soccer ball, or play stick ball in the street, that if they are not getting it at school they definitely may not be getting it at home.

Respondent 12: I think the barriers might be safety. Both parents and school staff view everything from a safety point of view. So I do not think there is a barrier from my perspective, but from the schools' perspective, there might be a barrier to adopting those kinds of things [from a safety standpoint].

(6) What do you foresee as to the opportunities to the adoption of the No Child Left Inside Act by public schools in North Texas?

Respondent 1: If you do it by edict, it does not go well. I think that, for most things, if they are going to make this thing work, it has to be sold as the benefits. And if you just say, "By golly, this is what we are going to do," then it gets done without much spirit behind it. It gets done maybe half of what you would like. What works better for our staff is if they have a clear understanding of the purposes, if they know the benefits, if they are sold on the benefits. You can do things by mandate or sell them. And sometimes mandates can be done, but they are done not nearly as well. I would spend some time to enlighten the people, to educate those implementing the different campuses, and make sure that they understand what is going on. And also a little selling job along with it. Just do not say, "Here it is. Do it." Things get thrown at us all the time, and you do not have a very willing spirit pursuing it. So the obstacles would

be probably not enough information. The teachers need to find out and know what the Act is about and know the benefits, how it is going to help their children, how it is going to help the students overall. If you can tie it into everything, then it is much more likely it will be adopted. Or if it's just something else we have to do, then that will not go well. So the obstacles will probably be not informing the people, not selling it.

Respondent 2: I think it is a fabulous idea. And we have a little group here called the Green Team, so they are very much environmentally thoughtful. And they do some cleanup projects and that kind of thing. I think it is very important that kids have a real good appreciation of nature, of the environment. And I see it as a real plus if that could become part of what we do on a regular basis.

Respondent 3: There are outside environments that we would like to create here, but we have not had a chance to do that yet. However, we are raising money to do an outside kind of path like an exercise path. We were raising money to have a track, but we do not have enough space in this environment so we are not going to be able to do that. We are trying to do an outside wellness area that is kind of for exercise. We also would like to do several kinds of gardens, learning gardens, that I think I mentioned some of those before, but we would also like to do like a little forest and have a little forest environment. We had a community that I know will try to be involved again and it is a natural habitat community.

We do not bring in any pesticides or allow them. We do our own mowing and everything to keep it in that kind of natural habitat and you can win awards for that, and we have already done that one time before. I know we want to recreate something like that because it is such a great outdoor learning experience. Once you get all those things going outside, children are just outside and they just come upon those things which they just would not see otherwise. We are definitely interested in those kinds of things.

We have kind of an amphitheater in the back. We would like to do more outdoor learning things with an amphitheater approach. We would love to have a pond or we could

have some things growing, just some environments like that, and our teachers are working on that. We actually have five vertical teams and they looked in the back and they are trying to figure out how to section it off so each vertical team could have their own learning area and they could add the things they wanted to it. Yet, how do we maintain that within the landscape ambition of the district, is a question.

There are a few obstacles there, but we have a lot of outside plans. We are very interested in outside education, and we believe that we are a brain-based school and that oxygen and exercise really help children think and that being in a different environment and that getting kids to move and interact and talk with things is a much better way to learn. Those are all opportunities. When children are in that kind of engaged, interactive environment, they really do learn.

Respondent 4: The benefits? You can go back to the research. It is going to increase student learning and gives kids experiences that they may not typically have at home or anywhere else. If it is more just legal mandates and legal expectations, at that point it becomes questionable. You always have to look at who is pushing it, why are they pushing it, who is funding it, why are they funding it, and what are the underlying motives. If the research is showing an increase in student achievement because of the implementation of the Act, we will be okay with it. It is just like anything else. If you get a child outside and give her those experiences, learning is going to increase. The best way to learn science: get out and dig a hole. Find what is in the ground. Therefore, luckily we are able to do those things and we will be able to do those things. If I am sitting in the middle of Fort Worth, you may not be able to. So we are pretty lucky that we will be able to do these things, but once again, we are still working the bugs out as we go.

Respondent 5: I think just getting the children outside. Again, going back to the structured learning opportunities, I think there are a lot of opportunities outside of a school on a site to learn about, such as physical activities and science-related fields. So there are really

structured opportunities like that. It would be great to see more outdoor learning facilities and actual structured places in which kids could feel like they are in a comfortable learning environment. Out in nature, there is real seating, there is real shade, and there is a real place for an instructor to give a class. So I think there are structured opportunities that I would like to see incorporated, but then I think there is a really passive effect of just getting the children outside, out of the structured interior classroom. Even if what children are doing really has nothing to do with hunting down bugs or identifying plants or receiving a real lesson, I think just getting kids out of their normal routine and getting them into an outdoor space to learn or to have a function probably has a positive effect on just their ability to learn and to get through the school day in general.

Respondent 6: I think they just need to make sure that everybody is clear on what those requirements are. If the Act is adopted, what are the pros and cons? Everybody should know going in what are their options. Too often, when someone passes something at one level, it does not really make it down to the people that are going to implement that to realize there is no benefit, the costs in time, money, and effort.

With the economy being what it is makes it difficult. We go to the school district, we try to meet with the maintenance people and ask them how and what they do and use to maintain this space. What do they use to buff the floors? What do they use to mow the grass? We try to anticipate what their manpower requirements are going to be, because it is all economics.

If we can do all these things, but still save on manpower, then they are going to buy into that much more readily. But if it is just going to cost them more, I do not think they are going to go that route. I think everybody would agree that that is a desirable way to go, because education right now is pretty stagnant. And if you can keep people excited, keeping them interested, I think they will gain more from school. They will learn more from school. And it is not just math and science; it is everything. If they are interested, they are going to be more

involved. So I think it is a matter of trying to get that interest level up some way, somehow, whatever it takes.

Respondent 7: Skipped the question.

Respondent 8: I see it done. I am a big believer that technology is great, but we also have to teach our children to take care of themselves. It is not just because of the obesity, but I think it is because when they are healthy, their minds are better too. I feel like the opportunities are by enacting the Act, outdoor education is going to flow into all the subjects. I think incorporating that is going to help the children have more energy, be more alert in class, and just be active, not just at the school, but in their community. The more they are active and feel good about themselves, the more they are going to do other stuff. So I think it is one of those things that have a ripple effect.

Respondent 9: Well, clearly, it is an opportunity to get children off of the computers, off of the videogames for a little while, away from the TV for a little while, if they are doing it at home. Those things are positive. It is an opportunity to teach science in a hands-on way that reinforces some learning styles that are not just listening, but also touching and seeing.

And I think when you incorporate more learning styles at a time, it tends to increase memory and give a better educational experience.

Respondent 10: I think just the growing obesity rates of our society are a sign. I am not sure how well the TAKS test is actually helping produce children that are smarter and more prepared for college and life in general. So hopefully, they will take all that into consideration and give them a couple breaks throughout the day to play and be children.

Respondent 11: I think that something that is completely related to this problem is the childhood obesity rates and how they have increased, and I know there is a huge concern. I know that nationally, NPTA pushes for healthy lifestyles programs, which includes healthy eating. Of course, there has been a big push lately with the television show and all that about childhood nutrition, especially in schools. I think that the outdoors is an important piece of that

equation. We did not worry so much about what we ate when we were young children. I am not saying that we did not make some of the same choices in my generation that children make today. It is just that we were outside more and had more of an opportunity to burn it off. I think that while the classroom instruction time is most certainly important and that seems to be the focus of our schools at this point in time, we can see how sitting inside all day, at school and at home, impacts children.

This generation, it will be very telling as to the health concerns and health problems that they have probably as young adults, and maybe not middle age adults, because the obesity started at a much earlier time in their lives. I feel like once that gets started, it is very difficult to get that back under control. I would say that would be the best offense as far as getting something like this pushed through the schools: focusing on that important health issue. I think most people recognize obesity as a problem.

Respondent 12: I think just getting the children outside, unplugging the children from the electronics and the structures of the school system. I think there are a lot of opportunities outside and it would be great to see more outdoor learning outside.

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BIOGRAPHICAL INFORMATION

Shawn Marie Bookout was raised in Carlsbad, California and moved to Texas in 1993 to raise her family. Her occupations and hobbies have been greatly influenced by a passion for the outdoor environment, which lead her to the pursuit of a degree in landscape architecture. In 2005 she graduated from The University of Texas at Arlington with a Bachelor of Arts in Interdisciplinary Studies.

In 2006 she enrolled in the Program in Landscape Architecture at the University of Texas at Arlington in pursuit of a master's degree. Shawn currently resides in Keller, Texas with her husband Kyle and son Cody, where she enjoys sharing her life with her five children and five grandchildren. She is looking forward to graduating and embracing a future career as a Landscape Architect.