2023

Elementary Administrators' Perspectives and Experiences of Supporting Students Through Nature-Based Learning

Amanda Marie Shelley DeGoede
Walden University

Walden University

College of Education and Human Sciences

This is to certify that the doctoral dissertation by

Amanda DeGoede

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Glenn Penny, Committee Chairperson, Education Faculty
Dr. Donna Brackin, Committee Member, Education Faculty
Dr. Timothy Lafferty, University Reviewer, Education Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2023

Abstract

Elementary Administrators' Perspectives and Experiences of Supporting Students

Through Nature-Based Learning

by

Amanda DeGoede

MA. Arizona State University, 2019

BS. California State University San Marcos, 2012

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Education

Walden University

May 2023

Abstract

Although nature-based learning (NBL) contributes to the development of students, its inclusion in elementary schools is inconsistent. Researchers have established the benefits of nature to learning and child development, yet there is a gap in the literature on elementary administrators' perspectives of and experiences with NBL. The purpose of this qualitative study was to explore elementary administrators' perspectives of and experiences with NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design. The research questions addressed elementary administrators' perspectives of and experiences with NBL, how NBL supports student development, and how NBL is included in curricula and design. Nicholson's loose parts theory and the domains of child development guided this study as the conceptual framework. A basic qualitative design was used to capture the insights of 10 purposefully sampled elementary administrators through semistructured interviews. Emergent themes were identified through open coding, and the findings were developed and checked for trustworthiness through member checking, rich descriptions, and researcher reflexivity. The findings revealed that NBL is supportive of child development and builds experiential learning but is not widely used. This study has implications for positive social change by offering information on structures and strategies to incorporate NBL at the individual, family, organizational, and policy levels. Education stakeholders can use this knowledge to make informed decisions about NBL components, future policy, and planning within and across schools and districts.

Elementary Administrators' Perspectives and Experiences of Supporting Students

Through Nature-Based Learning

by

Amanda DeGoede

MA, Arizona State University, 2019

B.S., California State University San Marcos, 2012

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Education

Walden University

May 2023

Dedication

I dedicate this dissertation to my village, my family, without whom this work would not have been possible. To my Granny, I do not know where to begin. Your unconditional love and unwavering support have made the entire journey possible. To my husband, your understanding of me and thoughtfulness of my goals make me the luckiest wife. To my children, you are the reason I strive to be and do the best at everything I do. Remember, this world is in care of you and your generation, until you give it to your children and their generation. To my mother, you taught me the value of education and motivation. To Dziadziu, for your unfailing, gentle kindness. Since infancy, you built my love of the outdoors with me, whether it be through elaborate backpacking trips or the simple construction of acorn people and whistles. To my brother, I am elated our families get to build our own piece of paradise in God's nature; your friendship is a treasure. To my father, you shared your love of the ocean with me. What is more, you shared the wonder of nature with me, the feeling in my core that lets me know I somehow belong in this intricate, fascinating web of nature. To Dr. Daniel DeGoede, for allowing me to pick your brain about the doctoral journey and for being a steadfast friend and grandfather. To Professor Hayes, you showed me how to teach; you ignited a fire in my heart to make a difference in the lives of children. To Dr. Penny, you pushed me to be better, write better, do better in the best way. Having you as a mentor has been invaluable and a blessing. To Dr. Brackin, your care and positivity were the greatest encouragement. To Dr. Lafferty, your attention to detail is something I will continue to strive for in my own work.

Acknowledgments

Thank you to our Creator. I not only acknowledge, but bow my head in thankfulness, knowing that I am a child of God. Only through Him is any endeavor achievable. Thank you for this stunning world you have made for us and for all the life with whom we share it.

Table of Contents

iii

List of Tables

List of Figures

Chapter 1: Introduction to the Study

The inclusion of nature-based learning (NBL) within elementary schools'

curricula and design is inconsistent across the United States (Sobel, 2019). Despite

NBL's demonstrated benefits to student development across grade levels, this

inconsistency remains true. Similarly, the inconstant and unstructured integration of

nature within schools reflects the general disconnection from nature experienced by

current society within public institutions and in private life (Louv, 2008).

Today's generation of children is detached from nature, spending the least amount

of time outside compared to previous generations; specifically, only 4 to 7 minutes are

spent each day on unstructured, outdoor play (Child Mind Institute, Inc., 2022). Louv

(2008) identified this trend as a nature-deficit disorder to describe the harm as the

alienation from nature grows, especially amongst children. The harmful factors mirroring

children's disconnection from nature include increased childhood obesity (Sanyaolu et

al., 2019); increased youth anxiety, depression, and behavioral diagnoses (Lebrun-Harris

et al., 2020); increased child technology use (Pew Research Center, 2022); increased

asthma and attention deficit hyperactivity disorder (ADHD) medication prescribed to

children (Hales et al., 2018); and an increased need to pack children's lives full of

structured scheduling activities (Cision U.S. Inc., 2022). There is a divide not only

between children and nature but between the known benefits of nature and the meshing of

nature within school systems.

One component of NBL involves dynamic engagement with nature, including

unstructured play, independent exploration, and passive exposure (Chawla, 2021);

however, the norm in schools is composed of structured learning activities confined to the indoor classroom setting. One way students access unstructured playtime and park-type settings is through recess during their school day (Voice of Play, 2022). Over the last 20 years, recess time has decreased by an average of 60 minutes per week, with 75% of school districts lacking a policy regarding recess time (Biccella, 2019). The average daily time at school recess is 26.9 minutes (Voice of Play, 2022). For comparison, U.S. law provides prison inmates with a minimum of 1 hour of outside recreation per day (Cornell Law School, 2022).

Another component of NBL is outdoor education. Finding a public school with an outdoor-classroom setting is rare because approximately 80% to 85% of schools in the United States have no form of outdoor learning in place (Tate, 2020). Of the public schools with outdoor recreation areas, a minute percentage of those play areas involve nature, open spaces, and loose parts (Trust for Public Land, 2022). School grounds, especially school grounds in high poverty areas, lack green spaces (Kweon et al., 2017). Instead, when examining a schoolyard today, chances are it will be composed of more pavement, chain links, and artificial materials (Feldman, 2019). In Los Angeles Unified School District, 20% of schools have 100% asphalt and zero trees (Moreno et al., 2015).

NBL establishes and fosters a responsible working relationship with the natural environment, and nature wholly benefits children when provided the opportunity (Chawla, 2015). However, the connection cannot be maintained if not established and nurtured. Students cannot see or form the functional relationship available with nature because of the diminishing personal experiences children have with nature (Suttie, 2016).

NBL shifts students' relationships with nature from a singular lesson on recycling to an interconnected friendship and citizenship with nature, ultimately promoting student learning and health (Kuo et al., 2019). Formal relationships between public school systems and NBL organizations or initiatives are also limited. From 2012 to 2021, the number of Green Ribbon Schools in the United States, which are schools dedicated to sustainability practices and resources, decreased from 78 to 40 (U.S. Department of Education, 2021). In California, 17 outdoor schools collaborate with local public-school districts and are certified by the California Outdoor Schools Association; these outdoor schools only serve fourth- through seventh-grade students (California Department of Education, 2022a).

If teachers want to implement NBL in the classroom, mandated instructional practices or curriculum will likely hinder their desire. According to the U.S. Department of Education's National Teacher and Principal Survey, most teachers, 71.3%, explained they do not have autonomy over curriculum, content, topics, and skills taught in their classrooms (Economic Policy Institute, 2019). Accordingly, Earth Day may be the only explicit mention of the importance of nature within a child's public-school year (Rotas, 2019).

In this study, I focused on elementary administrators' perspectives and experiences surrounding NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design. This topic is not yet sufficiently investigated or documented through research literature and requires further investigation (Jordan & Chawla, 2019). The subsequent sections of this chapter include a background

of the topic, exposition of the problem, description of the purpose, identification of the research question, an overview of the conceptual framework, discussion of the nature of this study, list of relevant definitions, explanation of assumptions, specification of scope and delimitations, recognition of limitations, exploration of significance, and overall summary of the chapter.

Background

Extending NBL From Preschool to Lower Elementary

As preschool becomes a more prominent component of education policy and as preschools more frequently appear at public elementary school sites, the early childhood categorization extends stronger and further through elementary schools. For example, the California Department of Education (2022b) adopted a preschool through third grade alignment, the P-3 Framework (National P-3 Center, 2022), to support effective learning experiences, collaboration among stakeholders, and implementation of policy and practice solutions for preschool through early elementary. Organizations, such as the Natural Start Alliance of the North American Association for Environmental Education (2019), have presented research supporting NBL and advocate for NBL at the early childhood level. The overlap of early childhood, where preschool and elementary school spheres meet, lacks research literature on NBL to align with advocacy. The next logical step in incorporating NBL into elementary schools is to continue the research advancements the NBL community has made in the early childhood preschool category into the early childhood elementary category.

Why Elementary School Administrators?

Elementary school administrators, specifically principals, work on the leadership frontlines in supporting student development at schools. Principals work as critical liaisons and guardians for and between education stakeholders, including students, parents, teachers, administrators, and policymakers (Grissom et al., 2021). Boulder Valley School District (2022) in Colorado described the duties and responsibilities of a principal as being the leadership beacon for a school, directing, managing, and overseeing school planning, accreditation, curriculum, instruction, assessment, achievement, professional development (PD), environment, climate, safety, staff relations, and student relations while employing collaborative and positive approaches. Indeed, the possibility of implementation of NBL within schools relies heavily on school administrator support.

Why Public Schools?

NBL practices, initiatives, and strategies are not norms within the U.S. public-school systems (Zhang et al., 2021). Approximately 90% of U.S. students, nearly 50 million children, attend public schools (National Center for Education Statistics, 2020). These students spend an average of 6.64 hours at school per day, with an average of 180 days in the school year (National Center for Education Statistics, 2020).

Simultaneously, children living in poverty, about 16% of children in the United States (U.S. Census Bureau, 2021), are less likely to experience nature and NBL (Deines, 2021). About 50% of public-school students are eligible for free or reduced-price lunch, falling between low- to high-poverty levels (National Center for Education Statistics,

2018). Most U.S. students, especially those living in poverty, neither know nor reap the benefits of nature being intertwined in their lives.

Problem Statement

Although NBL is a demonstrated contributor to the development of students in the elementary grades, inclusion in elementary schools' curricula and design is inconsistent. Researchers have established overall benefits of nature to student learning and child development (Kuo & Jordan, 2019). In one example, Dale et al. (2020) documented the benefits of nature on components of child development through various learning outcomes, focusing on upper elementary and middle school students. In another study, Harvey et al. (2020) demonstrated NBL's positive, long-term mood and psychological influence on upper elementary children. Further, Schilhab (2021) showed how NBL promoted content knowledge and cognitive development for children aged 7–16.

Additionally, researchers have established the benefits of nature to student learning and child development in the early childhood and elementary age groups. For example, Annisa and Sutapa (2019) described the benefits of nature on the physical development domain of early childhood development and pointed out the need for more profound research on NBL with a focus on specific child development domains. The following year, Rymanowicz et al. (2020) found that NBL positively affected early childhood students' language and conversation skills and discussed the need for further NBL research with the early childhood education population.

Still, there is a gap in the research literature on elementary administrators' perspectives of and experiences with NBL, its support of elementary student

development, and its inclusion in elementary schools' curricula and design. For instance, Burke et al. (2021) focused on children's wellness from the school leaders' perspective and found that NBL provided a safe environment and fostered the development of motor skills and bodily health; however, the focus schools in their study were limited to two Canadian private schools. In another example, Harper et al. (2021) conducted a case study to examine the experiences of teachers and administrators upon undergoing a schoolyard naturalization process at a Canadian elementary and middle school, but the research only focused on a singular aspect of NBL, schoolyard naturalization.

In addition to a gap in research literature, there is a demand for such research on this topic. In particular, Frantzeskaki (2019) pointed out the need to study nature-based solutions that are relevant, current, and descriptive of tangible actions to be realistic options for urban agendas and policy. Additionally, Miller et al. (2021) recommended further engaging with and seeking input from education stakeholders regarding NBL and school environments. In agreement, Jordan and Chawla (2019) pointed out the need to involve school administrators in NBL research. Therefore, the specific research problem in the current study was that there is a gap in the research literature on elementary administrators' perspectives of and experiences with NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design.

Purpose of the Study

The purpose of this qualitative study was to explore elementary administrators' perspectives and experiences surrounding NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design. These

stakeholders' initial ideas on the topic had not been documented or shared within research literature, including their ideas about and dialogue for the consistent implementation of NBL within U.S. public school systems. The perspectives and experiences of elementary school administrators, with and without NBL familiarity, shed light upon various aspects of consistent NBL implementation, including barriers, best practices, challenges, communication channels, and resources.

Research Questions

I developed the research questions to address the research problem, specifically, the gap in the literature regarding elementary administrators' perspectives of and experiences with NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design. The following research questions were developed to allow administrators to share opinions, reflections, lived benefits and challenges, logistics, and background information regarding the topic:

RQ1: What are elementary administrators' perspectives of and experiences with NBL?

RQ2: What are elementary administrators' perspectives of and experiences with how NBL supports student development?

RQ3: What are elementary administrators' perspectives of and experiences with how NBL is included in curricula and design?

Conceptual Framework for the Study

Loose-Parts Theory

The loose-parts theory theoretically grounded this study by linking the environmental details of NBL to child development. In the loose-parts theory, Nicholson (1971) explained how environments with various loose parts promote discovery, inventiveness, and creativity. Nicholson (1971) provided details on NBL, such as logistical planning and design, curriculum development and instructional practices, and community involvement, and it aided in defining NBL approaches within this study. Loose-parts theory aligned with the current study of NBL because natural environments and procedures within the education field are inherently abundant with such loose parts. This theoretical framework helped me interpret data by providing key categories and descriptions of elements comprising NBL within school settings (see Gencer & Avci, 2017). In Chapter 2, I will provide an in-depth analysis of Nicholson's loose-parts theory concerning this study.

Domains of Child Development

The National Association for the Education of Young Children (2022) presented the domains of child development: physical, cognitive, social-emotional, and linguistic. I used these domains of child development to conceptually ground this study. In this conceptual framework, student development is mapped as both individual and interconnected domains. Use of this framework verified NBL's positive effects on each domain of student development. This conceptual framework helped me segment and define aspects of student development, so elementary school administrators could more

accurately describe their perceptions and experiences of NBL as they relate to student development. Chapter 2 will include a more detailed analysis of the domains of child development outlined by the National Association for the Education of Young Children.

Nature of the Study

In this study, I employed a basic qualitative research design. The basic qualitative approach is used to address research questions with an exploratory goal (see Ravitch & Carl, 2021). This research topic necessitated a new body of knowledge and an exploratory goal. The basic qualitative approach was best suited for this study because the research purpose directly involved people's opinions, perceptions, and beliefs (see Percy et al., 2015). Exploring the perspectives and experiences of elementary school administrators regarding NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design paralleled the basic qualitative research application of exploring a population's experiences and perceptions. Merriam and Tisdell (2015) explained how the goals of researchers employing basic qualitative research focus on understanding the experiences and constructions of a population and the population's interpretations and meanings of their experiences and constructions. Furthermore, the basic qualitative approach allowed me the draw upon other conceptual frameworks, in this case, educational and developmental (see Caelli et al., 2003). The basic, generic, or interpretive qualitative research approach is not bound by conventional philosophic traditions as other qualitative research design, such as phenomenology or grounded theory, are (Kahlke, 2014). In this way, the basic qualitative research approach allowed for the use of components that best suited the needs of the study.

I conducted semistructured, individual interviews employing sentence completion stems, with elementary school administrators at the national level. An interview protocol was developed that directly addressed the research problem and purpose of the study. The interviews focused on gathering school administrators' perceptions and experiences regarding how NBL supports student development. The elicitation technique of sentence completion stems enhanced participants' responses by fostering detail and elaboration in their verbal replies (see Barton, 2015). Sentence completion stems aided in ensuring information-rich interviews regardless of the administrator's experience level with NBL and child development. This elicitation technique contributed to capturing the subjective experiences of participants (see Hogan et al., 2016).

Definitions

Child development domains: Physical, cognitive, social-emotional, and linguistic child and student development; also referred to as student development domains in this study (National Association for the Education of Young Children, 2022).

Elementary school administrator: Principals, assistant principals, and superintendents at the elementary or primary level (University of Massachusetts Global Administration, 2022).

Early childhood: The developmental category of children referring to birth through the age of 8 years old (National Association for the Education of Young Children, 2022).

Loose parts: Interactive variables on materials that allow for manipulation, transformation, experimentation, and creation for children or students; often associated with outdoor, active, or self-guided play (Gull et al., 2019)

NBL: Learning through exposure to nature and nature-based activities (Jordan & Chawla, 2019).

Assumptions

I assumed the participants of the study were honest and thorough in their interview responses. In some cases, elementary administrators were not familiar with NBL or had minimal experience with early childhood development. I was prepared for administrators both with and without NBL experience to encourage honesty in responses. The elicitation technique of sentence completion stems assisted in preparation for interviews with elementary administrators of varying NBL and child development experiences.

I also assumed the participants who are advocates or implementors of NBL were more willing to participate in an interview. As a result, the sample may have included more data from elementary administrators with experience in NBL. Elementary administrator experience with NBL was accounted for to address this assumption.

Scope and Delimitations

U.S. public schools do not consistently implement NBL. For example, less than 1.7% of the state educational agencies, such as school districts, have formal collaborations with outdoor schools (California Department of Education, 2022a). Concurrently, elementary administrators lead schools and districts in decision-making,

goal setting, logistics, instructional practices, and curriculum, so there is a disconnect between elementary school administrators and the benefits and implementation of NBL in public schools.

This study did not focus on collecting and documenting the benefits of NBL in supporting elementary student development but explored elementary administrators' perspectives of and experiences with NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design. This focus included administrator reflections, experiences, challenges lived, and benefits lived. This study did not include quantitative data.

This study exclusively focused on elementary school administrators and excluded teachers, coaches, aides, and instructional staff. The study included schools, both public and private, from across the United States. Administrators in current elementary administrative positions met the criteria for inclusion in the study population.

Limitations

The limitations of this study included components related to transferability, such as sample size, researcher bias, and location. I identified sample size as a limitation in this study because I interviewed 10 elementary school administrators working in public schools across the U.S, and this sample size could minimize transferability. Researcher bias was also a limitation because I am a proponent of NBL in the education field. My potential researcher bias, personal and professional experiences with NBL, and involvement with NBL integration within schools could have influenced the semistructured interviews. This bias could minimize the credibility of the study. Finally, I

identified location and digital interviewing as limitations because all interviews were conducted via video on the Zoom platform. Location, particularly digital interviewing, limited the study to participants with access to technology with capacity for Zoom interviewing.

Significance

This study demonstrated significance in that it provided current knowledge about elementary administrators' perspectives of and experiences with NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design. Stakeholders can use this knowledge to make informed decisions about curriculum design, outdoor learning logistics, and holistic student outcomes. NBL has the potential to ensure wholly beneficial learning venues and platforms, cultivating healthy, meaningful student development across all domains (Mullholland & O'Toole, 2021). Specifically, knowledge about NBL could positively affect future policy and planning in the education field and generate positive social change within schools across the nation (see Frantzeskaki, 2019).

Summary

NBL remains an untapped resource in elementary education, although it is a reliable contributor and method for healthy and wholesome student development. The research problem lied in the gap in the research literature on the elementary administrators' perspectives of and experiences with NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design; therefore, the purpose of this basic qualitative study was to address this gap. I developed

the research questions to allow administrators to share opinions, reflections, lived

benefits, lived challenges, logistics, and background information on the topic.

Nicholson's (1971) loose-parts theory and the National Association for the Education of

Young Children's (2022) child development domains grounded this study conceptually.

Data were collected through individual participant interviews. This study provided

current knowledge about NBL from the perspective of administrative leaders in the

education field. Stakeholders can use the knowledge gained from the results of this study

to make informed decisions about elements, such as curriculum design, outdoor learning

logistics, and holistic student outcomes, and catalyze positive social change. In Chapter 2,

I will review the current research literature regarding supporting student development

through NBL.

Chapter 2: Literature Review

The inclusion of NBL in public elementary schools' curricula and design is inconsistent (Sobel, 2019); however, NBL has been demonstrated to be an important contributor to the development of students in the elementary grades (Kuo & Jordan, 2019). Simultaneously, there is a gap in the research literature on the elementary school administrators' perspectives of and experiences with NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design; therefore, the purpose of this qualitative study was to address this gap.

Current literature established the relevance of NBL's inconsistent inclusion in elementary schools' curricula and design and a need for research regarding how NBL is perceived to support elementary student development from the elementary administrator perspective. For instance, after presenting findings on how nature holistically benefits children in all developmental domains, Sailakumar and Naachimuthu (2017) explicitly discussed how the exploration of the dissonance between children and nature, in relation to other spheres of children's lives, like the academic realm, is needed. In another example, following their findings of the benefits of NBL for children, Beery and Jørgensen (2018) suggested the investigation of ways to make NBL accessible and meaningful to children through education.

In Chapter 2, I provide an in-depth literature review on this topic. The chapter includes an overview of the literature search strategy, a discussion of the conceptual foundations, and an exhaustive literature review. In the summary and conclusion of

Chapter 2, I synopsize the major themes in the literature and describe how the study addresses a gap in the literature, ultimately extending knowledge within the discipline.

Literature Search Strategy

I used refined, iterative search and assessment processes when conducting the literature review for this study. I accessed specific library databases and search engines and employed key terms and combinations and selective identification processes to ensure each resource reviewed contained germane scholarship. Before writing the literature review, I created a literature review synthesis matrix for clarity, organization, and thoroughness (North Carolina State University, 2006). Completion of a literature review synthesis matrix served as the first stage of my literature review process, with the steps being: prewriting, writing, recognizing, and revising for synthesis (see Henning, 2011). I completed these stages iteratively, progressing through the stages as I added new resources and articles. These processes repeated themselves until I reached saturation, where no recent relevant articles were found (see Randolph, 2009). Finally, I wrote the literature review as a synthesis, rather than a summary, of the published literature surrounding my research topic.

In finding and selecting resources, I filtered resources based on criteria. My search efforts were focused on current, scholarly resources published within the last 5 years, and peer-reviewed, primary sources were selected for inclusion. I accessed the Walden University Library and Google Scholar to conduct my search. Databases with a focus on the education field were used most frequently, and these included EBSCO, ERIC, ProQuest, Sage, and ScholarWorks. The keywords searched included the

following, with variations in order, combination, spelling, tenses, modifiers, and

associated punctuation: *nature-based learning, nature education, outdoor education,*

student development, child development, academic achievement, cognitive development,

physical development, social-emotional development, linguistic development, early

childhood, elementary school, primary school, grade school, and *administrator*. I

included a select few dissertations and conference proceedings to provide a complete

view of the scholarly literature on the topic.

Conceptual Framework

Loose-Parts Theory

I employed the theory of loose parts to conceptually ground this study, link the

foundations of NBL to child development, and further define the implications of NBL

within school settings (see Nicholson, 1972). The loose-parts theory originated as the

idea that children discover, invent, and derive satisfaction based upon their interaction,

play, and creation with living things and worldly elements (Nicholson, 1972). NBL's

inclusion in elementary schools' curricula and design is inconsistent (Sobel, 2019),

although it is a proven contributor to student development (Kuo & Jordan, 2019).

Nicholson (1972) mentioned a related problem, a restriction of child growth and

creativity due to the lack of experimentation and play with variables found in the world

and prescribed a remedy to this restriction: loose parts. The loose-parts theory involves

creation, interaction, and play with elements that have variability. NBL, too, finds its

defining characteristics in natural elements, elements with innate variability, and loose

parts (Gencer & Avci, 2017). Examples of such elements include, but are not limited to, wood, tools, ropes, stones, gravel, sand, shells, leaves, pinecones, acorns, and water.

In the loose-parts theory, Nicholson (1971) provided details, such as logistical planning and design, curriculum development and instructional practices, and community involvement, and outlined a variety of components that best-suit whole child development, including outdoor education, environmental education, student exploration, play, and interdisciplinary instructional practices. The loose-parts theory served to ground this study because it organically aligns with NBL and the domains of child development. The theory aligns with NBL because natural environments are inherently abundant with loose parts. Although loose parts can be found and effectively used in an indoor setting, the natural world presents a myriad of elemental loose parts. The loose-parts theory aligns with child development because loose part engagement directly benefits each child development domain (Culter & Skidmore, 2021).

The loose-parts theory has been applied previously to demonstrate how loose parts and related activities and settings support child development. For example, through student observation, Smith-Gilman (2018) showed how the integration of the loose-parts theory within the early childhood setting presented a positive influence on children's linguistic skills through verbal expression, cognition in the form of understanding and problem solving, physical development through bodily use and movement, and social-emotional well-being through pleasure in learning and willingness to take risks. Incorporating NBL, Spencer et al. (2021) connected free, outdoor play to the theory of loose parts and explored educators' perspectives regarding how this NBL play

component supports student development in early childhood. The loose parts theory has also been applied previously to initiate positive social change. Simoncini and Lasen (2021) employed the theory in a study designed to advocate for play in early childhood education. In another example, the loose-parts theory was used to develop and implement outdoor play in an elementary school setting (Rotas, 2019). In the current study, I applied the loose-parts theory to demonstrate how NBL supports elementary student development from the perspective of elementary administrators.

The current study, in its entirety, drew upon this theory as a portion of the conceptual framework. Because the definition of NBL was simplified, the loose-parts theory aided in further illuminating NBL practices, tools, and settings. Using the loose-parts theory in the conceptual framework helped me interpret data by providing key categories and descriptions of elements comprising NBL within school settings (see Gencer & Avci, 2017). Moreover, the theory of loose parts fostered more precise explanations and examples of NBL for both me and the participants to use.

Domains of Child Development

I also grounded this study conceptually through the domains of child development outlined by the National Association for the Education of Young Children (2022): physical, cognitive, social-emotional, and linguistic development. The domains are not isolated areas in which children develop; instead, they are vitally interconnected (National Association for the Education of Young Children, 2022). Children may develop one domain at a time, multiple domains at a time, or all the domains at a time; overall, the relationship between the domains is essential. Furthermore, biological and environmental

factors affect the domains of child development (National Association for the Education of Young Children, 2022).

NBL is a practice that supports child development, both within individual domains and cumulatively (Mullholland & O'Toole, 2021). In other words, NBL proved to contribute to each development domain and student development overall positively. First, the physical development domain is presented as fine and gross motor skills (National Association for the Education of Young Children, 2022). NBL, in the form of natural playscapes, fosters a variety of locomotor play (Kuh et al., 2013). For example, NBL develops fundamental movement skills in students through outdoor learning (Branje et al., 2022). Outdoor education positively influences student physical activity duration and intensity (Peacock et al., 2021). Furthermore, the outdoor environment and nature, in general, are positively associated with student physical health and general physical activity (Sando, 2019). Second, the cognitive development domain pertains to child brainwork, thinking, processing, problem solving, innovation, and ideas (National Association for the Education of Young Children, 2022). NBL is equivalent to developing academic performance, matching that of a traditional classroom; NBL is accompanied by student interest and excitement, which promotes more profound understanding and tangible learning experiences (McFarland et al., 2013). When students spend time in nature, when they return to the traditional classroom setting, their cognition and concentration dramatically improve (Kuo et al., 2018). Third, the social-emotional development domain involves relationships, emotion management and regulation, self-awareness, and collaboration (National Association for the Education of Young Children,

2022). Notably, NBL and its accompanying materials and tools are used by children for sociodramatic play, collaboration, and common-goal creation and achievement (Mackley et al., 2022). NBL, with the employment of play equipment like hay bales, wooden planks, and other movable outdoor materials, enhances and deepens a variety of learning activities, including solitary, parallel, simple social, complementary, reciprocal, and cooperative play (Mahony et al., 2017). Fourth, the linguistic development domain refers to language, communication, and verbal skills (National Association for the Education of Young Children, 2022). In correspondence with the linguistic domain, NBL offers a rich environment for verbal and nonverbal behaviors and building communication skills and expression through language (Flannigan & Dietze, 2017). Last, whole student development consists of development across domains and using the domains in harmony. NBL and outdoor environments teem with loose parts and opportunities for student development, spanning all developmental domains, which is a product of the organic, multisensory, collaborative environment found with NBL practices (Olsen & Smith, 2017). Furthermore, the quality of student engagement, interaction, and investment activities are increased in NBL settings (Storli et al., 2020).

The use of the domains of child development as defined by the National Association for the Education of Young Children (2022) confirmed NBL's support of student development. Use of this conceptual framework explicitly defined aspects of student development within this study. Since the framework segmented the idea of child development into pieces, the study more accurately reflected the perceptions and experiences of administrators as they relate NBL to student development.

Literature Review

The following literature review contains the extant studies related to the concepts of interest, selected methodology, and chosen methods coherent with the scope of this study. In the literature review, I describe how researchers in the field have approached the problem and examine the strengths and weaknesses inherent in these researchers' approaches. The literature review acts as a rationale for selecting the variables and notions within this study, and in it, I synthesize studies related to the key ideas and phenomena under exploration, define what is known, consider what is controversial, and identify what remains to be studied. Specifically, I review and synthesize studies related to the research question and reflect on why the approach selected is relevant and meaningful.

History of NBL

Throughout time, NBL has been used in a myriad of ways. This is important to remember because natural history can serve as one access point for a child to nature (Bates, 2018). Whether learning to survive, practicing natural navigation or acquiring reading skills, NBL is simply a label for learning entwined with nature. Countries across the globe have employed and continue to use NBL through various practices and strategies for a spread of age groups and purposes. Recognizing this span of use of NBL, Nicholson (1971) prescribed a worldwide clearinghouse for knowledge on children's learning environments that would ideally be interconnected between school districts globally and inspire policy and design.

Formal NBL practices can be connected back to the 1800s when industrialization led humans to the outdoor realm as an escape from their labors and early childhood education pioneers looked closely at how children learn (Dean, 2019). The 1950s marked the beginning of Sweden's use of outdoor education, and from there, Sweden and other countries began establishing formal forest schools (Maron-Puntarelli, 2020). By the 1960s, in Denmark specifically, women in the workplace were a norm, while the population realized the health and overall benefits of the natural environment; thus, NBL was normalized in the Danish school and childcare settings and began a defined movement through Denmark, Scandinavia, the United Kingdom, and North America (Dean, 2019).

Now, in the United States, NBL is implemented in pockets of the country with inconsistency, especially in public schools (Sobel, 2019). The momentum of NBL dwindles as the early childhood spectrum extends into elementary school. Still, Americans value nature in relation to education. For example, components of NBL were key endeavors for human characters within award-winning and honored picture books published from 1995 to 2020 in the United States (Shimek, 2021).

The COVID-19 pandemic created significant shifts in the education field, from mandatory school closures and distance learning to drops in public school enrollment (Dickson & Gray, 2022). Post-COVID-19 pandemic, contemporary education requires a nature-rich environment, a shift in ideologies and practices to ensure students' well-being, development, education sustainability, and democratized access to nature for all

(Dickson & Gray, 2022). This is especially true when knowing the COVID-19 pandemic catalyzed children's connection and involvement with nature (Friedman et al., 2021).

Defining NBL and the Resulting Relationship

For this study, NBL was defined as learning through exposure to nature and nature-based activities (Jordan & Chawla, 2019). Accordingly, NBL builds a child's relationship with nature. When NBL was explicitly used, children's connection to nature was strengthened and outdoor play behavior increased (Mullenback et al., 2019). As students' working relationship with nature strengthened, so did their feelings of relaxation, fun, familiarity, ownership, protection, and kinship in nature; correspondingly, students' feelings of fear and anxiety decreased (Harris, 2021). The relationship is symbiotic with NBL benefitting children who benefit nature itself by building pro-environmental, protective, and advocative bonds; consequently, NBL paves the way for holistic student development and environmental sustainability. When founded in childhood, this symbiotic relationship extended nature connectivity and environmental moral traits into adulthood (Molinario et al., 2020).

Children have defined nature through the symbiotic relationship, procedures of their interaction within nature, and description of complex aspects of nature; all components of children's definition of nature included emotional qualities, value, and fascination (Aslanimehr et al., 2018). Through NBL, children not only explore their natural environment to learn using all their senses, but they also connect to their natural environment with all their senses. This enabled children to find and understand themself, their feelings, and their interconnection with nature (McVittie, 2018).

NBL and Child Development

There is no aspect of child development that does not grow through NBL. NBL has shown enriched socialization, problem-solving, focus, self-regulation, creativity, self-confidence, independent and collaborative play, prosocial behaviors, and physical activity, with concurrent reductions in depression, antisocial behavior, stress, boredom, and injury in young children (Brussoni et al., 2017). So too, the benefits of NBL extend past the general domains of child development.

Cognitive

Research has established NBL principles as contributors to children's overall cognitive development (Dadvand et al., 2018). However, in addition to generally enhancing cognitive abilities, NBL advances child cognition through more specific channels. These cognitive channels include imagination, creativity, and a logical connection to education through the established utilitarian relationship. In one case, early-childhood greenness experiences were associated with increased midchildhood visual memory (Jimenez et al., 2022). In another case, abundant community greenery was positively associated with higher average IQ measures of children and overall cognitive ability (Reuben et al., 2019). Additionally, with an abundance of organic loose parts, natural settings sparked imagination and adaptability for cognitive play activities (Zamani, 2017). Further, simple NBL practices, such as nature walks, resulted in faster attention rates and more stable spatial working memory rates than urban walks (Schutte et al., 2017). Similarly, physical contact with nature achieved students' attention restoration from mental fatigue (Mason et al., 2021).

From another viewpoint, NBL can mitigate cognitive threats for children. NBL, when employed, acted as an affordable, accessible, and safe promoter of child self-regulation and possible prevention of child psychopathology (Weeland et al., 2019). When children were exposed to natural surroundings, with green spaces and dense vegetation, those children's chances of developing schizophrenia later in life decreased (Engemann et al., 2020).

Moving past the domains of child development, spiritual development is an aspect not accounted for within the public-school setting. However, NBL has been associated with psychospiritual wellbeing by supporting children's sense of wonder, sensory capacities, wild nature, and contributive mindset (Smith, 2021). Moreover, psychospiritual development can be added as a benefit of NBL in supporting student development overall.

Social-Emotional

As discussed, NBL offers a plethora of social-emotional benefits to children, such as collaboration skills, self-regulation, and confidence. As NBL increased in frequency and duration within the kindergarten setting, more significant student gains occurred socially and emotionally, demonstrating a cumulative positive relationship (Taylor & Butts-Wilmsmeyer, 2020). Related social-emotional skills have also shown increased importance and strength through NBL practices. For example, student sensory awareness and biodiversity understanding increased with NBL, ultimately fostering student knowledge of the value of inclusivity and diversity (Beery & Jørgensen, 2018). In another example, children more involved with NBL practices showed richer cognizance

of moral character, moral feelings, and moral fundamentals related to nature (Collado & Sorrel, 2019). NBL environments promoted complex sociodramatic play, providing opportunities for students to learn through their relationship with nature, vegetation in their environment, and seclusion that can only be found in a natural environment (Robertson et al., 2020). The intricacy of children's interactions and play were more complex overall within NBL experiences and settings (Martens & Molitor, 2020). As schoolyards greened, student appreciation, attention, and overall social wellbeing increased (van Dijk-Wesselius et al., 2018). NBL practices provoked increased student curiosity, inquiry, the value of natural harmony, and nature-friendly attitudes (Kim et al., 2020). So too, children's sense of own will and self-care were strengthened in natural environments (Nagata & Liehr, 2021). Within forest schools, a trusting bond was formed between nature, teachers, and students (Maron-Puntarelli, 2020).

Contrarily, the withholding of nature and NBL from children may be hindering student social-emotional development. For example, students with sparse amounts of green spaces and natural vegetation in their community were at higher risk of developing ADHD (Thygesen et al., 2020). In another case, high anxiety levels were present in children with autism spectrum disorder with exposure to gray space compared to green space (Lawson et al., 2018). Further, the recent increase in children's screen time led to adverse effects on child play habits, behaviors, and attitudes; specifically, children played and acted with less creativity, more violence, more irritability, less interest, and less concentration at the current screen rates (Monteiro et al., 2022).

Physical

In addition to the previously mentioned physical benefits of NBL on student development, related benefits affect students' physical development. For example, brain scans of elementary students found that students with more access to greenness within their community had improved physical brain development, measured by overall brain volume (Dadvand et al., 2018). Comparatively, physical threats present themselves in the absence of nature. For instance, a child's physical development was negatively affected by greater traffic noise, air pollution, and excessive heat exposure (Jarvis et al., 2022).

Linguistic

Along with those mentioned earlier linguistic benefits, NBL provides a different experience for students, drawing out linguistic skills that would not be accessible within a traditional classroom. To demonstrate, through NBL, students relied on word creation to make sense of their natural surroundings, developing innovation and inventive qualities in their language skills (McVittie, 2018). Hence, the role of learning shifts directly to the learner, and understanding is automatically embedded due to first-hand student experience. Furthermore, when students worked together, they collaborated with their linguistic skills, conversing with multiple perspectives on new vocabulary and word use for various phenomena (McVittie, 2018). In contrast, as screentime rates have risen, children's language skills and development have been negatively affected (Monteiro et al., 2022).

Perspectives of NBL

Literature on NBL and student development falls into a range of viewpoints. These perspectives most commonly are those of teachers, students, and education leaders. This observation aligns with the gap in the research literature regarding the administrators' perspective of how NBL supports student development.

NBL spreads its wealth as teachers recognize its benefits to their students and its uses in their instruction. Teacher pedagogy and philosophy paralleling NBL instructional practices facilitated the growth of student leadership and meaningful learning activities; teachers recognized student excitement, interest, engagement, and curiosity as factors contributing to experiential learning (Omidvar et al., 2019). In another study, teachers found student readiness at a higher intensity when incorporating nature into instruction (Çağlıyan & Altun, 2021). Also, teachers described more significant gains in emotional regulation, behavior skills, independence, and social skills for students with higher levels of exposure to natural environments (Scott et al., 2018). Further, after participating in NBL experiences, most teachers wanted to continue practicing and learning NBL practices (Ho et al., 2018). Also, as student teachers participated in NBL PD, they felt confident in planning and implementing and increased ratings of the importance of NBL (Torquati et al., 2017).

Students, too, both recognize and delve into the benefits of NBL to their development. According to student drawings, children valued NBL, including outdoor settings, natural components, loose parts, and active behaviors, compared to synthetic environments, plastic play gear, and activities guided by safety measures (Ward, 2018).

When participating in NBL, students not only displayed connection to nature, developed practical skills, developed pride, and demonstrated achievement, but expressed investment in their learning and a desire to continue this relation-oriented, educational journey with nature (Halam et al., 2021). Through NBL within the school setting, students demonstrated robust emotional connections to nature, with strong protective outlooks about their relationship with nature (Rios & Menezes, 2017). Students visualized nature as a community and engaged with nature through action; they experienced and acknowledged nature's benefits (Tillmann et al., 2017). Interestingly, children associate negative emotions and anxiety with not being able to play, specifically in outdoor environments (Howard et al., 2017).

Similarly, parents see NBL with its support of student development. Parents evaluated aspects of NBL and noted benefits of NBL as child relationships, well-being, and development; these benefits continued past the formal NBL context and into the traditional classroom setting (Ward et al., 2019). Parents also reported children's sensory-motor, emotional, cognitive, and behavioral benefits from NBL and described nature as a supportive, prosperous, safe learning environment (Li et al., 2019). In both the United States and Denmark, parents highly valued outdoor and nature experiences for children within the school environment, with U.S. parents especially noting child developmental benefits (Vandermaas-Peeler et al., 2019).

There is minimal current research literature regarding NBL from the administrator's perspective. In one related study, Harris (2017) focused on NBL through education leaders and practitioners at a forest school, exploring details of children's

engagement with nature and learning styles within the school. This study, however, did not specify the descriptive characteristics and roles of an education leader or practitioner.

NBL and Equity

NBL has the potential to remove social barriers of inequity, such as accessibility, transportation, and money (see Hallam et al., 2021). Nature provides developmental benefits to all students, regardless of race, age, socioeconomic background, or learning ability. For example, NBL increased the student values of diversity and inclusivity (Beery & Jørgensen, 2018). Children can translate the importance of diversity using a social lens through exposure and the relevance of diversity from a natural lens (Mandalaywala et al., 2019). Children themselves recognized and reported understanding how rules and systems regarding behavior when interacting with nature are the same for all (Yanez et al., 2017).

In addition to the benefits of NBL supplies for students of all learning abilities, there are specific advantages NBL can facilitate for students with special needs. To illustrate, elementary students with autism were more equipped and able to achieve their individualized education plan goals through NBL practices; individualized education plan goals included conversation, social skills, verbalizations, identification of feelings, perspectives, social problems, creation of social solutions, task completion, self-regulation, and verbal control (Friedman & Morrison, 2021). Further, NBL settings have shown to be ideal environments for intervention and therapy for students with special needs, specifically applied behavior analysis strategies, by increasing student relaxation, attention, and positivity, while also minimizing restraint and command of children (Li et

al., 2019). Further, there is a demonstrated positive relationship between tree canopy

coverage and decreased conduct problems amongst children with autism spectrum

disorder, while gray space was associated with increased conduct problems (Barger et al.,

2020).

Controversies of NBL

As with any educational practice, NBL is associated with various criticisms and

controversies. A common thread amongst these criticisms and controversies is fear of the

unknown, fear of change, and the unfamiliar (Çağlıyan & Altun, 2021). These criticisms

and controversies outline components that can be resolved through address, knowledge,

and mitigation.

Li et al. (2019) documented concerns with respect to NBL; concerns included

inappropriate behavior, safety, phobias, judgment, social exclusion, boredom, time, and

financial burden. However, parents agreed that problems and barriers could be mitigated

through planning and design (Li et al., 2019). Many of these concerns have been

accounted for through other studies. To explain, when in an outdoor classroom, teachers

redirected student behavior less, found fewer children off-task, and recorded overall

benefits to student wellbeing (Largo-Wright et al., 2018). Additionally, although children

associated outdoor activities with play, they also associated strong positive emotions with

outdoor activities and strong negative emotions with denial of outdoor activities (Howard

et al., 2017).

When implementing NBL, settings are often designed to encourage risky play—

environments that have the possibility of leading to injury, remove children from

comfort, challenging children on multiple domains and promote vulnerability (Harper & Obee, 2021). Although safety is a valid concern, Harper and Obee (2021) found children competent in navigating risky situations; further, this risk navigation heightened children's innate learning and abilities. Harper (2017) addressed the risk-averse Western society, showing that through the recognition and explanation of societal perceptions of risk, policy, and practices could be effectively and efficiently reconceptualized. To illuminate, forest schools strive for a balance between safety and risk-taking to accumulate the students' benefits of risk-taking while still maintaining a safe environment as necessary (Maron-Puntarelli, 2020).

Another controversy describes NBL as not aligned with standardized learning outcomes of the nation or state. Nevertheless, NBL is a mode or medium through which students can learn; it does not require the abandonment of learning objectives or standards. In one example, NBL has been demonstrated to support Common Core Standards through NBL reading and writing instruction (Tigit-Gencten & Gultekin, 2022).

This Study and the Research Literature Gap

Given the literature and research surrounding the benefits of NBL to elementary student development, the logical next step consists of filling the gap that lies within the administrators' perspective of supporting elementary students developing through NBL. This endeavor touches on multiple aspects of NBL, including policy, barriers, best practices, definitions, perceptions, and values. Namely, Perez de Pulgar et al. (2020) pointed out the need for studies focusing on underlying processes that shape children's

socionatures to understand student wellbeing. Similarly, Mullenback et al. (2019) recommended research studies that involve the planning and implementation of NBL. In another example, Harper (2017) advocated for a professional dialog amongst education leaders regarding the understanding of certain NBL practices, including a call for further research. Li et al. (2019) highlighted the need for future studies that policymakers and designers could employ to increase children's access to greenspaces. Zwierzchowska and Lupa (2021) described a gap in the research literature regarding the specific ways children interact with nature.

Specifically, this study aided in filling a research gap regarding understanding the complexities of standardization and application of NBL within the U.S. public-school setting (see Dean, 2019). Expressly, Van Dijk-Wesselius et al. (2018) suggested a collaboration between researchers and schools to set the foundation for the co-design of NBL practices and policies. Kim et al. (2020) called for research on NBL with the involvement of schools and children's daily lives. The present study aligned with school administrators' initiatives by growing the benefits of NBL for students (see Scott et al., 2018).

Summary and Conclusions

The literature reflected themes regarding NBL and elementary student development: history, child development, the various perspectives of NBL, equity, controversies, and the necessity for further research in some regions of NBL. Researchers established NBL and how it benefits children across developmental domains. This has been accounted for thoroughly from the teacher, student, and parent perspectives. NBL

not only supports student development, but it benefits related aspects, such as equity and spirituality. Although there are controversies and concerns regarding NBL, the literature provides solutions for these. The present study fills the gap surrounding elementary administrators' perspectives and experiences surrounding nature-based learning, its support of elementary student development, and its inclusion in elementary schools' curricula and design. This can extend knowledge in the discipline and provide information used by schools, districts, organizations, and policymakers. In Chapter 3, I discuss the research method used for this study to adequately fill this gap in the research literature.

Chapter 3: Research Method

The purpose of this qualitative study was to explore elementary administrators' perspectives of and experiences with NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design. The research method indicates how the research within a study is conducted, including the tools employed (University Van Pretoria, 2022). As such, the research method employed in this study complemented the overall purpose of the study. In Chapter 3, I discuss the research design and rationale, role of the researcher, methodology, and issues of trustworthiness before concluding the chapter with a summary.

Research Design and Rationale

The research questions and focus phenomenon directly contributed to selecting the research design. The research questions were:

RQ1: What are elementary administrators' perspectives of and experiences with NBL?

RQ2: What are elementary administrators' perspectives of and experiences with how NBL supports student development?

RQ3: What are elementary administrators' perspectives of and experiences with how NBL is included in curricula and design?

The focus phenomenon was elementary administrators' perspectives of and experiences with NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design. I employed qualitative research, expressly basic qualitative research, as the study approach.

Qualitative research is used to investigate human interactions and phenomena present in their lives (Lichtman, 2012). A central theme embodying the qualitative research approach is the goal of understanding human perspectives (Hatch, 2002). Notably, qualitative research is necessary to comprehend human nature, practices, and experiences (Delamont, 2012). One of research designs available in qualitative research is the basic qualitative approach. The goals of basic, generic qualitative research are to investigate participants' experiences and the meanings they associate with experiences as well as understand participant experiences in the form of processes (Lambert & Lambert, 2012). Consequently, the basic qualitative approach complemented the purpose of this study because I investigated the human perspectives and experiences of elementary school administrators regarding their understanding of NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design.

Role of the Researcher

My role as the researcher was foundational in the study's research design. Within the basic qualitative approach and qualitative research overall, the researcher serves as an instrument for data collection (Xu & Storr, 2012). I recruited participants, conducted interviews, and performed data analysis; therefore, I acted as a human instrument for the study.

Personal and professional relationships were not a concern within the scope of this study. Although I am a kindergarten teacher and maintain relationships with a handful of elementary administrators in my local area, my school of employment was not included in this study. Supervision or instructor relationships involving power over the

participants was not a concern for a teacher. As such, my personal and professional relationships did not affect the study.

I minimized researcher bias through self-reflexivity and mindfulness. Through self-reflexivity, the researcher recognizes explicit and implicit subjectivity that could affect the study (Cruz, 2015). Therefore, subjectivity was not only addressed but diminished through acknowledgment. In practicing mindfulness, the researcher remains conscientious of the research purpose while in the present (Lemon, 2017). In this way, I used mindfulness to weigh objectivity more heavily than opinion or belief.

Methodology

Participant Selection Logic

Following the research problem, purpose, and question, the study participants were elementary school administrators from across the United States. The participant selection criterion was current employment as an administrator at a public elementary school within the United States. Administrator experience and involvement with NBL was not a criterion for participant selection.

I used the purposeful sampling strategy to provide information-rich and detailed accounts of the specific population of elementary school administrators (see Ravitch & Carl, 2021). The Walden University Participant Pool, social media, and direct email served as online channels for participant recruitment. I contacted participants directly by email to finalize recruitment and interview scheduling.

Interviews with deep, probing questions continued to saturation, which is when additional interviews would have no longer added new information (see Rubin & Rubin,

2012). I recruited 10 participants, with data collection ending at the point that data

saturation occured (see Guest et al., 2006). Data collection continued because each

interviewee presented new information; repetition signified data saturation (see

Groenewald, 2004).

Instrumentation

I collected data through semistructured interviews with elementary school

administrators to explore their perspectives and experiences regarding NBL, its support

of elementary student development, and its inclusion in elementary schools' curricula and

design. Semistructured interviewing allowed for the co-construction of the interview

conversation between me and the interviewee (see Ravitch & Carl, 2021). I designed the

interview protocol to address the research questions and achieve overall study alignment.

Specifically, the interview protocol outlined the introduction to the interviewee and

guided the interview questions, follow-up questions, and probes (see Rabionet, 2011).

The *Appendix* contains the interview protocol used for this study. Overall, instrument

development coalesced the study's research purpose, framework grounding the study, and

supporting literature. I established the validity of instrument development through an

expert panel and peer reviews (see Kvale & Brinkmann, 2009).

The elicitation technique of sentence completion stems enriched participants'

responses by cultivating detail and explanations in verbal answers (see Barton, 2015).

Sentence completion stems promoted information-rich interviews, irrespective of the

administrator's experience level with NBL and child development. Furthermore, this

elicitation technique allowed me to capture the subjective understandings of participants (see Hogan et al., 2016).

Procedures for Recruitment, Participation, and Data Collection

I used the purposeful sampling strategy to provide information-rich and detailed accounts of the specific population of elementary school administrators (see Ravitch & Carl, 2021). The Walden University Participant Pool, social media, and direct email served as online channels for participant recruitment. I contacted participants directly by email to finalize recruitment and interview scheduling.

I collected and stored data by recording the semistructured interviews. In-person and telephone interviews were audio recorded, and Zoom interviews were video recorded. The interview process consisted of one interview, with a duration of 1 hour, per participant. If recruitment had resulted in too few participants, I planned to use a snowball sampling method, which consists of asking the established participants to recommend other possible participants for the study (see Parker, 2019). Upon exiting the interview, I offered to share the study findings with the participant upon publication.

Data Analysis Plan

Data analysis comprised six steps regarding data: collection, engagement, extraction, coding, conceptualization, and representation (see Peel, 2020). I transcribed the interview recordings following each interview using the Zoom transcription tool followed by hand transcription. I employed the coding procedures outlined by Saldaña (2021), shifting between the stages of data analysis as an iterative process. Regarding thematic analysis, I used raw data and analytic memos to create codes, categories,

themes, and concepts (see Miles et al., 2014). The Quirkos software, tables, and charts allowed for visual presentations of the data. In Chapter 4, I will note discrepant cases.

Issues of Trustworthiness

Walden University outlines trustworthiness into four criteria: credibility, transferability, dependability, and confirmability (Stahl & King, 2020). I exercised strategies designed to establish these four criteria explicitly, warranting trustworthiness throughout this study. With trustworthiness rooted in the study, I presented its findings confidently.

First, I established trustworthiness through credibility or internal validity. Credibility assures the study conducts its intended investigation (Shenton, 2004). I met the credibility standard through reflexivity, peer review, and the implementation of well-established research practices. Next, I established trustworthiness through potential for transferability or external validity. Transferability refers to applying inferences to other contexts or situations (Lincoln & Guba, 1985). I provided a thick description of the procedures, background, participants, and study details for others to draw and apply their inferences appropriately and meaningfully. Then, I established trustworthiness through dependability, which is the qualitative equivalent to reliability. Dependability assures the study is repeatable and consistent over time (Morse, 2015). For dependability, I maintained an audit trail (see Glaser, 2004). Finally, I established trustworthiness through confirmability, the qualitative equivalent to objectivity. In other words, confirmability confirms others can confirm the study's findings through data. I used reflexive journaling

to attain confirmability (see Ellis, 2019). Moreover, the strategies employed worked together to form trustworthiness, strengthening the study and its findings.

Ethical Procedures

The Walden University Institutional Review Board, which oversees the compliance of Walden University research with university ethical standards and federal regulations, governed the ethical procedures used within this study. As an initial step in the research process, I submitted my proposal for research to the Walden University Institutional Review Board before participant recruitment or data collection; the Institutional Review Board approved this study with approval # 01-03-22-1054860. I used the Research Ethics Approval Checklist (Planning Worksheet) to drive the study's ethical procedures.

A fundamental ethical responsibility of the researcher is the treatment of human participants (Morris et al., 2019). To uphold this responsibility, my recruitment of participants was free from pressure. I offered a modest inducement for volunteers in the form of a $25 Starbucks gift card. Administrators within my place of employment were not considered for recruitment to avoid bias. I was mindful of the participants' time and notified the participant as the 1-hour interview time approached. Informed consent forms were used to document institutional and personal permissions.

I maintained confidentiality to ensure participant privacy. Interviews were conducted one-on-one with participants through in-person, video, or audio modalities. As such, participant responses were not able to be heard or seen by any other person. The participants' data were not accessible to any other party; data shared with superiors and

colleagues had participant names and additional identifying information removed. I have archived data in a safe and secure location where it will remain for 5 years before being destroyed.

Summary

In this basic qualitative study, I sought to explore elementary administrators' perspectives of and experiences with NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design. The basic qualitative research approach best aligned with the research problem, purpose, and questions. I recruited the elementary school administrator participants through the Walden University Participant Pool, social media, and direct email. Semistructured interviews with elementary school administrators served as the mode of data collection. Following data collection, I conducted coding and thematic data analysis per Saldaña's (2021) suggestions. Trustworthiness and ethical considerations grounded the entire process of the study (see Grant & Lincoln, 2021). In Chapter 4, I will present the results of the data analysis for this study.

Chapter 4: Results

The purpose of this qualitative study was to explore elementary administrators' perspectives of and experiences with NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design, which constituted a gap in the literature. The following research questions guided this study:

RQ1: What are elementary administrators' perspectives of and experiences with NBL?

RQ2: What are elementary administrators' perspectives of and experiences with how NBL supports student development?

RQ3: What are elementary administrators' perspectives of and experiences with how NBL is included in curricula and design?

In Chapter 4, I present the setting of the study, participant demographics, data collection, data analysis, evidence of trustworthiness, and study results.

Setting

There were no personal or organizational conditions that influenced participants or their experience at the time of the study that may have influenced my interpretation of the study results. For example, there were no changes in personnel, budget cuts, or other trauma reported. One setting component that should be noted is the use of digital interviewing because it restricted the scope of research to participants that had access to technology allowing for digital interviewing.

Demographics

All participants were currently employed at a public elementary school within the United States at the time of the study. All participants held active positions within their elementary school as principal. Participants resided and were employed within seven different states across the United States. Eight of the 10 participants were female, and two were male. Table 1 displays the participants by number, school type, title, state, and gender.

Table 1

Participant Demographics and Characteristics

Participant	School Type	Title	State	Gender
P1	Elementary	Principal	Nevada	Female
P2	Elementary	Principal	California	Female
P3	Elementary	Principal	New Hampshire	Female
P4	Elementary	Principal	Nevada	Male
P5	Elementary	Principal	Montana	Female
P6	Elementary	Principal	Montana	Female
P7	Elementary	Principal	Minnesota	Female
P8	Elementary	Principal	California	Female
P9	Elementary	Principal	Oregon	Male
P10	Elementary	Principal	Montana	Female

Participants' experiences with NBL varied. For example, some participants had minimal experience with NBL, while other participants had extensive experience with NBL. Table 2 shows participants' experience with NBL along with quotes from their interview in the form a response to one of the sentence completion stems that were used to prompt administrators to share their experience with NBL.

Table 2

Participant Experience With Nature-Based Learning

Participant	Quote
	Sentence completion stem:
	My experience with nature-based learning is…
P1	"Attending workshops as a teacher and promoting nature-based learning in the school as a leader"
P2	"Minimal but wanting"
P3	"Rewarding"
P4	"As a kid and as a student. That's where it starts. And in my life experiences. Then transition into becoming a teacher and being responsible for teaching it. And now it's making opportunities possible"
P5	"Is very positive because I have seen the benefits it has given my students throughout my experience as an educator"
P6	"Mainly when I was a teacher and I got to go to phenomenal workshops"
P7	"That it's the best way to learn"
P8	"So, I love nature-based learning because it gets kids outside. And I think it's super important to their mental health…education…and ability to be engaged in learning"
P9	"Framed through my time with outdoor school and their use of field study"
P10	"Limited, but I would love to expand"

Data Collection

In this basic qualitative study, 10 participants took part in semistructured interviews. The interviews look place on Zoom from August 2022 to October 2022; I was in California, in a private office, and participants were in their homes or private offices. Each interview lasted no longer than 1 hour and consisted of 11 interview questions and seven sentence completion stems. The interview protocol, audio and video recording, and transcription were recorded, collected, and stored for each interview. There were no variations in data collection from the plan presented in Chapter 3. Recruitment did not

result in too few participants, so snowball sampling was not required. There were no

unusual circumstances encountered in data collection.

Data Analysis

I was able to conduct data analysis according to my data analysis plan. Data

analysis comprised six steps regarding data: collection, engagement, extraction, coding,

conceptualization, and representation (see Peel, 2020). Figure 1 portrays this data

analysis process in its entirety, beginning with data collection and ending with data

representation.

Figure 1

Data Analysis Process
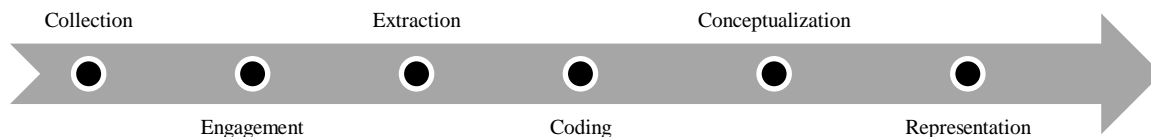
I transcribed the interview recordings following each interview using the Zoom

transcription tool followed by hand transcription. I used the coding procedures outlined

by Saldaña (2021), shifting between the stages of data analysis as an iterative process.

Regarding thematic analysis, raw data and analytic memos were employed to create

codes, categories, themes, and concepts (see Miles et al., 2014). The Quirkos software,

tables, and charts allowed for visual presentations of the data.

Each interview consisted of 11 interview questions and seven sentence

completion stems. Both the interview questions and sentence completion stems were

organized in the interview protocol according to alignment with each of the three

research questions. I followed the data analysis process for the interview questions and

the sentence completion stems in the same manner, from the initial collection step to the

final representation step.

I moved inductively from coded units to larger representations, including

categories and themes. A priori codes were developed prior to data collection. As data

were collected, I created open codes. Table 3 lists a priori codes and open codes created

and used. I began with 30 a priori codes, and as I collected data, 23 open codes were

created. With the finalization of data collection, I had accumulated a total of 53 a priori

and open codes.

Table 3

A Priori and Open Codes

A priori codes	Open codes
Administrative learning	Access to resources
Administrator experiences	Administrative budgeting
Barriers	Administrative leadership
Cognitive	Connection
Disadvantages	Differentiation
Engagement	Equity
Experiences	Essentiality
Formal education and development	Generational change
Learning environments	Immersing
Learning modes	Mindset
Learning opportunities	NBL representatives
Loose parts	Parent initiative
Nontypically developing students	Passion
Norming	Possible disadvantages
Partnership with organization	Promoting NBL as an administrator
Personal experiences	School district governance
Physical	School structures
Positivity	Sharing
PD	Sharing with stakeholders
Real-life applications	Teacher reflection
Reasons for using NBL	Teacher training
Resources	Understanding
Running NBL at school	Viewing NBL practices
Social-emotional	
Student benefits	
Teacher initiative	
Time	
Transdisciplinary	
Unstructured play	
Value	

I was able to engage, extract, code, and conceptualize the data using the Quirkos qualitative data analysis software. Participants' responses were highlighted directly from the transcription and then assigned or had codes created for them. The Quirkos software permitted the clustering of related codes and the generation of graphic representation of codes. After data collection, I inserted the transcribed data into the software program organized by participant and interview protocol question and type. As I highlighted parts of the transcription data, I dragged the highlighted section to the code I wanted to assign to that data. The notes function was also used for analytic memos associated to certain participant responses. I created open codes as I went through the engagement, extraction, coding, and conceptualization steps.

Quirkos allows for interaction with the data in other ways as well. For example, I was able to color code, change the style of the graphic representation, change the settings regarding numerical representations, and organize the data in clusters and groups. As more participant responses were assigned to a code, the code's graphic representation circle increased in size. As I progressed through engagement, extraction, coding, and conceptualization iteratively, themes started to appear. I used this whole process to create the figures and tables present within this study.

Figure 2 displays one example of this engagement, extraction, coding, and conceptualization within the Quirkos software. There were 30 codes directly and indirectly associated with the differentiation code. Data from transcripts were directly tied to the differentiation code four times. Data from transcripts were tied to the differentiation code indirectly 26 times, through the learning opportunities, learning

environments, loose parts, and learning modes codes. An additional code, hands-on, was placed beneath the learning modes code. In the same way, the learning opportunities, learning environments, loose parts, and learning modes codes were placed beneath the differentiation code. The size of the circle or "Quirk" matched with each code corresponds to the numerical label, representing the number of times this code was matched to transcription data. In other words, the larger the circle or "Quirk" of the code, the more times that code was used in data analysis. So, although differentiation was coded four times directly; differentiation through learning opportunities was coded five separate times; differentiation through learning environments was coded nine separate times; differentiation through loose parts was coded six separate times; and differentiation through learning modes, including hands-on learning modes, was coded six separate times. The differentiation code and related codes were connected most strongly to one theme in particular: Administrators shared a variety of NBL student benefits. This theme was linked to RQ2.

Figure 2

Quirkos Software Example: Codes Associated to the Differentiation Code
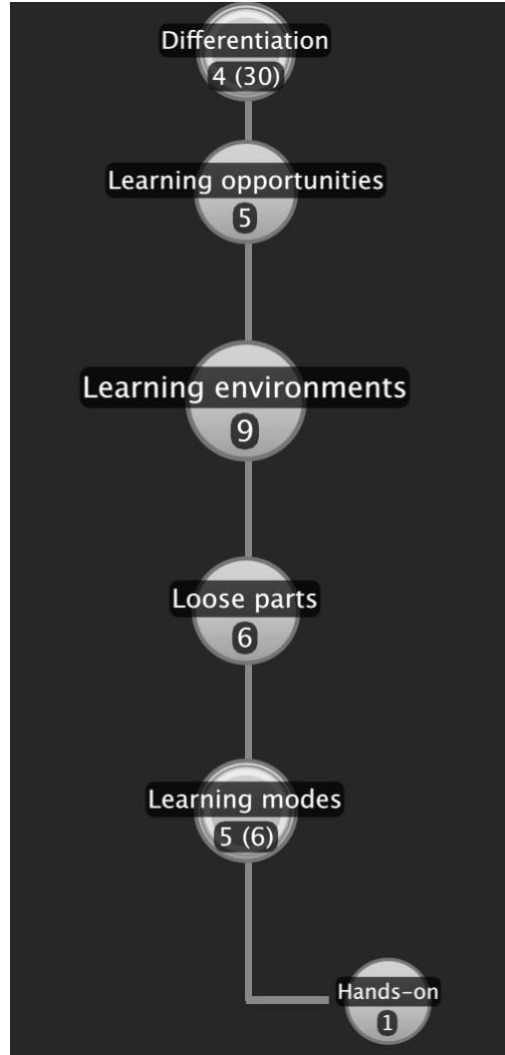
As the data analysis process evolved, nine unique themes emerged:

1. Administrators included personal NBL experiences and NBL experiences as a teacher as foundational experiences from which NBL administrator experience was built.

2. Administrators reported a lack of understanding, a fear mindset, and a lack of stakeholder support regarding NBL in schools.

3. Administrators shared the essential, imperative quality of NBL.

4. Administrators reported a generational change in aspects of education and child development as they pertain to nature.

5. Administrators shared a variety of NBL student benefits.

6. Administrators reported no disadvantages to students from NBL.

7. Reasons for using NBL within a school vary, but the most consistent reason is partnership with a NBL organization, representative, or resource.

8. Administrators reported the importance of district support for NBL.

9. Administrators expressed a need for NBL PD as well as difficulty regarding PD scheduling and time management.

In Table 4, I organized the nine themes by research question, with each research question having three corresponding themes. In the subsequent sections of this study, I align the nine themes to their corresponding research question.

Table 4

Themes Organized by Research Question

Research question	Themes
RQ1: What are elementary administrators' perspectives of and experiences with NBL?	1. Administrators included NBL experiences as a teacher and personal NBL experiences as foundational experiences from which NBL administrator experience was built.
	2. Administrators reported a lack of understanding, a fear mindset, and a lack of stakeholder support regarding NBL in schools.
	3. Administrators shared the essential, imperative quality of NBL.
RQ2: What are elementary administrators' perspectives of and experiences with how NBL supports student development?	4. Administrators reported a generational change in aspects of education and child development as they pertain to nature.
	5. Administrators shared a variety of NBL student benefits.
	6. Administrators reported no disadvantages to students from NBL.
RQ3: What are elementary administrators' perspectives of and experiences with how NBL is included in curricula and design?	7. Reasons for using NBL within a school vary, but the most consistent reason is partnership with a NBL organization, representative, or resource.
	8. Administrators reported the importance of district support for NBL.
	9. Administrators expressed a need for NBL PD as well as difficulty regarding PD scheduling and time management.

My implementation of trustworthiness criteria went according to plan through the practice of credibility, transferability, dependability, and confirmability (see Stahl & King, 2020). I established credibility, or internal validity, to ensure the study conducted its intended investigation through reflexivity, peer review, and the implementation of well-established research practices (see Shenton, 2004). I guaranteed the potential for transferability, or external validity, by providing a thick description of the procedures, background, participants, and study details for others to draw and apply their inferences appropriately and meaningfully (see Lincoln & Guba, 1985). I achieved dependability, assuring the study is repeatable and consistent over time (see Morse, 2015), by maintaining an audit trail (see Glaser, 2004). Finally, I established confirmability with reflexive journaling (see Ellis, 2019). These strategies combined to for trustworthiness, strengthening the study and its findings.

Results

Within this section, I present the results of this qualitative study. The purpose of the study was to explore elementary administrators' perspectives of and experiences with NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design. Following data analysis, I organized the results by research question.

Differences in participant responses and data as well as discrepant cases were noted for each research question and theme and were included in the data analysis. I discuss differences between participants within each theme's results subsection. Discrepant cases are discussed at the end of Chapter 4 in a sole subsection.

Research Question 1

RQ1 was: What are elementary administrators' perspectives and experiences with NBL? Within the engagement, extraction, coding, and conceptualization steps of the data analysis process, I saw patterns and similarities in the codes that led to the development of three themes aligned to RQ1. These three themes were:

1. Administrators included NBL experiences as a teacher and personal experiences as foundational experiences from which NBL administrator experience was built.

2. Administrators reported a lack of understanding, a fear mindset, and a lack of support from stakeholders regarding NBL in schools.

3. Administrators shared the essential, imperative quality of NBL.

Certain excerpts of data reinforced the overall principle embodied in each theme. I included these excerpts of data in the form of quotes. Table 5 shows the overarching research question, codes used for construction of the themes for this research question, and quotes reinforcing the main principle of each theme.

Table 5

Codes Organized Into Themes for Research Question 1

RQ1: What are elementary administrators' perspectives of and experiences with NBL?		
Codes	Themes	Quotes
Administrative budgeting Administrative leadership Administrator experiences Experiences Formal education and development Passion Personal experiences Promoting NBL as an administrator Running NBL at school Teacher reflection	1. Administrators included NBL experiences as a teacher and personal NBL experiences as foundational experiences from which NBL administrator experience was built.	P2: "I haven't had any formal training with it, but I just have a passion for it." P3: "Most of it has come from just me, immersing myself in this belief." P4: "My experience with NBL is as a kid and as a student. That's where it starts, and in my life experiences. Then transition into becoming a teacher and being responsible for teaching it. And now it's making opportunities possible."
Barriers Immersing Mindset Norming School structures Sharing Sharing with stakeholders Understanding Value Viewing NBL practices	2. Administrators reported a lack of understanding, a fear mindset, and a lack of support from stakeholders regarding NBL in schools.	P5: "NBL would be more valued if educators and students had proper understanding and knowledge of all that it encompasses." P6: "Making NBL a norm would require a total mindset change... it would have to come as a grassroots movement." P8: "Making NBL a norm would require district and community support."
Essentiality Student benefits	3. Administrators shared the essential, imperative quality of NBL.	P2: "I think it's even more important that it happens at school." P3: "Should be essential for every public school, K-12. It needs to happen."

Theme 1 Aligned to Research Question 1

The first theme that emerged from the patterns within the coding aligned to RQ1 was: Administrators included NBL experiences as a teacher and personal NBL experiences as foundational experiences from which NBL administrator experience was built. I used the following 10 codes to develop this theme: administrative budgeting, administrative leadership, administrator experiences, experiences, formal education and development, passion, personal experiences, promoting NBL as an administrator, running NBL at school, teacher reflection. A similarity across participants existed in personal and past NBL experiences driving administrative NBL perspectives and experiences. Indeed, personal experiences included personal emotions associated with nature and NBL. For example, Participant 2 stated, "I haven't had any formal training with it, but I just have a passion for it." In another example, Participant 3 stated, "Most of it has come from just me, immersing myself in this belief." Participants used their past experiences as foundational to their current NBL perspectives and experiences. Another example of this was expressed by Participant 4, saying "My experience with NBL is as a kid and as a student. That's where it starts and in my life experiences. Then transition into becoming a teacher and being responsible for teaching it. And now it's making opportunities possible." This similarity, personal and past experiences of NBL driving the administrative perspectives and experiences with NBL, ran across participant responses.

The most used code associated with this theme was reflection of experiences as a teacher. This code was used 13 times, more than any other code involving administrator experiences with NBL. Discussion associated with this code, reflection of experiences as

a teacher, then organically progressed into administrative experiences with NBL. As an

example, Participant 2 said:

> I don't have any formal experience or formal experiences. Just from myself, as a
>
> teacher. I like to take my kids outside for reading. We would do outdoor lessons
>
> as much as possible. When I taught the younger kids, we did a lot of nature walks.

At the time of the interview and in an administrative role, Participant 2 oversaw a school

that implements and incorporates NBL practices.

Administrators reflected on both positive and negative experiences tied to NBL

while employed as a teacher. Negative experiences tied to NBL were frequently

associated with barriers to implementing NBL. While reflecting, Participant 4 shared, "I

would say the most memorable and impactful is when left campus and had overnight trips

to other environments… We take them to the mountains and the ocean, which are both

nature-based experiences at the core with their program." At the time of the interview and

in an administrator role, Participant 4 continued to support NBL overnight trips because,

"Now it's making opportunities possible. We go on trips because I prioritize it. It is not

something we have to do, but I make it happen because we value that. That's how it

evolved." On the other hand, Participant 1 explained, "So, as a teacher, I didn't have

access to great resources." At the time of the interview, Participant 1 used grants,

administrative budgeting, and the administrative role to ensure NBL is accessible.

Participant 1 shared, "At the school I'm at now I have the ability to make budget

decisions that support that." Each teacher experience, whether positive or negative, was

foundational in each administrator's NBL experience and perspective building.

Moreover, the combination of positive and negative teachers' experiences tied to NBL was recalled and recounted as foundational to NBL experiences, especially moving forward with their careers in education, and in their NBL perspectives and experiences.

Administrators shared a variety of NBL experiences they participated in as teachers, including outdoor education programs, formal education experiences, PD trainings, workshops, outdoor lessons with students, integrating NBL into curriculum as a teacher, and field trips. Each of these experiences was somehow meaningful, positive, and foundational for the administrator. There was not an instance in which the administrator did not want to continue, share, or incorporate NBL because of administrators' past experiences with NBL as teachers. On the contrary, administrators used past teacher NBL experiences to develop their own administrative leadership that involved NBL practices and incorporation. As administrators, participants oversaw, manages, implemented, and shared a variety of NBL programs. These included gardens, animal sanctuaries, outdoor education programs, outdoor lessons with students, integrating NBL into curriculum, and field trips. The components of NBL experienced by administrators as teachers reflected the components of NBL being implemented by administrators.

The second-most used code associated with this theme was passion. Passion seemed to drive the action behind administrators' experiences and perspectives regarding NBL. Further, passion meshed with other aspects of NBL, such as desire, motivation, connection, and fulfillment. Participant 4 explained, "Well, [NBL] typically happens first with people who are attracted to the natural environment itself." This view established

personal passion as a kind of prerequisite for incorporating NBL within a school. Participant 3 shared that the NBL experience as an administrator started as "doing my own little research and connecting with like-minded people… It's never been a training for me." In this, Participant 3 showed how NBL was not a formal PD, but a personal, self-motivated pursuit. In another example, Participant 2 shared that the experience with NBL is "minimal but wanting." This statement demonstrated personal desire.

Similarly, the passion code was almost always connected to the personal experiences code. Participants' personal experiences ranged from personal experiences as a child, as an adult, or as a parent. Participant 4 recollected personal experiences as a child, then explicitly recalled the progression from child to student, to teacher, and to administrator. As a result of these personal experiences and this progression, Participant 4 shared NBL with an entire school of children. Participant 2 reflected on NBL experiences as a parent, "And with my own daughter, we do a lot, you know…outside time…, and we just talk about the things we see." Much like Participant 2's involvement as a parent, the administrative role has become involved with NBL practices, such as school gardens and outdoor learning spaces. Participant 1 shared the spark for a school animal sanctuary, their pet dog, and said, "This is the start of living things at the school. That's the truth." Accordingly, administrators included personal NBL experiences as foundational regarding NBL administrator experience.

Although the pattern and similarity amongst participants' responses were clear, there were differences between participants as well. For this theme, the main difference in participants' responses was regarding collaboration between schools. Regarding

teacher and personal experiences, many administrators noted collaboration between schools, NBL organizations, colleges, state parks, and PD programs. However, regarding administrative experiences, only one administrator mentioned collaboration with other schools in NBL pursuits saying, "We visited some other school gardens" as part of the logistical design process. There was no other mention of collaboration between schools when referring to administrative experiences and perspectives regarding NBL. This finding illustrates that the collaboration amongst schools, at the administrative level, is minimal if existent.

Overall, administrators included prior NBL experiences as a teacher and personal NBL experiences as foundational experiences from which administrators' experience with NBL was built. This similarity was demonstrated across participants. Administrators reported NBL experiences as a teacher and personal NBL experiences in a variety of ways, through an assortment of NBL experiential examples, and with fluctuating ties to passion.

Theme 2 Aligned to Research Question 1

The second theme that appeared from the patterns within the coding aligned to RQ1 was: Administrators reported a lack of understanding, a fear mindset, and a lack of support from stakeholders regarding NBL in schools. I used the following nine codes to develop this theme: barriers, immersing, mindset, norming, school structures, sharing, sharing with stakeholders, understanding, value, and viewing NBL practices. Most participants noted mindset, overall, as a barrier, asset, and value-creator for NBL. This mindset idea was in reference to all stakeholders: students, teachers, parents,

communities, administrations, and districts. For example, Participant 5 explained, "NBL would be more valued if educators and students had proper understanding and knowledge of all that it encompasses." Additionally, Participant 6 stated, "Making NBL a norm would require district and community support." The similarity of a lack of understanding, a fear mindset, and a lack of support from stakeholders regarding NBL in schools was shared from all participants in a direct or indirect manner.

Codes associated with this theme were evenly dispersed, with no one code appearing significantly more or less than others. The most used codes were the barriers, norming, and value codes, which served as umbrella codes for other codes used in this theme. This theme was broken into three main ideas: lack of understanding, fear mindset, and lack of support from stakeholders regarding NBL in schools. Although all these ideas are related, administrators' perspectives shed light on each idea in different ways.

When administrators reported a lack of understanding regarding NBL, this was in reference to all stakeholders and for a variety of reasons. For example, Participant 1 stated that making NBL a norm would require "more school to understand that there are resources to help [them] do that," and "NBL would be more valued if more schools saw what my school get of out it." In this case, the stakeholders were the schools, and the reason was to help schools implement NBL practices. In another example, Participant 2 explained that making NBL a norm would require "sharing experiences, so teachers could see benefits and see it working effectively. Parents can see all those things, and then schools and districts would value it." Here, the stakeholders were teachers, parents, schools, and districts, and the reasoning was to see the benefits and increase the value of

NBL. Indeed, participants agreed that the value of NBL would be increased if "people had experience with it" (P7), if "everyone saw the value" (P8), and if "people could immerse themselves in the experiences" (P10). In these examples, the stakeholders were generally addressed as people, and the reason was to increase the value of NBL. Moreover, administrators shared an overarching lack of understanding of NBL and went on to address possible ways to address this issue.

Mindset, specifically fear mindset, was a common code raised among administrators. Participant 6 prescribed "a total mindset change. Making NBL a norm would require a total mindset change… It would have to come as a grassroots movement." This, again, implied the involvement of all stakeholders regarding a shift in mindset within the education realm toward NBL. Not only would stakeholders' mindsets have to change, but they would have to shift entirely. Related to this mindset change were barriers for the implementation of NBL in schools. Barriers reported by administrators for implementing NBL in schools included "fear" (P3), "closed mindset" (P5), and "a big fear of doing things wrong" (P6). Moreover, the implementation of NBL within schools is hinged, in part, on a fear mindset.

Administrators also reported a lack of support from stakeholders regarding NBL in schools. Stakeholders range from school districts to school administrations, and to parents. Participant 1 said, "My district did a mass adoption of a science program. Now, a lot of the time that had been flexible for teachers has now been the box of curriculum that you need to incorporate." This example portrayed a lack of district support for NBL, by placing more value on non-NBL curricula instead of NBL curricula. Participant 8

reinforced this, stating NBL "needs to be valued by the district in order to be integrated."

In another example, Participant 2 described lack of support from other school

administrators. When discussing supports available to teachers when implementing NBL

at a school, Participant 2 stated that support "would vary site by site. I would support it

because I think it's wonderful, but somebody's got a different opinion at another site."

This statement illustrated the inconsistent support of NBL, solely based on school

administrator. Lack of support stretched to the parent stakeholder group, as well.

Participant 4 explained how NBL was "not a priority for parents" and Participant 3

described "parent perspective and buy-in" as a "barrier." Further, Participant 7 labeled

"adults," in general, as a barrier for integrating NBL in a school. As such, incorporating

NBL is hindered by the lack of support from stakeholders regarding NBL in schools.

Although the pattern and similarity among participants' responses were clear,

there were differences between participants as well. For this theme, the main differences

in participant responses were lack of understanding, fear mindset, and lack of support

with a fixed perspective. Most administrators discussed these components with a segue

into opportunities for growth, change, or development. Although most administrators

went on with further discussion, few administrators did not provide solution or address of

these issues to accompany their discussion of lack of understanding, fear mindset, and

lack of support.

In sum, administrators reported a lack of understanding, a fear mindset, and a lack

of support from stakeholders regarding NBL in schools. As shown, stakeholders referred

to many involved in the NBL implementation process: districts, administrators, teachers,

and parents. The lack of understanding, fear mindset, and lack of support referenced a myriad of components of NBL, from curriculum adoption to NBL practices, to student benefits.

Theme 3 Aligned to Research Question 1

The third theme that materialized from the patterns within the coding aligned to RQ1 was: Administrators shared the essential, imperative quality of NBL. All participants discussed the essentiality and student benefits of NBL. Accordingly, I used two codes to develop this theme: essentiality and student benefits. There were a variety of levels of essentiality of NBL in schools. For example, Participant 2 stated, "I think it's even more important that it happens at school," when comparing home and school environments regarding NBL and nature. When discussing the importance of NBL at school, Participant 3 said "NBL should be essential for every public school, K-12. It needs to happen." Administrators expressed how NBL was indispensable. I recorded administrators' sharing the essential, imperative quality of NBL in all interviews.

The coding of this theme was the most straightforward, as all administrators explicitly and directly shared the essential quality of NBL. First, Participants 1 and 3 described the inclusion of NBL into school curricula and design as "essential." The essential quality of NBL established NBL as necessary and indispensable in schools. Next, Participant 2 stated, "NBL is wonderful. I think there should be more of it in schools. I think public schools are missing a lot of that." In this example, Participant 2 not only shared the essentiality, but the demand for more NBL in schools. Then, Participant 4 stated that "NBL is essential to a well-rounded education. I don't think it's

any more or less important than anything else." This statement highlighted the holistic characteristic of NBL in relation to integration within schools, as well as ranked NBL as just as important as other key parts of student education. In another example, Participant 5 discussed a personal belief "that every curriculum should have a nature option" and how including NBL into school curricula and design "is a wonderful opportunity to immerse students in this type of authentic learning." Here, Participant 5 described NBL as a valid, dependable mode of learning needed as an option for students and advocated for NBL presence in all curricula. Participant 7 expressed the significance of NBL as "the best way to learn," "critical," and "We do not have enough of it in our country." Paralleling this idea, Participant 8 described NBL in relation to student development as "so important." Elevating NBL, Participant 9 compared NBL to more traditional teaching strategies when stating, "I believe it has more advantages for students than traditional didactic-based academic learning." This account raised NBL to be not only essential, but superior. Looking ahead, Participant 10 shared "I think [NBL is] something that will definitely be a part of our future." According to Participant 10, not only was NBL of essential nature at the time of interviewing, but it will be of essential nature moving into the future.

In conclusion, Theme 3 was: Administrators shared the essential, imperative quality of NBL. This theme was clearly exemplified in all participant interviews. Although there were differences in the content and degree of the essentiality, the overall theme was unequivocally present from all participants. There were no data that described NBL as nonessential.

Research Question 2

RQ2 was: What are elementary administrators' perspectives and experiences on how NBL supports student development? During the engagement, extraction, coding, and conceptualization steps of the data analysis process, I observed patterns and similarities in the codes that led to the creation of three themes aligned to RQ2. These three themes were:

4. Administrators reported a generational change in aspects of education and child development as they pertain to nature.

5. Administrators shared a variety of NBL student benefits.

6. Administrators reported no disadvantages to students from NBL.

Specific passages of data reinforced the overall idea represented in each theme. I included these passages of data in the form of quotes. Table 6 shows the central research question, codes organized into themes for this research question, and quotes reinforcing the main idea of each theme.

Table 6

Codes Organized Into Themes for Research Question 2

RQ 2: What are elementary administrators' perspectives of and experiences with how NBL supports student development?		
Codes	Themes	Quotes
Generational change Learning environments Loose parts Real-life applications Student benefits Unstructured play	4. Administrators reported a generational change in aspects of education and child development as they pertain to nature.	P8: "They don't play like they used to. so, I love nature-based learning because it gets kids outside. And I think it's super important to their mental health…education…and ability to be engaged in learning."
Cognitive Connection Differentiation Engagement Equity Learning modes Learning opportunities Nontypically developing students Physical Positivity Social-emotional Student benefits Transdisciplinary	5. Administrators shared a variety of NBL student benefits.	P10: "I think of more transformational practice. I think of more hands-on experiences.... across all domains." P9: "I think for our non-neurotypical students and students who have various ways of processing the world, that sensual aspect of NBL is an integral part of their learning and engagement... it's like the ultimate accommodation and differentiation."
Disadvantages Possible disadvantages	6. Administrators reported no disadvantages to students from NBL.	P1: "I can't think of any." P4: "I don't know if there is a downside really." P7: "I don't know of any."

Theme 4 Aligned to Research Question 2

The first theme that emerged from the patterns within the coding aligned to RQ2 was: Administrators reported a generational change in aspects of education and child development as they pertain to nature. I used the following six codes to develop this theme: generational change, learning environments, loose parts, real-life applications, student benefits, and unstructured play. Participants' responses yielded the similarity in reporting of this generational change, especially concerning the relationship between education, child development, and nature.

When directly discussing this generational change, administrators brought up a variety of factors that may have influenced such change. Participant 6 discussed learning opportunities related to this generational change. Participant 6 described:

So much learning is very two dimensional. They don't get that essence of space. A lot is lost in managing the word around them because they don't know how to interact with the environment around them. Some don't even know how to use a broom or a shovel. The new science standards were changed a few years ago and so it's look at as a topic where you go from Chapter 1 to the end of the book. Why aren't we basing the standards on the seasons? With what surrounds students in science naturally? So, they can watch science around them.

In another example, Participant 2 mentioned technology and surrounding environments as factors, stating, "Kids these days are just so glued to screen and inside, even just the playing outside with your friends after school. And you know, communities have kind of changed in that regard." Participant 6 discussed another factor,

overcrowding. As a result of ineffective "classroom sizes" changes in learning spaces and play and were the products of an overcrowded system.

Administrators most commonly linked generational change with the concepts of play and nature. Participant 8 explained the primary idea of this theme, saying, "They don't play like they used to. So, I love nature-based learning because it gets kids outside. And I think it's super important to their mental health…education…and ability to be engaged in learning." Participant 2 illustrated this link, stating "It's changed…they don't know how to just be in play. They don't tie it back into the nature. I think there's an opportunity there." Another code directly related to this theme was unstructured play. A change was described by Participant 1 when saying, "The hard part is that play and education has become a bad word. It's sort of got a negative connotation to it when you've got to spend so much time doing instructional stuff." From these descriptions, administrators shared the generational changes in education through the example of play.

I noted a difference pertaining to participants' responses. Some participants observed the generation change in aspects of education and child development as they pertain to nature and were able to identify and label the change. However, some administrators observed the change and could not describe the phenomenon. For example, one participant said, "I grew up much differently" as a response in describing the generational change in aspects of education and child development as they pertain to nature.

In sum, administrators reported a generational change in aspects of education and child development as they pertain to nature. The generational change was not only

shared, but factors regarding the generational change were also discussed. These changes emerged through the discussion of changes in play, technology, surrounding environments, communities, classroom overcrowding, and connection to nature.

Theme 5 Aligned to Research Question 2

The second theme related to RQ2 was: Administrators shared a variety of NBL student benefits. I used the following 13 codes to construct this theme: cognitive, connection, differentiation, engagement, equity, learning modes, learning opportunities, non-typically developing students, physical, positivity, social-emotional, student benefits, and transdisciplinary. In one example, Participant 7 shared the overarching idea of this theme when stating NBL fosters "all kinds of development. It is wholly beneficial in every way." In this analysis, I grouped the ideas of this theme into three categories: differentiation, domains of child development, and NBL specialties.

The most used code pertaining to this theme was differentiation. Here, differentiation means tailoring educational facets to provide what is needed for learning and development. Participant 1 painted differentiation by saying, "There are these opportunities here that you just don't have at every school." In this way, the opportunities provided at Participant 1's school to students differ from non-NBL schools. As a result, Participant 1 can meet student needs in a different way than non-NBL schools, thus, differentiating. Participant 5 reflected on NBL and differentiation holistically when stating:

> What first comes to mind when I think of nature-based learning is literally just
> students having experiences with nature. The actual literal thing. And you know,

allowing that opportunity and choice for students so we can have them flourish at

their appropriate environments and levels in school.

In this, Participant 5 shed light on the true student benefit of NBL through differentiation.

Participant 5 went on to explain how NBL differentiation was employed "just simply to

meet the various individual learning needs of the students that come into our doors." In a

similar manner, Participant 6 described NBL differentiation as "freedom to choose" in

respect to learning.

Administrators described differentiation attained through NBL in a range of ways.

When describing learning spaces and environments, Participant 1 said, "Well, they're all

different. I feel like this environment is one where people can do what fits them." In this

example, Participant 1 shared how NBL fosters differentiation for teachers and students.

Participant 8 explained an observation regarding differentiation and the physical NBL

learning environment, stating, "Kids just learn better outside." This idea showed an

example of differentiation at the physical environmental level. When describing learning

modalities, Participant 2 stated, "It's super hands-on with the kids." This statement

demonstrates how NBL cultivates student engagement. Similarly, Participant 5 said:

> The benefit is nontraditional learning experience, to go out in nature and be able
>
> to learn in it, maybe a different way. Because you know, as educators and
>
> administrators, we know that not all students learn the same. I think that great
>
> benefit would be for students who, maybe for the first time, would be able to
>
> explore their talents and strengths in a different way from answering a question in
>
> class or writing an essay.

In this example, Participant 5 shared how differentiation through NBL could benefit students that require additional learning modes and styles. Overall, Participant 9 discussed how NBL serves as the "ultimate accommodation and differentiation."

The domains of child development served as a framework throughout this study (The National Association for the Education of Young Children, 2022). Each child development domain appeared in data analysis coding: cognitive, social-emotional, physical, and linguistic. Participant 3 compared NBL practices to more traditional practices, highlighting the student benefits as they relate to the domains of child development, stating:

> It's not worksheets and workbooks. You see that academic growth, helping kids become good humans…being outside teaches all those skills…showing empathy, perseverance, grit, it's okay to get dirty, it's okay to be outside and be cold. We dress for the cold!

One domain of child development reported as a student benefit of NBL was cognitive development. Participant 1 discussed the academic benefit, directly relating to cognitive development, when sharing, "The academic benefits, I think that is clear." Participant 3 shared the cognitive benefit, saying, "The nature-based component feeds the academic student outcomes." Participant 1 went on to explain the social-emotional student benefit of NBL, saying, "I think the coolest part about this is the kids, when there's a behavior problem. It's a lot easier to go and walk with our therapy dog or walk and pet the dragons." Similarly, Participant 2 shared, "the social-emotional piece. It can be calming, therapeutic to be working in a garden. I think there's a lot of student benefit

for it." Participant 2 went on to say, "There can be calming, exciting, all different social-emotional benefits and relationships" when referring to NBL student benefits. For example, one social-emotional skill that was fostered by NBL was collaboration. Participant 2 shared, "The kids are doing it together." Participant 7 discussed the student benefit pertaining to physical development, of NBL, saying, "there's body control, body understanding and growth, fine motor, and gross motor skills. You are running and doing things in a different way, with variety from how you do things inside." Participant 3 shared the linguistic development student benefit, reporting "open communication" as one of the benefits of NBL.

The second most used code, NBL specialties, described certain student benefits that administrators perceived as direct products of NBL. These specialties do not naturally fall within the differentiation category or the domains of child development category. The specialty benefits reported as NBL benefits for students were connection and relationship with nature, real-life applications to learning, learning engagement, risk-taking, and equity.

The first benefit reported was connection and relationship with nature. Participant 1 portrayed this NBL benefit when saying, "So for us, it kind of just gives the kids an opportunity to have a connection." Participant 2 went on to describe the nature connection as students having "the responsibility and the care for things." Participant 2 further stated, "Environmentalism and all those pieces start to be important young. And they have an appreciation of nature, how they can benefit from it, and how they can take care of it." Here, Participant 2 described the relationship as a full circle, between nature

and student, as well as between student and nature. Participant 8 reflected on the student connection and relationship with nature:

> With sustainability, we think a lot about the world and how it affects us. The farm
> is a working farm that produces the food that the kids eat at lunch. They are
> exposed to different ways in which a farm affects life. They do all kinds of
> projects there. They harvest, they see life cycles. We do a lot of farm-to-table type
> stuff. We integrate the garden into our life science teaching. The kids have access
> to a garden as part of their play. So, we have this informal stuff along with formal
> education.

In this example, Participant 8 described not only ways in which students benefit from integration of NBL into the school's practices and curricula, but ways in which students benefit by forming a relationship with nature in their playtime, in their lunchtime, and in their lives, overall.

Another benefit reported was real-life applications to learning. Participant 1 described this real-life application as "the ability to have real things when they're talking about those subjects in life and in ELA and sciences and social studies." Similarly, Participant 2 said NBL was "a way to bring hands-on learning that's also standards based." Participant 4 shared real-life application, saying, "Most of it is hands-on. Those hands-on things spark curiosity, it speaks to everyone differently. It has an impact on everyone." Participant 6 said nature-based learning was "more tangible to the students and their world around them." Participant 9 said, "They can conceptually understand it because it's right in front of them." One way administrators reported creating this real-

life application was through transdisciplinary incorporation of NBL. Participant 2

explained, "You can blend it through everything: English, math, history, science. It can

be incorporated across the spectrum." Participant 3 shared ways to incorporate NBL in

real-life applications, "We've incorporated part of our social-emotional learning work

into nature, some of our occupational work from the occupational therapy perspective

into nature."

Learning engagement was another reported benefit. Participant 1 reflected, "If

you aren't engaged in your learning, how are going to do that? And so, we work to use

our garden and animal sanctuary in that way, to engage in the network and in learning."

In this example, Participant 1 showed how NBL directly promoted students' engagement

in their learning. Participant 7 shared NBL "is a way to engage all our senses in

learning." One reason why students may be engaged more in their learning through NBL

is explained by Participant 2: "It's something fun so I think that's why they might want to

do it." In the same way, Participant 8 said, "It's enjoyable," and Participant 7 said, "It just

makes you happier." Another reason for engagement included "that sense of pride and

accomplishment of when you dig up that carrot, and then the ownership of the project,

too" (P2). Participant 3 shared another reason for student engagement as relating to the

physical learning environment and NBL, when stating, "taking some of our science and

social studies curriculum and moving them outside." Participant 7 shared how the

outdoor learning aspect of NBL is especially engaging for certain students, saying,

"There's research on ADHD as that kids are wigglier now. They enjoy being outside

more, and they have better attention when they are outside."

Another special benefit associated with NBL was risk-taking. When describing students interacting with a garden, Participant 2 stated, "Just watching the kids, they independently explore the garden and eat things they wouldn't have eaten normally and get excited." Participant 3 said, "It teaches kids to step outside of their comfort zone and take risks." Participant 5 shared that this comfortability and risk-taking promoted through NBL helps "establish creativity in class."

The last benefit shared was equity. Participant 3 said, "It breaks down the barrier. It just equals the playing field." Participant 10 stated, "Without having nature-based learning, I don't think there are a lot of kids who would ever have those opportunities to be able to experience a lot of practical things." In these examples, administrators demonstrated how NBL not only promotes, but creates equity among all students.

Although the patterns of this theme were evident, there was variation. One difference involved the use of loose parts with NBL differentiation, the domains of child development, and NBL specialties. In this study, loose parts refer to interactive variables on materials that allow for manipulation, transformation, experimentation, and creation for children or students, and often associated with outdoor, active, or self-guided play (Gull et al., 2019). About half of the administrators meshed loose parts with their descriptions of NBL. On the other hand, about half of the administrators did not explicitly connect loose parts to NBL. For example, some administrators discussed the use of loose parts activities, such as logs, hammers, and shovels by students; other administrators did not.

Moreover, the second theme linked to RQ2 was: Administrators shared a variety of NBL student benefits. In this analysis, I grouped and explained the ideas of this theme according to three categories: differentiation, domains of child development, and NBL specialties. NBL differentiation occurred because of and for a variety of student-focused reasons. All the domains of child development were cited as student benefits achieved through NBL. Additionally, students collected several specialty benefits directly corresponding to NBL.

Theme 6 Aligned to Research Question 2

Theme 6, aligned to RQ2, was: Administrators reported no disadvantages to students from NBL. I used the following two codes to build this theme: disadvantages and possible disadvantages. No participant shared disadvantages to students occurring from NBL. About half of participants shared potential disadvantages, although these were not always student focused.

When asked about disadvantages to students from NBL incorporation into school curricula and design, administrators shared reported no disadvantages to students. Participant 1 shared, "I can't think of any." Similarly, Participant 3 said, "I don't have any." In parallel, Participant 4 stated, "I don't know if there is a downside really. I don't think there is a downside." Correspondingly, Participant 7 said, "I don't know of any disadvantages."

Following the reporting of no disadvantages to students from NBL, some administrators shared possible disadvantages that could arise from NBL incorporation into a school curricula and design. Administrators meshed potential disadvantages with

barriers to incorporation. Participant 2 discussed the potential disadvantages of NBL taking away from other curriculum components, parent perceptions, and political perceptions when stating:

> Well, I don't know if I 100% agree with all of these as disadvantages, but what one might argue would be that it's taking away from other pieces of the curriculum. I do think you can have it and still have a robust, rigorous curriculum, but I think that would be one of the arguments against it. Some parents don't like their kids to come home dirty. And politically, about environmentalism.

In another example, Participant 3 reinforced the potential disadvantage of parent perception, but also offered a solution. Participant 3 explained:

> I think if you don't take the time to educate families and educate parents, it could backfire. It's just a lack of understanding. I think if we come at it from being prepared and explaining and justify it as a way that supports the learner.

Participant 4 thought, "I think people are just used to what they are used to, and they are afraid to do something differently. Potentially, we could lose those foundational skills, but I think overall there would be more net positives." Participant 4 reinforced the possible disadvantage of NBL taking away from other curriculum components and shared a rationale. In this example, Participant 4 also mentioned the fear-mindset barrier (see Kuo et al., 2018), meaning fear may act as a barrier for stakeholders to participate in and implement NBL. Participant 7 brought up one other potential disadvantage, which is meshed as a barrier, buy-in. Participant 7 said, "Some people don't want to do it."

Participant 7 went on to say, "Then this isn't the school for you," referring to those that do not support the school's incorporation of NBL into school curricula and design.

The variation between participants' responses regarding Theme 6 was whether the participant chose to include possible disadvantages in their response. About half of administrators' responses included possible disadvantages, although they did not always focus on disadvantages to students. If possible, disadvantages were included, these varied between possible disadvantages to students, possible disadvantages from parent perspectives, and possible disadvantages from political perceptions.

In totality, administrators reported no disadvantages to students from NBL. Although possible disadvantages were reported, these were not always disadvantages focused on students. Further, every administrator interviewed affirmed how NBL produced no disadvantages to students.

Research Question 3

RQ3 was: What are elementary administrators' perspectives and experiences on how NBL is included in curricula and design? Throughout the engagement, extraction, coding, and conceptualization stages of the data analysis process, I saw patterns and similarities in the codes that guided to the formation of three themes aligned to RQ3. These three themes were:

7. Reasons for using NBL within a school vary, but the most consistent reason is partnership with a NBL organization, representative, or resource.

8. Administrators reported the importance of district support for NBL.

9. Administrators expressed a need for NBL PD as well as difficulty regarding

PD scheduling and time management.

Specific examples of data fortified the main idea embodied in each theme. I included

these examples of data in the form of quotes. Table 7 shows the main research question,

codes organized into themes for this research question, and quotes highlighting the main

idea of each theme.

Table 7

Codes Organized Into Themes for Research Question 3

Codes	Themes	Quotes
RQ3: What are elementary administrators' perspectives of and experiences with how NBL is included in curricula and design?		
NBL representatives Parent initiative Partnership with organization Reasons for using NBL School structures Teacher initiative Teacher training	7. Reasons for using NBL within a school vary, but the most consistent reason is partnership with a NBL organization, representative, or resource.	P1: "Because the pairing with that organization makes sure all that stuff happens." P2: "If you don't have somebody to maintain it and help drive that, and keep the excitement going, then it just fizzles out."
Access to resources Barriers Resources Time	8. Administrators reported the importance of district support for NBL.	P8: "Including nature into school curricula and design would need to be valued by the district in order to be integrated." P3: "It would need buy-in from the school board down to the superintendent and down to an administrator who can find the balance, understanding, and wisdom behind NBL."
Administrative learning PD	9. Administrators expressed a need for NBL PD as well as difficulty regarding PD scheduling and time management.	P9: "Time is a problem. Our new curriculum adoptions take up most of the PD timeslots." P7: "Education standards can be met in an outdoor environment with a skilled instructor. All day, every day."

Theme 7 Aligned to Research Question 3

The seventh theme, which was aligned to RQ3, was: Reasons for using NBL

within a school vary, but the most consistent reason is partnership with a NBL

organization, representative, or resource. I used the following seven codes to construct this theme: NBL representatives, parent initiative, partnership with organization, reasons for using NBL, school structures, teacher initiative, and teacher training. Participant 1 described the main idea of this theme when saying, "because the pairing with that organization makes sure all that stuff happens." Furthermore, Participant 2 explained this main idea, stating, "If you don't have somebody to maintain it and help drive that, and keep the excitement going, then it just fizzles out."

The most-used code during data analysis connected to reasons for using NBL within a school was partnership with an organization. This code was used up to 17 times more than any other code used in this theme's data analysis process. Participant 1 referred to four organization with whom Participant's 1 school has partnerships to provide students with NBL. These organizations integrated school gardens, hydroponics labs, national parks, and animals into the school curricula and design. Participant 3 explained how NBL at school is "funded through nonprofit organizations who give us scholarship money to work on those programs." Participant 3 also mentioned partnership with local community organizations that are foundational in the implementation of NBL at school. Participant 9 discussed the organizational partnership with "an outdoor school," which brought outdoor learning opportunities to students. Further, Participant 10 talked about partnership with local community organizations, national parks, and nature-based organizations as ways of implementing NBL at school. These implementations included "gardening, planting, harvesting, avalanche training, farming, [and] hiking." Participant 10 discussed partnership with organizations in the form of obtaining a "school

grant" for funding. Moreover, partnership with a NBL organization, representative, or resource was a pivotal reason why NBL was incorporated at a school. This partnership was crucial for both the implementation of NBL at the school and the funding of NBL at the school.

The second most-used code and reason for using NBL within a school was school structures. Participant 1 captured the main idea of this reason when saying, "because the school is set up for that." Participant 3 explained how school structures enable and foster NBL through "an entire nature-based playground, an outdoor art space; we have this forest that teachers go out to. It might be Wilderness Wednesday or Forest Friday!" Participant 8 explained how the school used its "garden, school amphitheater, rock garden, greenhouse, garden in the kitchen, outdoor open spaces, trees," and district-implemented "farm lab" in strengthening the school's NBL practices. Participant 4 shed light on the other side of school structures, explaining, "You must have the resources. If you have the resources, obviously it's easier to do. If you don't have the resources, it's impossible."

Other codes used included administrative budgeting, administrative leadership style, teacher initiative, teacher training, provided curriculum materials, and parent initiative. Participant 1 shared, "At the school I'm at now, I have the ability to make budget decisions to support NBL." Participant 3 brought up administrative leadership style as a reason for using NBL, saying, "It was really important for me to look at it from that lens of what I need to do differently here as a public-school administrator." In another example, Participant 1 said, "There are a core group of teachers and one large

committee" when referring to teachers using NBL within a school. Participant 7 reinforced teacher training as a reason for using NBL and shared how "Our teachers are involved in providing teacher PD across the state and country." Participant 7 also discussed the importance of provided curriculum materials and, more broadly speaking, "their environmental education program." Additionally, Participant 2 shared reasons for using NBL within school as "parent-teacher association" and "parent initiative."

Differences were noted between participants' responses regarding this theme. Variation existed when administrators discussed teachers as a reason for using NBL within a school. When discussing teachers in this way, most administrators referred to teachers' initiative as the reason for using NBL within a school. The code of teacher initiative blurred into another code, teacher training. A few administrators referred to teachers' training and education credits for teachers as a reason for using NBL within a school. Although this difference is subtle, it demonstrated variation between teachers' personal initiative and the teachers' ambition to attain more education credit as two very different reasons for why teachers may use NBL within a school.

Overall, participants' reasons for using NBL within a school varied, but the most consistent reason was partnership with a NBL organization, representative, or resource. This partnership was cited as a reason for using NBL within a school significantly more than any other reason. Additional reasons for using NBL within a school included school structures, administrative budgeting, administrative leadership style, teachers' initiative, teachers' training, provided curriculum materials, and parents' initiative.

Theme 8 Aligned to Research Question 3

Theme 8 was: Administrators reported the importance of district support for NBL. I used the following four codes to create this theme: access to resources, barriers, resources, time. Participant 8 expressed the main idea of this theme when stating, "Including nature into school curricula and design would need to be valued by the district in order to be integrated." Administrators reported described district support in a variety of ways, including buy-in, resources, time, money, and school structures.

The most-used code in this theme's data analysis was barriers. Specifically, school district governance was the most discussed barrier pertaining to this theme. School district governance was cited as a barrier for implementing NBL at a school up to eleven times more than any other barrier code. Participant 9 identified "the district" as the main barrier for implementing NBL at a school. Participant 3 explained the school district governance barrier when saying that schools "would need buy-in from the school board down to the superintendent and down to an administrator who can find the balance, understanding, and wisdom behind NBL." Here, Participant 3 explained how school district support trickles down from the school district. In another example, Participant 1 shared how district initiatives take financial priority, saying, "There's an accounting. You can see when programs are purchased by the district." Reinforcing the main idea, Participant 9 reflected about making NBL a norm in schools, saying that this would require NBL "being part of our centrally and collectively adopted framework in the district."

Other district support components for NBL included resources, time, money, and school structures. Participant 2 stated, "I think the biggest hurdles are space, time, money, and resources." Participant 2 went on to explain the intricacies of school district financial logistics when saying, "We can't hire anyone to do outside work because it takes away a job from our district grounds people. But it for us to hire our district grounds people, it comes to overtime. It all comes back to resources." Participant 3 explained how NBL is difficult to implement without systems that could be provided with district support when discussing the challenges "if you don't have the funding to break those barriers with outfits or materials and shelter." Participant 4 said, "For us, time is a real factor simply because our day is short. Outside of that, the biggest challenge is having the appropriate resources to use…something that is user-friendly and accessible." Participant 1 reinforced this, too, when talking about reasons why NBL may not work at a school, saying, it may "kind of fizzle out because it wasn't part of a larger thing."

A pattern developed between participants regarding district support for NBL. All participants discussed district support components through the lens of what was lacking from the district for NBL. No participants discussed district support components through the lens of what was provided by the district for NBL.

Moreover, administrators reported the importance of district support for NBL. Not only is district support important, but it could be one of the biggest barriers for implementing NBL at a school, if not present. Administrators shared that district support could be buy-in, resources, time, money, and school structures.

Theme 9 Aligned to Research Question 3

The ninth and final theme aligned to RQ3, was: Administrators expressed a need for NBL PD, as well as difficulty regarding PD scheduling and time management. I used the following two codes to build this theme: administrative learning and PD. Participant 7 explained the need for PD, saying, "Education standards can be met in an outdoor environment with a skilled instructor. All day, every day." Further, Participant 9 explained how PD was a need, but time was a barrier to implementation, stating, "Time is a problem. Our new curriculum adoptions take up most of the PD timeslots." As such, Themes 8 and 9 are linked in that the school district played a role in the effective implementation of NBL within schools, first through school district supports, second through school district PD.

All administrators expressed the need for NBL PD. Participant 7 explained how PD is not a single workshop, but rather "it's constantly developing and revamping." Reasons for the need for PD involved integrating NBL, classroom management with NBL, and gaining new experiences in NBL. Participant 2 stated:

My school would really benefit right now because we have this budding garden, and I think we're in the headlights once it's built. So, I think we could use training on how to bring the garden into what they're already doing, so it becomes a piece within what they're doing not another piece on top of what they are doing. Classroom management along with that, with kids taking different roles and responsibilities outside.

Also, regarding integration, Participant 10 stated:

It just comes down to the time to implement it and add it into what we're already

doing. For teachers to have PD to understand that it's not just another thing and

that it could be a part of what they already have in place.

Participant 3 explained how PD could be particularly beneficial in providing NBL

experiences "for those people who are reluctant…for the reluctant teachers. And so, get

them partnered with someone who is comfortable and knowledgeable and allow them to

have that experience. And then extend it." PD would increase NBL knowledge through

experience, from administrators, to teachers, and to students. Participant 4 stated, "There

would be benefit because not everyone's knowledge base is the same." Participant 5

reinforced the overall need for PD, saying, "I believe my school would benefit from PD

on nature-based learning by just giving the experiences of what it could all entail and

encompass." Participant 6 extended PD to application when saying, "Education standards

can be met in an outdoor environment with focused collaboration by the teachers at each

grade." Participant 7 explained how PD would trickle down in benefit, stating that

including NBL into school curricula and design would require "time for teachers to

collaborate and work on things, including nature into school, curricula, and design, as

well as how it is important for kids and their development."

Most participants discussed the difficulty regarding PD scheduling and time

management. For example, Participant 8 said PD "would definitely be beneficial, but the

issue is scheduling." Participant 8 went on to explain how PD for NBL is:

essential; but it's hard to do it, and then it's hard to sell it, because the time that

teachers get to learn new things is very limited. The priority is on education,

moving test scores in reading and math, as well as social emotional health and

equity. And so you get very limited time to really focus on something different.

Participant 9 discussed PD for NBL, "So, it's a dance; it becomes hard. How do I do it?

How do I secure the resources to do it?" Then, Participant 9 explained, "It becomes

difficulty when the frigate of a district is navigating through the channel and pushing"

and "our new curriculum adoptions take up most of the PD timeslots." When discussing

teachers, Participant 9 said, "They are limited by their time and district mandates."

There were no differences or variation regarding participants' responses about

PD. All administrators unanimously reported a need and value for PD regarding NBL.

However, there was slight variation regarding whether administrators went on to discuss

difficulty regarding PD scheduling and time management. Although the majority of

administrators reported this difficulty, a few administrators did not discuss difficulty

regarding PD scheduling and time management.

Overall, administrators expressed a need for PD for NBL, as well as difficulty

regarding PD scheduling and time management. Reasons for the need for PD included

integrating NBL, classroom management with NBL, and gaining new experiences in

NBL. Integration of NBL was the most used reason why PD for NBL was needed. Most

administrators shared difficulty regarding PD scheduling and time management, thus

linking this theme to Theme 8 and increasing the need for district support when

implementing NBL within schools.

Discrepant Data

I planned to factor discrepant cases into data analysis. In this study, there were no discrepant cases found. Variations and differences in data did not qualify as discrepant data within this study. Specific cases of variations and differences amongst data were reported and discussed in each theme's individual section.

Summary

The results of this qualitative study are presented in the form of nine themes, serving as answers to the three research questions. The purpose of the study was to explore elementary administrators' perspectives and experiences surrounding NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design. I used similarities and patterns in the data to create nine themes, each aligned to one of the three research questions. Aligning to RQ1, I found that administrators included NBL experiences as a teacher and personal NBL experiences as foundational experiences from which NBL administrator experience was built. I discovered that administrators reported a lack of understanding, a fear mindset, and a lack of stakeholder support regarding NBL in schools. Additionally, I learned that administrators shared the essential, imperative quality of NBL. Regarding RQ2, I established that administrators reported a generational change in aspects of education and child development as they pertain to nature. I identified that administrators shared a variety of NBL students benefits. Further, I found that administrators reported no disadvantages to students from NBL. Aligning to RQ3, I observed that reasons for using NBL within a school vary, but the most consistent reason is partnership with a NBL

organization, representative or resource. I saw how administrators reported the

importance of district support for NBL. Also, I learned that administrators expressed a

need for NBL PD, as well as difficulty regarding PD scheduling and time management.

Variation in the data is discussed within each theme's specific section of results.

Although there were differences among data, there were no discrepant cases found.

Chapter 5 encompasses discussion, conclusions, and recommendations.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this qualitative study was to explore elementary administrators' perspectives of and experiences with NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design. The recording of initial ideas from these stakeholders had not been documented or shared within research literature, including ideas and dialogue for consistent implementation of NBL within U.S. public school systems. In this basic qualitative study, I used semistructured interviews with the employment of the sentence completion stems elicitation technique (see Barton, 2015). The research questions were as follows:

RQ1: What are elementary administrators' perspectives of and experiences with NBL?

RQ2: What are elementary administrators' perspectives of and experiences with how NBL supports student development?

RQ3: What are elementary administrators' perspectives of and experiences with how NBL is included in curricula and design?

Nine unique themes emerged from the data analysis process:

1. Administrators included personal NBL experiences and NBL experiences as a teacher as foundational experiences from which NBL administrator experience was built.

2. Administrators reported a lack of understanding, a fear mindset, and a lack of stakeholder support regarding NBL in schools.

3. Administrators shared the essential, imperative quality of NBL.

4. Administrators reported a generational change in aspects of education and child development as they pertain to nature.

5. Administrators shared a variety of NBL student benefits.

6. Administrators reported no disadvantages to students from NBL.

7. Reasons for using NBL within a school vary, but the most consistent reason is partnership with a NBL organization, representative, or resource.

8. Administrators reported the importance of district support for NBL.

9. Administrators expressed a need for NBL PD as well as difficulty regarding PD scheduling and time management.

Themes 1 through 3 aligned to RQ1, Themes 4 through 6 aligned to RQ2, and Themes 7 through 9 aligned to RQ3. These themes served as foundational in constructing the findings. In Chapter 5, I summarize and interpret the findings, explain limitations, provide recommendations, discuss implications, and conclude the overall study. Throughout the chapter, I weave in a discussion of the relationship between the findings and the established research literature as well as between the findings and the study's framework.

Table 8 serves as presentation of the four findings, organized by corresponding theme and research question. The findings listed in the final column repeat, based on their alignment to the given research question and theme. The findings are:

1. Experiences with NBL build professional perspectives of NBL, symbiotic relationship between human and nature, and propensity to utilize NBL.

2. NBL is not yet supported by most education stakeholders.

3. NBL is an indispensable element of child development and education.

4. Partnership and collaboration, both vertical and horizontal, is required at the district level to incorporate NBL in U.S. public schools.

Table 8

Findings Organized by Theme and Research Question

Research Questions	Themes	Findings
RQ1: What are elementary administrators' perspectives of and experiences with NBL?	1. Administrators included personal NBL experiences and NBL experiences as a teacher as foundational experiences from which NBL administrator experience was built.	Finding 1: Experiences with NBL build professional perspectives of NBL, symbiotic relationship between human and nature, and propensity to utilize NBL.
	2. Administrators reported a lack of understanding, a fear mindset, and a lack of stakeholder support regarding NBL in schools.	Finding 2: NBL is not yet supported by most education stakeholders.
	3. Administrators shared the essential, imperative quality of NBL.	Finding 3: NBL is an indispensable element of child development and education.
RQ2: What are elementary administrators' perspectives of and experiences with how NBL supports student development?	4. Administrators reported a generational change in aspects of education and child development as they pertain to nature.	Finding 2: NBL is not yet supported by most education stakeholders.
	5. Administrators shared a variety of NBL student benefits.	Finding 3: NBL is an indispensable element of child development and education.
	6. Administrators reported no disadvantages to students from NBL.	Finding 3: NBL is an indispensable element of child development and education.
RQ3: What are elementary administrators' perspectives of and experiences with how NBL is included in curricula and design?	7. Reasons for using NBL within a school vary, but the most consistent reason is partnership with a NBL organization, representative, or resource.	Finding 4: Partnership and collaboration, both vertical and horizontal, is required at the district level to incorporate NBL in U.S. public schools.
	8. Administrators reported the importance of district support for NBL.	Finding 4: Partnership and collaboration, both vertical and horizontal, is required at the district level to incorporate NBL in U.S. public schools.
	9. Administrators expressed a need for NBL PD, as well as difficulty regarding PD scheduling and time management.	Finding 4: Partnership and collaboration, both vertical and horizontal, is required at the district level to incorporate NBL in U.S. public schools.

Interpretation of the Findings

The findings of this study confirm and extend knowledge in the education

discipline. Compared with what has been found in the peer-reviewed literature, this

study's findings provided information on elementary administrators' perspectives of and

experiences with NBL, its support of elementary student development, and its inclusion

in elementary schools' curricula and design. This study provides information relevant to

its conceptual framework as well, which was based on the loose-parts theory (Nicholson,

1971), and the domains of child development (National Association for the Education of

Young Children, 2022).

Finding 1: Experiences With NBL Build Professional Perspectives of NBL,

Symbiotic Relationship Between Human and Nature, and Propensity to Utilize NBL

Finding 1 aligned to RQ1, in which I sought explore elementary administrators'

perspectives of and experiences with NBL. RQ1 followed Harper's (2017) advocation for

a professional dialogue among education leaders regarding the understanding of NBL

practices. Three themes answered RQ1; however, one theme provided the foundation for

Finding 1.

Administrators included personal NBL experiences and NBL experiences as a

teacher as foundational experiences from which NBL administrator experience was built.

There was a connection established between administrators' experiences with NBL and

administrators' current practices with NBL. All administrators in this study someway

linked current NBL practices back to personal and teaching experiences with NBL. This

link is also reflected in the research literature. In one way, research literature documents NBL's long-term benefits extending years beyond early childhood (Aslanimehr et al., 2018; Collado & Sorrel, 2019; Halam et al., 2021; Harvey et al., 2020; Jimenez et al., 2022; Kim et al., 2020; McVittie, 2018; Rios & Menezes, 2017). More specifically, Molinario et al. (2020) established that, when founded in childhood, the nature-human symbiotic relationship extended nature connectivity and environmental moral traits into adulthood. These personal, perhaps childhood, experiences and perspectives of NBL from administrators extended into their adulthood and career as administrators. The extension of childhood NBL experiences and perspectives from childhood to adulthood confirmed research literature. Furthermore, this study extends knowledge on childhood NBL experiences and perspectives extending from childhood not only into adulthood but also into careers.

Finding 2: NBL is not yet Supported by Most Education Stakeholders

Finding 2 aligned to RQ1 and RQ2. Through RQ1, I aimed to investigate elementary administrators' perspectives of and experiences with NBL, while with RQ2, I sought to discover elementary administrators' perspectives of and experiences with how NBL supports student development. RQ2 mirrored Perez de Pulgar et al.'s (2020) documentation of the need for studies focusing on underlying processes that shape children's development to understand student well-being as well as Zwierzchowska and Lupa's (2021) description of a gap in the research literature regarding the specific ways children interact with nature. Three themes answered each RQ1 and RQ2; however, two themes afforded the basis for Finding 2.

Administrators reported a lack of understanding, a fear mindset, and a lack of stakeholder support regarding NBL in schools. Administrators also reported a generational change in aspects of education and child development as they pertain to nature. Finding 2, NBL is not yet supported by most education stakeholders, portrays the current support for NBL from all education stakeholder fronts by considering rationale for said support levels. These fronts include school districts, school administrators, teachers, parents, students, and communities. Rationale for these levels of support include lack of understanding, fear, and trending generational attitudes toward nature. Finding 2 is reflected through the general lack of understanding of NBL and demonstrated through current norms in U.S. public schools, including limited unstructured, outdoor play (see Biccella, 2019), the rarity of outdoor education (see Tate, 2020), lack of natural play areas (see Trust for Public Land, 2022), and lack of green spaces (see Feldman, 2019; Kweon et al., 2017; Moreno et al., 2015). Finding 2 aligns with research literature because fear was documented as a common criticism and controversy of NBL (see Çağlıyan & Altun, 2021; Li et al, 2019; Harper & Obee, 2021). Finding 2 paralleled the general disconnection from nature experienced by current society, within public institutions, and in private life (see Louv, 2008). The finding also confirmed how today's generation of children is detached from nature, spending the least amount of time outside compared to previous generations (see Child Mind Institute, Inc., 2022). This finding confirms Louv's (2008) identified trend of nature-deficit disorder in describing the harm inflicted as the alienation from nature grows, especially amongst children. Not only did Finding 2 corroborate the established research literature and related principles, but it

extended findings on nature-deficit disorder to a different realm—education and early child development.

Finding 3: NBL is an Indispensable Element of Child Development and Education

Finding 3 aligned to RQ1 and RQ2. In RQ1, I intended to determine elementary administrators' perspectives of and experiences with NBL, and with RQ2, I pursued elementary administrators' perspectives of and experiences with how NBL supports student development. Six themes in total answered RQ1 and RQ2, and three of these themes were foundational in forming Finding 3.

Administrators shared the essential, imperative quality of NBL; a variety of NBL students benefits; and no disadvantages to students from NBL. Finding 3 extends the research literature because research on the administrators' perspective of NBL is limited. For example, Burke et al. (2021) concentrated on children's wellness from the school leaders' perspective; however, the focus schools were limited to two Canadian private schools. Furthermore, Harper et al. (2021) conducted a case study to examine the experiences of teachers and administrators at one Canadian elementary and middle school, yet their research focused on a singular aspect of NBL: schoolyard naturalization. Overall, Finding 3 extends the research literature through the sharing of administrators' direct experiences with and perspectives of NBL. Particularly, NBL was identified as an indispensable element of child development and education.

In another way, Finding 3 confirms research literature in relation to the domains of child development. Expressly, Finding 3 verifies NBL's positive role in child development and education. This finding confirmed the results of studies pertaining to

NBL and each of the student development domains outlined by the National Association for the Education of Young Children (2022). The National Association for the Education of Young Children presented the domains of child development as physical, cognitive, social-emotional, and linguistic. I used these domains of child development to conceptually ground the current study. Moreover, Finding 3 confirmed existing research literature regarding NBL's positive contributions to all child development domains (see Dadvand et al., 2018; Flannigan & Dietze, 2017; Reuben et al., 2019; Storli et al., 2020).

Also incorporated into Finding 3 was the loose-parts theory. The loose-parts theory conceptually grounded this study by linking the environmental details of NBL to child development (see Nicholson, 1971). To illustrate, with an abundance of organic loose parts, natural settings spark imagination and adaptability for cognitive play activities (Zamani, 2017). Further portraying this relation, NBL and outdoor environments teem with loose parts and opportunities for student development, spanning all developmental domains; this result is a product of the organic, multisensory, collaborative environment found with NBL practices (see Olsen & Smith, 2017). As such, Finding 3 extended the research literature by presenting a compiled description of the student benefits of NBL using loose-parts theory in its underpinnings. This provides a rationale as to why NBL is an indispensable element of child development and education.

Subsequently, Finding 3 echoes the research literature because researchers have established the overall benefits of nature to student learning and child development (see Kuo & Jordan, 2019). In confirmation with the research literature, there is no aspect of child development that does not grow through NBL. For example, NBL was shown to

enrich socialization, problem solving, focus, self-regulation, creativity, self-confidence, independent and collaborative play, prosocial behaviors, and physical activity, with concurrent reductions in depression, antisocial behavior, stress, boredom, and injury in young children (Brussoni et al., 2017).

Finding 4: Partnership and Collaboration, Both Vertical and Horizontal, is Required at the District Level to Incorporate NBL in U.S. Public Schools

Finding 4 aligned to RQ3, with which I sought to examine elementary administrators' perspectives of and experiences with how NBL is included in curricula and design. Three themes answered RQ3, and all three themes also contributed to Finding 4. In this study, I sought to fill in the research gap regarding understanding the complexities of standardization and application of NBL within the U.S. public-school setting (see Dean, 2019). The most consistent reason schools use NBL is partnership with a NBL organization, representative, or resource. Concurrently, district support for NBL initiatives in schools is pivotal. For example, there is a voiced need for NBL PD, with district logistics making this PD for NBL almost impossible. In one example, Ho et al. (2018) found that after participating in NBL experiences, most teachers wanted to continue practicing and learning NBL practices. As student teachers participated in NBL PD, they felt confident in planning and implementing and increased ratings of the importance of NBL (Torquati et al., 2017). These examples paralleled the U.S. Department of Education's National Teacher and Principal Survey, which found that most teachers, 71.3%, explained they do not have autonomy over curriculum, content, topics, and skills taught in their classrooms (see Economic Policy Institute, 2019). Thus,

authority does not lie with most teachers regarding curriculum content, topics, and skills taught in their classrooms. Likewise, a large portion of authority does not lie with administrators for certain initiatives and logistical components; instead, authority lies with school districts. Finding 4 extended the research literature indicating that incorporation of NBL in U.S. public schools needs partnership and collaboration, both vertical and horizontal, at the school district level.

Limitations

Limitations included components related to transferability, such as sample size, researcher bias, and location. I accounted sample size as a limitation. I interviewed 10 elementary school administrators working in public schools across the United States. This sample size could minimize generalizability. Additionally, I accounted researcher bias as a limitation, as I am a proponent of NBL in the education field. My potential researcher bias, personal and professional experiences with NBL, and involvement with NBL integration within schools could have influenced the semistructured interviews. This bias could minimize the credibility of the study. Finally, I accounted location and digital interviewing as limitations since all interviews were conducted via video Zoom interview. Location, particularly digital interviewing, limited the study to participants with access to technology with capacity for Zoom interviewing.

Recommendations

Upon interpretation of the study's findings, I created recommendations that are grounded in the strengths and limitations of the current study as well as the literature

reviewed in Chapter 2. My recommendations were evidenced through the progression

this study, from literature review, to results and data analysis, and to findings.

My first recommendation involves further research. The topic of NBL is still not

yet sufficiently investigated or documented through research literature, and requires

further investigation (see Jordan & Chawla, 2019). Frantzeskaki (2019) also pointed out

the need to study nature-based solutions that are relevant, current, and descriptive of

tangible actions to be realistic options for urban agendas and policy. In addition, Miller et

al. (2021) recommended further engaging and seeking input from education stakeholders

regarding NBL and school environments. As such, I recommend further research

concerning NBL, its support of elementary student development, and its inclusion in

elementary schools' curricula and design. Specifically, I recommend a qualitative study

focusing on NBL, its support of elementary student development, and its inclusion in

elementary schools' curricula and design from the elementary, public school district

perspective. Also, I recommend a quantitative study focusing on the effect of NBL on

student learning and child development over time.

With Finding 1, I explained how experiences with NBL build professional

perspectives of NBL, symbiotic relationship between human-nature, and propensity to

utilize NBL. As Finding 1 developed, I connected its premise to children's diminishing

personal experiences with nature, and the resulting students' inability to see or form

functional relationships with nature (see Suttie, 2016). If administrators are using their

personal experiences as foundational to their career practice of NBL, what will happen to

those future leaders that do not have personal, foundational, childhood experiences with

nature? Thus, Recommendation 1 is the integration and normalization of NBL into all U.S. public school districts, transitional kindergarten through Grade 12. For example, the California Department of Education (2022b) adopted a preschool through third-grade alignment, the P-3 Framework (National P-3 Center, 2022), to support effective learning experiences, collaboration among stakeholders, and implementation of policy and practice solutions for preschool through early elementary regarding NBL. Recommendation 1 would then prompt school districts to take such resources, and explicitly use them in NBL initiatives at the district and school levels.

In Finding 2, I reported how NBL is not yet supported by most education stakeholders. Concomitantly, NBL practices, initiatives, and strategies are not norms within the U.S.'s public-school systems (Zhang et al., 2021). Thus, Recommendation 2 is accessibility to NBL by all education stakeholders. For example, organizations, such as the Natural Start Alliance of the North American Association for Environmental Education (2019), have presented research supporting NBL and have advocated for NBL at the early childhood level. Recommendation 2 would prompt NBL organizations to extend reach to all education stakeholders in a focused, equitable, and clear fashion. This suggestion is similar to Nicholson's (1971) prescription of a worldwide clearinghouse for knowledge on children's learning environments, which would ideally be interconnected between school districts globally, and would inspire policy and design.

With Finding 3, I discussed how NBL is an indispensable element of child development and education. This observation was evidenced through NBL's benefits to each child development domain (Culter & Skidmore, 2021; Sailakumar & Naachimuthu,

2017), as well as a variety of other student benefits, such as equity and spirituality (Beery & Jørgensen, 2018; Hallam et al., 2021; Mandalaywala et al., 2019). So, Recommendation 3 is district-provided PD for all elementary teachers and administrators.

Through Finding 4, I stated how partnership and collaboration, both vertical and horizontal, was required at the district level to incorporate NBL in U.S. public schools. Currently, for example, less than 1.7% of the state educational agencies, such as school districts, have formal collaborations with outdoor schools (California Department of Education, 2022a). Thus, Recommendation 4 is formal partnership between each U.S. public school district and a NBL organization.

Implications

This study's possible influence on positive social change reaches the individual, family, organizational, and policy levels. The knowledge presented by this study can catalyze positive social change, as it delivers current knowledge about NBL from the perspective of administrative leaders in the education field. Stakeholders can use this knowledge from elementary administrators' perspectives and experiences surrounding nature-based learning, its support of elementary student development, and its inclusion in elementary schools' curricula and design to make informed decisions about components such as curriculum design, outdoor learning logistics, and holistic student outcomes. Specially, knowledge about NBL could positively affect future policy and planning in the education field and generate positive social change within schools across the nation (see Frantzeskaki, 2019).

Conclusion

Although NBL is an established benefactor to the development of students in the elementary grades, its presence in elementary schools' curricula and design is inconstant. Researchers have established overall benefits of nature to students learning and child development (Dale et al., 2020; Harvey et al., 2020; Kuo & Jordan, 2019; Schilhab, 2021). Further, research has established benefits of nature to students' learning and child development pertaining to each of the child development domains outlined by the National Association for the Education of Young Children (2022); (Annisa & Sutapa, 2019; Jimenez et al., 2020; Mason et al., 2021; McVittie, 2018; Nagata & Liehr, 2021); Reuben et al., 2019; Rymanowicz et al., 2020; Schutte et al., 2017; Taylor & Butts-Wilmsmeyer, 2020). Researchers have confirmed additional benefits of nature to students' learning and child development, such as a symbiotic relationship with nature (Mullenback et al., 2019), psychospiritual wellbeing (Smith, 2021), and a mitigator of cognitive threats (Engemann et al., 2020; Weeland et al., 2019).

NBL practices, initiatives, and strategies are not norms within U.S. public school districts (Zhang et al., 2021). At the same time, about 90% of U.S. students attend public schools (National Center for Education Statistics, 2020). Thus, most U.S. students neither realize nor procure the benefits of nature interwoven in their lives. The absence of NBL not only prohibits students from knowing and realizing its advantages, but increases harm inflicted upon the youth. The harmful considerations echoing children's disconnection from nature include increased childhood obesity (Sanyaolu et al., 2019), increased youth anxiety, depression, and behavioral diagnoses (Lebrun-Harris et al., 2020), increased

child technology use (Pew Research Center, 2022), increased asthma and ADHD medication prescribed to children (Hales et al., 2018), and an increased need to pack children's lives full of structured scheduling activities (Cision U.S. Inc., 2022).

This qualitative study was conducted to explore elementary administrators' perspectives and experiences surrounding NBL, its support of elementary student development, and its inclusion in elementary schools' curricula and design. Elementary administrators shared perspectives and experiences in semi-structured interviews. From these interviews and data analysis, I established four findings:

1. Experiences with NBL build professional perspectives of NBL, symbiotic relationship between human-nature, and propensity to utilize NBL.

2. NBL is not yet supported by most education stakeholders.

3. NBL is an indispensable element of child development and education.

4. Partnership and collaboration, both vertical and horizontal, is required at the district level to incorporate NBL in U.S. public schools.

These findings may be used to inform positive social change at the individual, family, organizational, and policy levels. The knowledge gleaned in this study can catalyze positive social change, as it provides current information about NBL from the viewpoint of administrative leaders in the education field. Stakeholders can use this knowledge from elementary administrators' perspectives and experiences surrounding nature-based learning, its support of elementary student development, and its inclusion in elementary schools' curricula and design to make cognizant judgments about NBL. Particularly, understanding about NBL could positively affect future policy and planning

in the education field and generate positive social change within schools across the nation
(see Frantzeskaki, 2019). Cumulatively, I advocate further research and four
recommendations for practice: the integration and normalization of NBL into all U.S.
public school districts, transitional kindergarten through Grade 12; accessibility to NBL
by all education stakeholders; district-provided PD for all elementary teachers and
administrators; and formal partnership between each U.S. public school district and a
NBL organization.

References

Annisa, A., & Sutapa, P. (2019). The implementation of nature-based learning models to

improve children's motor skills. *Jurnal Obsesi, 3*(1), 170–182.

https://doi.org/10.31004/obsesi.v3i1.140

Aslanimehr, P., Marsal, E., Weber, B., & Knapp, F. (2018). Nature gives and nature

takes: A qualitative comparison between Canadian and German children about

their concepts of "nature." *Childhood & Philosophy, 14*(30), 483–515.

https://doi.org/10.12957/childphilo.2018.30037

Barger, B., Larson, L. R., Ogletree, S., Torquati, J., Rosenberg, S., Gaither, C. J., Bartz, J.

M., Gardner, A., & Moody, E. (2020). Tree canopy coverage predicts lower

conduct problem severity in children with ASD. *Journal of Mental Health

Research in Intellectual Disabilities, 13*(1), 43–61.

https://doi.org/10.1080/19315864.2020.1714824

Barton, K. C. (2015). Elicitation techniques: Getting people to talk about ideas they don't

usually talk about. *Theory & Research in Education, 43*(2), 198–205.

https://doi.org/10.1080/00933104.2015.1034392

Bates, E. (2018). Can natural history collections support a connection to nature for young

children and families? *Museum & Society, 16*(3), 369–382.

https://doi.org/10.29311/mas.v16i3.2795

Beery, T., & Jørgensen, K. A. (2018). Children in nature: Sensory engagement and the

experience of biodiversity. *Environmental Education Research, 24*(1), 13–25.

https://doi.org/10.1080/13504622.2016.1250149

Biccella, A. (2019). *Time to play: Increasing daily recess in elementary schools.* EAB.

https://eab.com/insights/expert-insight/district-leadership/time-to-play-increasing-

daily-recess-in-elementary-schools/

Boulder Valley School District. (2022). *Principal.*

https://jobs.bvsd.org/principal/job/18975121

Branje, K., Stevens, D., Hobson, H., Kirk, S., & Stone, M. (2022). Impact of an outdoor

loose parts intervention on Nova Scotia preschoolers' fundamental movement

skills: A multi-methods randomized controlled trial. *AIMS Public Health, 9*(1),

194–215. https://doi.org/10.3934/publichealth.2022015

Brussoni, M., Ishikawa, T., Brunelle, S., & Herrington, S. (2017). Landscapes for play:

Effects of an intervention to promote nature-based risky play in early childhood

centres. *Journal of Environmental Psychology, 54*(December 2017), 139–150.

https://doi.org/10.1016/j.jenvp.2017.11.001

Burke, A., Moore, S., Molyneux, L., Lawlor, A., Kottwitz, T., Yurich, G., Sanson, R.,

Andersen, O., & Card, B. (2021). Children's wellness: Outdoor learning during

Covid-19 in Canada. *Education in the North, 28*(2), 24–45.

https://doi.org/10.26203/p99r-0934

Caelli, K., Ray, L., & Mill, J. (2003). 'Clear as mud': Toward greater clarity in generic

qualitative research. *International Journal of Qualitative Methods, 2(*2), 1–13.

https://doi.org/10.1177/160940690300200201

Çağlıyan, T., & Altun, T. (2021). Investigating views of classroom teachers and students on the interaction of children with nature. *Kastamonu Education Journal, 29*(1), 37–51. https://doi.org/10.24106/kefdergi.4166

California Department of Education. (2022a). *California Outdoor Schools Association*. https://www.cde.ca.gov/pd/ca/sc/oeecosa.asp

California Department of Education. (2022b). *Preschool through third grade alignment*. https://www.cde.ca.gov/ci/gs/p3/

Chawla, L. (2015). Benefits of nature contact for children. *Journal of Planning Literature 30*(4), 433–452. https://doi.org/10.1177/0885412215595441

Chawla, L. (2021). Knowing nature in childhood: Learning and well-being through engagement with the natural world. *Nature and Psychology, 67*, 153–193. https://doi.org/10.1007/978-3-030-69020-5_6

Child Mind Institute, Inc. (2022). *Why kids need to spend time in nature*. https://childmind.org/article/why-kids-need-to-spend-time-in-nature/#full_article

Cision U.S. Inc. (2022). *New survey on free time illustrates the challenges today's families face in an age of screens.* https://www.prnewswire.com/news-releases/new-survey-on-free-time-illustrates-the-challenges-todays-families-face-in-an-age-of-screens-300684439.html

Collado, S., & Sorrel, M. A. (2019). Children's environmental moral judgments: Variations according to type of victim and exposure to nature. *Journal of Environmental Psychology, 62*(April 2019), 42–48. https://doi.org/10.1016/j.jenvp.2019.02.005

Cornell Law School. (2022). *28 CFR §551.115 – Recreation.*

https://www.law.cornell.edu/cfr/text/28/551.115

Cruz, L. (2015). Self-reflexivity as an ethical instrument to give full play to our explicit

and implicit subjectivity as qualitative researchers. *The Qualitative Report,*

20(10), 1723–1735. https://doi.org/10.46743/2160-3715/2015.2353

Cutler, C., & Skidmore, D. (2021). Creating an outdoor loose parts classroom: One

preschool's quest for boundless STEM. *Dimensions of Early Childhood, 49*(3),

25–29.

Dale, R. G., Powell, R. B., Stern, M. J., & Garst, B. A. (2020). Influence of the natural

setting on environmental education outcomes. *Environmental Education*

Research, 26(5), 613–631. https://doi.org/10.1080/13504622.2020.1738346

Dadvand, P., Pujol, J., Macià, D., Martínez-Vilavella, G., Blanco-Hinojo, L., Mortamais,

M., Alvarez-Pedrerol, M., Fenoll, R., Esnaola, M., Dalmau-Bueno, A., López-

Vicente, M., Basagaña, X., Jerrett, M., Nieuwenhuijsen, M. J., & Sunyer, J.

(2018). The association between lifelong greenspace exposure and 3-dimensional

brain magnetic resonance imaging in Barcelona schoolchildren. *Environmental*

Health Perspectives, 126(2), 1–8. https://doi.org/10.1289/EHP1876

Dean, S. (2019). Seeing the forest and the trees: A historical and conceptual look at

Danish forest schools. *International Journal of Early Childhood Environmental*

Education, 6(3), 53–63.

Deines, T. (2021). *Outdoor preschools grow in popularity, but most serve middle-class White kids*. https://hechingerreport.org/outdoor-preschools-grow-in-popularity-but-most-serve-middle-class-white-kids/

Delamont, S. (Ed.). (2012). *Handbook of qualitative research in education*. Edward Elgar Publishing.

Dickson, T. J., & Gray, T. L. (2022). Nature-based solutions: Democratising the outdoors to be a vaccine and a salve for a neoliberal and COVID-19 impacted society. *Journal of Adventure Education & Outdoor Learning*, 1–20. https://doi.org/10.1080/14729679.2022.2064887

Economic Policy Institute. (2019). *More than half of teachers do not feel supported, and one in four has considered quitting as a result.* https://www.epi.org/press/more-than-half-of-teachers-do-not-feel-supported-and-one-in-four-has-considered-quitting-as-a-result-challenging-working-environment-contributes-to-the-teacher-shortage/

Ellis, P. (2019). The language of research (Part 20): Understanding the quality of a qualitative paper (2). *Wounds U.K., 15*(1), 110–111.

Engemann, K., Svenning, J.-C., Arge, L., Brandt, J., Geels, C., Mortensen, P. B., Plana-Ripoll, O., Tsirogiannis, C., & Pedersen, C. B. (2020). Natural surroundings in childhood are associated with lower schizophrenia rates. *Schizophrenia Research, 216*(February 2020), 488–495. https://doi.org/10.1016/j.schres.2019.10.012

Feldman, N. (2019). *Why your neighborhood school probably doesn't have a*

 playground. https://whyy.org/articles/uneven-play-most-philadelphia-public-

 schools-dont-have-playgrounds-thats-slowly-changing/

Flannigan, C., & Dietze, B. (2017). Children, outdoor play, and loose parts. *Journal of*

 Childhood Studies, 42(4), 53–60. https://doi.org/10.18357/jcs.v42i4.18103

Frantzeskaki, N. (2019). Seven lessons for planning nature-based solutions in cities.

 Environmental Science & Policy, 93(March 2019), 101–111.

 http://www.sciencedirect.com/science/article/pii/S1462901118310888

Friedman, S., Imrie, S., Fink, E., Gedikoglu, M., & Hughes, C. (2022). Understanding

 changes to children's connection to nature during the COVID-19 pandemic and

 implications for child well-being. *People and Nature, 4*(1), 155–165.

 https://doi.org/10.1002/pan3.10270

Friedman, S., & Morrison, S. (2021). "I just want to stay out there all day": A case study

 of two special educators and five autistic children learning outside at school.

 Frontiers in Education, 6(May 2021), 1–15.

 https://doi.org/10.3389/feduc.2021.668991

Gençer, A. A., & Avci, N. (2017). The treasure in nature! Loose part theory. *Current*

 Trends in Educational Sciences, 9, 9–16.

Glaser, B. G. (2004). Naturalist inquiry and grounded theory. *Forum: Qualitative Social*

 Research, 5(1), 1–14.

Grant, M. R., & Lincoln, Y. S. (2021). A conversation about rethinking criteria for
qualitative and interpretive research: Quality as trustworthiness. *Journal of Urban
Mathematics Education, 14*(2), 1–15.

Groenewald, T. (2004). A phenomenological research design illustrated. *International
Journal of Qualitative Methods, 3*(1), 1–26.
https://doi.org/10.1177/1609406918774662

Grissom, J. A., Egalite, A. J., & Lindsay, C. A. (2021). *How principals affect students
and schools: A systematic synthesis of two decades of research.* The Wallace
Foundation. http://www.wallacefoundation.org/principalsynthesis.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An
experiment with data saturation and variability. *Field Methods, 18*(1), 50–82.
https://doi.org/10.1177/1525822X05279903

Gull, C., Bogunovich, J., Goldstein, S. L., & Rosengarten, T. (2019). Definitions of loose
parts in early childhood outdoor classrooms: A scoping review. *International
Journal of Early Childhood Environmental Education, 6*(3), 37–52.

Hales, C. M., Kit, B. K., Gu, Q., & Ogden, C. L. Trends in prescription medication use
among children and adolescents-United States. *JAMA, 319*(19), 2009–2020.
https://doi.org/10.1001/jama.2018.5690

Hallam, J., Gallagher, L., & Harvey, C. (2021). "I don't wanna go. I'm staying. This is
my home now." Analysis of an intervention for connecting young people to urban
nature. *Urban Forestry & Urban Greening, 65*(November 2021), 1–9.
https://doi.org/10.1016/j.ufug.2021.127341

Harper, N. J. (2017). Outdoor risky play and healthy child development in the shadow of the "risk society": A forest and nature school perspective. *Child & Youth Services, 38*(4), 318–334. https://doi.org/10.1080/0145935X.2017.1412825

Harper, N. J., Lim, C., Alqallaf, H., & Naylor, P. J. (2021). A case study exploring the "real world" process of "naturalizing" school playgrounds. *International Journal of Environmental Health Research, 31*(3), 298–314. https://doi.org/10.1080/09603123.2019.1656174

Harper, N. J., & Obee, P. (2021). Articulating outdoor risky play in early childhood education: Voices of forest and nature school practitioners. *Journal of Adventure Education and Outdoor Learning, 21*(2), 184–194.

Harris, F. (2017). The nature of learning at forest school: Practitioners' perspectives. *Education 3-13, 45*(2), 272–291.

Harris, F. (2021). Developing a relationship with nature and place: The potential role of forest school. *Environmental Education Research, 27*(8), 1214–1228. https://doi.org/10.1080/13504622.2021.1896679

Harvey, D. J., Montgomery, L. N., Harvey, H., Hall, F., Gange, A. C., & Watling, D. (2020). Psychological benefits of a biodiversity-focused outdoor learning program for primary school children. *Journal of Environmental Psychology, 67,* 1–8. https://doi.org/10.1016/j.jenvp.2019.101381

Hatch, J. A. (2002). *Doing qualitative research in education settings*. Suny Press.

Henning, T. B. (2011). *Literature review: Synthesizing multiple sources.* Indiana University – University Writing Center.

Ho, L. T. K., Vu, P. T. T., & Nguyen, N. T. H. (2018). Valuing nature in childhood. *IZE Journal, 54*, 13–16.

Hogan, T., Hinrichs, U., & Hornecker, E. (2016). The elicitation interview technique: Capturing people's experiences of data representations. *IEEE Transactions on Visualization and Computer Graphics, 22*(12), 2579–2593. https://doi.org/10.1109/TVCG.2015.2511718

Howard, J., Miles, G. E., Rees, D. L., & Bertenshaw, E. J. (2017). Play in middle childhood: Everyday play behaviour and associated emotions. *Children & Society, 31*(5), 378–389. https://doi.org/10.1111/chso.12208

Jarvis, I., Sbihi, H., Davis, Z., Brauer, M., Czekajlo, A., Davies, H. W., Gergel, S. E., Guhn, M., Jerrett, M., Koehoorn, M., Nesbitt, L., Oberlander, T. F., Su, J., & van den Bosch, M. (2022). The influence of early-life residential exposure to different vegetation types and paved surfaces on early childhood development: A population-based birth cohort study. *Environment International, 163*(November 2021)*,* 1–10. https://doi.org/10.1016/j.envint.2022.107196

Jimenez, M. P., Shoaff, J., Kioumourtzoglou, M.-A., Korrick, S., Rifas-Shiman, S. L., Hivert, M.-F., Oken, E., & James, P. (2022). Early-life exposure to green space and mid-childhood cognition in the project viva cohort, Massachusetts. *American Journal of Epidemiology, 191*(1), 115–125. https://doi.org/10.1093/aje/kwab209

Jordan, C., & Chawla, L. (2019). A coordinated research agenda for nature-based learning. *Frontiers in Psychology, 10*(April 2019), 766. https://doi.org/10.3389/fpsyg.2019.00766

Kahlke, R. (2014). Generic qualitative approaches: Pitfalls and benefits of methodological mixology. *International Journal of Qualitative Methods, 13*, 37–52. https://doi.org/10.1177/160940691401300119

Kim, K. J., Jung, E., Han, M.-K., & Sohn, J.-H. (2020). The power of garden-based curriculum to promote scientific and nature-friendly attitudes in children through a cotton project. *Journal of Research in Childhood Education, 34*(4), 538–550. https://doi.org/10.1080/02568543.2020.1718251

Kuh, L. P., Ponte, I., & Chau, C. (2013). The impact of a natural playscape installation on young children's play behaviors. *Children Youth and Environments, 23*(2), 49–77.

Kuo, M., Barnes, M., & Jordan, C. (2019). Do experiences with nature promote learning? Converging evidence of a cause-and-effect relationship. *Frontiers in Psychology, 10*, 1–9. https://doi.org/10.3389/fpsyg.2019.00305

Kuo, M., Browning, M. & Penner, M. (2018). Do lessons in nature boost subsequent classroom engagement? Refueling students in flight. *Frontiers in Psychology, 8*, 1–15. https://doi.org/10.3389/fpsyg.2017.02253

Kuo, M., & Jordan, C. (2019). Do experiences with nature promote learning? Converging evidence of a cause-and-effect relationship. *Frontiers in Psychology, 10*, 1–9. https://doi.org/10.3389/fpsyg.2019.00305

Kvale, S., & Brinkmann, S. (2009). *Interviews: Learning the craft of qualitative research interviewing*. Sage.

Kweon, B., Ellis., C., Lee, J., & Jacobs, K. (2017). The link between school

    environments and student academic performance. *Urban Forestry & Urban*

    Greening, 23(April 2017)*,* 35–43. https://doi.org/10.1016/j.ufug.2017.02.002

Lambert, V. A., & Lambert, C. E. (2012). Qualitative descriptive research: An acceptable

    design. *Pacific Rim International Journal of Nursing Research, 16*(4), 255–256.

Largo-Wight, E., Guardino, C., Wludyka, P. S., Hall, K. W., Wight, J. T., & Merten, J.

    W. (2018). Nature contact at school: The impact of an outdoor classroom on

    children's well-being. *International Journal of Environmental Health Research,*

    28(6), 653–666. https://doi.org/10.1080/09603123.2018.1502415

Larson, L. R., Barger, B., Ogletree, S., Torquati, J., Rosenberg, S., Gaither, C. J., Bartz, J.

    M., Gardner, A., Moody, E., & Schutte, A. (2018). Gray space and green space

    proximity associated with higher anxiety in youth with autism. *Health and Place,*

    53, 94–102. https://doi.org/10.1016/j.healthplace.2018.07.006

Lebrun-Harris, L.A., Ghandour, R.M., Kogan, M.D., & Warren, M.D. Five-year trends in

    U.S. children's health and well-being, 2016–2020. *JAMA Pediatrics, 176*(7), 1-

    11. https://jamanetwork.com/journals/jamapediatrics/article-abstract/2789946

Li, D., Larsen, L., Yang, Y., Wang, L., Zhai, Y., & Sullivan, W. C. (2019). Exposure to

    nature for children with autism spectrum disorder: Benefits, caveats, and barriers.

    Health and Place, 55, 71–79. https://doi.org/10.1016/j.healthplace.2018.11.005

Lichtman, M. (2012). *Qualitative research in education: A user's guide*. Sage.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry.* Sage.

Louv, R. (2008). *Last child in the woods: Saving our children from nature deficit disorder*. Algonquin Books of Chapel Hill.

Lynch, J., & Wishart, L. (2021). Play diversity and student agency in the redevelopment of a school playspace. *Children's Geographies, 44*(1), 1–15. https://doi.org/10.1080/14733285.2021.2006143

Mackley, H., Edwards, S., Mclean, K., & Cinelli, R. (2022). Building collaborative competencies through play with outdoor loose parts materials in primary school. *Cambridge Journal of Education*, 1–21. https://doi.org/10.1080/0305764x.2022.2030300

Mahony, L., Hyndman, B., Nutton, G., Smith, S., & Te Ava, A. (2017). Monkey bars, noodles and hay bales: A comparative analysis of social interaction in two school ground contexts. *International Journal of Play, 4937*, 1–11. https://doi.org/10.1080/21594937.2017.1348319

Mandalaywala, T. M., Ranger-Murdock, G., Amodio, D. M., & Rhodes, M. (2019). The nature and consequences of essentialist beliefs about race in early childhood. *Child Development, 90*(4), e437. https://doi.org/10.1111/cdev.13008

Maron-Puntarelli, C. (2020). Walking into the woods: Understanding German waldkindergärtens. *YC: Young Children, 75*(1), 42–50.

Martens, D., & Molitor, H. (2020). Play in appropriate natural environments to support child development (Fomento del desarrollo infantil mediante el juego en entornos naturales apropiados). *PsyEcology, 11*(3), 363–396. https://doi.org/10.1080/21711976.2020.1782040

Mason, L., Ronconi, A., Scrimin, S., & Pazzaglia, F. (2021). Short-term exposure to nature and benefits for students' cognitive performance: A review. *Educational Psychology Review, 34*(2022)*,* 609–647. https://doi.org/10.1007/s10648-021-09631-8

McFarland, A. L., Glover, B. J., Waliczek, T. M., & Zajicek, J. M. (2013). The effectiveness of the national wildlife federation's schoolyard habitat program: Fourth-grade students' standardized science test scores and science grades. *HORTTECHNOLOGY, 23*(2), 187–193.

McVittie, J. (2018). Sensuous and languaged learning: Children's embodied and playful connections to nature. *International Journal of Early Childhood Environmental Education, 6*(1), 21–34.

Meidenbauer, K. L., Stenfors, C. U. D., Young, J., Layden, E. A., Schertz, K. E., Kardan, O., Decety, J., & Berman, M. G. (2019). The gradual development of the preference for natural environments. *Journal of Environmental Psychology, 65,* 1–11. https://doi.org/10.1016/j.jenvp.2019.101328

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation* (4th ed.). Jossey-Bass.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Sage.

Miller, N. C., Kumar, S., Pearce, K. L. & Baldock, K. L. (2021). The outcomes of nature-based learning for primary school-aged children: A systematic review of

quantitative research. *Environmental Education Research, 27*(8), 1115–1140.

https://doi.org/10.1080/13504622.2021.1921117

Molinario, E., Lorenzi, C., Bartoccioni, F., Perucchini, P., Bobeth, S., Colléony, A.,

Diniz, R., Eklund, A., Jaeger, C., Kibbe, A., Richter, I., Ruepert, A., Sloot, D.,

Udall, A. M., & Bonaiuto, M. (2020). From childhood nature experiences to adult

pro-environmental behaviors: An explanatory model of sustainable food

consumption. *Environmental Education Research, 26*(8), 1137–1163.

https://doi.org/10.1080/13504622.2020.1784851

Monteiro, R., Fernandes, S., & Rocha, N. (2022). What do preschool teachers and parents

think about the influence of screen-time exposure on children's development?

Challenges and opportunities. *Education Sciences, 12*(52), 1–12.

https://doi.org/10.3390/educsci12010052

Moreno, A., Tangenberg, J., Hilton, B., & Hilton, J. (2015). An environmental

assessment of school shade tree canopy and implications for sun safety policies:

The Los Angeles Unified School District. *ISPRS International Journal of Geo-

Information, 4*(2), 607–625. https://doi.org/10.3390/ijgi4020607

Morris, L., Posner, E., Thomson, S., & Wood, E. J. (2019). Research ethics and human

subjects: A reflexive openness approach. *American Political Science Association

Organized Section for Qualitative and Multi-Method Research, Qualitative

Transparency Deliberations, Working Group Final Reports, Report I, 2*.

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3332887

Morse, J. M. (2015). Critical analysis of strategies for determining rigor in qualitative

    inquiry. *Qualitative Health Research, 25*(9), 1212–1222.

    https://doi.org/10.1177/1049732315588501

Mulholland, M., & O'Toole, C. (2021). When it matters most: A trauma-informed,

    outdoor learning program to support children's wellbeing during COVID-19 and

    beyond. *Irish Educational Studies, 40*(2), 329–340.

    https://doi.org/10.1080/03323315.2021.1915843

Mullenbach, L. E., Andrejewski, R. G., & Mowen, A. J. (2019). Connecting children to

    nature through residential outdoor environmental education. *Environmental*

    Education Research, 25(3), 365–374.

    https://doi.org/10.1080/13504622.2018.1458215

Nagata, M., & Liehr, P. (2021). Urban children's well-being factors and qualities of

    being and doing in natural space: Nature immersion. *Journal of Holistic Nursing,*

    39(2), 174–184. https://doi.org/10.1177/0898010120961624

National Association for the Education of Young Children. (2022). *Principles of child*

    development and learning and implications that inform practice.

    https://www.naeyc.org/resources/position-statements/dap/principles

National Center for Education Statistics. (2018). *Fast facts: Public school students*

    eligible for free or reduced-price lunch.

    https://nces.ed.gov/programs/coe/indicator/clb

National Center for Education Statistics. (2020). *Fast facts: Back to school statistics.*

    https://nces.ed.gov/fastfacts/display.asp?id=372

National P-3 Center. (2022). *P-3 framework.* https://nationalp-3center.org/p-3-framework/

North Carolina State University. (2006). *Writing a literature review and using a synthesis matrix.* https://asc.dasa.ncsu.edu/

Nicholson, S. (1971). How not to cheat children–The theory of loose parts. *Landscape Architecture, 62*, 30–34. https://media.kaboom.org/docs/documents/pdf/ip/Imagination-Playground-Theory-of-Loose-Parts-Simon-Nicholson.pdf

Nicholson, S. (1972). The theory of loose parts: An important principle for design methodology. *Studies In Design Education Craft & Technology, 4*(2), 5–14. https://ojs.lboro.ac.uk/SDEC/article/view/1204

North American Association for Environmental Education. (2019). *Natural start alliance: Research.* https://naturalstart.org/research

Olsen, H., & Smith, B. (2017). Sandboxes, loose parts, and playground equipment: A descriptive exploration of outdoor play environments. *Early Child Development and Care, 187*(5–6), 1055–1068. https://doi.org/10.1080/03004430.2017.1282928

Omidvar, N., Wright, T., Beazley, K., & Seguin, D. (2019). Examining children's indoor and outdoor nature exposures and nature-related pedagogic approaches of teachers at two Reggio-Emilia preschools in Halifax, Canada. *Journal of Education for Sustainable Development, 13*(2), 215–241. https://doi.org/10.1177/0973408219872066

Parker, C., Scott, S., & Geddes, A. (2019). *Snowball sampling*. Sage.

Peacock, J., Bowling, A., Finn, K., & McInnis, K. (2021). Use of outdoor education to

increase physical activity and science learning among low-income children from

urban schools. *American Journal of Health Education, 52*(2), 92–100.

https://doi.org/10.1080/19325037.2021.1877222

Peel, K. L. (2020). A beginner's guide to applied educational research using thematic

analysis. *Practical Assessment, Research, and Evaluation, 25*(1), 2.

Percy, W. H., Kostere, K., & Kostere, S. (2015). Generic qualitative research in

psychology. *The Qualitative Report, 20*(2), 76–85.

http://nsuworks.nova.edu/cgi/viewcontent.cgi?article=2097&context=tqr

Pérez del Pulgar, C., Anguelovski, I., & Connolly, J. (2020). Toward a green and playful

city: Understanding the social and political production of children's relational

wellbeing in Barcelona. *Cities, 96,* 1–15.

https://doi.org/10.1016/j.cities.2019.102438

Pew Research Center. (2022). *Children's engagement with digital devices, screen time.*

https://www.pewresearch.org/internet/2020/07/28/childrens-engagement-with-

digital-devices-screen-time/

Rabionet, S. E. (2011). How I learned to design and conduct semi-structured interviews:

an ongoing and continuous journey. *Qualitative Report, 16*(2), 563–566.

Ramstetter, C., & Murray, R. (2017). Time to play: Recognizing the benefits of recess.

American Educator, 41(1), 17–23.

Randolph, J. (2009). A guide to writing the dissertation literature review. *Practical

Assessment, Research, and Evaluation, 14*(1), 1–14.

Ravitch, S. M., & Carl, N. M. (2021). *Qualitative research: Bridging the conceptual, theoretical, and methodological* (2nd ed.) Sage.

Reuben, A., Arseneault, L., Belsky, D. W., Caspi, A., Fisher, H. L., Houts, R. M., Moffitt, T. E., & Odgers, C. (2019). Residential neighborhood greenery and children's cognitive development. *Social Science & Medicine, 230*(2019), 271–279. https://doi.org/10.1016/j.socscimed.2019.04.029

Rios, C., & Menezes, I. (2017). 'I saw a magical garden with flowers that people could not damage!': Children's visions of nature and of learning about nature in and out of school. *Environmental Education Research, 23*(10), 1402–1413. https://doi.org/10.1080/13504622.2017.1325450

Robertson, N., Morrissey, A.-M., & Moore, D. (2020). From boats to bushes: Environmental elements supportive of children's sociodramatic play outdoors. *Children's Geographies, 18*(2), 234–246. https://doi.org/10.1080/14733285.2019.1630714

Rotas, N. (2019). Outdoor play and learning (OPAL): Activating "loose parts" in undisciplined childhood environments. *International Journal of Early Childhood Environmental Education, 7*(1), 73–85.

Rymanowicz, K., Hetherington, C., & Larm, B. (2020). Planting the seeds for nature-based learning: Impacts of a farm- and nature-based early childhood education program. *International Journal of Early Childhood Environmental Education, 8*(1), 44–63.

Sailakumar, S., & Naachimuthu, K. P. (2017). A phenomenological approach to

    understand the nature based experiences and its influence on holistic

    development. *Indian Journal of Positive Psychology, 8*(2), 186–195.

Saldaña, J. (2021). *The coding manual for qualitative researchers*. Sage.

Sando, O. J. (2019). The outdoor environment and children's health: A multilevel

    approach. *International Journal of Play, 8*(1), 39–52.

    https://doi.org/10.1080/21594937.2019.1580336

Sanyaolu, A., Okorie, C., Qi, X., Locke, J., & Rehman, S. (2019). Childhood and

    adolescent obesity in the United States: A public health concern. *Global Pediatric*

    Health, 6, 1–11. https://doi.org/10.1177/2333794X19891305

Scattolin, M. A. de A., Resegue, R. M., & Rosário, M. C. do. (2022). The impact of the

    environment on neurodevelopmental disorders in early childhood. *Jornal de*

    Pediatria, 98(Supplement 1), S66–S72.

    https://doi.org/10.1016/j.jped.2021.11.002

Schilhab, T. (2021). Nature experiences in science education in school: Review featuring

    learning gains, investments, and costs in view of embodied cognition. *Frontiers in*

    Education, 6, 1–19. https://doi.org/10.3389/feduc.2021.739408

Schutte, A. R., Torquati, J. C., & Beattie, H. L. (2017). Impact of urban nature on

    executive functioning in early and middle childhood. *Environment & Behavior,*

    49(1), 3–30. https://doi.org/10.1177/0013916515603095

Scott, J. T., Kilmer, R. P., Wang, C., Cook, J. R., & Haber, M. G. (2018). Natural

    environments near schools: Potential benefits for socio-emotional and behavioral

development in early childhood. *American Journal of Community Psychology, 62*(3/4), 419–432. https://doi.org/10.1002/ajcp.12272

Shenton, A. K. (2004) Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information, 22*(2), 63–75. https://doi.org/10.3233/EFI-2004-22201

Shimek, C. (2021). "Let nature be your teacher": An ecocritical analysis of outdoor play in award-winning picturebooks in the United States. *Journal of Children's Literature, 47*(1), 51–61.

Simoncini, K., & Lasen, M. (2021). Pop-up loose parts playgrounds: Learning opportunities for early childhood preservice teachers. *International Journal of Play, 10*(1), 93–108. https://doi.org/10.1080/21594937.2021.1878775

Smith, T. D. (2021). Music education for surviving and thriving: Cultivating children's wonder, senses, emotional wellbeing, and wild nature as a means to discover and fulfill their life's purpose. *Frontiers in Education, 6*, 1–10. https://doi.org/10.3389/feduc.2021.648799

Smith-Gilman, S. (2018). The arts, loose parts and conversations. *Journal of the Canadian Association for Curriculum Studies, 16*(1), 90–103.

Sobel, D. (2019). *A return to nature-based education.* https://www.yesmagazine.org/environment/2019/12/13/nature-based-education

Spencer, R., Joshi, N., Branje, K., Murray, N., Kirk, S., & Stone, M. (2021). Early childhood educator perceptions of risky play in an outdoor loose parts

intervention. *AIMS Public Health, 8*(2), 213–228.

https://doi.org/10.3934/publichealth.2021017?viewType=HTML

Stahl, N. A., & King, J. R. (2020). Expanding approaches for research: Understanding

and using trustworthiness in qualitative research. *Journal of Developmental*

Education, 44(1), 26–28.

Storli, R., Sandseter, E. B. H., & Sando, O. J. (2020). Children's involvement in free play

and the use of play materials in the outdoor early childhood education and care

environment. *Children, Youth and Environments, 30*(1), 66–82.

Suttie, J. (2016). *How to protect kids from nature-deficit disorder*.

https://greatergood.berkeley.edu/article/item/how_to_protect_kids_from_nature_d
eficit_disorder

Tate, E. (2020). *What if schools viewed outdoor learning as 'Plan A'?*

https://www.edsurge.com/news/2020-10-05-what-if-schools-viewed-outdoor-
learning-as-plan-a

Taylor, A. F., & Butts-Wilmsmeyer, C. (2020). Self-regulation gains in kindergarten

related to frequency of green schoolyard use. *Journal of Environmental*

Psychology, 70, 1–12. https://doi.org/10.1016/j.jenvp.2020.101440

Thygesen, M., Engemann, K., Holst, G. J., Hansen, B., Geels, C., Brandt, J., Pedersen, C.

B., & Dalsgaard, S. (2020). The association between residential green space in

childhood and development of attention deficit hyperactivity disorder: A

population-based cohort study. *Environmental Health Perspectives, 128*(12),

127011–1–127011–127019. https://doi.org/10.1289/EHP6729

Tillmann, S., Button, B., Coen, S. E., & Gilliland, J. A. (2019). "Nature makes people happy, that's what it sort of means:" Children's definitions and perceptions of nature in rural Northwestern Ontario. *Children's Geographies, 17*(6), 705–718. https://doi.org/10.1080/14733285.2018.1550572

Torquati, J., Leeper-Miller, J., Hamel, E., Hong, S.-Y., Sarver, S., & Rupiper, M. (2017). "I have a hippopotamus!": Preparing effective early childhood environmental educators. *New Educator, 13*(3), 207–233. https://doi.org/10.1080/1547688X.2017.1331095

Trust for Public Land. (2022). *Community schoolyards projects: A game-changing solution to America's park equity problem.* https://www.tpl.org/community-schoolyards-report-2021

University of Massachusetts Global Administration. (2022). *Everything you need to know about being a school administrator.* https://www.umassglobal.edu/news-and-events/blog/everything-you-need-to-know-about-being-a-school-administrator

U.S. Census Bureau. (2021). *Income and poverty in the United States: 2020.* https://www.census.gov/library/publications/2021/demo/p60-273.html

U.S. Department of Education. (2021). *Highlights from the 2021 honorees.* https://www2.ed.gov/programs/green-ribbon-schools/highlights-2021.pdf

Van Dijk-Wesselius, J. E., Maas, J., Hovinga, D., van Vugt, M., & van den Berg, A. E. (2018). The impact of greening schoolyards on the appreciation, and physical, cognitive and social-emotional well-being of schoolchildren: A prospective intervention study. *Landscape and Urban Planning, 180*, 15–26.

https://doi.org/10.1016/j.landurbplan.2018.08.003

Vandermaas-Peeler, M., Dean, C., Biehl, M. S., & Mellman, A. (2019). Parents' beliefs about young children's play and nature experiences in Danish and US contexts. *Journal of Adventure Education and Outdoor Learning, 19*(1), 43–55.

Voice of Play. (2022). 2018 Survey on Recess. https://voiceofplay.org/2018-survey-recess/

Ward, K. (2018). What's in a dream? Natural elements, risk and loose parts in children's dream playspace drawings. *Australasian Journal of Early Childhood, 43*(1), 34. https://doi.org/10.23965/AJEC.43.1.04

Ward, T., Goldingay, S., & Parson, J. (2019). Evaluating a supported nature play programme, parents' perspectives. *Early Child Development and Care, 189*(2), 270–283. https://doi.org/10.1080/03004430.2017.1317764

Warden, C. (2019). Nature pedagogy: Education for sustainability. *Childhood Education, 95*(6), 6–13. https://doi.org/10.1080/00094056.2019.1689050

Weeland, J., Moens, M., Beute, F., Assink, M., Staaks, J., & Overbeek, G. (2019). A dose of nature: Two three-level meta-analyses of the beneficial effects of exposure to nature on children's self-regulation. *Journal of Environmental Psychology, 65*(2019)*,* 1–25. https://doi.org/10.1016/j.jenvp.2019.101326

Xu, M. A., & Storr, G. B. (2012). Learning the concept of researcher as instrument in qualitative research. *Qualitative Report, 17*(42), 1–18. https://nsuworks.nova.edu/tqr/vol17/iss21/2/

Yanez, R. E., Fees, B. S., & Torquati, J. (2017). Preschool children's biophilia and

attitudes toward nature: The effect of personal experiences. *International Journal of Early Childhood Environmental Education, 5*(1), 57–67. https://doi.org/10.14813/ibra.2017.v

Yigit-Gencten, V., & Gultekin, M. (2022). Nature-based reading and writing instructions in early childhood education: The Giving Tree example. *Environmental Education Research, 28*(1), 95–108. https://doi.org/10.1080/13504622.2021.2015294

Zamani, Z. (2017). Young children's preferences: What stimulates children's cognitive play in outdoor preschools? *Journal of Early Childhood Research, 15*(3), 256–274. https://doi.org/10.1177/1476718X15616831

Zhang, Z., Stevenson, K., & Martin, K. (2021). Exploring geographical, curricular, and demographic factors of nature use by children in urban schoolyards in Raleigh, NC, USA. *Urban Forestry & Urban Greening, 65*(2021), 1–11. https://doi.org/10.1016/j.ufug.2021.127323

Zwierzchowska, I., & Lupa, P. (2021). Providing contact with nature for young generation - A case study of preschools in the City of Poznań, Poland. *Urban Forestry & Urban Greening, 65*(November 2021), 1–16. https://doi.org/10.1016/j.ufug.2021.127346

Appendix

Date		Time	
Interviewer Name			
Interviewee Name			
Interviewee Organization		Interviewee Preferred Contact	

Interview Section	Interviewer	Interviewee	Analytic Memo
INTRODUCTION Pre-interview Questions			
P1	Hi, this is Amanda DeGoede. Thank you very much for helping me with my research. As you know, the purpose of this interview is to explore the perspectives and experiences of elementary school administrators surrounding nature-based learning, its support of elementary student development, and its inclusion in elementary schools' curricula and design. This interview should last one hour; I will notify you when we are approaching our one-hour mark. It consists of several questions and sentence completion stems. After the interview, I will be examining your responses for data analysis. I will not identify you in my documents, and no one will be able to identify you with your answers. You can choose to stop the interview at any time. Also, I need to let you know that I will record this interview for transcription purposes. Do you have any questions?		
P2	Are you ready to begin?		

INTERVIEW QUESTIONS: RQ1: What are elementary administrators' perspectives and experiences with NBL?			
Q1	What first comes to mind when you think of nature-based learning or nature incorporated into learning practices?		
Q2	Tell me about any of your formal or informal experiences with nature-based learning.		
Q3	What are reasons teachers at a school might begin to use nature-based learning?		
INTERVIEW QUESTIONS: RQ2: What are elementary administrators' perspectives and experiences with how NBL supports student development?			
Q4	What might be benefits of nature-based learning for student development?		
Q5	Tell me about classroom and learning spaces within your school. *Possible probe:* For what purpose are any outdoor facilities or areas used?		
Q6	What does play look like for your students? *Possible probe:* Tell me about any unstructured play opportunities.		
INTERVIEW QUESTIONS: RQ3: What are elementary administrators' perspectives and experiences on how NBL is included in curricula and design?			
Q7	What are your thoughts on incorporating nature or nature-based learning into school curricula and design?		
Q8	What might be some disadvantages of including nature-based learning in a curriculum or school design?		
Q9	How do you learn or obtain resources about nature-based learning? *Possible probe:* What are the most viable communication channels to		

	discover new information and resources?		
Q10	Can you describe the supports or flexibility that might be available to teachers wanting to use nature-based learning?		
Q11	How might your school benefit from PD on nature-based learning?		
SENTENCE COMPLETION STEMS: RQ1: What are elementary administrators' perspectives and experiences with NBL?			
S1	My experience with nature-based learning is…		
S2	Nature-based learning would be more valued if…		
S3	Making nature-based learning a norm would require…		
SENTENCE COMPLETION STEMS: RQ2: What are elementary administrators' perspectives and experiences with how NBL supports student development?			
S4	When I think of nature-based learning and student development, I…		
SENTENCE COMPLETION STEMS: RQ3: What are elementary administrators' perspectives and experiences on how NBL is included in curricula and design?			
S5	Education standards can be met in an outdoor environment with…		
S6	Barriers for implementing nature-based learning include…		
S7	Including nature into school curricula and design is…		
CLOSING			
C1	This concludes our interview. Thank you so much for sharing your time and insights; it is greatly appreciated and valued. Please feel free to contact me with any questions or clarifications. Would you like to add any other thoughts or reflections to this interview?		
	Thank you, again. Goodbye.		