PERCEPTIONS OF ENGAGEMENT IN TWO NATURE-BASED SCHOOLS IN GEORGIA AND MISSOURI

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PERCEPTIONS OF ENGAGEMENT IN TWO NATURE-BASED SCHOOLS IN GEORGIA AND MISSOURI

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PERCEPTIONS OF ENGAGEMENT IN TWO NATURE-BASED SCHOOLS IN GEORGIA AND MISSOURI

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By

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"I have fought the good fight, I have finished the race,

I have kept the faith." 2 Timothy 4:7

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ABSTRACT

The purpose of this qualitative narrative multiple case study was to address gaps in the research by exploring student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education. By considering three key dimensions of student engagement, behavioral, cognitive, and emotional, this in-depth investigation explored administrators', teachers', and parents' perceptions of what engages students when they learn in and about nature. There is a growing need to re-connect children to nature and provide opportunities and experiences for them to learn in nature. This study took a closer look at two schools, one that was fully implemented as a nature-based school and one that was in the process of building a nature-based setting. This study will add to the educational knowledge base by investigating the benefits of learning in nature and how learning in nature affects student engagement. Through interviews, focus groups, archival data, and field notes the researcher was able to discover four themes aligning with nature-based learning and the implementation process each of the schools went through to become a nature-based school: (a) Children are the focus, (b) Collaboration is key, (c) Engagement is not just for students, and (d) Learning goes beyond the classroom. Findings showed students learning in nature experienced positive impact in the areas of behavioral, cognitive, and emotional engagement. Additionally, Kotter's change theory was supported throughout the implementation of nature-based learning in schools.

CHAPTER ONE

INTRODUCTION

Nature provides children many opportunities to discover and engage in the world around them, while at the same time developing the whole child. Whether children are engaging in all of nature through the senses, problem solving, creatively designing, building something, simply relaxing, or exercising, nature seems to provide it all (Hanscom, 2016; Louv, 2008). Attention, evidence, and research around nature-based learning continues to grow (Dennis & Kiewra, 2018; Jordan & Chawla, 2019; Kuo, Barnes, & Jordan, 2019; Petkus & Criscione, 2017; Richardson, Richardson, Hallam, & Ferguson, 2019; Rios & Menezes, 2020). Jordan and Chawla (2019) stated nature-based learning is enhancing children's developmental and educational outcomes. Louv (2008), a journalist and author of ten books, is one of the many advocates pushing to reconnect adults and children with nature. After writing his books, which focused primarily on nature, an international nature movement was ignited and continues to connect people with nature. Mortali (2020) and F. Williams (2018) also wrote about the importance of embracing the earth and nature in a world where technology dominates our lives. Louv, Mortali, and F. Williams use personal stories in their books to connect the reader to the powerful impact nature has on people's lives. Louv talks about his own experiences in nature and the impact it made on his own life and his family's. Louv (2011) shared one of his own personal stories was when he was just a boy. His family lived in Raytown, Missouri, just at the edge of the suburbs. He recalls most of the good times as a family were associated with nature, whether it was fishing, discovering snakes and frogs, or just staring at the dark sky filled with stars. Louv (2011) went into great detail about the time

he spent working and playing in nature with his family. Louv (2011) stated the time in the garden, on the water, and in the woods held their family together.

Louv (2011) shared what happened when his dad began working more hours as a chemical engineer and spent less time in nature. The family moved to a bigger house and the days of the garden and exploring the woods were gone. Louv moved away to college and his dad decided to retire and move to the hills of southern Missouri, at Table Rock Lake. They hoped they would get back to nature and all it had to offer, but that was not the case and they quickly moved back to the suburbs. His father was sick and ended up taking his own life. Louv believes the disappearance of nature in his father's life had something to do with his descent into illness and eventually death. Below is Louv's feeling as to how nature can have impact on adults and children.

> As a boy, I must have sensed nature's power to heal. As I watched my father withdraw, I wished that he would quit his job as an engineer and become a forest ranger. Somehow, I believed that if he were to do that, then he would be all right, and we would be all right. I realize now, of course, that nature alone would not have cured him, but I have no doubt it would have helped.
>
> Perhaps these childhood experiences are why, as an adult, I am compelled to believe in the restorative power of nature, in a human/nature reunion. And that because of this reunion, life will be better. (Louv, 2011, p. 45)

In Louv's (2011) personal account of his time in nature as a child, he captured many feelings and emotions that adults and children are missing. F. Williams (2018) through her personal account and others explained there is no time to waste and the urgency to re-connect adults, adolescents, and children to nature is critical. Most adults

can recall a memory from a time they experienced with nature and the learning that occurred from it. According to research the current generation would have a difficult time constructing that type of memory from a real-world experience (Ernst, 2018; Louv, 2011; Orlando, 2020). Learning through nature lets students engage and experience much more than simply sitting in a classroom, in desks, listening to a teacher lecture or staring at a device. Nature allows us to construct new meaning, think creatively, and problem solve (Lee & Bailie, 2019; Louv, 2011; F. Williams, 2018).

The researcher focused on how nature-based learning can impact student engagement, which can lead to improved student achievement. The first chapter of this study will include the theoretical framework supporting how student engagement is critical for student achievement and how nature-based learning can provide that engagement for students. Chapter One will also include the problem statement, the purpose of this study, significance and justification of this study, research questions, hypothesis, limitations, delimitations, assumptions, design controls, definition of terms, and summary.

Theoretical and Conceptual Framework

Educators are able to recognize and observe students who are bored, unmotivated, and uninvolved at school (Appleton, Christenson, & Furlong, 2008). Engagement is critical to a student's learning and success in school (Appleton et al, 2008; Bae & Lai, 2019; Lekwa, Reddy, & Shernoff, 2019). This study used both a conceptual and theoretical framework. The conceptual framework for this study was student engagement, focusing on the concepts of behavioral, cognitive and emotional engagement of students (Fredricks, Blumenfeld, & Paris, 2004). The theoretical

framework was Kotter's (2012) change theory, viewing the transition from traditional schools to nature-based schools from the administrator, teachers' and parents' perspectives. Additionally, the adult engagement during the change process will be addressed.

There are numerous theorists who address student engagement (see Table 1), yet for the purposes of this study the researcher has focused on three common concepts within student engagement – behavioral, cognitive and emotional. These three concepts are the conceptual framework for this study. These were used to look at administrators', teachers', and parents' perceptions of student engagement in a nature-based learning environment. Active research on student engagement has become more prevalent in the past 25 years. Mosher and MacGowan (1985) were pioneers in advancing the student engagement theory (Caranfil & Robu, 2017; Christenson, Reschly, & Wylie, 2013). The interest in student engagement first began with a focus on how to prevent students from dropping out of high school (Christenson et al., 2013). Researchers at this time focused on ways to keep students engaged in school. Mosher and MacGowan (1985) stated at this time high school was compulsory in the United States and engagement could not be legislated or made a law. Mosher and MacGowan went on to state student perspectives and experiences can influence academic and social outcomes (Appleton et al., 2008; Mosher & MacGowan, 1985). Mosher and MacGowan could find only two studies that used the word engagement. The first study conducted by Natriello (1984) defined engagement as students participating in activities offered by the school, but his research went deeper by looking at disengagement (Appleton et al., 2008). The second study reviewed by Mosher and MacGowan conducted by Rumberger (1983) primarily looked

at disengagement and his research focused on the type of student who dropped out of high school and the reason why they dropped out of high school.

Although Mosher and MacGowan (1985) did not have a large pool of research to draw from, they were able to order and conceptualize student engagement. Mosher and MacGowan created four premises. The first premise defined engagement as the attitude leading to, and the behavior of, participation in the secondary school's programs. Engagement is both state of mind and a way of being/behaving. Perceptual data are a direct indication of engagement. The second premise asserted engagement has multiple determinants, and they are interactive, rather than additive or mediated. The third premise outlined engagement as having an impact on many students and student outcomes: achievement, academic knowledge, social behavior, and so on. Much research is necessary before the relative importance of the many variables in engagement can be "known" quantitatively. Research on engagement should look for multiple outcomes and recognize that some effects will be missed or remain unmeasured. The fourth premise ideally noted research and conceptualization of student engagement should be longitudinal rather than cross-sectional (Mosher & MacGowan, 1985). Other variables were also considered when determining levels of student engagement. Those included: societal, economic, community, legal factors; family and student characteristics; school characteristics. In 1984, Astin (1985) developed the student involvement theory. He described the term involvement as an active term and gave a list of other verbs that could be used to replace the word involvement. Engaged was on the list, therefore the terms student engagement and student involvement are similar. Astin stated student involvement refers to the amount of physical and psychological energy that students put

forth in the classroom. His research was spent looking at student involvement at the college level. Astin (1985) emphasized that behavioral aspects of student involvement were more critical than the motivation of student involvement. He went on to state it is not about what the student thinks or feels, it is about what the student does and how they behave (Astin, 1985).

More recently, Fredricks et al. (2004) have added to the educational knowledge base within the concept of student engagement. A growing interest in student engagement has been instrumental in improving academic achievement, reducing high levels of student boredom and disaffection, and decreasing high dropout rates (Fredricks et al., 2004; Olivier, E., Archambault, I., De Clercq, M., & Galand, B., 2018). Fredricks et al. were the first researchers to define student engagement as a multidimensional construct that included three components: behavior, emotion, and cognition. Fredricks et al. (2004) also stated merging these components under the idea of engagement is valuable because it gives a richer portrayal of a student than if you were only looking at one factor. These constructs are "dynamically interrelated" and should not be viewed in an isolated process (Fredricks et al., 2004). Currently, focus and interest continues to spread regarding student engagement due to the fact that educators continue to find ways to increase student achievement and positive behavior for all students at every grade level (Fredricks et al., 2004; Christenson et al., 2013). Some of the most current theoretical and empirical work that has been written on student engagement is in the *Handbook of Research on Student Engagement* by Christenson et al., 2013. They give one of the most current definitions of student engagement as:

> Student engagement refers to the student's active participation in academic and co-curricular or school-related activities, and commitment to educational goals and learning. Engaged students find learning meaningful, and are invested in their learning and future. It is a multidimensional construct that consists of behavioral (including academic), cognitive, and affective subtypes. Student engagement drives learning; requires energy and effort; is affected by multiple contextual influences; and can be achieved for all learners. (Christenson et al., 2013, pp. 816-817)

Christenson et al.'s (2013) and Fredricks et al.'s (2004) definitions align in that student engagement is a multidimensional construct that includes three components; behavior, cognition, and emotion. For the purpose of this study the researcher looked at these three components of student engagement, behavior, emotion, and cognition, to determine how students are connecting and engaging in a school that has implemented nature-based learning and a school that is in the process of implementing nature-based learning.

The desire of educators is to increase student learning, which in turn increases student achievement. Student engagement is one of the keys to increase both. Fisher, Frey, Quaglia, Smith, and Lande (2018) stated we must understand the engagement gap before we tackle the achievement gap. They also reported that numerous studies indicate student engagement has had an impact on students' academically, cognitively, and behaviorally (Fisher et al., 2018). Student engagement has increased achievement, reduced drop-out rates, increased participation in and graduation from post-secondary programs, decreased unexpected behaviors such as absentee and substance abuse, and

increased satisfaction with life and overall well-being (Fisher et al., 2018). These researchers, Fredricks et al. (2004), Christenson et al. (2013), and Fisher et al. (2018), have all agreed, over the past 14 years, student engagement is comprised of three dimensions: behavioral, cognitive, and emotional. For the purposes of this study these three components were the conceptual framework for this study.

Nature-based leaning is a very different educational setting from traditional schooling. As a result, moving to a nature-based format requires planning for change and implementation. The researcher will also use the theoretical framework from Kotter's eight-stage process of creating major change by attempting to understand how administrators, teachers and parents were engaged in the implementation process of the nature-based schools. In Kotter's (2012) book, *Leading Change,* he defines the eight-stage process of creating major change in an organization. The stages include: establishing a sense of urgency, creating the guiding coalition, developing a vision and strategy, communicating the change vision, empowering broad-based action, generating short-term wins, consolidating gains and producing more change, and anchoring new approaches in the culture. Kotter stated that successful change of any magnitude goes through all eight of the stages and usually in sequence. Currently Kotter, Akhtar, and Gupta (2021) just released their new book, *Change,* which supports how organizations achieve hard to imagine results in very uncertain and volatile times.

Problem Statement

In this fast paced and technology driven world there are several consequences facing society. One major repercussion is the loss of connectedness children have with nature (Grimwod, Gordon, & Stevens, 2018; Kawas, Chase, Yip, Lawler, & Davis, 2019;

Louv, 2012). As a result, Louv (2008), as a result, has coined the term "nature-deficit disorder." Louv (2012) explained *nature-deficit disorder* is not a medical diagnosis, although Louv believes it should be, it is simply a way to describe the gap between children and nature.

Children are also entering school with a lack of skills that make them ready to learn. Hanscom (2016), a pediatric occupational therapist, stated some children currently have a hard time focusing, controlling their emotions, balancing, have poor strength and endurance, trouble controlling their aggression, and have weak immune systems. Annisa and Sutapa (2019) were encouraged to conduct a study on nature-based learning after finding out students entering school are doing so with lower levels of motor control. Due to the lack of motor control that students are entering school with, Annisa and Sutapa (2019) did a study on nature-based learning and the impact it has on children's motor skills. These behaviors are being observed daily by educators in the classroom and they are struggling with students who need to construct movement cannot concentrate, and simply are not engaged in normal classroom tasks.

The concerns mentioned are supported by ample research that indicates the absence of nature leads to lack of focus, behavior problems, and obesity. These behavioral situations have also become medical concerns which have led to an increase of children with diagnoses of attention deficit/hyperactivity disorder and other medical concerns. (Dineen, 2017; Sisson & Lash, 2017; Visser et al., 2014). The Centers for Disease Control and Prevention (2021) stated that the obesity among U.S. youth, 2-19 years, was 19.3% in 2017-2018, and continues to rise. A. James, Hess, Perkins, Taveras, and Scirica (2017) stated more children have a sedentary indoor lifestyle which is leading

to health problems, including obesity. Additionally, student's health, physical and emotional well-being, could suffer. Dresp-Langley (2020) found that due to the rapidly spreading digitalization worldwide children can suffer from early myopia and blindness, obesity, sleep disorders, anxiety, depression, impaired school performance, and behavior problems.

Another repercussion educator's face is the pressure and effect of high stakes testing. High stakes achievement tests are given to 3rd and 4th grade students in English Language Arts (ELA) and mathematics, however not in science until 4th or 5th grade. Of the fifty states, only three test science prior to 4th grade: Kentucky, Arkansas, and Tennessee. The United States Department of Education (2021) stated after the No Child Left Behind Act (NCLB) was put in place in 2002 and Every Student Succeeds Act (ESSA) in 2015, schools put a greater emphasis on teaching ELA and math, due to these being areas of accountability for Adequate Yearly Progress (AYP). Reform-based science instruction rarely takes place in an elementary classroom and the schools who do, are usually consider going against the traditional school instruction (Bae, DeBusk-Lane, Hayes, & Zhang, 2018; Bae & Lai, 2020; Poland, Colburn, & Long, 2017). Camasso and Jagannathan (2017) stated in their research that hands on environmental education can bring science alive for students and teachers. Educators have cut recess and outdoor time, science instructional time, and trips to meet the demand of teaching ELA and math (Mackenzie, Son, & Eitel, 2018; Poland et al., 2017).

Some research has been done on the importance of children spending time in nature and the impact of nature-based education in early childhood. Bailie (2012) did a multiple case study on nature center preschools and the impact that nature had on those

children. Nugent, MacQuarrie, and Beames (2019) did a study on nature kindergartens in Denmark, Finland, and Scotland. Bailie's (2012) findings showed combining environmental education and early childhood education is more powerful than each of them alone. These schools provided self-regulation skills, appropriate risk taking and cooperative play. In 2010 there were 12 nature-based preschools in the United States (Bailie, 2012; Larimore, 2018), 160 in 2016 and according to the North American Association for Environmental Education more than 250 by the end of 2017 (Larimore, 2018). However, very little research exists on the impact nature-based learning has on elementary age students in schools. If nature-based education has been shown to benefit students in early childhood, then one would wonder why it is not a continued focus in later grades. The problem is elementary education has lost its connectedness to engagement of learning in nature because educators are focusing their curriculum and instruction time on areas that are impacted by ESSA accountability standards (Poland et al., 2017; Tugurian & Carrier, 2017). This creates a problem for student's ability to learn, engage in the curriculum and reach their full potential. With the concerns for student well-being noted in the literature, it was appropriate to address this problem in this research study. The researcher sought to identify the impact nature-based learning was having on the engagement of elementary students.

Purpose for the Study

The lack of connectedness children have with nature and the disengagement in the classroom create a clear and compelling reason educators need to focus on combining the two and creating highly engaging nature-based classrooms and schools. Pickford (2016) stated there is evidence that high student engagement leads to satisfied students,

increased retention rates, achievement, and growth gains, and improved employability. Highly engaging classrooms can only be achieved by providing opportunities for all students to engage in ways that align with their individual learning needs (Pickford, 2016). Students are ultimately the ones who determine their own engagement, but it is the school's role to foster engagement and create environments and opportunities that enable a diverse population of students to be engaged (Pickford, 2016). A study done in Barcelona, Spain found when primary schoolchildren had contact with nature there was beneficial impact on their cognitive development (Dadvand et al., 2015). The researchers in this study also stated that natural environments provide children with unique opportunities such as higher engagement, risk taking, discovery, creativity, balance and control, strengthening sense of self, inspiring emotional states including sense of wonder, and enhancing psychological restoration (Dadvand et al., 2015). The current research seeks to discover the elements within nature-based learning that might contribute to greater student engagement and thus increase student achievement. The goal would then be to take those elements and replicate them at other schools to improve student engagement and student achievement.

The purpose of this qualitative narrative multiple case study was to address the gaps in the research by exploring student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education. By considering three key dimensions of student engagement, behavioral, cognitive, and emotional, this in-depth investigation explores administrators', teachers', and parents' perceptions of what engages students when they learn in and about nature. At this stage in the research, the nature-based learning will be generally defined as follows:

> Learning through exposure to nature and nature-based activities, occurs in natural settings and where elements of nature have been brought into built environments, such as plants, animals, and water. It encompasses the acquisition of knowledge, skills, values, attitudes, and behaviors in realms including, but not limited to, academic achievement, personal development, and environmental stewardship. (Jordan & Chawla, 2019, p. 2)

Louv (2008) also described it in a very similar way, defining it as, exploring and making connections to the natural world through all subjects, direct experiences in human built and natural environment and playing and being in nature to stimulate a sense of wonder and to use critical thinking to make decisions in the environment. Students would be using child directed place-based experience to create an engaging, inquiry focused, relevant, and real-world hands-on investigation of their world (Louv, 2008). Additionally, the researcher will address adult engagement in the implementation process of a nature-based school and the change process they went through.

Research Questions

This qualitative narrative multiple case study used research questions to understand and develop an in-depth analysis of nature-based learning and the impact it has on student engagement. Creswell and Creswell (2018) stated it is important to start with a broad question and then collect detailed information using a variety of data collection procedures. The following central research question guided the study: How do administrators, teachers, and parents from a charter school in Georgia and a public school in Missouri perceive the implementation of student engagement in a nature-based learning environment? The following sub questions helped frame the study:

1. How were administrators, teachers, and parents engaged in the implementation process of a nature-based charter school in Georgia and a public school in Missouri?
2. What are administrators' perceptions of student engagement in a nature-based school?

    How did behavioral, cognitive, and emotional engagement contribute to the students' engagement in a nature-based school?
3. What are teachers' perceptions of student engagement in a nature-based school?

    How did behavioral, cognitive, and emotional engagement contribute to the students' engagement in a nature-based school?
4. What are parents' perceptions of student engagement in a nature-based school?

    How did behavioral, cognitive, and emotional engagement contribute to the students' engagement in a nature-based school?

Significance of the Study

Evidence is growing that nature-based learning raises children's educational and developmental outcomes (Braun & Dierkes, 2016; Chawla, 2018; Jordan & Chawla, 2019). Society has a positive perception about nature-based education and believes nature has an impact on student learning. This study sought to determine if nature-based learning had an effect on student engagement. The importance of nature and green space in a child's educational journey has been shown as a key factor (Dadvand et al., 2015). Even after discovering this key piece of information, schools continue to decrease recess and instructional time teaching about science and within nature. In a recent article that Louv (2019) published he stated that many of America's school districts are decreasing

recess, planning fewer field trips, establishing longer hours of sitting behind a desk, more tests, and more computers, iPads and video games to teach lessons in the classroom. Louv (2008) and F. Williams (2018) stated Finland, one of the leading countries in education achievement, is moving in an opposite direction from the United States. Where the United States has a deeper focus on testing and creating a culture of competitiveness, educators in Finland believe in the interaction between the child and the environment, not just the information. Finland educators believe in play, experiences in the natural setting, teacher autonomy, children starting school at the age of seven, all while spending less money per student than the United States. The significance of the study in Finland revealed that by increasing the time a student spends learning in nature, one can increase their achievement scores in not only science but in math and ELA (Louv, 2008; 2019). Louv (2019) also described an American teacher teaching in Finland explaining how in his class they took short 15-minute break outside after every 45 minutes. The teacher reported that his students were more focused and less zombie-like during lessons. This study sought to contribute to the field of nature-based learning and to examine if engagement and achievement scores increase in two locations in the United States that are nature-based schools. The purpose of this qualitative narrative multiple case study was to address the gaps in the research by exploring student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education.

Definition of Key Terms

Student Engagement. A student's active participation in academic and curricular or school-related activities. Students are committed to educational goals and

learning. It is a multidimensional construct that consists of behavioral, cognitive, and emotional subtypes. Student engagement drives learning; requires energy and effort; is affected by multiple contextual influences; and can be achieved for all learners (Christenson et al., 2013, pp. 816-817).

Behavioral Engagement. Academic behaviors and actions such as participating in school functions, activities in the classroom, following school rules, studying and completing assignments (Fisher et al., 2018).

Cognitive Engagement. The psychological effort students put into their learning and mastering the content, which can be observed when students desire a challenge, self-regulates, and uses metacognitive strategies like planning, monitoring, and evaluating their own thinking and learning (Fisher et al., 2018)

Emotional Engagement. Student's feelings about their relationships at school with teachers and their friends. This can be observed through students talking to other students, engaging in group learning, asking questions to teachers, and when students are interested, inquisitive, and curious about academic content (Fisher et al., 2018).

No Child Left Behind Act 2001 (NCLB). According to the U.S. Department of Education this act was put in place to close the achievement gap so no child would be left behind. NCLB was put in place with accountability, flexibility, and choice (United States Department of Education, 2021).

Every Student Succeeds Act of 2015 (ESSA). According to the U.S. Department of Education this act was to replace and update the No Child Left Behind Act of 2002. The purpose of ESSA is to provide all children significant opportunity to

receive a fair, equitable, and high-quality education, and to close educational achievement gaps (U.S. Department of Education, 2021).

High-Stakes Test/Achievement. Any test that is used to hold students, teachers, administrators, schools, and districts accountable for student learning. The scores can be used to determine promotion, graduation, admissions, and salaries (Partnership, 2014).

Nature-Based Education. Explore connections to the natural world through all subjects, direct experiences in human built and natural environment; to play and be in nature to stimulate a sense of wonder, use critical thinking to make decisions in the environment. Students using place-based experience to create an inquiry focused, relevant, and real-world hands-on investigation of their world, child directed (Jordan & Chawla, 2019; Louv, 2008).

Traditional Education. Teacher centered delivery of instruction indoors to a class of students with a focus on academic learning in math, ELA, science, and social studies (Huson, 2017).

Nature Deficit Disorder. Not a medical diagnosis, but is a phenomenon to describe the human separation from nature. It is the diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses caused from the lack of being in nature (Louv, 2008).

Limitations

Though the researcher attempted to minimize them, all studies contain limitations. The limitations of this study were as follows:

1. The possibility of the researcher and participants' biases in a qualitative study.

2. Results of the interview are limited by participants' personal and professional bias.
3. Only participants who accepted the request to participate were included.
4. Length of time the nature-based school has been operational.
5. Number of nature-based elementary schools in existence at the time of the study.
6. Lack of prior research on nature-based elementary schools above the age of preschool.
7. Enrollment requirements for students.
8. Grade span of school.
9. Teacher's degree of understanding and experience of teachers within the nature-based schools.

Delimitations

In order to provide appropriate boundaries for the research, the following delimits were set:

1. Study was delimited to one charter school in Georgia and one public school in Missouri.
2. Many nature-based school settings are only preschool. This study was delimited to non-preschool nature-based schools to fill a gap in the research.
3. Study was delimited to the perceptions of administrators, teachers, and parents from two nature-based schools regarding student engagement and the change process.

4. Study was delimited to the conceptual framework of student engagement via the three areas of behavioral, cognitive, and emotional (Christenson et al., 2013; Fisher et al., 2018; Fredricks et al., 2004), and the theoretical framework of change (Kotter, 2012).
5. Quantity of interview questions were delimited by the researcher.

Assumptions

1. It was assumed that participants gave honest and open responses and were able to accurately represent nature-based learning.
2. It was assumed that participants would participate throughout the entire study.
3. It was assumed that the nature-based elementary schools followed an environmental approach of education, as defined by United States Environmental Protection Agency.
4. It was assumed results could be generalized to similar schools and states.

Design Controls

The researcher selected a qualitative narrative multiple case study to explore and understand nature-based learning and its impact on student engagement through the perspectives of those involved in these settings. In this study the researcher will retell the stories of the individuals involved in a narrative chronology, pursuing an in-depth analysis of their perceptions of student engagement in nature-based schools, as well as the change process they were involved in. The researcher was able to analyze the experiences of the participants and develop conceptual generalizations of the nature-based experience and the change process, which provided researchers with a meaningful reality based on those experiences and changes.

In this qualitative narrative multiple case study administrators, teachers, and parents from nature-based schools in Georgia and Missouri were interviewed after permission was granted through the Southwest Baptist University Research Review Board (RRB). Only participants who gave permission were included in this study. According to Creswell and Creswell (2018) the acceptable participants for a narrative are one or two and four or five cases for a case study. This study included participants from two schools; a nature-based charter school in Georgia and a nature-based public school in Missouri, which fell within the recommended guidelines according Creswell and Creswell. Schools in two states provided the opportunity to find similarities and differences between the shared experiences of the participants in nature-based schools.

The researcher used Zoom, an online video program, to interview the participants. The interviews were conducted with three groups: administrators, teachers, and parents. The researcher interviewed the varied groups to gain perspectives and experiences on nature-based learning and engagement. The responses from participant's interviews were reported anonymously so the responses could not be linked back to the participants, and thus encourage honesty in their answers. The interviews were then transcribed to identify the common themes among the administrators, teachers, and parents from nature-based schools in Georgia and Missouri. The transcriptions were coded to provide confidentiality of all participants and so the researcher could identify the common themes among the nature-based perspectives and experiences.

The study was delimited to schools that were nature-based schools or going through the process to become a nature-based school and included elementary grades above the preschool level, as that was a gap discovered in current research. The

researcher interviewed administrators, teachers, and parents who currently work at the nature-based school or who have children who currently go to a nature-based school. In order to obtain the perceptions of the various constituents – administrators, teachers, and parents, the researcher used open-ended questions about the implementation and change process of a nature-based school and student engagement in a nature-based school. To control the assumption of the nature-based elementary school following a nature approach of teaching, the researcher will share the research-based definition. The researcher attempted to add reliability by triangulating the data through interviews, archival data, and field notes. If this study were to be replicated the results may differ as perspectives and experiences vary with different nature-based schools. The researcher used member checking and review of the interview session recordings to assist in reliability and validity. The researcher assumed the participants provided honest and accurate responses to describe their perspectives and experiences in a nature-based school, as they were ensured confidentiality in reporting of their answers. It was also assumed that all participants would participate through the entirety of the research. However, if participants wanted to remove themselves from the research at any point they were allowed to do so. All information from them will be destroyed.

Summary

Society continues to move away from nature and toward a very urbanized lifestyle with cars, technology, and less leisure time (Warber, DeHudy, Bialko, Marselle, & Irvine, 2015). This chapter contained an overview of evidence of how students are disengaged in the classroom and how society has lost connectedness to nature therefore posing the need for nature-based learning. According to Louv (2008) and Warber et al.

(2015), connection to nature can be cognitively restorative; a stress reducer and promote holistic health and well-being. The body of research around nature-based learning continues to grow and there are opportunities to measure its impact on children and adults. The researcher also noted how the history of mandated education initiatives has impacted educators as well as the level of instruction used to teach only to the ESSA accountability standards (Griffith & Scharmann, 2008; Mackenzie et al., 2018). The concern is elementary education is not focused on teaching and engaging students beyond what is required due to accountability of the mandated education initiatives. The purpose of this qualitative narrative multiple case study was to address gaps in the research by exploring student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education. Using the conceptual framework of student engagement and three of its key dimensions, behavioral, cognitive, and emotional, this investigation explored administrators', teachers', and parents' perceptions of what engages students when they learn in and about nature. Additionally, Kotter's (2012) change theory and continued work around change was used as a lens through which to view the perception of administrators, teachers, and parents regarding their adult engagement in the implementation process of a nature-based school.

The remainder of the study is organized into five chapters. The researcher presented in Chapter Two the review of related literature organized thematically, beginning with the conceptual and theoretical frameworks of engagement and change, as well as nature-based learning. The method for identifying and selecting the schools that utilize a nature-based approach as well as the collection of qualitative data to support and answer the research questions will be described in Chapter Three. The analyzed results

and findings of this study will be presented in Chapter Four. Finally, the researcher will explain the conclusions and further recommendations for future research and studies in Chapter Five.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

Educators are expected to engage students daily while increasing student achievement. Fisher et al. (2018) emphasized how important it is to create an environment where all students thrive. Engagement will only take root when students are deeply involved in the learning process (Fisher et al., 2018). Nature-based learning provides an environment where students can become engaged and take ownership of their learning. Rios and Menezes (2020) noted when students are involved in learning outside the classroom they will show an increase in their cognitive, physical, emotional, social, and personal skills. Rios and Menezes concluded that nature-based learning contributes to the development of the whole child. This review of literature will address the gap in research around engagement and nature-based learning. Guardino, Hall, Largo-Wight, and Hubbuch (2019) found in their research around teacher and student perceptions of an outdoor classroom that teachers and students positively perceived learning in an outdoor classroom and the students enjoyed and preferred to learn in an outdoor classroom. Their research also showed that children with special needs were more behaviorally engaged in an outdoor classroom than an indoor classroom. As nature-based learning continues to grow there are still questions that remain, as to how these experiences in and with nature promote student engagement and student achievement. Kuo et al. (2019) noted evidence strongly proposed engaging experiences in nature boosts academic learning, personal development, and environmental care. In order to find areas where research is needed, it is important to understand what literature already exists. The following review of literature highlights the theoretical framework, the importance of student and adult

engagement, the change process and nature-based learning. It includes the history of the engagement theory and how it impacts student learning and achievement. The history of engagement was reviewed to find connections to this study. Additionally, the change process and how adults were engaged in making changes that impacted student learning through nature-based learning will be discussed. The focus will then turn to nature-based learning environments and Louv's Nature Principle and the literature around the reconnection to nature. Next the eight pathways to connect learning and nature that Kuo et al. describe in their research will be reviewed as well as multiple intelligences and Gardner's development of the 8th intelligence, the naturalist intelligence. Finally, the researcher will discuss the barriers to nature-based learning. Through this review of literature and subsequent analysis of research data, this study attempted to investigate student engagement and the impact it has on students when they learn in and about nature. In conclusion, a summary of the information in the chapter will be provided.

Theoretical Frameworks and Conceptual Framework

The conceptual framework for this study was student engagement using three of its key dimensions which researchers agree are important, behavioral, cognitive, and emotional (Appleton et al., 2008; Christenson et al., 2013; Fredericks et al., 2004). The theoretical framework for this study was Kotter's (2012) change theory. The change theory was used as a lens through which to view the perceptions of administrators, teachers, and parents regarding their adult engagement in the implementation process of a nature-based school. The importance of engaging students in their education continues to resonate strongly with researchers, educators, students, and their families (Appleton et al., 2008). The research and study of engagement has been complex, as there is not a

consensus of definitions, frameworks, and constructs of engagement (Appleton et al., 2008; Christensen et al., 2013; Fisher et al., 2018; Fredricks et al., 2004; Halverson & Graham, 2019). Early research on engagement primarily looked at school failure which consisted of dropout rates, attendance, misbehavior, grades, effort put forth in schoolwork, school completion, and graduation rates (Liem & Chong, 2017). Liem and Chong (2017) stated there is less research and evidence on psychological, emotional, and social impact of engagement on students. Later in the literature review, the researcher will explore the change process and how adult engagement in this process is critical when implementing a new learning model like, nature-based learning. Kotter's eight-step model provides capacity building, proactive involvement, and deep understanding among stakeholders so leaders can make systematic change to impact student engagement and achievement (Thornton, Usinger, & Sanchez, 2019).

Engagement theory. Mosher and MacGowan (1985) were among the first researchers who presented a conceptualization of student engagement. When Mosher and MacGowan (1985) did their research there was no real theory, no direct assessment tools, and no systematic research. Their hope was they would bring some pertinent literature to light, identify some assessment techniques, and suggest a conceptual model. They stated a student's engagement in their schooling can be a complex state of perception or mind, a way of acting, a numbed conformity or just angry dropping out.

Mosher and MacGowan (1985) created three categories of interacting variables; (a) Societal, economic, community, legal factors; (b) Family and student characteristics; (c) School characteristics. This was their way of conceptualizing and ordering student engagement, stating that the variables are related to student engagement and the

outcomes. Mosher and MacGowan discussed each of the variables independently for the purpose of organization and simplicity, but noted it is important to remember that each of the variables are interactive with each other.

Societal, economic, community and legal factors. Mosher and MacGowan (1985) described societal, economic, community, and legal factors as influences on engagement as the most exogenous. These areas were the most removed from the school setting and described as, removed from classrooms, playing fields, or parking lots of the high school. Mosher and MacGowan used the work of Claus (1984) to describe the impact societal, economic, community, and legal factors had on student engagement. Claus used ethnographic data on vocational education in New York state. Claus found that parents believed schools should focus on basic skills, technical training that could be used toward vocational education, and the development of behaviors and attitudes that would benefit them in the world of work. Mosher and MacGowan concluded it is critical to have incentives for students to participate and engage in school, noting the legal, occupational, and educational norms that become the incentives for students to engage and stay in school.

Family and student characteristics. The second category of interacting variables was described by Mosher and MacGowan (1985) as endogenous. Though treated separately from the first category, in reality they are interactive and inseparable. When looking at the influences of parents, areas viewed included parents' education, income, and cultural indices. Student characteristics focused on thirteen psychological characteristics of the student including: ability, self-concept of academic ability, cognitive complexity, student gender, race and ethnicity, sense of control, educational

aspirations of students and their friends, identity status, delay of gratification, student morale, satisfaction with school, attitudes toward learning, and continuation in education.

School characteristics. Mosher and MacGowan (1985) and Rutter (1980) described the characteristics that had influence on engagement in the school setting. The first to be described in the research were seven influences on student success in school. These included: the use of rewards, praise, and appreciation, a pleasant and comfortable school setting, student ownership in their classroom, academic focus, teachers who provide positive role models of behavior, strong classroom management, and teacher organization. Rutter (1983) later went on to discuss the various outcomes and how we measure a school's success. Measurements noted were: classroom behavior, absenteeism, continuation in education, social behavior, pupil participation and responsibility, alternative schools, and satisfaction with school. Even though the research and study of engagement has been challenging, educators recognize how important and critical student engagement is to the classroom (Appleton et al., 2008). Students have been unmotivated, bored, and uninvolved for far too long. Researchers call the confusion around engagement the "Jingle, Jangle, and Conceptual Haziness" (Christensen et al., 2013, p. 11; Halverson & Graham, 2019). The terms jingle and jangle come from traditional psychology terms (Block, 2000). Jingle (Thorndike, 1904) and jangle (Kelley, 1981) were used to describe the confusing way terms were used in personality psychology (Christenson et al., 2013). Jingle is referred to when the term engagement is used to reference different things and jangle is referred to when different terms are used for the same construct (Christenson et al., 2013). Appleton et al. (2008) created a table of

the engagement constructs with the corresponding definition used by researchers, including:

Table 1

Engagement Constructs

Author	Construct
Audas & Willms, 2001	Extent to which students participate in academic and nonacademic activities and identify with and value the goals of schooling.
Connell & Wellborn, 1991	When psychological needs (i.e., autonomy, belonging, competence) are met within cultural enterprises such as family, school, and work, engagement occurs and is exhibited in affect, behavior, and cognition (if not, disaffection occurs).
Frydenberg, Ainley, & Russell, 2005	Energy in action, the connection between person and activity; consisting of three forms: behavioral, emotional, and cognitive.
Skinner & Belmont, 1993	Sustained behavioral involvement in learning activities accompanied by positive emotional tone (vs. disaffection).
Skinner, Wellborn, & Connell, 1990	Initiation of action, effort, and persistence with schoolwork and ambient emotional states during learning activities.
National Research Council/Institute of Medicine, 2004	Involves both behaviors and emotions and is mediated by perceptions of competence and control (I can), values and goals (I want to), and social connectedness (I belong).
Libby, 2004	Extent to which students are motivated to learn and do well in school.
Fredericks, Blumenfeld, & Paris, 2004	Emotional (positive and negative reactions to teachers, classmates, academics, and school), Behavioral

	(participation in school), and Cognitive (investment) Engagement subtypes.
Furlong et al., 2003	Affective, Behavioral, and Cognitive Engagement subtypes (same as Jimerson et.al., 2003) within student, peer group, classroom, and schoolwide contexts.
Jimerson, Campos, & Greif, 2003	Affective (feelings about school, teachers, and peers), Behavioral (observable actions), and Cognitive (perceptions and beliefs) Engagement subtypes.
Chapman, 2003	Willingness to participate in routine school activities with subtle cognitive, behavioral, and affective indicators of student engagement in specific learning tasks.
Natriello, 1984	Student participation in the activities offered as part of the school program.
Yazzie-Mintz, 2007	Cognitive/Intellectual/Academic (students' effort, investment, and strategies for learning), Social/Behavioral/Participatory (social, extracurricular, and nonacademic school activities; interaction with peers), and Emotional (feelings of connection to school, including their performance, school climate, and relationships with others).
Marks, 2000	Psychological process involving the attention, interest, investment, and effort students expend in the work of learning.
Newmann, Wehlage, & Lamborn, 1992	The student's psychological investment in and effort directed toward learning, understanding, or mastering the knowledge, skills, or crafts that academic work is intended to promote.
Mosher & MacGowan, 1985	Attitude leading toward and participatory behavior in secondary schools' programs (state of mind and way of behaving).

Klem & Connell, 2004	Ongoing engagement (behavioral, emotional, and cognitive components); reaction to challenge (ideally engage optimistically).
Christenson & Anderson, 2002	Psychological (e.g., belonging), Behavioral (e.g., participation), Cognitive (e.g., self-regulated learning), and Academic (e.g., time on task) Engagement.
Finn, 1989, 1993; Finn & Rock, 1997	Participation in (at four increasing levels) and identification with school (belonging in school and valuing school-related outcomes)

Note. Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student engagement with school: Critical conceptual and methodological issues of the construct. Psychology in the Schools, 45(5), 369-386. https://doi.org/10.1002/pits.20303

The list of constructs and definitions supports the level of diversity within the engagement research and theory (Halverson & Graham, 2019). Appleton et al. (2008) stated that the one constant across the definitions and conceptualizations of engagement is they are multidimensional. However, there is not a consistent agreement on how many engagement dimensions there are and they can range from two to four. Lawson and Lawson (2013) and Bond, Buntins, Bedenlier, Zawacki-Richter, and Kerres (2020) stated researchers differ on how these variables are conceptualized, analyzed, and/or included in their research. For the purpose of this study the researcher reviewed three of the engagement dimensions, behavioral, cognitive, and emotional as the conceptual framework for this study.

Change process. When schools transition from a traditional school to a nature-based model a change process occurs. Reeves (2009), Kotter (2012), and Kotter et al. (2021) have led the way with their research around leading change. Reeves stated when

leaders want change to transpire, they must engage their colleagues and stakeholders rather than manipulating them into changing. To influence change, leaders must influence not only the emotional intellects but also the rational intellects of their stakeholders (Dick et al., 2018). When stakeholders are treated as keys to effective change then change implementation is successful and sustainable. A leader must maintain an inclusive, open, transparent, and relational approach throughout the change process so a successful change with moral purpose can take place (Ahmad & Cheng, 2018; Carlyon & Branson, 2018). Hernandez (2017) supported that organizational transformational change was best achieved through Kotter's eight step model. McKimm and Jones (2017) also used Kotter's eight step model to create their 12 tips for applying change in curriculum. Kotter (2012) created the eight-stage process of creating major change to ensure its success. Kotter's eight stages are establishing a sense of urgency, creating the guiding coalition, developing a vision and strategy, communicating the change vision, empowering broad-based action, generating short-term wins, consolidating gains and producing more change, and anchoring new approaches in the culture. Successful change goes through all eight stages and in this order, which will be discussed below. Kotter also defined the difference between management and leadership. He defined management as a set of processes that keep people and technology running smoothly while leadership is a set of processes that create organizations in the first place or adapts them. Leadership is a critical piece in successful change and implementation. When one is able to establish direction, align people, and motivate and inspire, change is produced. Leaders must first be able to establish direction so they are able to develop a vision for the future and strategies to achieve the vision. Leaders who are able to align

and engage all stakeholders, are then able to communicate direction. They are able to communicate what will be needed from all of those involved and what is needed in the creation of teams and coalitions. These teams and coalitions then understand and accept the vision and strategies. The leader is able to motivate and inspire when they can energize all the stakeholders to overcome major political, bureaucratic, and resource barriers to change by satisfying the basic and often incomplete human needs (Kaufman, Mitra, Anderson, Coartney, & Cash, 2019; Kotter, 2012; Kotter et al., 2021). With the pressure of continuous school improvement on the administrator it is critical for them to lead and utilize Kotter's eight steps in creating change in their schools (Kaufman et al., 2019; Radwan, 2020; Thornton et al., 2019).

Creating a sense of urgency. The first step in creating successful implementation or change is to create a sense of urgency. Kotter (2012), Kotter et al. (2021), and Kaufman et al. (2019) stated this work requires great cooperation, initiative, and willingness to make sacrifices from many people. Leaders must understand if complacency is high then the implementation will go nowhere because of the lack of people who are interested in working on the change. If the urgency is low Kotter explained it is difficult to put together a team of people with enough power and credibility to guide the change or convince other key stakeholders to spend time and resources necessary to create and communicate the change vision.

Creating a guiding coalition. The second step is creating the guiding coalition. Kotter (2012), Kotter et al. (2021), and Kaufman et al. (2019) stated it is very dangerous to believe that major change can come from one highly visible individual. There must be a powerful force of individuals to make the change and then to sustain it. Building this

team is important at the beginning of the change process and it must have the right composition, level of trust, and shared objective (Kaufman et al., 2019; Kotter, 2012; Kotter et al., 2021). Kotter also described four key characteristics that are essential when putting together a guiding coalition. They are: position power, expertise, credibility, and leadership. Kotter also stated when trust and a common goal are shared by the guiding coalition, they will be a powerful team that has the capacity to make change happen.

Develop a vision. The third step in Kotter's change process is to develop a vision and strategies to carry out the vision. Kotter (2012) and Kotter et al. (2021) explained the vision serves three important purposes. The first purpose is to clarify the general direction for change, the second purpose is to motivate people to take action in the right direction, and the third purpose is to help coordinate the actions of different people. Thornton, Usinger, and Sanchez (2019) described how effective visions had six characteristics: imaginable, desirable, feasible, focused, flexible, and communicable. The vision should relate to the needed change and connect to the school goals (Thornton et al., 2019).

Communicate the change vision. The fourth step in the change process is to communicate the change vision and when people are involved, they gain understanding and commitment to the vision. Kotter (2012) and Kotter et al. (2021) stated the time and energy required to effectively communicate a vision is directly related to the clarity and simplicity of the message. The best way to communicate the vision is to repeat it often and through behavior which Kotter calls walk the talk or leading by example. The last part of communicating the vision is to make sure the communication becomes a two-way endeavor and feedback is received in a positive way. The following stages in the change

process will fail if people do not accept the vision, so it is critical to communicate it and make changes if they are needed.

Empower employees. The fifth step in Kotter's change process is to empower employees for broad-based action. This can be done by removing structural barriers, providing needed training, aligning systems to the vision, and dealing with troublesome supervisors. Thornton et al. (2019) stated that the administrator and guiding coalition must create meaningful involvement for all stakeholders, so they are empowered, have buy-in, collective efficacy, and a sense of transparency.

Generate short-term wins. The sixth step is to generate short-term wins. Kotter (2012) and Kotter et al. (2021) stated a short-term win has at least three characteristics: it is visible, unambiguous, and is clearly related to the change effort. Kotter also explained six ways on how short-term wins impacted the change transformation, including: providing evidence that sacrifices are worth it and paying off, rewarding change agents with positive feedback and celebration, helping to fine tune the vison and strategies, helping to undermine cynics and self-serving resisters, keeping bosses on board, and building momentum.

Consolidated gains. The seventh step is consolidating gains to produce more change. Kotter (2012), Kotter et al. (2021) and Thornton et al. (2019) explain that leaders can declare victory too soon and it can cause regression and a loss of momentum. Radwan (2020) stated leaders must plan for ongoing success continually improving and revising their change initiative. Continuous support from stakeholders is important, along with gaining support from new people.

Anchoring new approaches. The last step is anchoring new approaches in the culture. Kotter (2012) and Kotter et al. (2021) refers culture to the norms of behavior and shared values among a group of people. He also stated that culture is important because it can powerfully influence human behavior. The key features in anchoring change in a culture are: it comes last in the change effort, not first, it depends on the results, it requires a lot of talk, it may involve turnover, and it makes decisions on succession crucial. Thornton et al. (2019) stated the guiding coalition can define success, at this stage, in relationship to the established goals of the organization with the aligned data.

The change process has many steps because it takes time and leadership to truly make transformational change happen in an organization. Edds (2016) stated research on student achievement shows when stakeholders, administrators, parents, families, and community members, have meaningful engagement in schools and involvement in the change process they can then have true impact on student performance. True stakeholder engagement involves meaningful relationships that are cultivated and maintained which aligns with student engagement. Fisher et al. (2018) stated that engagement, behavioral, emotional, and cognitive, requires explicit and intentional cultivation of relationship with students.

Engagement

Fisher et al. (2018) have created a clear picture of engagement for the 21st century. Their model is called engagement by design and it showed what a balanced model looks like for optimal learning. They state that student, teacher, and content must operate in harmony for there to be significant impact on academic and personal outcomes. The intersection between teacher and student is relationships, the

intersection between teacher and content is clarity and the intersection between student and content is challenge. The main intersection of all these factors is engagement and it has the biggest impact. Fisher et al. state that this engagement by design can only exist when a classroom culture has a foundation of trust and respect between teachers and students. Cinches, Russell, Chavez, and Ortiz's (2017) research also supports that student engagement is directly impacted by teacher effectiveness and teacher engagement. Fisher et al. (2018) stated when a strong teacher/student relational foundation is established, students will feel invited, expected, and safe to actively engage in the learning experience. Their research also found that if students are engaged and connect learning with their everyday lives, they are 14 times more likely to be academically motivated. In the following sections this researcher will expand on student engagement and adult engagement through the theoretical lens of behavioral, cognitive, and emotional engagement.

Student engagement. Student engagement has gained momentum recently due to its critical role in student success (Cinches et al., 2017; Schmidt, Rosenberg, and Beymer, 2017). Schmidt et al. (2017) also stated that not only has student engagement impacted academic achievement but also self-regulatory, social, and emotional learning outcomes. If educators want to understand student engagement it requires an in-depth approach of breaking it down into the three dimensions of behavioral, cognitive, and emotional (Fisher et al., 2018). Fisher et al. (2018) used the term "engagement by design" to define how teachers must intentionally tend to the behavioral, cognitive, and emotional engagement of students in the learning experience. Fisher et al. (2018), Shebby and Porter (2021), and J. Merritt, Lee, Rillero, and Kinach (2017) also explained

that students will engage when they have strong relationships with teachers who really know and understand their content and make the learning for students relevant, interesting, and challenging.

Behavioral engagement. Behavioral engagement focus is on the idea of participation (Andersen & Feldstein, 2021). Schmidt, Rosenberg, and Beymer (2017) also described behavioral engagement as involvement in academic activities in terms of participation, effort, intensity, and persistence. Behavioral engagement is described by students' academic behaviors and actions such as, participating and attending school functions (academic, social, or extracurricular), attending class and contributing to the class activities and discussions, studying for tests, completing assignments, and following school rules (Andersen & Feldstein, 2021; Fisher et al., 2018). Behavioral engagement is crucial for achieving positive academic outcomes and preventing students from dropping out of school (Fredricks, Blumenfeld, & Paris, 2004; Schmidt et al., 2017). Sinatra, Heddy, and Lombardi (2015) found there are several robust links between behavioral engagement and achievement across academic areas including science. The most reliable predictor of achievement is not just based on behavioral engagement; cognitive and emotional engagement have to be considered as well (Sinatra et al., 2015; Schmidt et al., 2017).

Cognitive engagement. Cognitive engagement focus is on the idea of investment (Fredricks et al., 2004). Andersen and Feldstein (2021), Fisher et al. (2018), and Schmidt et al. (2017) stated cognitive engagement refers to the psychological effort and motivational investment students put into their learning and mastering the content. An individual is able to observe cognitive engagement when a student desires challenges, is

able to self-regulate their learning, and plans, monitors, and evaluates one's thinking and learning (Andersen & Feldstein, 2021; Fisher et al., 2018). The student is operating out of their metacognitive state when they are thinking aloud, goal setting, and reflecting on their learning and the result is cognitive engagement. Metacognitive strategies include: planning, monitoring, and evaluating their thinking and learning. Students who are cognitively engaged have a desire to go beyond the requirements and want a challenge (Fredricks et al., 2004). To really understand if cognitive engagement has impact on student achievement researchers have to look at tests that measure synthesis, analysis, and deep-level understanding of contend (Fredricks et al., 2004). It is suggested that cognitive engagement positively influences achievement but there is not strong evidence (Fredricks et al., 2004).

Emotional engagement. Emotional engagement focuses on the idea of how students feel about their relationships with teachers, peers, and the school environment (Andersen & Feldstein, 2021; Fisher et al., 2018). It relates to the student's attitudes and can include positive and negative reactions. An individual is able to observe emotional engagement when a student is seen talking to peers, engaging in group learning and asking questions of their teacher and peers (Fisher et al., 2018). Emotional engagement can also be described through the students' affective reactions in the classroom. This could include involvement, boredom, happiness, sadness, anxiety, enjoyment, anger, hope, and pride. Fisher et al. (2018) also stated that emotional engagement can be extended to the relationship students have with academic content and can be observed when they are interested, inquisitive, and curious about what they are learning in different content areas.

Adult Engagement and Change. When leaders want adult engagement in a new initiative or process they do not gain it from inspiration, demands, pleading, or seminars. Reeves (2009) stated leaders gain engagement through getting results that demonstrate change is in the best interests of all stakeholders. Kotter (2012) agreed that successful transformations do not happen easily, which is why he created the eight-stage process to lead leaders through major change and transformation. Tapia and Walker (2020) added in a people-serving organization an intelligent leader who desires change must choose a higher commitment to excellence and abandon their commitment to their individual and organizational boundaries of comfort. This researcher will look at how administrators, teachers, and parents worked through the change process as a new initiative, nature-based learning, was put into place.

Administrators. Administrators are a critical piece in transformational change in a school (Radwan, 2020; Thornton et al., 2019). Thornton et al. (2019) explained that principals are expected to be the managerial and instructional leaders while addressing unending mandates and having the ability to produce immediate improvements in student achievement. Kotter's eight-stage process provides principals with the guidelines to promote and sustain continuous school improvement.

The first step for administrators is to create a sense of urgency for the needed change. They need to engage all stakeholders by evaluating the need for change and how critical the change is through highlighting credible data (Thornton et al., 2019). The data should be delivered in a way that all stakeholders understand it and it should be valid and reliable and align with school goals. Radwan (2020) stated when benefits to the change,

like student success, are clearly articulated stakeholders are more likely to buy-in which will then help guarantee the success of the implemented change. The next step for the administrator is to create a guiding coalition. Kotter (2012), Kotter et al. (2021), and Kaufman et al. (2019) explained successful change will not take place if there is only one-person planning, implementing, and managing the change, it takes a guiding coalition of invested stakeholders. When an administrator implements a change it requires focus, clarity, and monitoring, but in order to sustain change one must look beyond short-term effectiveness and focus on the greater good and a culture of commitment. The leader must be academically and professionally prepared to lead such change (Radwan, 2020). Kotter (2012) and Kotter et al. (2021) also explained how critical and important stakeholder engagement is in evaluating organizational status when establishing norms and future goals. Stakeholders must understand the critical need for change before they commit (Kotter, 2012; Thornton et al., 2019). Educational stakeholders must deeply understand the issues and indicators of the required change to be behaviorally, emotionally, and cognitively engaged. When a leader has the engagement of the adult stakeholders they can create a guiding coalition that will have the structure, relationships, and shared values and beliefs, which reflect the culture of the school (Thornton et al., 2019). The remainder of the change steps are done with the guiding coalition at the side of the administrator. Together they will develop the vision with strategies for the change, communicate the vision to everyone, empower others to lead in the change, generate short-term wins, consolidate gains and produce more change, and finally anchor the change in the culture of the organization.

Teachers. Teachers have also been identified as a critical and important stakeholder in the implementation of change in a school (Thornton et al., 2019). Fisher et al. (2018) and Purkey and Novak (1996) described elements of invitational education. Invitational education is creating an environment where people want to be there and feel a part of it. Fisher et al. (2018) describes an intentionally inviting classroom as one that is full of energy and excitement from the teacher. When administrators create a similar space for teachers, sharing these same characteristics, they make an invitational stance to making change.

Parents. Parent engagement in their children's education has received support from education policy makers, having been defined as one solution to increase student achievement (Hillier, 2021; Mendez & Swick, 2018). Smith, Reinke, Herman, and Huang (2019) and Bryce, Bradley, Abry, Swanson, and Thompson, (2019) stated students have increased socioemotional competencies, academic achievement, positive gains in reading, homework completion, fewer homework problems, higher educational aspirations, and they are behaviorally engaged when their parents support their learning and development. It is critical to any change initiative in a school that parents are directly involved. When parents are directly involved with their children's school it not only increases the academic learning but it affirms for the student, teachers, and administrator that the parents value education (Bryce et al., 2019). A strong foundation is established when schools and parents work collaboratively and are mutually supportive (Smith et al., 2019; Smith, Reinke, Herman, & Sebastian, 2021). Parents, along with teachers are key educational stakeholders in the change process and must have deep understanding and commitment to the school's goals (Thornton et al., 2019).

Fisher et al. (2018) and Purkey and Novak (1996) describe invitational education through four elements; trust, respect, optimism, and intentionality. When stakeholders, teachers and parents, trust the administrator who is leading the change they have strong relationships and a shared investment. Trust is the foundation to any relationship. The second element, respect, is fostered through actions and communication that everyone has a part in the change. The third element is optimism and notes that everyone has potential and giftedness to make a change. The fourth element is intentionality, which means practices, policies, processes, and programs are in place for change to occur (Fisher et al., 2018; Purkey & Novak, 1996). Administrators must see the value and importance in the elements of invitational education to engage all stakeholders.

Educators continue to be under the pressure of continued school improvement to increase achievement. Thornton et al. (2019) stated social, economic, political, and commercial forces are driving the current school transformational agenda and administrators are the ones under great pressure to make changes. When the administrator has the behavioral, cognitive and emotional engagement of stakeholders, change can take place and student achievement will increase (Kotter, 2012). Nature-based learning and implementing this type of learning can also have an impact on student engagement and achievement.

Nature-Based Learning

In 1911, Comstock was the first professor to promote nature-based learning by publishing a book, *Handbook of Nature Study.* Lee and Bailie (2019) noted this was the first time there was realization that nature-based learning is important to develop the young child. In the United States alone, there are over 4,000,000 students who have been

reported to have an emotional, cognitive, and behavioral disability (Szczytko, Carrier, & Stevenson, 2018). Recent research has found increasing learning time in nature has increased engagement and decreased effects of emotional, cognitive and behavioral disabilities (Chiumento et al., 2018; Dennis & Kiewra, 2018; Grimwood et al., 2018; Dettweiler, Becker, Auestad, Simon, & Kirsch, 2017; Kuo, Browning, & Penner, 2018; Petkus & Criscione, 2017; Szczytko et al., 2018). Fisher et al. (2018) stated that 43% of students reported school was boring and 54% stated they enjoyed participating in their classes. Students have to be given opportunities to connect with their learning in meaningful ways for them to be engaged and motivated to learn (Fisher et al., 2018). The State Education and Environment Roundtable, which consists of 12 state education agencies in the United States, have been working to integrate nature-based learning into K-12 curricula to improve student learning (A. James & Williams, 2017). Integrating nature-based learning with K-12 curricula will result in better standardized test scores, reduced discipline, reduced classroom management problems, and an increase in student engagement and motivation (Breunig, Murtell, & Russell, 2014; Garst, Scheider & Baker, 2001; A. James & Williams, 2017; Lieberman & Hoody, 1998; Scott, Boyd & Colquhoun, 2013). Kuo et al. (2019) stated that nature promotes learning by improving the learners' engagement and attention, decreasing the learners' level of stress, increasing self-discipline, physical activity, and causing the learner to enjoy learning and have an interest in it. Kuo et al. (2019) also stated that learning in nature provides a calmer, quieter, safer, warmer, and more cooperative context for learning. Kuo et al. (2019) explained how imperative it is to start taking nature seriously as a resource for learning, especially for students not engaged and connected with traditional instruction. The

following sections will provide the background to nature-based learning, explain how the naturalist intelligence supports nature-based learning, and explain the positive effects and barriers to nature-based learning.

Nature-based learning. Ernst (2007, 2012) describes environment-based education as a form of education that uses the local environment as a context for integrating all subjects and real-world learning experiences. Jordan and Chawla (2019) define nature-based learning as learning through exposure to nature, it can be in natural settings or brought in through pre-built environments. It is learning through nature-based activities that cover the acquisition of knowledge, skills, values, attitudes, and behaviors that can include the following, but not limited to, academic achievement, personal development, and environmental stewardship (Jordan & Chawla, 2019). The creation of this definition was part of the agenda by the Science of Nature-Based Learning Collaborative Research Network (NBLR Network). A three-year grant was provided to the University of Minnesota, the Children & Nature Network (C&NN), the North American Association for Environmental Education (NAAEE), and the University of Illinois Urbana-Champaign in 2015 from the United States National Science Foundation (NSF) to establish the NBLR Network (Jordan, Charles, & Cleary, 2017). According to Jordan and Chawla (2019) the NBLR Network was established to create a nature-based learning definition, an agenda to inform others on how the development of the science of nature-based learning would continue, publish and disperse research-based information, and conduct collaborative research responsive to nature-based learning. Jordan and Chawla (2019) desired that through their article and research, nature-based learning would not only become important as a field of study but also as a practice. Nature-based

learning is not just learning about nature, it extends to engagement in any subject, skill, or interest while simply learning it all in a nature setting (Jordan & Chawla, 2019). Nature-based learning can occur with varying degrees of guidance and structure and in different types of settings. This means nature-based learning can happen with all different ages, alone or with others, in urban, suburban, rural, or wilderness settings (Jordan & Chawla, 2019).

Nature-based learning is important to children in today's society. As a society we have created an urbanized a generation of children who watch television, play video games, and play on devices. The Centers for Disease Control and Prevention (CDC) (2021) reports that children ages eight to ten spend an average of six hours per day in front of a screen, kids ages 11 to 14 spend an average of nine hours per day in front of a screen, and youth ages 15 to 18 spend an average of seven-and-a-half hours per day in front of a screen. Children have lost connectedness with nature (Ernst & Theimer, 2011; Louv, 2008; F. Williams, 2018). There is a growing movement to re-connect children to nature (Ernst & Theimer, 2011; Louv, 2008; Richardson et al., 2019). Educators are using multiple ways to promote connectedness to nature in schools, classrooms and on the playground (Browning & Rigolon, 2019; Lindemann-Matthies & Kohler, 2019). Nature-based learning is being supported through Forest Kindergarten, nature camps and an everyday focus on environmental education (Sobel & Larimore, 2018). Environmental education is important when trying to connect children to nature (Ernst & Theimer, 2011; Grimwood et al., 2018; Lieflander, Frohlich, Bogner, & Schultz, 2013).

Louv (2008) advocates children should be spending more time outside and in nature. Louv stated "at the very moment that the bond is breaking between the young

and the natural world, a growing body of research links our mental, physical, and spiritual health directly to our association with nature—in positive ways" (p. 3). Ernst and Theimer (2011) looked at seven Environmental Education (EE) programs to see if the level of connectedness to nature increased after the participants had taken part in the EE programs. Results showed a moderate degree of stability in connectedness across time. Ernst and Theimer suggested further research on the popular term *nature-deficit disorder* to determine the appropriate amount of time children should spend outdoors to reverse *nature-deficit disorder*.

Educators know simply taking children outside is not enough. Lieflander et al., (2013) all stated blending positive informal, affective experiences in nature with formal, cognitive environmental knowledge is a must to promote greater connectedness. It is about creating and inspiring the human-nature relationship in every child. Connecting back to nature has to be a cultural shift in thinking to bring our society back to a balance. Louv (2008) stated environmental education could be one possible solution to "nature-deficit disorder." A study by Kuo et al., (2018) examined if lessons in nature had a direct effect on classroom engagement. Kuo et al. (2018) and E. Merritt (2017) findings did support and suggest the more time students spent in nature the more they were able to learn the classroom curriculum and rejuvenate their capacity for learning. This time learning in nature was called refuel in flight (Kuo et al., 2018).

Connecting to nature has so many positive benefits to the wellbeing of children. Nature is fundamental and it is key to the health, well-being, spirit, and survival in the world we live in today (Lee & Bailie, 2019; Louv, 2011; Tillmann, Clark, & Gilliland, 2018; F. Williams, 2018). The Nature Principle is supported by a continuous growing

body of research. Louv simply explained the Nature Principle as the restorative power of nature. Louv (2011) and F. Williams (2018) both discuss how if adults and children would spend the amount of time connected to devices to connect with nature, life would be very different. Louv (2011) Vanaken and Danckaerts (2018), and Wallner et al. (2018) believed nature will have a direct impact on human senses and intelligence, our physical, psychological, and spiritual health, and the bonds and relationships we have with family, friends, and the multispecies community. The Nature Principle also suggests that as rapid changes continue within the environment, economics, and society, the future will belong to those who are nature smart (Louv, 2011). Nature smart individuals are those who have developed a deep understanding of nature and all it has to offer but who also balance it in a very virtual world. Louv (2012) calls this the hybrid mind, where there is a balance of high-tech and nature smart.

Research continues to grow on connecting children to nature and the impact nature has on them. Bailie (2012) and Welz (2014) found two case studies connecting children to nature at a young age addresses the whole child, cognitive, social, emotional, physical, aesthetic, spiritual, and biophilic. Case studies looked at early childhood centers and how the environmental programs were impacting children at such a young age. Kuo et al. (2019) found experiences with nature do promote learning in children. They also concluded nature promoted the development as a person and environmental stewards (Kuo et al., 2019). They established eight pathways that contribute to their findings of nature-based learning, determining five of the eight pathways are centered in the learner. Kuo et al. (2019) reported that evidence suggests when learners have contact with nature, nature then contributes to the pathways or conditions in the learners. The

eight pathways are: (a) nature has rejuvenating effects on attention, (b) nature relieves stress, (c) contact with nature boosts self-discipline, (d) student motivation, enjoyment, and engagement are better in natural settings, (e) time outdoors is tied to higher levels of physical activity and fitness, (f) vegetated settings tend to provide calmer, quieter, safer contexts for learning, (g) natural settings seem to foster warmer, more cooperative relations, and (h) natural settings may afford "loose parts," autonomy, and distinctly beneficial forms of play (Kuo et al., 2019).

Researchers continue to support and find evidence of nature-based learning directly impacting student engagement and improving student's behavior, cognitive abilities and emotional wellbeing. Marchant et al. (2019) stated that providing high-quality teaching experiences to engage children in learning is not only done in a classroom setting, educators must take learning outside the classroom and into the natural environment. The Natural Connections project, which aims to support schools in increasing student's opportunities to learn in nature-based settings, has delivered in 125 schools across southwest England a positive impact on learning in nature by student's enjoyment of lessons, connection to nature, social skills, engagement with learning, health and wellbeing, behavior, and attainment (Marchant et al., 2019). In 2018, Swank and Smith-Adcock did a study around on-task behavior with children who had a diagnosis of attention-deficit/hyperactivity disorder (ADHD). They wanted to see if child-centered play therapy in nature increased on-task behavior of children who had ADHD. Their research and findings supported the effectiveness of child-centered play therapy in nature, which increased the on-task behavior of children with ADHD.

The naturalist intelligence. Gardner, the leading learning theorist on multiple intelligences, adamantly believed that recognizing and nurturing all of the varied human intelligences and combinations of intelligences was important (Armstrong, 2018). Gardner (1999) stated if all people would recognize the importance of the human intelligences then there would be a better chance of dealing with the many problems the world faces, appropriately. Gardner added support to nature-based learning when he developed the eighth intelligence, the naturalist (Louv, 2008; Suprapto, Liu, & Ku, 2017). The naming of the naturalist intelligence allowed for expanded research in the naturalist arena and for educators and parents to increase children's opportunities to learn and experience nature (Louv, 2008). Gardner was the professor of education at Harvard University when he developed the multiple intelligences. Gardner (1999) wrote the book Intelligence Reframed, which was his second edition of describing the multiple intelligences. In the second edition Gardner focused on describing the multiple intelligences for the 21st century and added two intelligences. Gardner had already written the book Frames of Mind, which had described the first seven intelligences. One of the added intelligence categories was the naturalist intelligence. Gardner stated that adding the naturalist intelligence was straight forward and clearly merited an addition to the list of the seven original intelligences. Gardner's eight intelligences are linguistic, logical-mathematical, musical, bodily-kinesthetic, spatial, interpersonal, intrapersonal, and naturalist. Gardner described a naturalist as someone who is an expert in the recognition and classification of numerous species and the flora and fauna of their environment. He also stated that in the Western culture a naturalist is someone who has extensive knowledge of the living world (Gardner, 1999). Armstrong (1999) wrote 7

Kinds of Smart Identifying and Developing Your Multiple Intelligences in which he stated there are many ways to express an intelligence in the world. Armstrong (2018) most recently added Multiple Intelligences in the Classroom, where he provided educators with the tools they need to apply multiple intelligences in the classroom and school. Current research from Suprapto et al. (2017) found that educators using multiple intelligences in a science classroom had more meaningful learning and it could be effective to increase student achievement. When educators know their student's intelligence profile they are able to individualize and engage the students in the learning (Suprapto et al., 2017). Armstrong (2018) gave four key ideas for the multiple intelligences, which included: each person possesses all eight intelligences, most people can develop each one of the intelligences to an adequate level of competency, the intelligences work together in complex ways, and there are many ways to be intelligent within each category. Young children are natural-born naturalists, most adults can think back to their own childhood and re-connect with the naturalist within themselves (Armstrong, 1999; Gardner, 1999). Armstrong also noted several people who knew at a young age their connection to the natural world and made it their life-long mission to impact nature. Some of these include Tempil Grandin, Jane Goodall, Charles Darwin, E. O. Wilson, and Jean-Jacques Rousseau. As educators one must engage and unlock the naturalist intelligence in children at a young age through nature-based learning within the opportunities that lie before them. These include: farmer, horticulturist, agronomist, botanist, veterinarian, entomologist, zoologist, animal husbandry specialist, forest ranger, viticulturist (wine maker), evolutionary biologist, marine biologist, ornithologist, and environmental studies and ecology (Armstrong, 1999). Armstrong also stated how

important it is to have individuals who respect and feel a sense of stewardship for our natural world during this time when it is under attack. By engaging students in nature experiences through green schoolyards and the classroom there is potential to develop the whole child and address environmental concerns at the same time (Beery & Jorgensen, 2018).

Nature-based learning positive effects. Armstrong (2018) stated that in the United States most classroom instruction takes place inside a school building. This has negative impact on the student who learns best in a nature-based setting. As educators we must take learning outside in natural settings and bring the natural world into the classroom. Green schoolyards were found to be a successful tool in promoting self-regulation in students and positive academic outcomes (Lindemann-Matthies & Kohler, 2019; Taylor & Butts-Wilmsmeyer, 2020). Van den Bogerd et al. (2020) found in their research that even bringing nature into the classroom can provide a range of positive physical and psychological health benefits. Student engagement, behavioral, cognitive, and emotional, all increase when nature-based learning occurs (Kuo et al., 2019; Kuo et al., 2018; Marchant et al., 2019; Norwood, Lakhani, & Kendall, 2021; Szczytko et al., 2018). Armstrong (2018) gave several examples of how one could increase nature-based learning in the educational setting. These included: nature walks, windows into learning, plants as props, pets in the classroom, and eco-study. Another way to increase engagement in the classroom and use a natural setting is to use project-based learning. Fisher et al. (2018) describes project-based learning as a way of learning for students to go deep with a topic and it allows them to investigate and grapple with challenges. It also requires students to use collaboration skills. Fisher et al. reported that sixty-two percent

of students reported they enjoyed working on projects with other students. Project-based learning requires students to use knowledge in unique ways and when done in a nature-based setting can have great impact on student learning. Most students are more motivated, engaged, and enjoy learning when in nature (Kuo et al., 2019). Several studies supported that students and teachers have high levels of engagement with either choice-based nature activities or school mandated nature activities (Becker, Lauterbach, Spengler, Dettweiler & Mess, 2017; Blair, 2009; Kuo et al., 2019; Lavie Alon & Tal, 2015; Lekies, Yost & Rode, 2015; Skinner & Chi, 2012). Kuo et al. (2019) found learning in and around nature is associated with higher intrinsic motivation which is critical for student engagement and for students to stay connected to learning for long periods of time. Kuo et al. (2019) found that experiences with nature promote academic learning, development as a whole person, and individuals who want to be stewards for the environment. They found and defined eight plausible pathways between nature and learning. The first five are centered in the learner. When a learner is able to learn and connect in nature they are able to concentrate and focus, are less stressed, more self-disciplined, more engaged, and more physically active and fit. The last three provide a supportive context for learning. These include a calmer, quieter, safer social context, a warmer more cooperative social context, and autonomy and "loose parts" context (Kuo et al., 2019).

Physical activity is a critical component for children to lead a healthy lifestyle, no matter the age, gender, ethnicity, or socioeconomic status (Sharma-Brymer & Bland, 2016). Experiences and engagement in nature enrich the benefits of physical activity and mental health (Cronin-De-Chavez, Islam, & Mceachan, 2019; Kuo et al., 2019; Mygind

et al., 2019; Sharma-Brymer & Bland, 2016). When students are active and have less sedentary behaviors their cardiorespiratory fitness is better and stronger. Cardiorespiratory fitness is a component of physical fitness and it is clearly tied to academic achievement (Santana et al., 2017; Kuo et al., 2019). Fletcher (2017) stated in his research that there are 183 million active gamers in the United States and his research supported digital games that promoted nature conservation helped re-connect people to nature. Concern continues to grow as our society pushes a sedentary lifestyle where electronic devices, social media, and gaming are the focus and take precedence over a nature walk, a hike in the forest, or a climb in a favorite tree (Louv, 2008; F. Williams 2018).

When you combine nature learning, experiential learning, and hands-on learning the senses are stimulated and enhanced and engaging learning experiences are created (Beery & Jorgensen, 2018, Schlenker, 2014). To create these enhanced learning experiences, one must think about all the senses: touch, sight, listening, smell, taste, proprioception and vestibular (Schlenker, 2014). Hanscom (2016) described taking in all the stimuli from the senses and organizing it for use later as sensory integration. The senses are described as puzzle pieces and when all put together a bigger picture is created. Hanscom used the example of climbing a tree in bare feet. Hanscom described all of the senses that are being used come together in one part of the brain, which allows the child to create an experience in nature that affects the whole brain and whole body. Hanscom stated it is important to allow children multiple sensory experiences on a consistent basis, preferably connected to nature. The work of these researchers aligns with the engagement theory presented by Fisher et al. (2018), in which he stated,

"Students engage when they have relationships with teachers who know their content and who make sure learning is relevant, interesting, and challenging (p. 16)." Not only are the students engaged in the learning the teacher is engaged in deeply understanding their students, content, and making the best learning environment for all their students.

Nature-based learning barriers. Dickinson (2013) argued there are barriers to nature-based education that Louv and educators propose. Some of these barriers include time, money, consumption, transportation, safety, access, mindset, and lifestyle. Louv (2011) stated the skeptics would say a nature prescription is problematic due to the fact that humans are destroying the nature around us. If people do not preserve the nature around them one simply will not be able to reconnect or learn in nature (Louv, 2011). Jordan and Chawla (2019) noted that even though there is evidence accumulating for the impact nature-based learning is having on student learning and achievement, there is still much unknown. If educators want nature-based learning to guide practice and drive policy decision making, then researchers must continue to study it on a deeper level.

Phillips (2017) supported the idea that more nature-based preschools are needed, and she took a deeper look at the barriers that affected outdoor nature play for children. The barrier that rose to the top was a concern about crime and safety. Phillips noted that eighty-two percent of surveyed mothers had concerns over crime and safety when it came to their children playing outside. Louv (2008) also agreed with this, but also stated the intense media focus and social anxiety had a lot to do with why boundaries on children are growing tighter. Children are not allowed to bike, take walks, or even play outside by themselves (Phillips, 2017). Hanscom (2016) added another concern and fear of parents was the safety risks that come with playing outside, like traffic, injury from bicycle or

skateboard use, bug bites, wild animals, and poisonous plants or animals. When children are kept inside under parental control for safety, their opportunities to build confidence and discernment are decreased and become disconnected from nature (Louv, 2008). Parents have choices and must take steps to help protect their children as they engage in nature play (Louv, 2008; Phillips, 2017). Some of those steps include providing children with a cell phone when they play in nature, always making sure children never play alone, they have a friend, and parents should know the neighbors (Louv, 2008; Phillips, 2017).

Another barrier for nature-based learning is access to natural play spaces. This is especially true for urban areas where natural areas are limited due to the steady increase of new houses and commercial construction (Phillips, 2017). Phillips in her research described parks in the suburban areas as too formal and not allowing children free exploration and learning. True natural play spaces would allow children to climb trees, play in creeks with water and mud, explore different trails, and free play in nature (Phillips, 2017). These places are hard to find and not all have access to these natural play spaces. For wholesome child development it is crucial that children's playtime is unstructured, imaginative, and exploratory play (Charles & Louv, 2020).

There is also the barrier of structured time verses unstructured time. The children of today have less unstructured time then children of the past (Phillips, 2017). Phillips (2017) described structured time as time spent on activities like sports, art, and music and unstructured time as time spent on activities like unstructured play, exploring in nature, or watching television. Gibson, Cornell, and Gill (2017) stated unstructured play that is child-led allows children to choose and create their own activities, work on social skills,

make independent decisions, and go through the consequences to their decisions. Phillips (2017) reported in her study that adults today are more likely to go everywhere with their children which increases adult supervision and decreases the time a child has to self-direct and explore on their own. Parents need to be aware of the importance of children having free time in nature and how critical its importance is for their development (Phillips, 2017). Parents also need to provide time for their children to experience nature, whether that is them clearing their schedule to supervise their children or allowing children the freedom to explore on their own (Phillips, 2017; Sailakumar & Naachimuthu, 2017).

Screen time also creates a barrier for the amount of time children and adults spend learning in nature. Oswald, Rumbold, Kedzior, and Moore (2020) looked at the psychological impacts of screen time and green time for children and adolescents. Oswald et al. found that high levels of screen time appeared to be associated with unfavorable psychological outcomes while green time, or nature-based learning, were associated with favorable psychological outcomes. Oswald et al. reported that 8- to 18-year-olds were spending on an average of 7.5 hours of screen time per day. This greatly exceeds the recommended average of 2 hours per day. Phillips (2017) and Oswald et al. both agree that screen time has to decrease and time in nature has to increase. Too much screen time can be detrimental to the psychological well-being while being in nature can facilitate attention restoration, stress reduction, and support a range of behaviors that promote psychological well-being (Oswald et al., 2020).

The final barrier researchers have studied is socio-economic status and race. Cronin-De-Chavez et al. (2019) “explored determinants, both barriers and enablers of

urban greenspace use amongst a low income, multi-ethnic sample of parents with young children living in an area of high deprivation" (p. 119). There are great differences in the use of urban greenspaces with low-income and ethnic minority populations, typically reporting less use than other groups (Cronin-De-Chavez et al., 2019). As the importance of connecting with nature for health and wellbeing continues to increase this could cause further divide between health inequalities for these groups (Cronin-De-Chavez et al., 2019). Some of the common barriers they found across multiple ethnic samples were safety and crime, lack of knowledge of where parks or greenspaces could be found, transportation to the parks or greenspaces, and the quality of the parks or greenspaces in the urban areas (Cronin-De-Chavez et al., 2019).

Reconnecting children to nature is not just an effort in the United States, it is an effort worldwide. Avci and Gumus (2020) did a study in Turkey on the effect of outdoor education on the achievement and recall levels of primary school students in social studies course. They found that academic success and retention levels of students who were in outdoor education courses and had outdoor education activities were significantly higher than students learning traditionally. This is yet another example of how critical nature-based learning is. Avci and Gumus also confirmed that researchers, parents, and especially teachers have a very important task to ensure students are not affected by the risks of the digital world we live in. It is more important now than it ever has been for adults to engage in this effort to make a change in our schools. Nature-based education is a necessity for children (Avci & Gumus, 2020; Louv, 2011). Avci and Gumus (2020) noted that connecting and engaging with nature-based learning improves children's

ability to focus, improves their self-confidence, reduces stress, contributes to coping with depression, and improves mental health and general well-being.

Summary

For centuries educators have trapped the work of learning inside a small box called a classroom (Avci & Gumus, 2020) and students have lost their connectedness to nature. If educators want to make true impact and change in student engagement and learning in the classroom, they must consider a shift to nature-based learning. Louv (2008) stated if there was going to be true effective educational reform, educators need to free children from the classroom. "Effective classrooms don't just happen. They are led by teachers who deeply understand their craft and the essential nature of the interaction between student, teacher, and content" (Fisher et al., 2018, p 17). According to the research of Szczytko et al. (2018), they stated that over 4,000,000 public school students were identified with emotional, cognitive, and behavioral disabilities. It is critical for educators to get creative in finding ways to engage students in the learning and increase the learning outcomes. Kuo et al. (2018) reported on several benefits when teachers offer lessons in nature. One of these benefits being student's engagement. Kuo et al. (2018) found that student engagement is enhanced immediately after lessons in nature. This research fills a gap in current literature by examining administrators, teachers and parent's perceptions on the behavioral, cognitive, and emotional engagement of students in a nature-based school. Additionally, this research investigated the implementation process administrators, teachers, and parents were engaged in for a nature-based school's conception. Future research could possibly compare student achievement at a nature-based school to a non-nature-based school.

In Chapter Three the researcher described the methodology of a qualitative narrative multiple case study and how the researcher identified and selected two nature-based schools, as well as the selection of participants and demographics for the study. The researcher described the findings in Chapter Four and provided a summary of this research in Chapter Five. Chapter Five will also provide the educational implications and significance of these findings for educational decisions and future studies.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

Introduction

Elementary education has lost its connectedness to science and nature due to educators focusing their instruction time on areas impacted by ESSA, high-tech lifestyles, and not enough time to spend outdoors in nature (Grimwod et al., 2018; Kawas et al., 2019; Louv, 2011; Louv, 2008). Research has shown that people's perception is positive about environmental education and they believe that nature does have an impact on student learning and a child's wellbeing (Charles & Louv, 2020; Kuo et al., 2019; Price, 2018; Yildirim & Akamca, 2017). Louv (2011) stated a reconnection to the natural world is essential for human health, well-being, spirit, and survival. The importance of nature and the environment in a child's education journey has been shown as a key factor for many years (Kuo et al., 2019). Even after knowing this key piece of information schools continue to decrease instructional time teaching about science and within nature.

Louv (2008) and F. Williams (2018) states Finland, one of the leading countries in education achievement, is moving in an opposite direction than the United States. The United States is thought to have more of a focus on testing and creating a culture of competitiveness, due to the pressures of accountability agencies. Educators in Finland believes in the interaction between the child and the environment, not just the information. Finland educators believe in play, experiences in the natural setting, teacher autonomy, children starting school at the age of seven, all while spending less money per student than the United States (Louv, 2011). When educators increase the time, a student

spends learning in nature, their engagement increases and as a result student achievement increases (Jordan & Chawla, 2019; Kuo et al., 2018; Kuo et al., 2019).

In Chapter Three the research methodology for capturing the perceptions of administrators, teachers, and parents regarding student engagement in nature-based schools in Missouri and Georgia will be described. Additionally, the researcher will explore the implementation process for establishing a nature-based school setting from conception, and how administrators, teachers, and parents were engaged in the change process. The purpose of the study along with the research questions will be restated. Participants who were included in the study will be described including the steps taken for selection and sampling. Next, the research setting will be described, along with the research design, instrumentation to collect data and procedures for data analysis. Finally, the chapter will conclude with a summary.

Purpose of the Study

The lack of connectedness children have with nature and the disengagement in the classroom create a clear and compelling reason educators need to focus creating highly engaging nature-based classrooms and schools. Pickford (2016) stated there is evidence high student engagement leads to highly satisfied students, high retention rates, high achievement, high growth gains, and improved employability. Highly engaging classrooms can only be achieved by providing opportunities for all students to engage in ways that align with their individual learning needs (Pickford, 2016). Students are ultimately the ones who determine their own engagement, but it is the school's role to foster engagement and create environments and opportunities that enable a diverse population of students to be engaged (Pickford, 2016). A study done in Barcelona, Spain,

found that when primary schoolchildren had contact with nature there was beneficial impact on their cognitive development (Dadvand et al., 2015). Dadvand et al. (2015) went on to claim natural environments provide children with unique opportunities such as higher engagement, risk taking, discovery, creativity, balance and control, strengthening sense of self, inspiring emotional states including sense of wonder, and enhancing psychological restoration. The researcher of this study wanted to discover the elements within nature-based learning that might contribute to greater student engagement and increase student achievement. The result would then be to take those elements and replicate them at other schools to improve student engagement and student achievement.

The purpose of this qualitative narrative multiple case study was to address the gaps in the research by exploring student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education. By considering three key dimensions of student engagement behavioral, cognitive, and emotional, this in-depth investigation explored administrators', teachers', and parents' perceptions in order to understand what engages students when they learn in and about nature. At this stage in the research, nature-based learning would be generally defined as follows:

> Learning through exposure to nature and nature-based activities, occurs in natural settings and where elements of nature have been brought into built environments, such as plants, animals, and water. It encompasses the acquisition of knowledge, skills, values, attitudes, and behaviors in realms including, but not limited to, academic achievement, personal development, and environmental stewardship. (Jordan & Chawla, 2019, p. 2)

Louv (2008) also described it in a very similar definition, exploring and making connections to the natural world through all subjects, direct experiences in human built and natural environment and to play and be in nature to stimulate a sense of wonder and to use critical thinking to make decisions in the environment. Students would be using child directed place-based experience to create an engaging, inquiry focused, relevant, and real-world hands-on investigation of their world. (Louv, 2008)

Research Questions

This qualitative narrative multiple case study used research questions to understand and develop an in-depth analysis of nature-based learning and the impact it has on student engagement. Creswell and Creswell (2018) stated it is important to start with a broad question and then collect detailed information using a variety of data collection procedures. The following central research question guided the study: How do administrators, teachers, and parents from a charter school in Georgia and a public school in Missouri perceive the implementation of student engagement in a nature-based learning environment? The following sub questions helped frame the study:

1. How were administrators, teachers, and parents engaged in the implementation process of a nature-based charter school in Georgia and a public school in Missouri?
2. What are administrators' perceptions of student engagement in a nature-based school?

    How did behavioral, cognitive, and emotional engagement contribute to the students' engagement in a nature-based school?
3. What are teachers' perceptions of student engagement in a nature-based school?

How did behavioral, cognitive, and emotional engagement contribute to the students' engagement in a nature-based school?

4. What are parents' perceptions of student engagement in a nature-based school? How did behavioral, cognitive, and emotional engagement contribute to the students' engagement in a nature-based school?

Participants

Participants for this qualitative narrative case study were selected based upon their understanding and engagement in a nature-based school. Creswell and Creswell (2018) and Gay, Mills, and Airasian (2009) stated it is best to purposefully select a small group of participants for qualitative research so the researcher will have the best participants to help understand the problem and research questions. The researcher chose to include the following three levels of stakeholders in the study: administrators, teachers, and parents to understand the perception of engagement in a nature-based school at each of these levels. The same number of participants were included for each school. This group included a building administrator, five teachers, and five parents who had children in the nature-based school. The teachers and parents were selected by the administrators. The researcher requested a list of potential interviewees from the administrators. The administrators attempted to choose a group of 8-10 potential teachers and a group of 8-10 potential parents from which to choose interviewees the study encompassing all grades, specialty areas, and subjects involved. Additional potential interviewees were requested in the event that some chose not to or were unable to participate.

The list of teachers that were provided to the researcher varied in years of experience, both at their current school and prior school experiences, grade-levels taught,

and how many years they have taught at a nature-based school. The names of parents provided to the researcher varied in the number of children they had attending the nature-based school and the number of years their children had been attending the nature-based school. Demographic features of all participants, such as gender, race, or age, were not a delineating factor in the participation of this study. The researcher individually interviewed a principal from the Missouri nature-based school and a principal from the Georgia nature-based school. The researcher did group interviews with five teachers from the Missouri nature-based school and five teachers from the Georgia nature-based school. The researcher also did group interviews with five parents from the Missouri nature-based school and five parents from the Georgia nature-based school. When all interviews were done the researcher had interviewed a total of 22 participants.

Selection and Sampling

Purposive sampling, also called judgment sampling, is the process of selecting a group of participants that are believed to be the best representative for the research being done on a certain population (Gay et al., 2009). The researcher chose nonrandom purposive based on the criteria of a nature-based school. The criteria for a nature-based school is defined as: Explore connections to the natural world through all subjects, direct experiences in human built and natural environment; to play and be in nature to stimulate a sense of wonder; use critical thinking to make decisions in the environment; use place-based experience to create an inquiry focused, relevant, and real-world hands-on investigation of the world (Jordan & Chawla, 2019; Louv, 2008). The researcher limited the respondents to administrators, teachers, and parents from two nature-based schools, one in Georgia, and one in Missouri. The charter school in Georgia is a K-8th grades and

the public school in Missouri is a 5th grade building. The researcher chose these schools because they are unique to the concept of "nature-based learning." In order to protect the confidentiality of all participants ethical considerations were provided, which included approval from the Southwest Baptist Research Review Board, RRB (See Appendix E). Once permission was granted, administrators were interviewed individually and teachers and parents were interviewed in focus groups based on their school and group. Gay et al. (2009) stated that focus groups were useful to the researcher when they wanted to include several individuals who can contribute to the shared understanding of the research. Each individual was labeled by the letter of their state, then an A, T, or P for administrator, teacher or parent, and then a number. This was to ensure all personally identifiable information was omitted.

Research Setting

This study included a K-8th grade charter school in Georgia and a 5th grade public school in Missouri. The researcher attempted to focus on two schools which utilize a nature-based teaching and learning approach. The two nature-based schools that met the criteria for this study had integrated the natural world into their learning environment and curriculum. The school in Georgia has a focus on a hands-on thematic instructional approach that uses the school's unique rural surroundings as a framework. It positions agricultural, environmental, and artistic themes as lenses through which the Georgia state performance standards will be addressed. The school in Missouri wants to provide an immersive experience that connects students with their local ecosystem. They also want to use hands-on, nature-focused education in hope it will increase

understanding across disciplines, enhance physical and mental health, and foster a deeper commitment to the natural world.

After determining schools who utilized a nature-based approach, the researcher contacted the schools through email to see if they would be interested in participating in a research study regarding engagement. Approval was sought from Southwest Baptist Research Review Board (see Appendix E). Once approval was received from the RRB, participants were invited to participate in the study through email. The email included a letter (see Appendix A) explaining the purpose of the study, how participants were selected, and the general topics for the interview. Once they accepted by signing the consent form (see Appendix B), they were invited to a virtual interview through the online program, Zoom. The administrators were interviewed individually, the teacher and parent groups were interviewed using focus groups. Follow up communication was completed using email after the interviews for any clarification questions if needed. Participants in all groups had varying experiences in the development and implementation of the nature-based schools. With participant approval the interviews were recorded and then transcribed to determine common themes. The transcriptions were also coded with the appropriate assigned participant letters to provide confidentiality and to determine common themes between the participants at the nature-based schools.

Research Design

The chosen research design was qualitative narrative multiple case study in order to accomplish the goal of exploring and understanding nature-based learning and its impact on student engagement through the perspectives of those involved in these

settings. As Creswell and Creswell (2018) stated this process of research involves emerging questions and procedures, collecting data from the participants in their setting, then narrowing the data into themes and interpreting the data to share. The researcher chose qualitative research because it is designed to investigate within the research setting to deeply understand the way things are, why they are that way, and how the participants perceive it (Gay et al., 2009). Gay et al. (2009) reported the characteristics of qualitative research as describing the meaning of the findings from the perspective of the research participants in a nonmanipulated setting. The researcher chose qualitative over quantitative due to the desire to understand the perceptions of administrators, teachers and parents involved in a nature-based school. The researcher looked at quantitative and mixed methods and due to the narrative research and case studies, qualitative was the most appropriate method. Creswell and Creswell stated the numbers and types of approaches of qualitative research have become more visible during the 1990s and the 21st century. For the purpose of this qualitative study the researcher will use the components of a case study and narrative research. Creswell and Creswell described narrative research as the study of the lives of individuals and then retold by the researcher in a narrative chronology. Case studies are defined by Creswell and Creswell as an in-depth analysis of a case, program, event, activity, process, of one or more individuals. In this study the researcher will retell the stories of the individuals involved in a narrative chronology, pursuing an in-depth analysis of their perceptions of student engagement in nature-based schools, as well as the change process they were involved in.

This study looked at student engagement in a nature-based schools, the adult engagement during program implementation and change, and the understanding of the

nature-based learning. The researcher used interviews to capture the lived experiences and perceptions of the participants in the study. The interviews were face-to-face through Zoom and consisted of administrators, and two focus groups of teachers and parents from each of the nature-based schools. Focus groups were used so several individuals could contribute to the understanding of the research (Gay et al., 2009). Focus groups are described as, "a group interview where you are trying to collect shared understanding from several individuals as well as to get views from specific people" (Gay et al., 2009, p. 372). Gay et al. (2009) stated that focus groups are useful when the interaction between the participants will lead to a shared understanding and it is important to remind the focus group it is a group sharing activity and not just one or two participants sharing. These interviews used open-ended questions (see Appendix D) so the participants were able to reflect on student engagement in a nature-based school and their opinions and views on nature-based learning. Through these lived experiences and perceptions, the researcher was able to analyze and develop conceptual generalizations of student engagement in a nature-based school.

Instrumentation

In qualitative research the researcher is the key instrument (Creswell & Creswell, 2018). The researcher will control for researcher bias by being self-reflective. Creswell and Creswell (2018) stated when researchers are self-reflective it creates an open and honest narrative which creates research that is of quality for the readers. The researcher must comment and explicitly state in the research report any biases the researcher may have about the research findings, which is shaped by their background, such as, their gender, culture, history, and socioeconomic origin (Creswell & Creswell, 2018; Gay et

al., 2009). The researcher will reflect and journal prior to the interviews to attempt prevention of any biases. Validity was addressed through the triangulation of interviews, archival data, and field notes. Archival documents may include but not be limited to minutes of board meetings, meeting agendas, curriculum outlines, scope and sequence, etc. from the nature-based schools, and digital materials, such as, photographs, material from the school's websites, and any videos provided from the nature-based schools. The researcher will use field notes, recording on the behavior and activities during the interviews. This will be open-ended so participants can freely provide their views. Creswell and Creswell stated triangulation will add validity to a study if it is used to build a coherent justification for themes by examining evidence from multiple sources of data. Member checking and the review of the interview sessions recordings were also used to add validity to the research. Creswell and Creswell stated that the terms associated with qualitative research that address validity are trustworthiness, authenticity, and credibility. The researcher assumed that the participants involved would give authentic, credible, and honest descriptions of a nature-based school and the impact it has on student engagement.

Interview Process

The researcher used individual interviews and focus group interviews as the primary data source to explain the lived experiences of the administrators, teachers, and parents in a nature-based school and their perceptions of nature-based learning and the impact it has on student engagement. After permission was granted from the participants to participate in the interviews, the interviews were conducted using Zoom. The researcher created a Research Question Interview Protocol (see Appendix D) for the participants; administrators, teachers, and parents based on themes that emerged from the

review of literature. Creswell and Creswell (2018) stated the interview protocol provides consistency for all interviews and provides the researcher with the important components for the interview. The questions created were directly related to the research questions guiding the study. The questions were open-ended so the participants could reflect and provide their perception on nature-based learning and its impact on student engagement. The same open-ended questions were asked to all participants to add validity and reliability to the research (Creswell & Creswell, 2018). Each interview was scheduled for approximately 45 minutes to an hour. After the interview, the participants will be thanked and the researcher will discuss how the data will be analyzed and provide the opportunity for the participants to add any final thoughts before the final results are written. Once the interviews are transcribed participants will be allowed to review their summarized comments for clarity and accuracy. Once the transcripts are accurate, analysis will begin.

Procedures

The first step was to get permission and approval to do this research. Permission and approval were granted Fall 2021 through the Southwest Baptist University Research Review Board (RRB). The researcher then contacted both of the nature-based schools through email to set up interviews with administrators, teachers, and parents. Interviews were then conducted, using the digital platform Zoom for face-to-face individual and focus groups interviews. Confidentiality for the research process was guaranteed at the beginning of the interviews, noting that participants would not be identified individually in the research, nor would the school be specifically named in the research. The researcher then journaled and reflected prior to the interviews to help clarify bias.

Creswell and Creswell (2018) stated this creates an open and honest narrative and addresses how interpretation of the findings could be shaped and influenced by the researcher's background and viewpoint.

During focus group interviews, comments from individuals will be noted by participant number (GP1, MP2, etc.) in order to encourage honesty and ensure continued confidentiality. Focus groups were chosen to promote the willingness of the participants to take part and respond to the questions asked by the researcher (Creswell & Creswell, 2018; Gay et al., 2009). It also allowed the participants to build on one another's answers to give a deeper holistic picture of nature-based learning and how their students are engaged behaviorally, cognitively, and emotionally. A holistic picture of nature-based learning would have been more difficult to achieve in one-on-one interviews. The researcher had consistent interview questions for each group that were open-ended questions to allow participants to disclose or share information that was not in the pre-established interview questions. The open-ended questions also allowed participants to expand on other participants responses.

The researcher allowed for various time slots for the interviews, knowing it is difficult to align the participants schedules. Interviews took place over a two-month period and were recorded with participants permission. The research question protocol provided consistency in all interviews, due to the fact there were six interview sessions. Interview questions were created in order to address the research questions and were developed from information in the review of literature. Each interview was scheduled for approximately 45 minutes to an hour. The researcher made sure there was an informed consent form (see Appendix C) signed from all participants through email, as Gay et al.

(2009) stated this is the most basic and important ethical issues in research. The participants knew they could back out at any time and their information would be destroyed. When the interviews concluded the researcher thanked the participants and shared how the data would be analyzed. The participants were informed they would have access to the findings. The researcher then used Otter.ai, a transcription software, to transcribe the interviews. The researcher emailed a synopsis of the transcribed interview to the participants to verify their responses. Additionally, the researcher took field notes. Field notes describe, as accurately and comprehensively as possibly, the observation or interaction, and they contain two types of information, descriptive and reflective (Gay et al., 2009). The researcher, per recommended guidelines, informed all participants that at the end of the research process all information would be kept on a password protected device and then destroyed after five years.

After the interviews were completed the researcher sent the transcripts to the participants so they could validate their answers as accurate. This was a part of member checking, Creswell and Creswell (2018) stated member checking provides validity to the research and allows participants to have input in the research, as well as allowing for a follow up interview, if needed. Finally, the researcher prepared the data for analysis.

Data Analysis

Creswell and Creswell (2018) described data analysis as peeling back the layers of an onion, segmenting and taking apart the data. Creswell and Creswell stated when researchers look at qualitative data analysis it is a process and sequential steps have to be followed. In this study, the researcher first used the online transcription service Otter.ai to provide a detailed breakdown of the video recorded interviews. The researcher then

transcribed and prepared all the data for analysis, using field notes and interview transcripts. Creswell and Creswell stated one of the most important next steps is the researcher reads and reviews all of the data in depth, which provided the researcher an opportunity to reflect over the data and begin to note patterns in the data. Notes and general thoughts were made in the margins of the transcripts. The researcher then began to code the data and organize it by bracketing chunks and categories. From the coding process the researcher was able to form a description and generate themes. The themes were then interconnected into a narrative and analyzed for each individual case. The next step was to determine how the description and themes would be represented in the qualitative narrative. The researcher used a narrative passage to convey the findings of the analysis.

Creswell and Creswell (2018) stated to ensure qualitative validity the researcher must collect and analyze the data by using multiple validity procedures. The researcher used triangulation, member checking, and rich, thick description of two schools who use nature-based learning. The researcher used triangulation of the three data sources, interviews, archival data, and field notes. In order to identify connections between the research questions and the review of literature content, thematic ideas were used. The data was analyzed through the lens of perceptions of administrators, teachers, and parents regarding how engagement has been affected by nature-based learning and what role they played in the change process of implementing nature-based schools in Missouri and Georgia. Additionally, the conceptual framework of engagement – behavioral, cognitive and emotional – and Kotter's change theory were lenses used to analyze the data.

To ensure accuracy and reliability the researcher recorded and transcribed each interview using Otter.ai. After the interview, each participant was given the opportunity to revise or expand on their response, using member checking. The researcher made sure all adjustments were made in the interview transcription and research field notes. Creswell and Creswell (2018) explained the last step is to write the narrative for each theme found. The researcher then wrote the narratives for each theme and it will go in the discussion section in the overall findings of the study.

Summary

The purpose of this qualitative narrative multiple case study was to address the gap in the research by exploring student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education. By considering three key dimensions of student engagement, behavioral, cognitive, and emotional, this in-depth investigation explores administrators', teachers', and parents' perceptions of what engages students when they learn in and about nature. The researcher sought the individual narratives of the participants who are the closest to nature-based learning and then developed an in-depth analysis of nature-based learning and its impact on students. Triangulation was achieved through reviewing of the interviews, archival data, and audiovisual digital materials.

The researcher outlined in Chapter Three the process and methodology for this study. The participants for this study were administrators, teachers, and parents from a Missouri and Georgia nature-based school. The researcher conducted semi-structured face to face interviews through the digital platform, Zoom. All interviews were recorded and the researcher used field notes so the data could be analyzed and coded to identify

patterns and themes. The researcher will share the findings of the data and present the information in Chapter Four. Chapter Five will provide a summary of this research, as well as the educational implications and significance of these findings for educational decisions and future studies.

CHAPTER FOUR

ANALYSIS OF DATA

Introduction

The emerging field of nature-based learning continues to grow and advance many educational objectives (Chawla, 2018). Chawla (2018) stated some benefits include greater student well-being, higher engagement, reduced inattentions and impulsivity, and higher academic achievement. The purpose of this qualitative narrative multiple case study was to address the gaps in the research by exploring student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education. By considering three key dimensions of student engagement— behavioral, cognitive, and emotional—this in-depth investigation explored administrators', teachers', and parents' perceptions of what engages students when they learn in and about nature. Chapter Four includes the findings of this qualitative narrative multiple case study of administrators', teachers', and parents' perception of what engages students when they learn in and about nature. Additionally, Kotter's (2012) change theory and continued work around change was used as a lens through which to view the perception of administrators, teachers, and parents regarding their adult engagement in the implementation process of a nature-based school.

The researcher conducted interviews with one administrator, five teachers, and five parents from the Georgia nature-based school and one administrator, five teachers, and five parents from the school in Missouri that was opening a nature-based school. After the interviews, transcripts and interview notes were used to identify themes and compare each to components of engagement and nature-based schools that were found

through the literature review and interviews. Chapter Four is organized by participants, methods of verification and trustworthiness of the research, and data analysis, with the last section addressing the following central research question: How do administrators, teachers, and parents from a charter school in Georgia and a public school in Missouri perceive the implementation of student engagement in a nature-based learning environment? The following sub questions helped frame the study:

1. How were administrators, teachers, and parents engaged in the implementation process of a nature-based charter school in Georgia and a public school in Missouri?
2. What are administrators' perceptions of student engagement in a nature-based school?

    How did behavioral, cognitive, and emotional engagement contribute to the students' engagement in a nature-based school?
3. What are teachers' perceptions of student engagement in a nature-based school?

    How did behavioral, cognitive, and emotional engagement contribute to the students' engagement in a nature-based school?
4. What are parents' perceptions of student engagement in a nature-based school?

    How did behavioral, cognitive, and emotional engagement contribute to the students' engagement in a nature-based school?

Data Analysis

In this section, all the data collected for this qualitative study were discussed and the process of how the data were analyzed was presented. The researcher used interviews, focus groups, field notes, and archival data for this study. These were all

open-ended forms of data. Creswell and Creswell (2018) stated this open-ended form of data is where participants share their ideas freely and they are not restricted by predetermined scales or instruments. The researcher triangulated all the data sources by examining evidence from the sources and used it to justify the themes (Creswell & Creswell, 2018).

Interviews and focus groups. The researcher used interviews and focus groups to collect data around the perceptions of the administrators, teachers, and parents. Participants for this qualitative narrative case study were selected based upon their understanding and engagement in a nature-based school. The group of participants was purposefully selected as a small group to help understand the problem and research questions (Creswell & Creswell, 2018; Gay et al., 2009). There was a total of 22 participants. The same number of participants was included for each school: one administrator, five teachers, and five parents who had children at the nature-based school. The administrators selected the teachers and parents for the researcher.

The administrators and teachers participating in the study varied in years of experience, both at their current school and prior school experiences, grade-level or ages taught, and how many years they had taught in a nature-based school. The parents participating in the study varied in the number of children they had attending the nature-based school, the number of years their children had been attending the nature-based school, and if they had been involved in the opening of the nature-based school. Demographic features of all participants, such as gender, race, or age, were not a delineating factor in the participation of this study. To protect confidentiality, each participant was labeled: GP1, MP1, GT1, MT1, GA1, MA1 and so forth. (Table 2).

Demographic information, such as school district, student population size, and free and reduced numbers, was left out of this study to protect confidentiality of the schools and participants. Each participant in this study was interviewed between January 2022 and February 2022 via Zoom. Each interview lasted an average of 60-90 minutes. The researcher provided the informed consent form, interview protocol, questions (Appendix C), and Zoom link prior to the interview through email.

Table 2

Demographic Information of Study Participants

Participant Data	Role	Experience/Involvement at Current School	Gender
GP1	Parent	8 Years	Female
GP2	Parent	8 Years	Female
GP3	Parent	3 Years	Female
GP4	Parent	6 Years	Female
GP5	Parent	3 Years	Female
GT1	Teacher	3 Years	Female
GT2	Teacher	3 Years	Male
GT3	Teacher	1 Year	Female
GT4	Teacher	4 Years	Female
GT5	Teacher	5 Years	Female
GA1	Administrator	6 Years	Male
MP1	Parent	15 Years	Female
MP2	Parent	5 Years	Female
MP3	Parent	16 Years	Female
MP4	Parent	12 Years	Female
MP5	Parent	3 Years	Female
MT1	Teacher	10 Years	Male
MT2	Teacher	10 Years	Female
MT3	Teacher	20 Years	Female
MT4	Teacher	14 Years	Female
MT5	Teacher	7 Years	Male
MA1	Administrator	12 Years	Male

Note. Participant Data; G = Georgia; M = Missouri.

Field notes. The researcher used field notes to gather, record, and compile observations and research materials. Gay et al. (2009) stated field notes contain two basic types of information, descriptive information about what the researcher has seen

and heard while gathering data for the study, and reflective information that captures the researcher's personal reactions to the observations. The researcher used the field notes to analyze and provide description and understanding of the research setting and participants. Due to the pandemic and the researcher not being able to visit the school in person, field notes were taken during the interviews. The researcher chose make the interview protocol (see Appendix D) the observation protocol so notes and observations could be documented for each question. Descriptive and reflective notes were made during each interview. The researcher also included the setting in which the interviews were taking place, who was being interviewed, date, time, and the duration of the observation. Due to the interviews taking place through Zoom, the participants' settings were all different. Settings included participants' homes, cars, and classrooms. The researchers reflected on the setting options for the participants and felt that each of the participants felt very comfortable for the interviews because they were in their chosen space. Distractions, like participants animals and children, were present during the Zoom interviews, but the researcher knew there would also be distractions if the interview had been face-to-face. The researcher also wrote down questions during the interview to follow up at the end of the interview or in an email. The researcher felt the field notes provided a focus and structure during the interviews.

Archival data. The researcher used archival data to support the research around student engagement in a nature-based school and the change process these schools went through to become a nature-based school. The archival data included minutes of board meetings, meeting agendas, curriculum outlines, and scope and sequence from the nature-based schools, and digital materials, such as, photographs, material from the school's

websites, and any videos provided from the nature-based schools. Gay et al. (2009) stated these sources of data can aid the researcher in gaining valuable historical insights, identify trends, and help explain how things got the way they are. Both schools housed their board agendas and minutes on the district website. The schools also had several pictures of their campuses and the nature-based aspects that made them unique. These were helpful to the researcher to understand the physical setting due to not being able to visit each of the sites. The Missouri administrator also shared his entire Google drive that provided the researcher with documents that he had used to help aid in the beginning phases of opening the nature-based school. There were also documents on how to build a nature paly area, place-based resources, and feedback and self-guided tour information on the new nature-based school. The researcher obtained several sources of data, as Creswell and Creswell (2018) stated this is important to make interpretations about the research problem.

Verification/Trustworthiness

Qualitative research seeks to investigate deeply the research setting to obtain an understanding about the way things were, why they were that way, and how the participant perceived what is being researched (Gay et al., 2009). In this qualitative case study, the researcher developed an in-depth analysis around nature-based learning, the participants' perceptions around it, and how students were engaged behaviorally, cognitively, and emotionally. Creswell and Creswell (2018) and Gay et al. (2009) stated that qualitative research describes personal experiences, or a program, event, activity, or process through interviews, observations, documents, and audiovisual/digital materials to understand the study. The purpose of this qualitative narrative multiple case study was to

address the gaps in the research by exploring student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education. By considering three key dimensions of student engagement—behavioral, cognitive, and emotional—this in-depth investigation explored administrators', teachers', and parents' perceptions in order to understand what engages students when they learn in and about nature.

It is critical for researchers to establish credibility and validity in their qualitative research, and it is recommended that multiple data collection approaches are used to describe their findings (Creswell & Creswell, 2018). This study used triangulation, member checking, and rich, thick description to convey findings and clarify the bias the researcher brought to the study. For triangulation, the researcher used the following data sources: interviews, archival data (public documents-board minutes, meeting agendas, meeting presentations, websites), and field notes. To ensure confidentiality, all data were protected and labeled by state. The researcher collected and reviewed the archival data regarding each nature-based school. The first step the researcher did was to print the archival data from the schools' websites and information that was shared from the administrators. The second step was to read the information and look for common themes. Any discrepancies between the interview transcript and triangulation data sources were noted in the groups post-interview correspondence, to allow the interviewee to provide clarification.

The researcher used Otter.ai to transcribe the recorded interviews. Member checking was used so participants had the opportunity to change their thoughts or add to them after reflecting on their responses. After the data were transcribed and cleaned the

researcher emailed the participants their transcript. The participants were allowed to make changes to their response and email it back. All participants approved their transcripts with no changes necessary.

The researcher also used rich, thick description to help transport readers to the setting and give the study an element of shared experiences (Creswell & Creswell, 2018). The researcher described nature-based learning environments and what the perceptions of engagement were from the participants. These descriptions were based off of the researcher's collected interview data, field notes, and archival data.

The researcher also clarified bias by journaling and reflecting prior to the interviews. Creswell and Creswell (2018) stated this creates an open and honest narrative and addresses how interpretation of the findings could be shaped and influenced by the researcher's background and viewpoint. In the journaling and reflecting, the researcher had recorded a visit to one of the schools prior to the research and was very passionate about nature-based learning. These past experiences have potentially shaped the interpretations from the researcher toward nature-based learning and the impact it has on students and their engagement.

Research Questions

In order to understand the data more clearly, the information in this section is presented in connection to the research questions that guided this study. The following central research question guided the study: How do administrators, teachers, and parents from a charter school in Georgia and a public school in Missouri perceive the implementation of student engagement in a nature-based learning environment? The researcher asked open-ended questions to capture the administrators', teachers', and

parents' perceptions through their lived experiences. The interview protocol and preestablished questions were based on the researchers review of literature, including engagement theory, change process, and nature-based learning. The researcher also used online board agendas and meeting notes to understand the implementation process the schools went through or continue to experience.

Sub Question 1. The first sub question was the following: How were administrators, teachers, and parents engaged in the implementation process of a nature-based charter school in Georgia and a public school in Missouri? The questions on the interview protocol that addressed this question for the administrators were 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10. The questions on the interview protocol that addressed this question for the teachers were 1, 2, 3, 4, 5, 6, and 7. The questions on the interview protocol that addressed this question for the parents were 1, 2, 3, 4, 5, 6, and 7. The two schools were in different steps in implementing the nature-based concept. The researcher organized the data to describe where each of the schools was in the process and how the administrators, teachers, and parents were engaged in the process.

Georgia administrator. The nature-based school in Georgia was a charter school. The school was publicly funded and was established by a community group. It had to go through a renewal process every 4 years. The Georgia administrator (GA1) reported the school had just gone through its second renewal process and its charter was renewed for another 4 years. GA1 explained that the initial governing board had to put forth a petition to the county with the reason why they wanted to open a nature-based school and the value it would add to the county. GA1 stated, "The desire of the school was to create an environment where students were immersed in nature and embed nature within all

subjects: math, science, social studies, and English language arts." The founders of the school had studied and researched the work of Richard Louv, which was also one of the foremost researchers on which the current research project was based. At the beginning of a cycle the administrator, along with the governing board, must set marks or goals of the things they want to accomplish in the cycle. At the end of the cycle, when it is time to renew the charter, the school has to present the accomplishments and goals they have met to the county. The goals are located in the charter petition that is on the school's website.

The GA1 described their current renewal process as led by the administrator and the governing board. The board also hired an outside party to help with the writing of the petition, and partnered with the Georgia Charter Schools Association (GCSA). The Georgia administrator stated, "The GCSA have a 100 percent renewal rate and help the school write the petition." GA1 explained there was a teacher, parent, and student component to the renewal process. GA1 said, "The administrators, teachers, parents, and students were involved with surveys, videos, and testimonies on social media." There were district surveys and board meetings for public comments.

The motto of the school was, "Learning is in our Nature." The GA1 stated, "We believe that students' exposure, experience, and involvement in nature will not only give them an appreciation of life but help them to know the value of sustaining agriculture and the environment." GA1 described that whether it was in the beginning of opening the school, the renewal process, or just the everyday operations, the nature-based school was tipping the scale of engagement significantly. GA1 stated, "It is critical for us to have teachers who have experience in nature-based learning and strong pedagogy and

instruction to have successful student engagement." He also described how engaged and committed parents were to the school. Parents were required to bring and pick up their children every day, as there was no busing for students. GA1 stated, "I interact with every parent every day, and the children are bouncing to the car with excitement; they can't wait to tell mom and dad about what they learned that day."

Georgia teachers. There were five teachers who interviewed, identified as GT1, GT2, GT3, GT4, and GT5 in the description of the process and their engagement in the implementation and renewal of a nature-based school in Georgia. None of the teachers were teaching at the school when it opened, so they mostly talked about the renewal process they just went through. GT5 spoke about her involvement first, since she had been teaching at the school the longest, stating there had been community involvement during the opening of the school. GT5 stated, "Going through the renewal has been interesting because the school wants kids in nature, but at the state level they want data to show nature is increasing test scores." GT5 now felt they were working together at this point. GT4 added that previous administration did not have a lot of data to support nature based, but the current administration and staff had worked hard to balance both nature-based learning and standardized testing expectations and standards-based learning. GT4 stated, "Traditional schools only have to worry about testing and standards; where we have the nature too, it is an extra layer that makes us unique."

GT2 shared his perspective of the renewal process, stating he felt it really gave the school an opportunity to showcase what it was doing. He stated, "It gave teachers an opportunity to recognize they needed to share what they do; we have found ways to have academics and nature work in harmony." He also explained they had been very

intentional with the community about sharing what they were doing at the school. GT2 stated, "It felt good to have people come on campus to see what teachers already knew to be true."

Georgia parents. There were four parents that interviewed with the researcher through Zoom and one parent who answered the interview protocol questions through a Google document. They were identified as GP1, GP2, GP3, GP4, and GP5 in the description of the process and their engagement in the implementation and renewal of a nature-based school in Georgia. Three of the parents, GP1, GP2, and GP4, had been engaged with the Georgia nature-based school since opening day. GP1 had heard about the nature-based school attempting to open around five years prior to it actually opening. There were some parents involved during that time as they had meetings about the school, but GP1 did not get involved until the school had mailed out postcards to people in the district to gain support. GP1 stated, "I started reading and looking into the nature-based school and that is when my husband and I decided to enroll our son."

GP2 discussed how a group of founders had the original idea to open a nature-based school. They created the logo, put together the advisory committee, and hired the administration. One of the founders was one of the first nature teachers at the school. GP2 stated, "We were going to a private Christian school but we wanted something different for our family." They wanted something with a deeper connection to science for their son because he loved science. GP2 had researched schools and learned a nature-based school was coming to their area. They were instantly drawn in. Once the charter had been approved the enrollment process began. They enrolled their son. The site where they were building the nature school was not ready for the first day of school so

students and staff spent the first two months in a building the county had loaned the school. GP2 stated, "It was interesting starting a nature school but not really in nature." Parents were able to get more involved once they moved to the new campus and GP2 stated that was when she really got involved.

GP4 also knew she wanted something different for her daughter and was involved before it was open. She explained the founders started asking for opinions on how things should operate at the school. GP4's stated,

> My ideas would include: students would know most of their food came from local sources, students would be able to set up different gardens on campus, the school could have parent volunteers weekly to shop at the farmers market to ensure kids are getting the best produce, and students could come up with their menus.

GP3 loved the idea the school values were going to be attempting to show students how to appreciate nature, how to be one with it, and how to use it. Her interest in the school came from knowing her daughter would be able to be a "dirt girl." GP3 described it as the following,

> I want her to be able to get her hands in the earth and learn at the same time. I want her to learn binary numbers by looking at pine cones and I want her to be outdoors and learning science in conjunction with social studies lessons and in conjunction with her math lessons.

All five of the parents had been present and engaged during this second renewal process for the nature-based charter school. GP2 explained the board put together a taskforce and all stakeholders were present. The taskforce put together a plan of what

changes they wanted during this next cycle and what they wanted the renewal process to look like. They had students involved in the renewal process, some were asked questions about what they liked and did not like about the nature-based school. Some students also made a video about their school. There was data collection with which parents were involved. The principal pulled artifacts and pictures of kids doing things past and present. The researcher used these artifacts as pieces of the archival data to support the engagement of the administrator, teachers, and parents in the nature-based school. GP2 stated parents were encouraged to attend board meetings to speak and to make videos and write letters to show support for the school. The board also wanted them posting those things on social media to highlight what was happening at the nature-based school.

GP1 shared the board wants parents engaged and involved with every aspect of the school, not just when they opened or the renewals. She stated,

> "They encourage parents to be involved and they want to hear from us. The board makes it feel like a true community and we are asked to help in pretty much every big decision the school makes, like when we hired our current principal."

GP3 echoed what GP1 had shared. She felt they had an excellent board and PTO who listened and she felt like her voice was being heard. GP5 also believed when they made suggestions to the teachers, staff, or principal those suggestions turned into changes and she could see those changes happen. GP5 was involved in going to board meetings to hear what was happening and she volunteered in classrooms by making copies and assisting with other needs for teachers so she could see firsthand what was happening, then give feedback based on what she saw. GP3 stated, "Communication is always out

there and transparent; they listen and even if it does not go our way there is some understanding and communication."

Georgia summary. The implementation of Georgia's nature-based school and the continued renewal process was a partnership between the board, community, administrators, teachers, and parents. All of the evidence through online archival data, board minutes, a range of committee documents created to help the nature-based school function, a PTO website, the schools audit, and their strategic plan, supported engagement by all stakeholders. This was critical to the success of the school. The researcher's field notes also provided evidence to support the interviews. The Georgia parent participants were all in agreement the school's board, administrators, and teachers included parents and engaged them in all aspects of the nature-based school. Parent engagement was noted through the researcher's field notes from the Georgia administrator and teachers as they supported and believed in shared leadership. They created a partnership with the community and parents to support the students and their engagement in nature as evidenced by their PTO, people and culture committee, and their strategic plan. Their strategic plan aligned with initiatives around developing partnerships for all stakeholders, providing staff with resources for them to be successful with nature-based learning, and implementing initiatives to ensure their school is a welcoming environment with a strong school culture.

Missouri administrator. The Missouri administrator (MA1) explained his engagement in the implementation process of opening the nature-based school in Missouri really began 6 years prior to the study with the former superintendent and board. MA1 and the superintendent had also worked very closely with the Missouri

Department of Conservation (MDC) commissioner who had previously been head of the Department of Natural Resources (DNR) and state parks. The first time the district tried to push its plan forward with opening a nature-based school it was denied at the state level. The second time the district pursued its plan it did not need legislative approval because it was using just the MDC and not DNR. MA1 stated, "The district had a family who kindly donated 200 acres to build the nature-based school on." The MDC donated $1,000,000 for the project, the Missouri school district put in $2,000,000 for the project, and the district had $1,400,000 left to raise. The Missouri school district had almost raised the $1,400,000 and planned to start building in April 2022. MA1 said, "We were actually thrilled it failed the first time because now with partnering with the MDC and DNR we will be able to serve more students."

MA1 explained he was currently the sole organizer. MA1 shared an electronic presentation he had created to inform and share ideas with stakeholders. MA1 created groups to work through details of how the nature-based school would be organized and supervised. There were 15-20 administrators, teachers, and other staff members in the groups. The groups provided the community with listening and idea sessions when the administrators and board were designing the building. The group presented feedback in a presentation. The presentation of feedback is part of the researcher's archival data. The community provided feedback on the building and specifics of what they wanted it to look like, from the flooring, to the windows/doors, to what they wanted the classrooms to look like. The community wanted each classroom set up around rivers, forests, prairies, and ponds, which are specific habitats in Missouri. The community wanted the nature-based school to be a showcase and unique. MA1 stated, "They took the community's

input and changed the building based on their feedback." Teachers were updated through this process. At the time of the study, the administrator and teachers were currently working on the plan/schedule of when students would visit the nature-based school. MA1 explained the school would include fifth graders from the entire district/county. Students would spend 4 consecutive days at the nature-based school exploring, investigating, and developing a project to better their home school. The students would then carry the project developed back in their home school. The students would then return to the nature-based school for an additional 3 days for more exploration and to present the results of their projects.

MA1 stated, "Several of the district's schools focus on place-based education, which supports the nature-based idea." MA1 shared place-based education took off in the district when they took a group of teachers and students to the Teton Science School. Through the researcher's field notes and interviews, place-based education was described as projects that are developed around a problem and the students use their location/environment to solve the problem. MA1 said, "The students focus on what is available in the location they have available and how they can partner to make it better." MT4 shared an example of her students coming up with the idea their school needed a prairie. MT4 stated, "The students worked with community partners and other classes to create this prairie and they are currently getting ready to plant seeds for it." The school used the outside and nature to connect kids to their place and community. Through archival data the researcher found that MA1 created a presentation, *A Place-Based Education for All*, which shared the steps their district took in transitioning a traditional school into a place-based school. Step 1 was to not to overcomplicate, but rather the

teacher simply teaches the same standards in a place-based way. Step 2 was to pick a school to work with and provide professional development around place-based education. Step 3 was to share all of the great things the school was doing, like taking photos of students learning during their place-based lessons, posting on social media so other schools saw it, and in the process, enticing other schools to want to do place-based learning also. Step 4 was moving to another school and helping them implement place-based learning in their teaching. Step 5 was collecting evidence that student engagement had increased, classroom assessment scores had increased, behavior had decreased, and opportunities and successes for reading and writing increased.

Missouri teachers. There were five teachers that interviewed, identified as MT1, MT2, MT3, MT4, and MT5 in the description of the process and their engagement in the implementation of place-based education and a nature-based school in Missouri. All of the teachers expressed that they really had not had a part in the nature-based school they were opening yet. MT1 stated, "Administration had the idea around the nature-based school and place-based education and the ideas and implementation have slowly spread." Four of the five teachers all taught at the same school and they explained that their school was chosen for place-based learning and nature-based education because of their location. The school had a park around it, which made teaching and learning in nature more convenient.

MT2 and MT3 had been to the Teton Science School with a group of students. MT3 explained the Teton Science School then came to their school and trained and provided professional development around place-based education. MT3 stated, "The leaders from Teton gave us ideas, lead discussions, Zoomed with us, helped us focus on

what we were teaching per grade level, inspired us, gave us insight, and helped get the community involved." MT1 stated, "Bringing in the Teton Science School helped with the process and gaining teacher buy-in to place-based education." MT2, MT3, and MT5 all agreed that once teachers started teaching using place-based methods in nature, the idea spread and more teachers wanted to do it. MT2 was not at the same school as the four other teachers and she was one of the few teachers who was implementing place-based learning and nature-based learning in her classroom. She stated, "I utilize place-based methods and share it with other teachers hoping they will want to do it too." The district did not consider a building a project-based learning building until it had 80% buy-in from the staff. These teachers expressed how critical it is to have buy-in from teachers to embark on this journey to a place-based or nature-based school.

Missouri parents. There were four parents that interviewed with the researcher through Zoom and one parent who answered the interview protocol questions through a Google document. They were identified as MP1, MP2, MP3, MP4, and MP5 in the description of the process and their engagement in the implementation of place-based learning and a nature-based school in Missouri. Four of the five parents' children attended the same school, which fully implemented project-based learning and the other parent's child attended a school where her child's teacher did place-based learning in her classroom. MP2 explained there are many opportunities to get involved in their children's school. MP2 stated, "They are always sending out emails for families to volunteer, teachers and administrators organize activities and projects for the parents to help with, and they have a PTA to get involved with as well." MP4 also agreed with MP2, that it was easy to be involved with committees and PTA. MP3 stated, "My

husband has been very involved in the creation and building of the nature-based play areas." Parent volunteers had built at their current school, but had also built the nature-based play areas at several of the other schools. The researcher was able to view pictures of these playgrounds from the school's website as part of the archival data to support what these nature-based schools look like. This nature-based play area was built with natural resources, such as logs that students could climb and build with. There was a clubhouse and a music area as well. MP3's husband had access to tractors and the tools to aid in the construction of this area. Per the researcher's field notes, parents and students felt very connected to the school through the project of building the nature-based play area.

On the other hand, some disagreed. MP5 stated, "I feel parents have not been included in the process enough and in the beginning, parents had to reach out and ask for specific information about placed-based learning." She also felt they were not informed about the state of transition to place-based/nature-based learning nor what was happening in the classrooms. MP5 stated there could be more transparency in the implementation process.

Missouri summary. The implementation of Missouri's nature-based school was still in the beginning phase. The administrator had begun the process of building partnerships between the board, community, other administrators, teachers, and parents. Evidence through online archival data including website sharing the mission, vision, and partnerships of the nature-based school; presentations created by the administrator to aid in the implementation of the nature-based school and place-based learning; and pictures and information on specific school sites all supported engagement by all stakeholders,

which was critical to the success of the school. The researcher's field notes also provided evidence to support the interviews, noting the Missouri nature-based school was supported by the community and parents. Based on field notes there is still continued buy-in needed at the district level, with administrators and teachers. The researcher's field notes share concerns from the Missouri administrator and teachers around continued training for teachers and sustaining nature-based learning for all students in the district.

Sub Question 2. The second sub question was the following: What are administrators' perceptions of student engagement in a nature-based school and how did behavioral, cognitive, and emotional engagement contribute to the student's engagement in a nature-based school? The questions on the interview protocol that addressed this question for the administrators were 8, 9, 10, 11, and 12. This section is organized by administrator perceptions from both schools, using Fredricks et al.'s (2004) conceptual framework of behavioral, cognitive, and emotional engagement.

Behavioral engagement. The GA1 stated, "There is a difference in the behavior of students who attend their nature-based school and students who attend a traditional school." He noted,

> In traditional schools it is hard to provide opportunities where students can release energy, where at our school we provide experiences like putting their hands in the dirt, working on fencing, moving and cleaning things up, and cleaning up poop.

GA1 explained these types of experiences limit frustrations and allow students to release energy that in a traditional classroom they could not. GA1 also described other factors at a nature-based school that allow a decrease in anxiety and permit students to release energy, which reduces the disturbances that students create. Some of his examples were

eating lunch outside, being able to make noise and not constantly being told to be quiet, having window and natural light, and even being able to open them and let fresh air in. In his 4 years there he had not had to report anything in the category of "fighting." GA1 stated, "I have seen some disagreements with pushing but nothing near the fights I had witnessed in traditional schools, where I would have to break them up and there would be blood, broken bones, and hospital visits." GA1 stated, "I attribute the decrease of misbehavior to the students' appreciation of the smallest inkling of life on campus, which nature-based learning has provided the students." The students have transferred this appreciation of life to the appreciation for their teachers and fellow classmates.

MA1 also had seen a decrease in behavior using the place-based learning rather than the traditional model. MA1 stated, "Students will do whatever they need to because they do not want to miss the place-based activities. A lot of them take place in nature and they want to participate in those." When measuring the average number of office visits before they had fully implemented place-based learning and then after, there was a 50% decrease in office visits after implementation of place-based education. MA1 stated "behavior issues have gone down and attendance has gone up."

Cognitive engagement. GA1 stated their school had some extremely bright scholars. During this renewal process one of the areas they had to improve was student achievement, and they continued to work hard to improve that. He explained it was more than just a test score—the experiences, different situations, and vocabulary students were exposed to at the nature-based school allowed them to function at a higher level. It allowed all students, whether they lived in poverty or not, to have learning and exposure to alpacas, ponies, bunnies, and other nature-based experiences.

MA1 explained they were not seeing huge cognitive engagement increases in topics when it was place-based learning; it was not transferring to all areas. He did state they had seen an increase in problem solving. Teachers had been very purposeful in not giving students solutions so they had to really understand and problem solve, which is one of the Next Generation Science Standards (NGSS). MA1 also stated that achievement scores had gone up some, but they were fairly high to begin with.

Emotional engagement. GA1 felt nature-based learning increased emotional engagement of students. He stated students were healthier and not as sick, which made their absentee rate low. When learning in nature students are more attentive and seem to enjoy themselves. GA1 described students' ability to learn life lessons that sometime we try to protect them from. He told a story about the school having a pony that passed away and he and the teachers tried to hide it from the students, but of course they found out. Students started writing letters to the pony and stories about the experiences they had with it. The students decided to embrace it and learn about real life through the experience. This experience could help them later in life when dealing with losing a loved one. GA1 also discussed the pandemic and that during the time they were shut down their students longed for the nature-based learning. He stated, "We should have been able to stay open face-to-face longer but we just were not willing to chance it. We are trying to keep them in school as much as possible."

MA1 also agreed that place-based learning and time in nature had improved their overall well-being and led to healthier student bodies. Their visits to the health room had gone down and they had also seen a decrease in ADHD issues. He stated the biggest changes emotionally had been in the students who struggled the most. These students

could not work with other people and had very little interest in anything. Now, with place-based learning and creating the nature-based playgrounds, they wanted to be a part. MA1 shared,

> I had a student who had to ride the bus home, but asked if he could ride his bike back to help with the building of the nature-based playground, which we were working on after school hours; the student had a purpose and wanted to help.

Sub Question 3. The third sub question was this: What are teachers' perceptions of student engagement in a nature-based school and how did behavioral, cognitive, and emotional engagement contribute to the student's engagement in a nature-based school? The questions on the interview protocol that addressed this question for the teachers were 8, 9, 10, 11, and 12. This section is organized by teachers' perceptions, from both schools, using Fredricks et al.'s (2004) conceptual framework, behavioral, cognitive, and emotional engagement.

Behavioral engagement. The Georgia teacher (GT4) shared their nature-based charter school can receive students with challenges in behavior or academic growth because it is a parent's choice to enroll their children and they may not have had success in a traditional school. GT4 believed that teachers at a nature-based school have more patience and acceptance than teachers in a traditional school. In a traditional school, students have difficulty in focusing, making friends, and keeping a good social balance. GT4 explained at a nature-based school they had seen students grow into much more socially dynamic students, their patience and self-acceptance grows, and the way they see other people is positive. GT4 shared the following example:

> There was a student who experienced a lot of rejection. The teachers and staff worked hard to get him to trust the environment, the process, and the people. Once he settled and knew there were different opportunities here, he became the strongest animal caretaker, his grades got better and his communication efforts increased. He blossomed at the school.

GT1 shared she did not use a classroom management system in her classroom at the nature-based school like she did when she taught at a traditional school. She explained it was about connection and relationships and the students were engaging with each other. They learn how to talk to one another, forgive each other, and how to express themselves. She described in a traditional school, students are told to sit, follow a schedule, and are not allowed to move. Behaviors happen because students are frustrated and the subjects are tough. At the nature-based school, students have an outlet and a way to express themselves in an artistic way or in nature. There is also more time to connect and learn how to self-regulate their emotions. GT1 stated behaviors still exist, students struggle, they get frustrated, angry, sad, and families still go through tough changes, but we are a family and we work through it. The students have more freedom to grow and develop, they have to trust the process, and we have an extra element, the environment to help us.

In Missouri (MT1) shared their overall student behavior referrals had decreased. He explained in a traditional setting kids were really hard to engage. MT1 stated, "We have seen kids with issues not knowing how to handle school and then have success behaviorally when given the opportunities to get out and do things and connect with others." MT1 stated, "We had a student who couldn't stay in class and now with place-

based learning he can and he is doing the things other students are doing and he seems to really be interested and engaged." MT4 also shared they had a regular playground and a nature-based play area. She had a group of students who researched the number of discipline referrals for each area. The regular playground had a total of 27 discipline referrals and the nature-based play area only had two. MT3 stated, "When we are out in nature, behavior is the least of my worries. Kids need to move and not be on a screen."

Cognitive engagement. In Georgia, GT5 shared they see students as a whole person and not just a data point. GT2 explained they used cross-curricular instruction; it is less stressful and more organic. He stated in a traditional school they usually read one book, then read another book with no real-world connection. At the nature-based school he was able to read several books and then go directly out into the world and make connections for the students. He explained they were reading the *Hunger Games* trilogy and the students were taking information from the books and then going out on the nature trails and in the forest and the students got a chance to recreate the arenas from the books. They were taking something from literature and making real-world connections. GT2 also stated, "Nature has a way of slowing things down for students, which allows for connection." GT2 noted a conversation they had with a student where they [the student] talked about not really liking or doing well in school but how they enjoyed and learned from activities at the nature-based school. GT2 continued to share that confidence sometimes allows students to come back to school next year and do even better; it is the boost of confidence they get from working and learning in nature that propels their academic performance forward.

GT1 also agreed with GT2, noting when students experience what they are learning they are more able to connect and remember things. Students at a nature-based school are better able to use all of their senses when learning, which allows them to experience and actively engage, making them more prone to remember and make connections to what they are learning. GT1 gave an example of her students studying fossils. This was a virtual lesson and she had just been giving them information and gave them a quick quiz to check to see how much they were understanding. When she got the quiz results only 53% of her students were understanding the concept. She decided to send out a recipe to make salt dough. They then made impressions to be filled with glue. After utilizing a different approach with hands-on activities and relating it to real-life examples, she gave another quiz and 87% of her students understood the concept about fossils. She believed their students were creative; it might not show on a standardized test but they were creating, building, and thinking. She stated, "You might not be able to measure our growth with a number." She saw growth and they came up with ideas on their own.

In Missouri, MT3 shared their students were problem solvers when using place-based learning or learning in nature. They really worked to make their students part of the solution. She gave the example of a person coming to them asking their fifth graders to carve 100 pumpkins. The kids were very excited and became instant problem solvers because they knew they could not use knives. They were able to get creative and use cookie cutters. They were able to complete the project and felt very successful. MT3 felt like they gave them real-life experiences, like taking them to the creek to throw rocks, climbing trees, playing, and just being kids, which allowed them to also engage them in

learning. When they come back from those experiences they journaled and wrote without hesitation, and it was not boring because they just experienced it.

Emotional engagement. Teachers in Georgia and Missouri both believed students' emotional engagement increased when in nature. This became even more important as the teachers had taught through the pandemic, a very difficult time in their students' lives. GT4 stated, "Just going outside and standing in the sun, absorbing Vitamin D calms them and helps them emotionally." GT5 shared when the world shut down, humans got worldly and crazy and could not figure things out, but nature became so beautiful. He stated, "The world/nature does not need humans but humans need the world/nature."

MT5 stated they had worked to create a happier, kind, safe environment at school that students enjoy being in. This also has to have a rippling effect outside of school. MT3 described during the pandemic they felt they were in a jail cell with students in rows, masks, lines, and they could not go outside for lunch. Students begged to go outside because they felt safer and it gave them room to breathe. MT3 stated, "Everything we could do outside, we did, because they were emotionally engaged."

Sub Question 4. The fourth sub question was this: What are parents' perceptions of student engagement in a nature-based school and how did behavioral, cognitive, and emotional engagement contribute to the student's engagement in a nature-based school? The questions on the interview protocol that addressed this question for the parents were 8, 9, 10, 11, and 12. This section is organized by parents' perceptions, from both schools, using Fredricks et al.'s (2004) conceptual framework, behavioral, cognitive, and emotional engagement.

Behavioral engagement. GP2 shared she had a rambunctious third grader who attended the nature-based school. GP2 stated,

> He knows that he has to do his work but he also knows that a majority of his day is spent outside and moving. He gets to go to recess, lunch outside, see the animals as they move from one place to the other, they don't have to walk in a line and he can even skip.

She shared, "There has been a change in his behavior, he enjoys his freedom and that helps him focus on the times when he is supposed to be doing the right thing." GP1 shared even the middle schoolers ate outside and once they were finished they could play basketball or just run around. They still needed recess so they could sit to learn and focus. GP2 also had a daughter with ADHD and being at a nature-based school had helped her a lot. In her IEP she was allowed frequent breaks; in a traditional school frequent breaks would have looked different than frequent breaks in a nature-based school. GP2 stated,

> The teacher will send her on a break to the office, during which she gets to walk outside and see nature, from plants to animals and simply breathing in fresh air. She has a hard time focusing and nature helps that.

In Missouri, MP1 not only did her kids go to the school but she also subbed. She stated the biggest behaviors would happen at writing time. The students wanted to avoid it, but when they went outside to write no one needed to go to the bathroom, no one needed to go to the nurse. They were relaxed and in their element, not looking for ways to avoid it. MP3 also shared she had another sub report that at their school, because of the place-based learning, there was a different feel and a different culture and

community. The kids were well behaved compared to other kids he had experienced in other buildings. MP3's son used to take ADHD medicine but he did not now. They give credit to the learning environment he was in, being able to move and not sit in a chair all day. MP5 shared her kids loved outdoors and were happy to get to move around and be active while learning.

Cognitive engagement. GP4 shared her daughter was thriving academically more this year than she ever had. There was an amazing core group of teachers who worked together to plan instruction for their students. The teachers were using examples they found outside and then relating it back to what they were teaching them. The teachers were doing this in math, science, reading, and social studies to engage the students. GP4 believed that teachers who work together help kids thrive more than anything. MP4 shared the things they do at school carry over to home. Her child was transferring it: what we can do at one place we can do at another place, like gardening and composting. MP3 stated students were making connections to nature. They are understanding where their food came from and that it did not come from the grocery store, it actually started somewhere else. They were also understanding they needed to protect nature and be good conservationists, so we have things for our future.

Emotional engagement. One of the things that rose to the top for both the Georgia and Missouri parents was the health of their children when being in nature. GP2 shared her experience of when her daughter went to a traditional Pre-K. Her daughter was constantly sick with colds, she had a weak immune system, and was out of school more than she was in it. GP2's daughter then went to kindergarten at the nature-based school and being outside so much helped her to go from being sick and out of school all

the time to healthy and in school. GP1 shared when her daughter was at home learning due to school being shut down for the pandemic, her daughter absolutely hated it. She had to sit inside and was not engaged; she continuously asked "When are we going back to school?"

MP4 stated, "Nature gives kids confidence, and they can excel in these environments." She shared that project-based learning and learning in nature have been really important for her daughter's development as she is getting ready to move to the middle school. MP3 believed place-based learning gives kids experiences they may not get anywhere else. It is also good for their health—Vitamin D from being outside, exercise, getting outside and moving to create a less sedentary—instead of a screen lifestyle for kids.

Nature-Based Challenges

Along with answering the research questions, other information came to light. Through the interviews and field notes the researcher found some common challenges around nature-based and place-based learning. The two challenges that were highlighted the most were from the perspectives of GA1 and MA1. These challenges were finding and retaining teachers who were trained and had the skill set to teach nature-based and place-based learning. GA1 explained teachers would apply for an opening at their school and were hired, but they do not really know all that is expected from them teaching in a nature-based school. He shared it is difficult to find colleges with educational programs that support nature-based learning. MA1 noted the challenges around finances and being able to find money to train and sustain the work they were doing around place-based learning. He stated he was worried about the change of leadership in the district central

office, and the funding that would be used to decide how many teachers would be at the new nature-based school. Missouri teachers also shared this same concern. MT1 stated, "It is scary when you change leadership and wonder if the people after you are going to value and realize the benefits of place-based learning." Georgia teachers shared their concerns were around the transitions their students had to make leaving their K-6 nature-based school to a traditional high school. GT4 stated, "When our students leave it is a big shift, to go back to cinder block walls and always being enclosed. When they leave our schools, they have to readjust." Teachers also shared how hard it is not only to teach nature-based things but also be held accountable for state achievement scores.

Georgia parents had two main concerns around security and safety. Through interviews, archival data (pictures), and field notes their concern was centered around the layout of their campus and the fact that nature itself can be dangerous. GP5 stated, "The only concern I would have is children being very careful when they are walking on trails because of it being a nature school. Some animals also roam around and there is also a waterfall on the trails." GP3 shared concern around how open their campus was and how easy it would be for an intruder to have access to the students. Missouri and Georgia also shared a challenge around making sure the school hired and retained staff who were on board and had the tools to teach nature-based and place-based education. MP1 stated, "Teachers must have the passion and resources they need to meet the educational goals in a new and exciting environment."

Themes

The researcher read through all the data multiple times for different purposes. Creswell and Creswell (2018) stated this process is called winnowing the data, which is

where the researcher focuses on some of the data and disregards other parts of it. The researcher sought to understand the change the schools went through to become nature-based schools and the perceptions of behavioral, cognitive, and emotional engagement in a nature-based school from all sources of data.

After all the data had been winnowed, the researcher then identified and generated a summarized list of key terms and phrases. A list of the top 35 key terms and phrases in the data was created in order to determine importance and connection to perceptions of engagement in a nature-based school. A breakdown of these key terms and phrases are presented in Table 3.

Table 3

Top 35 Key Terms and Phrases Organized by Rank

Rank	Terms/Phrases	GA	GT	GP	MA	MT	MP	Total
1	School	79	82	132	104	66	105	568
2	Children/ Kids	18	80	96	34	107	91	426
3	Nature	54	83	74	41	33	79	364
4	Based	29	43	28	41	36	58	235
5	Year	0	42	64	34	69	26	235
6	Teachers/ Staff	27	38	80	55	0	30	230
7	Learn/ Learning	0	61	33	26	28	40	188
8	Students	50	24	27	25	15	0	141
9	Thinking/ Thought	0	0	0	14	98	0	112
10	Class/ Classroom	6	13	25	13	14	13	84
11	Day	11	0	18	35	17	1	82
12	Parents	12	0	29	0	0	24	65
13	People	0	0	23	0	35	0	58
14	Teaching/ Teach/ Taught	13	27	3	0	12	1	56
15	Science	0	0	0	23	24	0	47
16	Experience/ Experienced	0	7	2	0	0	33	42
17	Engaged/ Engagement	10	23	5	0	0	1	39
18	Helps	0	0	38	0	0	0	38
19	Building	0	0	0	16	0	21	37
20	Place	0	0	0	0	33	0	33
21	Open	0	0	30	0	0	0	30
22	Animals	0	0	25	0	0	0	25
23	Traditional	0	23	0	0	0	0	23
24	Walk	0	0	0	0	0	17	17
25	Excited	0	0	0	0	0	14	14
26	Opportunities	0	0	0	0	0	13	13
27	District	0	0	0	0	13	0	13
28	Life	12	0	0	0	0	0	12
29	Lessons	12	0	0	0	0	0	12
30	Trails	0	0	12	0	0	0	12
31	PBL	0	0	0	0	11	0	11
32	Hear	0	0	9	0	0	0	9
33	Grew	0	7	0	0	0	1	8
34	Appreciation	8	0	0	0	0	0	8
35	Chance	8	0	0	0	0	0	8

Note. GA=Georgia Administrator; GT=Georgia Teacher; GP=Georgia Parent; MA=Missouri Administrator; MT=Missouri Teacher; MP=Missouri Parent.

After analyzing and summarizing all information as well as reflecting on the researcher's journal to minimize bias, four overreaching themes emerged: (a) Children are the focus, (b) Collaboration is key, (c) Engagement is not just for students, and (d) Learning goes beyond the classroom. It is the researcher's perception these themes represent the aspects of this study. The themes are discussed in the following sections.

Children are the focus. First and foremost, no matter what data source was reviewed children's learning was always the focus. The research questions were centered around administrators', teachers', and parents' perceptions about their students' and children's engagement in a nature-based school with an emphasis on Fredricks et al.'s (2004) conceptual framework around behavioral, cognitive, and emotional engagement. Nature-based learning was mentioned in several data sources as the reason why children want to come to school and learn. The researcher noted it was the desire of all participants to find different ways to engage students in learning, and nature-based and project-based was fulfilling that want for their children. GA1 shared students were excited to come to school and they were always excited to share with their mom and dad about what they had learned. Several other participants shared of students being excited about their learning in a nature-based school and how as educators and parents one goal is to have our children excited about learning. MP1 stated, "Nature-based learning fosters a lifelong love of education, learning, and curiosity for our children." MA1 said it best: "It's all about the students and always should be about the students."

Collaboration is key. The second theme was based on collaboration being a key element. It was evident through interview and focus group interactions with the researcher and written documentation, working together at all levels was essential in the

implementation process of a nature-based school. Whether it was at the state, district, school, community, or parent level, collaboration was vital to the success of nature-based learning. MT1 shared how important it was for everyone to work together to make things better for kids. The research question that aligned with this theme was Sub Question 1, understanding how administrators, teachers, and parents were engaged in the implementation process of a nature-based charter school. Several of the participants shared how valued and appreciated they felt during the implementation and every day interactions at their schools. Georgia parents agreed their school had worked hard to have input from all stakeholders and the communication was always there and transparent. MT1 stated, "It is so important for everyone to work together to make things better for kids."

Engagement is not just for students. Third, engagement was found throughout all levels, not simply the student level. The researcher noticed from participants the development of creating a nature-based school was not only exciting but created high engagement for all involved in the process. The research question that aligned with this theme was the central research question, which really focused on the perceptions of the administrators, teachers, and parents around the implementation of student engagement in a nature-based school. Participants from both schools believed they had multiple opportunities to get engaged and involved in the work, learning, and nature-based element at the schools. Most of the parents shared the reason for engaging with a nature-based school was due to them wanting something different for their children. Teachers also were very engaged and invested in their schools. GT2 stated, "I left the school, but then I came back and I believe this is a testament to how much I believe in what is

happening at our school." It was evident that Georgia and Missouri teachers were engaged in the learning around nature. GP1 stated, "Teacher engagement is high, they embrace it, love it, and are excited about the concept." The researcher recorded in field notes how appreciative the Georgia parents were for the opportunity to participate in the interview process. GP4 said,

> Being here for so long you get accustomed to things and you forget how special our school really is. I am so glad that we are being able to share this feedback about how much we really do love where we are.

Learning goes beyond the classroom. Finally, learning is broad based, not simply in the classroom. The process of creating nature-based schools has validated its worth from multiple perspectives. Nature-based learning provides students a different way to learn and teachers a different way teach and engage students in their learning. All the research questions highlighted the importance of this theme. The participants' perceptions also aligned and emphasized how nature-based learning creates so many opportunities for students. GT4 shared, "I just open my door and learning begins, our campus is a living textbook." Participants gave multiple references to activities and projects where the learning took place outdoors and students were able to problem solve, retain information, focus, work with others, and truly showed an interest in learning. GA1 stated, "Non-traditional opportunities allow students to release energy that in a typical classroom would be closely confined and it limits their frustrations." Learning beyond the classroom allows students, teachers, administrators, and parents to have a deeper appreciation and respect for the environment and earth. MT5 and MP4 both

shared around how learning in and about nature makes an impact in the students' world and it allows them to have a great appreciation for nature.

Summary

Chapter Four provided data regarding the perceptions of administrators, teachers, and parents to understand and develop an in-depth analysis of nature-based learning and the impact it has on student engagement. This research highlighted the factors each school, the one in Georgia and the one in Missouri, went through during implementation of transitioning to a nature-based school. Data analyzed from the research fills a gap in current literature by examining administrators', teachers' and parents' perceptions on the behavioral, cognitive, and emotional engagement of students in a nature-based school. Additionally, this research investigated the implementation process administrators, teachers, and parents were engaged in for a nature-based school's conception. This supported the conceptual framework for this study, student engagement, focusing on the concepts of behavioral, cognitive, and emotional engagement of students (Fredricks et al., 2004). It also supported the theoretical framework of Kotter's (2012) change theory, viewing the transition from traditional schools to nature-based schools from the administrators', teachers' and parents' perspectives. Additionally, the researcher addressed adult engagement during the change process.

Chapter Four included a description of the data, as well as the data analysis and demographic information for each of the 11 participants in this study. The chapter also included the identification of four overreaching themes identified from triangulation of the following data sources: interviews, focus groups, archival data (public documents-board minutes, meeting agendas, meeting presentations, websites), and field notes.

Analysis of the data came from the interview transcripts and was organized around the central research question and the four sub questions. When analyzing Sub Question 1, the researcher presented the data through how Georgia administrators, teachers, and parents were engaged in the implementation process at their nature-based school and how the Missouri administrator, teachers, and parents were engaged in their implementation process. When analyzing Sub Questions 2, 3, and 4, the researcher presented the data through the perceptions of the administrators, teachers, and parents on how behavioral, cognitive, and emotional engagement contributed to the students' engagement in a nature-based school.

Chapter Five considers the data uncovered through the interview transcripts, archival data, and field notes along with application to the study's central research question and sub questions. Additionally, Chapter Five includes the researcher's professional conclusions and recommendations based upon the combination of what was found from the review of literature and the findings from the data analysis. Finally, Chapter Five concludes with suggestions for future studies to understand other perceptions and impact of nature-based learning on student engagement.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Nature-based learning has gained popularity and continues to be a topic in the education world (Chawla, 2018, Louv, 2019). Louv (2019) stated in the last few decades America's schools have favored more technology, more tests, more sitting inside a classroom at a desk, and fewer recesses and field trips to explore. This research supports the exact opposite and encourages educators to spend more time having their students learning outdoors. This research also supports that nature-based learning improves emotional, cognitive, and behavioral engagement. In 2018, Szczytko et al. stated over 4,000,000 students had reported emotional, cognitive, and behavioral disabilities in the United States.

The purpose of this qualitative narrative multiple case study was to address the gaps in the research by exploring student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education. By considering three key dimensions of student engagement—behavioral, cognitive, and emotional—this in-depth investigation explored administrators', teachers', and parents' perceptions in order to understand what engages students when they learn in and about nature. In the research, nature-based learning is generally defined the following:

> Learning through exposure to nature and nature-based activities, occurs in natural settings and where elements of nature have been brought into built environments, such as plants, animals, and water. It encompasses the acquisition of knowledge, skills, values, attitudes, and behaviors in realms including, but not limited to,

> academic achievement, personal development, and environmental stewardship. (Jordan & Chawla, 2019, p. 2)

Louv (2008) also described it in a very similar definition: exploring and making connections to the natural world through all subjects, direct experiences in human-built and natural environments, and playing and being in nature to stimulate a sense of wonder and using critical thinking to make decisions in the environment. Students would be using child-directed, place-based experience to create an engaging, inquiry focused, relevant, and real-world hands-on investigation of their world (Louv, 2008).

This qualitative narrative multiple case study used research questions to understand and develop an in-depth analysis of nature-based learning and the impact it has on student engagement. Creswell and Creswell (2018) stated it is important to start with a broad question and then collect detailed information using a variety of data collection procedures. Participants in the study were administrators, teachers, and parents from a charter school in Georgia and a public school in Missouri. The following central research question guided the study: How do administrators, teachers, and parents from a charter school in Georgia and a public school in Missouri perceive the implementation of student engagement in a nature-based learning environment? The following sub-questions helped frame the study:

1. How were administrators, teachers, and parents engaged in the implementation process of a nature-based charter school in Georgia and a public school in Missouri?
2. What are administrators' perceptions of student engagement in a nature-based school?

How did behavioral, cognitive, and emotional engagement contribute to the students' engagement in a nature-based school?

3. What are teachers' perceptions of student engagement in a nature-based school?

   How did behavioral, cognitive, and emotional engagement contribute to the students' engagement in a nature-based school?

4. What are parents' perceptions of student engagement in a nature-based school?

   How did behavioral, cognitive, and emotional engagement contribute to the students' engagement in a nature-based school?

This qualitative narrative multiple case study used both a conceptual and theoretical framework. The conceptual framework for this study was student engagement, focusing on the concepts of behavioral, cognitive, and emotional engagement of students (Fredricks et al., 2004). The theoretical framework was Kotter's (2012) change theory, viewing the transition from traditional schools to nature-based schools from the administrators', teachers' and students' perspectives. Additionally, the adult engagement during the change process was addressed.

Chapter Five includes a section where the findings of the study are summarized. In conclusions, findings will be discussed, interpreted, and related back to the problem statement, research questions, and the review of literature in Chapter Two. In implications for practice, discussion of the results from the study are presented. Recommendations for future research are offered in the next section. Finally, a summary of this study will be provided.

Summary of Findings

The researcher selected a qualitative narrative multiple case study to explore student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education. The researcher considered three key dimensions of student engagement—behavioral, cognitive, and emotional—while understanding the administrators', teachers', and parents' perceptions of what engages students when they learn in and about nature. Gay et al. (2009) stated, "Qualitative studies seek to create an understanding of the perception of the research participants through the identification of meaning through person-to-person interactions" (p. 14).

The researcher used interviews and focus groups to capture the perceptions from administrators, teachers, and parents. Additionally, an interview protocol, which was developed by the researcher and based upon the literature review, was utilized. During the interviews and focus groups the researcher took observational field notes, recording behaviors and activities during the interviews. The researcher then collected and reviewed archival data. This included minutes of board meetings, meeting agendas, curriculum outlines, scope and sequence, and other related materials. In addition, digital materials such as photographs, material from the schools' websites, and videos were obtained from the nature-based schools in the study.

In order to increase credibility and validity of this study, several steps were taken. In order to achieve triangulation, the researcher used member checking with all interviews and focus group transcripts. Once approved by participants the data were ready to be analyzed. In addition, multiple pieces of archival data along with field notes were used to support information obtained in interviews and focus groups. The

researcher was diligent in writing in a journal to minimize their bias. Data were reviewed multiple times. After these steps were taken, rich, thick descriptions to convey findings were created.

The researcher generated a summary of key terms and phrases that were the most used and identified through the data analysis process. This method supported a holistic snapshot of the data. At the completion of the process, four overreaching themes emerged: Children are the focus, Collaboration is key, Engagement is not just for students, and Learning goes beyond the classroom.

Conclusions

This section will provide an in-depth interpretation, analysis, and synthesis of the results and findings. The researcher was able to extract meaning from the interview sessions to make connections and determine data-driven conclusions tied to each of the research questions. The researcher gathered perceptual data in field notes during each of the interview sessions. This included each participant's journey to how they became engaged in nature-based learning or place-based learning; the benefits for their students or children behaviorally, cognitively, and emotionally; and any challenges participants faced in a nature-based or place-based learning environment. This perceptual data were shared within each of the research questions highlighting each participant's perceptions regarding their engagement through the implementation process of becoming a nature-based school and how their students or children are engaged in school due to being in a nature-based setting. Through the conceptual framework, student engagement, focusing on the concepts of behavioral, cognitive and emotional engagement of students (Fredricks et al., 2004), and the theoretical framework Kotter's (2012) change theory, viewing the

transition from traditional schools to nature-based schools from the administrators', teachers' and students' perspectives, data revealed the connection of student engagement in a nature-based school. An analysis of each of the research questions is provided below.

Central research question. The following central research question guided this study: How do administrators, teachers, and parents from a charter school in Georgia and a public school in Missouri perceive the implementation of student engagement in a nature-based learning environment? This research indicated the administrators, teachers, and parents perceive that student engagement increases when in a nature-based learning environment. Not only does student engagement increase, but the responses by the participants during interviews and focus groups indicated their engagement in this collaborative process of starting a nature-based school also increased. This evidence aligns with the four overreaching themes of the study. The Georgia administrator stated "We are tipping the scale significantly in student engagement." The activities, experiences, and play students are receiving from a nature-based school are very different from that of a traditional brick and mortar school. Nature-based learning and place-based learning makes engagement organic and relevant to students. This aligns with what Fisher et al. (2018), Shebby and Porter (2021), and J. Merritt et al. (2017) stated: students will engage when they have strong relationships with teachers who really know and understand their content and make the learning for students relevant, interesting, and challenging. GP5 stated, "We chose a nature school because it is very different from the other schools and thought it would be a good change of scenery in a healthy and great way." According to the teachers interviewed, it is the only reason that some students

come to school and engage in the learning. GT1 stated, "Students are tied to devices and nature gives them opportunities to engage without a device." MP1 stated, "Nature is freeing, comfortable, grounding, calming, safe, and provides belonging for our children." The researcher found at a nature-based school, the teacher simply opens their door and engagement happens and in a traditional school the teacher has to plan for it. Interest around student engagement and its impact on students' success continues to gain momentum as focus is on children and their learning (Cinches et al., 2017; Schmidt et al., 2017). Schmidt et al. (2017) also stated not only has student engagement impacted academic achievement but also self-regulatory, social, and emotional learning outcomes. GT3 shared her experience around incubating chickens in her classroom and the students getting to watch them hatch and then helping raise them right there at school. GT3 stated, "When you can watch something fresh happen, something new happen, something come to life, it is enormously healing and inspiring."

Sub Question 1. The first sub question was: *How were administrators, teachers, and parents engaged in the implementation process of a nature-based charter school in Georgia and a public school in Missouri?* Data collected in this study found both schools engaged multiple stakeholders in the implementation process of nature-based learning and knew that the sustainability was dependent on the collaboration of these individuals. This evidence aligns with two of the overreaching themes. Kotter's (2012) change theory was the theoretical framework the researcher used to understand the transition from traditional schools to nature-based schools. Reeves (2009) also stated leaders gain engagement through getting results that demonstrate change is in the best interests of all stakeholders. The researcher looked at it from the administrators',

teachers' and parents' perspectives. Kotter's eight stage process includes the following: establish a sense of urgency, create a guiding coalition, develop a vision and strategy, communicate the change vision, empower broad-based action, generate short-term wins, consolidate gains and produce more change, and anchor new approaches in the culture. These helped guide the researcher in understanding where the schools were in the implementation process. Kotter (2012) explained the importance of stakeholder engagement and understanding the critical nature of needed change. Hillier (2021) expressed how important it is to have parental engagement in their child's schooling, receiving wide spread support from education policy makers as it is one solution in increasing student achievement. This was supported in this study through the parental perceptions that highlighted the importance of parent engagement to the implementation of nature-based learning in the two schools.

Georgia. Out of the 11 participants from Georgia, three of them had been there since opening day of the nature-based school, and the other eight had entered the nature-based school at various points. The three participants that had been there since opening day and engaged with the implementation were all parents: GP1, GP2, and GP4. Their depth and understanding of engagement in the implementation process were valuable for the researcher. All 11 participants had just currently gone through the charter renewal process for the school. All three of the parents that had been there since opening day knew they wanted something different for their children. The need for something different and engaging is what drew them in, from a deeper connection to science to an understanding of where and how food was grown and then brought to the table.

The parents wanted experiences that a traditional school setting would not provide their children. The board of founders for the nature-based school in Georgia created the values for the school, which were found online; GP3 loved how they aligned with her values as a parent. According to her interview, the core value that aligned with her values as a parent was "the environment as a classroom" and the district's core belief that aligned was "All scholars thrive in an engaging school environment," as noted on the district website. She wanted her daughter to be a "dirt girl" and that aligned with the value of the school, "trying to teach the kids how to appreciate nature and how to be one with it and how to use it." The researcher found the Georgia's values and core beliefs align with participants' perceptions and values about how children are engaged through nature.

It was evident through the Georgia interviews they wanted all stakeholders involved in the opening and renewal process of the nature-based school. GT5 shared how important it was for the community to be a part of creating the nature-based school. The founding board created a sense of urgency in that the county needed something different for their kids, which is Kotter's (2012) first step in creating change. They also put together a guiding coalition of stakeholders, involving the community. The GA1 shared the board had to put forth a petition to the county in the beginning noting the reason they wanted to open the nature-based school and the value it would add to the county.

This aligns with Kotter's (2012) Steps 3 and 4 in developing the vision and strategy and communicating the change vison. GP2 talked about how the group of founders put together the advisory board, which was an extension of them. One of the

founders was even one of the very first nature teachers at the school and that advisory board hired the first principal. Their goal was to empower and encourage nontraditional ideas, which is Kotter's Step 5. Kotter's Steps 6, 7, and 8 really came through for the Georgia school in its renewal process, which now it has gone through twice. GT2 shared that with the renewal process it gave teachers an opportunity to recognize they needed to share what they do. They found ways to have academics and nature work in harmony, which is a great short-term win and creates more change. The focus for the GA1 now is to really anchor the nature-based learning and academic success together, consolidating gains and producing more change, Kotter's eighth step in the process. GA1 stated, "We see it, you know directly, but the data has to show it." They know learning in nature is improving the child as a whole, but they also need their test scores to show it. Integrating nature-based learning with K-12 curricula will result in better standardized test scores, reduced discipline, reduced classroom management problems, and an increase in student engagement and motivation (Breunig et al., 2014; Garst et al., 2001; A. James & Williams, 2017; Lieberman & Hoody, 1998; Scott et al., 2013).

Missouri. Out of the 11 participants, one of them had been a part of the beginning phases of opening the nature-based school. It is still in the beginning phases. All of the participants have been a part of project-based learning and plan to implement that at the nature-based school. The administrator had worked closely with the Missouri Department of Conservation commissioner, the family who donated the land on which to build the nature-based school and the school district. They have worked through Step 1 of Kotter's change model, establishing a sense of urgency. The administrator along with teachers have created the urgency with place-based learning, noting the success they have

had with it. Some of the participants talked about "place" and "PBL" (project-based learning), which is a term used with nature-based learning. The administrator is currently working on Kotter's Step 2,3, and 4, building the guiding coalition, developing a vision and strategy, and communicating the change vision.

Currently the administrator is creating groups to work through details; the groups will have 15-20 administrators, teachers, and other school employees on them. The researcher was able to look at presentations and documents that support the efforts of the administrator and his communication of the new nature-based school. The first Google slide presentation that supported the changes the district was making was titled *A Place-Based Education for All.* This presentation shared the journey the district has been on to implement place-based and nature-based education. It also gave step-by-step directions for others who might be interested in creating this type of school. Additionally, photos were shared of the different projects they had completed. One of the projects was a nature-play area at one of the schools. The community has been involved and will continue to support and provide feedback as they build and open the nature-based school, as evidenced by a second Google slide presentation, which shared the nature school public feedback. This presentation gave very specific feedback regarding the building and what the community wanted in the nature-school. For example, they wanted solar panels, animal tracks in the floor, glass garage doors creating visibility and access to the outdoors, and weather stations. Additionally, they want it to be a showcase building. The researcher found the parents in Missouri felt they had opportunities to get involved at the school level, whether that was with the Parent Teacher Organization or helping build some of the nature-based play areas, however they had not had a lot of involvement with

the opening of the nature-based school, yet. Research noted parent engagement in their children's schooling will increase their academic success, affirm the importance of education, and increase their socioemotional competencies (Bryce et al., 2019, Hillier, 2021, Smith et al., 2019). One interpretation of the findings the researcher did not anticipate was the lack of uniformity in the implementation of the nature-based school in Missouri. Due to their being in the beginning stages they are working out the details and the implementation process. And because of the pandemic and being shut down, the administrator shared they were behind in the implementation process.

Sub Question 2. The second sub question was: *What are administrator's perceptions of student engagement in a nature-based school and how did behavioral, cognitive, and emotional engagement contribute to the student's engagement in a nature-based school*? Both administrators from Georgia and Missouri felt student engagement in all three areas—behavioral, cognitive, and emotional—had been impacted positively due to nature-based learning. The administrators continue to do the nature-based work for students and their learning beyond the classroom, in collaboration with teachers, parents, and the community, which aligns with three of the overreaching themes. The researcher also found that both schools' discipline had decreased, students were more engaged in their academics, and they were overall healthier mentally and physically. Both administrators described examples of positive stories of student behavior improving due to time spent outdoors, with animals, and working with other students. They also both had seen a significant decrease in office visits and referrals. This study supports research by Norwood et al, 2021, stating the natural environment has been linked to better behavior in children. GA1 stated, "These non-traditional nature-based opportunities

allow students to release energy that a typical classroom would not and it limits their frustrations."

The researcher found both administrators believe they have seen academic growth and success in having students learn in and about nature. The Missouri administrator expressed how much nature-based learning had improved the students' problem-solving skills. Louv (2019) wrote about evidence that supported nature-based learning and place-based learning. He reported on a study by Lieberman in which he had worked with 150 schools in California on identifying model programs in place-based or nature-based education. Lieberman noted those schools were closing the achievement gap. Louv (2019) described the findings as stunning: the students had achieved gains in all academic areas and developed skills in problem-solving, critical thinking, and decision making. Due to the pandemic and the inconsistencies with state testing, the administrators in this study did not have achievement scores to show the growth in achievement. The researcher, however, found that in Georgia and Missouri the students who attend nature-based schools, no matter the economic status, were exposed to information and experiences they would not normally be exposed to if they went to a traditional school, therefore their vocabulary, learning experiences, and exposure to animals and nature could lead to higher functioning in academics.

The administrators also believed the nature-based learning and place-based learning has created healthier students and improved the overall well-being of the students. The researcher noted in field notes during the interviews, that the time when schools were shut down due to the pandemic, students longed to be at the school learning in nature and taking care of the animals. Both administrators shared there was an

increase in students' attention and a decrease in visits to the health room, which resulted in better attendance rates. As Harvey et al. (2020) stated in his research, spending time in nature benefits the physical health and wellbeing of students.

Sub Question 3. The third sub question was: *What are teacher's perceptions of student engagement in a nature-based school and how did behavioral, cognitive, and emotional engagement contribute to the student's engagement in a nature-based school?* Most of the teachers from Georgia and Missouri felt student engagement in all three areas—behavioral, cognitive, and emotional—had been impacted positively due to nature-based learning. All of the teachers believed in the power of learning beyond the classroom for their students and worked hard to collaborate with administrators, parents, and the community to enhance their nature-based teaching. This evidence also aligns with three of the overreaching themes. GT2 shared, "I had left the school but came back because I believe in what is happening at the school." Taking learning outside is also supported by research from Marchant et al. (2019), which stated that providing high-quality teaching experiences to engage children in learning is not only done in a classroom setting, educators must take learning outside the classroom and into the natural environment.

The researcher found nature-based and place-based schools still deal with students that have behavior issues and struggle to focus, they just have more tools and strategies to use because they have nature to engage the students. Educators in nature-based settings spend more time on teaching students how to connect and engage with one another. The students have ways to express themselves and learn to self-regulate. In a traditional setting, students are told where and how to sit, follow a schedule, and are held to a

management system. Teachers in both Georgia and Missouri shared they do not use a classroom management system. Kuo et al.'s (2019) research around students being more motivated, engaged, and simply enjoying learning when in nature supports these findings. There are also several studies that supported that students and teachers have high levels of engagement with either choice-based nature activities or school-mandated nature activities (Becker et al., 2017; Blair, 2009; Kuo et al., 2019; Lavie Alon & Tal, 2015; Lekies et al., 2015; Skinner & Chi, 2012).

The researcher found that most teachers felt nature-based learning had increased their students' academic success. The success was not necessarily in a data point or test score, it was the student as a whole person and the success they had in solving problems and connecting with nature and others. These findings are supported with the research around integrating nature-based learning with K-12 curricula, which noted will result in better standardized test scores, reduced discipline, reduced classroom management problems, and an increase in student engagement and motivation (Breunig et al., 2014; Garst et al., 2001; A. James & Williams, 2017; Lieberman & Hoody, 1998; Scott et al., 2013). The real-life experiences and stories the teachers shared were evidence that nature and place-based learning were having a positive impact on their students' success. This success then has a direct impact on the emotional engagement for the students. MT5 said, "At school we have created a happier, kind, safe environment that they enjoy being in." This in return has a rippling effect outside of school, whether that is the appreciation these students have for the environment or how they navigate life using the tools they have gained in school. The researcher also found Georgia and Missouri teachers believed their students were better able to work through the pandemic as they already had outside

time built into their day. Students felt safer and they were still emotionally engaged because it was something they already did naturally. In traditional schools they were not set up for outdoor classrooms, capability to eat lunch outside, nor did they have supplies to readily teach outside.

Sub Question 4. The fourth sub question was: *What are parents' perceptions of student engagement in a nature-based school and how did behavioral, cognitive, and emotional engagement contribute to the student's engagement in a nature-based school?* According to the interview transcripts and field notes 9 of the 10 parent participants from Georgia and Missouri felt student engagement, in all three areas: behavioral, cognitive, and emotional—had been impacted positively due to nature-based learning. The parents also believed in the power of learning beyond the classroom for their children and had chosen nature-based schools because they wanted something different for their children. They desired to collaborate with administrators, teachers, and the community to enhance their children's learning in a nature-based setting. This evidence also aligns with four of the overreaching themes. The researcher found that several of the parents gave personal examples of their own children's behavior and how they had been impacted by nature-based learning. One parent from Georgia and one parent from Missouri had a child diagnosed with attention-deficit hyperactivity disorder (ADHD). Both shared the positive impacts that nature-based and place-based learning had on specifically their child's behavior and how much their attention and focus had improved because of the environment in which they were learning. This research supports the research of others that found nature-based education is one solution for children with ADHD (Chawla, 2018; Kuo et al., 2018; Louv, 2021; Norwood et al., 2021;Szczytko et al., 2018). Parents

reported that their children were thriving behaviorally, academically, and emotionally. Their children have also been healthier in a nature-based school and their immune systems stronger. This coincides with research stating nature is fundamental and key to the health, well-being, spirit, and survival in the world we live in today (Lee & Bailie, 2019; Louv, 2012; Tillmann et al., 2018; F. Williams, 2018). The researcher found that parents believe their children are happier because they get to go outdoors, see animals, are more active and move, make connections, and feel successful and confident.

Limitations. One limitation to this study was the possibility of the researcher's and participants' biases in the qualitative study. The researcher journaled before any interview was given so biases would be limited during the interviews and during the transcribing and discovering of the themes. This was noted in Chapter Four under procedures and verification and trustworthiness. Another limitation was the results of the interviews were limited by participants' personal and professional bias and only participants who accepted the request to participate were included. This was addressed by issuing the following letters: Introductory, Consent Form, and Email Communication. In addition, the researcher attempted to add reliability by triangulating data through review of the interviews, archival data, and field notes. The other limitations were the length of time the nature-based school had been operational, the number of nature-based elementary schools in existence at the time of the study, enrollment requirement for students, grade span of the schools, and the teachers' degree of understanding and experience of teachers within the nature-based schools. Another limitation was the lack of prior research on nature-based elementary schools above the age of preschool for which this study attempted to begin to fill that gap.

The researcher also delimited this study to a nature-based school in Georgia and one that was moving to nature-based in Missouri. Due to the geographical constraints of focusing on two specific school districts and limiting to 11 participants from each school, research practices were also explained through an extensive review of literature to understand what constitutes a nature-based school. In the event this study is replicated in a district with nature-based learning, different results may be gathered due to change in time and location. Different results would also be gathered with different participants.

The researcher was able to extract meaning from the interview sessions in order to make connections and determine data-driven conclusions tied to each of the research questions. The researcher gathered perceptual data in field notes during each of the interview sessions. This included each participant's journey to how they became engaged in nature-based learning or place-based learning; the benefits for their students or children behaviorally, cognitively, and emotionally; and any challenges participants faced in a nature-based or place-based learning environment. These perceptual data were shared within each of the research questions highlighting each participant's perceptions regarding their engagement through the implementation process of becoming a nature-based school and how their students or children were engaged in school due to being in a nature-based setting. Through the conceptual framework, student engagement, focusing on the concepts of behavioral, cognitive and emotional engagement of students (Fredricks et al., 2004) and the theoretical framework Kotter's (2012) change theory, viewing the transition from traditional schools to nature-based schools from the administrators', teachers' and students' perspectives data revealed the connection of student engagement

in a nature-based school. An analysis of each of the research questions is provided below.

Implications for Practice

The professional implication from this qualitative narrative case study revealed how increasing time spent learning in nature can increase students' behavioral, cognitive, and emotional engagement, which is also supported through the research of Chawla (2018), Louv (2021), and Szczytko et al. (2018). The findings from this study continue to expand the research around connecting and engaging students back to nature. The four overreaching themes for this study were Children are the focus, Collaboration is key, Engagement is not just for students, and Learning goes beyond the classroom. Through the interviews, focus groups, and field notes, the participants in this study demonstrated how much they valued their schools and the children who attended them. By understanding their perceptions and experiences in a nature-based school, other educators could be helped and schools could move forward in pursuing nature-based education. The findings from this research could provide administrators and teachers the data to support transitioning from a traditional school to a nature-based school. This research also provides educators with data supporting student engagement and what changes could be made to their learning environments to increase behavioral, cognitive, and emotional engagement.

Although there were some participant responses that exposed growth opportunities for both the schools in Georgia and Missouri, the message around children spending time learning in nature is critical to improve their behavioral, cognitive, and emotional engagement, which supports the conceptual framework of Fredricks et al.

(2004). When schools try to implement change there may be resistance and hesitation from some stakeholders (Kotter, 2021; Reeves, 2009). The researcher found resistance and hesitation around safety at a nature-based school, equity in making sure teachers were qualified and trained for nature-based teaching, extra time that is spent teaching in nature when schools are held accountable from state achievement scores, the transition from a nature-based elementary/middle school to a traditional high school, financial security for the nature-based school, and sustainability of nature-based schools when leadership changes. Kotter (2012) stated that successful transformation and change is 70-90% leadership and only 10-30% management. It is critical for organizations to empower leaders. The findings from this research around adult engagement in the implementation process of a nature-based school could expand the knowledge base for leaders who are creating change in their organizations. The researcher for this study discovered the importance of having voices and feedback during implementation and continued renewal. Kotter supported this when noting leaders must make sure communication becomes a two-way endeavor and feedback is received in a positive way.

Through an in-depth look at each of the transcripts for each interview and the field notes, out of the three key dimensions of student engagement—behavioral, cognitive, and emotional, behavioral—seemed to have the most impact on learning. The participants spoke the most around student behaviors that had been changed due to nature-based learning. Whether it was from ADHD, motivation, attention, or all-around better behavior, participants shared their perceptions that student behavior was significantly better when they were able to learn in a nature-based setting. The findings from this study continue to support the growing research around the idea that absence of

nature leads to lack of focus and behavior problems. These findings could also help support the medical concerns around behavior, which have led to an increase of children with diagnoses of attention deficit/hyperactivity disorder and other medical concerns (Dineen, 2017; Sisson & Lash, 2017; Visser et al., 2014). The implications this could have on all schools, especially with disruptive student behaviors on the rise, could be notable. The researcher believes this direction is imperative for teachers and students to be successful.

The results of this study could be shared with practitioners through online data sources, and professional development opportunities, highlighting the results of putting these practices into action. Additionally, the results could be shared on different websites that support nature-based learning, which would note the research around the benefits of learning in nature. This research and the review of literature would also be beneficial for administrators who want to implement nature-based learning by using the data to support their decision, noting areas of needed professional development for their teachers. This study could also aid administrators in implementing and sustaining change, based on Kotter's (2012) work.

Recommendations for Further Research

Overall, this study provided perceptions of administrators, teachers, and parents from a charter school in Georgia and a public school in Missouri on the implementation of student engagement in a nature-based learning environment. While the findings were anecdotally discussed by participants of this study, the perspectives of other individuals from other nature-based schools in other areas should be further researched to gather additional perceptions from administrators, teachers, and parents in different places of

implementation. It would also be valuable for future research to look at male students compared to female students when learning in nature. It is also recommended to compare similar schools, as this research was comparing a charter school to public school. It would also be beneficial to interview the Missouri administrators, teachers, and parents again, after the nature-based school is open, to see the impact it makes on student engagement.

Additional research could also be completed around the quantitative data to support academic success in nature-based schools. In the beginning of this study the researcher intended to look at achievement scores from the nature-based schools. Due to changing of the state achievement test and the shutdown of schools due to the pandemic the researcher could only use qualitative data. As growth continues around nature-based and place-based learning, research must move forward with achievement scores.

Another recommendation for future research would be to look at the impact the pandemic has had on nature-based schools and the resiliency of the administrators, teachers, students, and parents from these schools during a very difficult time in education. A future research question could focus on whether the administrators, teachers, students, and parents from nature-based schools were more equipped to handle the impact the pandemic had on schools, knowing that nature is fundamental and it is key to the health, well-being, spirit, and survival in the world we live in today (Lee & Bailie, 2019; Louv, 2012; Tillmann et al., 2018; F. Williams, 2018). Would research support that for schools to move forward in our very fast-paced, technology driven, and unstable world we must incorporate nature-based learning to sustain a healthy balance? Due to the pandemic and the stresses of education, a recommendation would be to continue the

growing body of research that points to a relationship between more natural learning environments and reduced symptoms of ADHD, stress reduction, lower burnout rates for teachers, and increased civility (Louv, 2019).

Furthermore, additional research could also be completed to identify how structured time in nature and the outdoors compared to unstructured time in nature and the outdoors impacts student engagement and wellbeing. This comes from the work of Charles and Louv (2019) and Phillips (2017), who believed for wholesome child development it is crucial that children's playtime be unstructured, imaginative, and exploratory play. They believed true natural play spaces would allow children to climb trees, play in creeks with water and mud, explore different trails, and free play in nature. Additional research should study teachers in a nature-based school and how much of their time is structured versus unstructured. Phillips also expressed how important it is for parents to understand the difference in structured time in nature versus unstructured time in nature. Further research could also look at parents' perspective and how they perceive the time their children spend in nature.

Finally, the researcher would recommend future research around what training is available for teachers in a nature-based school. This was a need expressed from most of the administrators, teachers, and parents in this research. The GA1 expressed his concern, around nature-based learning, of finding colleges that have programs and classes that support nature-based learning. His question was, "Will there be teachers graduating with degrees in aspects of nature, will nature education be taught in teacher programs?" GP2 shared her concerns around teacher equity for all students and how we need to ensure all students get teachers who are qualified to integrate nature-based learning

properly and appreciate the nature aspect. Further research could also look at staff in a nature-based school, the gender and ages of staff and relate these demographics to those educators who prefer to teach in nature-based schools. Additionally, it would be interesting to note if there is a significant difference in the gender of students electing to attend a nature based school.

Summary

The purpose of this qualitative narrative multiple case study was to address the gaps in the research by exploring student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education. By considering three key dimensions of student engagement—behavioral, cognitive, and emotional—this in-depth investigation explored administrators', teachers', and parents' perceptions in order to understand what engages students when they learn in and about nature. The researcher used both conceptual and theoretical frameworks. The conceptual framework for this study was student engagement, focusing on the concepts of behavioral, cognitive and emotional engagement of students (Fredricks et al., 2004). This in-depth investigation explored administrators', teachers', and parents' perceptions of what engages students when they learn in and about nature. The theoretical framework was Kotter's (2012) change theory, viewing the transition from traditional schools to nature-based schools from the administrators', teachers' and parents' perspectives. Additionally, the researcher addressed adult engagement in the implementation process of a nature-based school and the change process they went through.

The experiences the researcher captured through interviews, focus groups, field notes, and archival data expressed the need for nature-based learning and the

environments to produce this type of learning. After analyzing all the data there were 35 terms and key phrases identified that aligned with the research questions and review of literature for this study. Four overreaching themes emerged: Children are the focus, Collaboration is key, Engagement is not just for students, and Learning goes beyond the classroom.

Through the administrators', teachers', and parent's perceptions it was also found that all stakeholders consider engagement important in implementation and sustainability of a nature-based schools. The administrators, teachers, and parents each had a different perception of the role they played in the implementation of the nature-based schools, but all felt they had a part. Parents knew they wanted something different and better for their children, teachers knew they got to be part of something that was unique and best for students, and administrators desired to create something much different for their students, teachers, and communities. As Kotter (2012) stated, transformation does not happen easily; the value this research adds to the growing knowledge base around change in organizations supports Kotter noting its importance and benefit. The incorporation of these results could help the continued movement and implementation of nature-based learning into more schools.

It is the professional opinion of the researcher that if educators want students to be engaged in their learning, behaviorally, cognitively, and emotionally, then educators must begin to utilize nature-based learning. The participants agreed if children do not spend time in nature a lack of understanding and appreciation, dis-connection, lack of empathy, lack of focus, nature deficit, and mental health issues are all long-term effects. Through a nature-based learning shift, education and communities can become a better place for all.

As Louv (2019) pointed out, nature-based learning is a national movement and the growing body of research points to a relationship between more natural learning environments and reduced symptoms of ADHD, stress reduction, lower burnout rates for teachers, and increased civility. This study was grounded on Louv's (2008) theory of "nature-deficit disorder." If we do not make changes in education our students will continue to lose their connectedness with nature and its benefits (Grimwood et al., 2018; Kawas et al., 2019; Louv, 2011).

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Appendix A

Introduction

I'd like to thank you for being willing to participate in the interview process on your experiences as a (principal, teacher, parent) at a nature-based school. Our interview today will last approximately 45 minutes during which I will be asking you a variety of questions in hopes to gain additional insight.

The purpose of this interview is the following: To address the gaps in the research by exploring student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education. By considering three key dimensions of student engagement, behavioral, cognitive, and emotional, this in-depth investigation explores administrators, teachers, and parents' perceptions of what engages students when they learn in and about nature.
I would like your permission to record this interview. Please note, no names or titles will be used in our report and all individuals will be referred to as participants. Do we have your permission to record this interview? ___Yes ___No

If yes: T*hank you! Please let me know if at any point you want me to turn off the recorder or keep something you said off the record.*

If no: *Thank you for letting me know. I will only take notes of our conversation.*

Before we begin the interview, do you have any questions? [Discuss questions] *If any questions (or other questions) arise at any point in this interview, you can feel free to ask them at any time. I would be more than happy to answer your questions.*

Interview Questions (RQ=Research Question)
Demographic Question: What is your position in your school district?

1. Describe the process your school has gone through to open a nature-based school.
2. What is your involvement in the opening of the nature-based school?
3. Why did you choose to open a nature-based school as opposed to traditional format?
4. Were there specific reasons for changing to the nature-based school?
5. While developing and implementing the nature-based idea at the school, what were the long-term benefits you had?
6. While developing and implementing the nature-based idea at the school, what were the long-term concerns you had?
7. What barriers have you had to overcome in opening a nature-based school?
8. What avenues have opened up for you during this process?
9. What role did administrators, teachers, parents, and students play in the process of opening the nature-based school?
10. What legal considerations, such as federal/state/local regulations, school board policy, etc., have played a role in opening a nature-based school?

11. Describe how a nature-based school has changed the following:

a. Your perception of teaching
b. Your perception of engaging students/students' learning
c. Your definition of learning environment
d. Students' interest in school

12. How are students engaged/learning while attending a nature-based school? Tell me what this looks like?
13. Have you seen changes in students' behavior attending a nature-based school? Can you give me examples (without using specific student names)?
14. Have you seen changes in students cognitively/academically attending a nature-based school?
Can you give me examples (without using specific student names)?
15. Have you seen changes in students socially and emotionally attending a nature-based school?
Can you give me examples (without using specific student names)?
16. From your perception, what are the long-term effects that students will face if they do not spend time in nature?

Thank you so much for sharing your time and expertise with me today. After data analysis has been initially concluded, I will share my initial results from this interview with you to get feedback on the early conclusions. I look forward to sharing my findings and potentially working with you again.

Appendix B

Consent Form

Will be in a Google Form that will be linked to the email. Once consent has been given via the Google Form, the adjoining spreadsheet will maintain the consent digitally.

The advisor for this dissertation project is Dr. Tammy Condren, Associate Professor of Education and Ed.D. Director at Southwest Baptist University. My study has been approved by the Research Review Board of Southwest Baptist University.

The purpose of this qualitative narrative multiple case study was to address the gaps in the research by exploring student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education. By considering three key dimensions of student engagement, behavioral, cognitive, and emotional, this in-depth investigation explored administrators', teachers', and parents' perceptions in order to understand what engages students when they learn in and about nature.

Potential Benefits and Foreseeable Risks: Findings of this project will be integrated into reports, presentations, and publications that can advance the professional learning for schools and leaders in order to foster high levels of engagement and student learning. Findings may also be used in articles, presentations, and other publications to inform a national and international audience. Potential risks associated with participation in the study are loss of privacy should confidentiality of responses be compromised. The researcher has taken steps listed below to protect participants' identities in order to protect individuals from embarrassment that may be associated with the identities of respondents with their responses.

Confidentiality: All information associated with project participants will be kept in a locked office accessible only to the researcher. In accordance with the federal regulations, the research materials will be kept for a period of seven years after the completion of the research project. No comments will be attributed to you by name in any reports or publications related to this study. You may be identified by category (e.g., administrator, teacher, or parent), but a pseudonym will be used in place of your name in all reports. Neither the school nor the school district will be identified in any reports or publications related to this study.

Participation is Voluntary: Your voluntary participation in the interview is appreciated, and your responses will be kept anonymous. You may decline to answer any questions or discontinue participation in the study at any time without any negative consequences. If you choose to withdraw from the project, all interview data pertaining to you will be destroyed. Refusal to participate or discontinue participation at any time will not result in penalty or loss of benefits to which you are otherwise entitled.

Interview Method: To provide flexibility and honor your time, the interview will we completed via a video call system, Zoom. Requests for the interview to be recorded will

take place on the day of the meeting, which can help the researcher provide accurate transcripts of the participants' answers. You have the right to request the interview not be recorded, and the recording and/or interview be stopped at any time. Recordings and transcripts will be destroyed seven years following the completion of this study.

Informed Consent and Choice of Interview Method: Your input is very valuable, and your participation will be greatly appreciated. Please indicate your willingness and consent to participate in the survey by digitally submitting approval at the bottom of this Informed Consent form. By providing your digital signature, you are consenting to allow use of your interview responses in this study. You will also share your initial consent for the interview to be recorded for the researcher's accurate transcription process.

Questions: If you have any questions regarding the research project, please do not hesitate to contact me or my research advisor. I can be reached at amandahambey@willardschools.net or (417) 838-7790. Dr. Tammy Condren can be reached at tcondren@sbuniv.edu or (417) 328-1737. If you have questions about your rights as a research participant, you may contact the Southwest Baptist University Research Review Board Chair Dr. Suzie Morrow at sxmorrow@sbuniv.edu or (417) 893-7138.

Sincerely,
Amanda Hambey
Ed.D. Student, Southwest Baptist University

Appendix C

Email Communication

Good Morning/Afternoon/Evening, _____ (participant),
I am a doctoral student completing my final requirements for the Ed.D. in Educational Leadership at Southwest Baptist University. I am currently working on my dissertation entitled *Perceptions of Engagement in Nature-Based Schools in Georgia and Missouri*. The purpose of this qualitative narrative multiple case study was to address the gaps in the research by exploring student engagement in a nature-based school in Georgia and a Missouri school moving to nature-based education. By considering three key dimensions of student engagement, behavioral, cognitive, and emotional, this in-depth investigation explored administrators', teachers', and parents' perceptions in order to understand what engages students when they learn in and about nature.
At this time, my research proposal is complete, and I have received RRB approval from Southwest Baptist. I have been an educator for fifteen years and have taken precautions to avoid any potential biases. I am seeking to interview you for approximately 45 minutes about your perceptions of engagement and experiences in a nature-based school. Your interview will be used, along with other administrators', teachers', and parents' interviews from a nature-based school in Georgia and Missouri.
If you are willing to be part of this study, will you please fill out the following Informed Consent Link and confirm with a return email.
Attached to this email are the interview questions that will seek to help you share your perceptions of engagement and experiences in a nature-based school.
If you have any questions or concerns and would like to further discuss this study, I would be happy to do so. Thank you in advance for considering participation in this study.
Sincerely,
Amanda Hambey
Ed.D. Student, Southwest Baptist University
Cell Phone: (417) 838-7790
Email: amandahambey@willardschools.net

Reminder Email

This email script will be sent to interview participants who chose the interview method of digital call two days before the scheduled interview.

Greetings! I hope this message finds you well. I am writing to remind you about our scheduled interview we have scheduled for _____ (date) at _____ (time). Your responses to the interview questions will be used as data to support my doctoral research study regarding perceptions of engagement in nature-based schools in Missouri and Georgia.
The questions we will discuss are:
[insert questions from Appendix D]
Please let me know if you have any questions that I can answer before we meet.
Please use this link [link provided] to access our meeting at the designated time.
Thank you for participating in this study.
Sincerely,
Amanda Hambey
Ed. D. Student, Southwest Baptist University

Appendix D

Interview Protocols

Administrator Interview Protocol

Instructions: The following interview will be recorded (ask for permission) and will be 45 minutes to an hour in duration.

Introduction: This interview is being recorded, and confidentiality will be preserved as outlined in the consent form.

Does anyone have any questions before we begin?

Questions:

1. Describe the process your school has gone through to open a nature-based school.
2. What is your involvement in the opening of the nature-based school?
3. Why did you choose to open a nature-based school as opposed to traditional format?
4. Were there specific reasons for changing to the nature-based school?
5. What are some successes you've experienced during the change from a traditional school to a nature-based school?
6. While developing and implementing the nature-based idea at the school, what were the long-term benefits you had in mind?
7. While developing and implementing the nature-based idea at the school, what were the long-term concerns you had?
8. What barriers have you had to overcome in opening a nature-based school?
9. What role did administrators, teachers, parents, and students play in the process of opening the nature-based school?

10. What legal considerations, such as federal/state/local regulations, school board policy, etc., have played a role in opening a nature-based school?
11. Describe how a nature-based school has changed the following:
    a. Your evaluation of teaching
    b. Your perception of engaging students/students' learning
    c. Your definition of learning environment
    d. Students' interest in school
12. How are students engaged/learning while attending a nature-based school?

    Tell me what this looks like?
13. Have you seen changes in students' behavior attending a nature-based school?

    Can you give me examples (without using specific student names)?
14. Have you seen changes in students cognitively/academically attending a nature-based school?

    Can you give me examples (without using specific student names)?
15. Have you seen changes in students socially and emotionally attending a nature-based school?

    Can you give me examples (without using specific student names)?
16. From your perception, what are the long-term effects that students will face if they do not spend time in nature?

Teacher Interview Protocol

Instructions: The following interview will be recorded (ask for permission) and will be 45 minutes to an hour in duration.

Introduction: This interview is being recorded, and confidentiality will be preserved as outlined in the consent form.

Does anyone have any questions before we begin?

Questions:

1. Describe the process your school has gone through to open a nature-based school and your involvement in that process.
2. Why do you believe your district chose to open a nature-based school as opposed to traditional format?
3. Were there specific reasons for changing to the nature-based school?
4. While developing and implementing the nature-based idea at the school, what were/are the long-term benefits you believe will occur?
5. While developing and implementing the nature-based idea at the school, what were/are the long-term concerns?
6. What barriers have you had to overcome in opening a nature-based school?
7. What role did administrators, teachers, parents, and students play in the process of opening the nature-based school?
8. Describe how a nature-based school has changed the following:
    a. Your perception of teaching
    b. Your perception of engaging students/students' learning
    c. Your definition of learning environment

    d. Students' interest in school

9. How are students engaged/learning while attending a nature-based school?
    a. Tell me what this looks like?
10. Have you seen changes in students' behavior attending a nature-based school?
    a. Can you give me examples (without using specific student names)?
11. Have you seen changes in students cognitively/academically attending a nature-based school?
    a. Can you give me examples (without using specific student names)?
12. Have you seen changes in students socially and emotionally attending a nature-based school?
    a. Can you give me examples (without using specific student names)?
13. From your perception, what are the long-term effects that students will face if they do not spend time in nature?

Parent Interview Protocol

Instructions: The following interview will be recorded (ask for permission) and will be 45 minutes to an hour in duration.

Introduction: This interview is being recorded, and confidentiality will be preserved as outlined in the consent form.

Does anyone have any questions before we begin?

Questions:

1. Describe your understanding of the process your school has gone through to open a nature-based school.
    a. What is your involvement in that process?
2. Why did you choose to enroll your child/children at a nature-based school as opposed to traditional format? *
3. Were there specific reasons for changing to the nature-based school?
4. While developing and implementing the nature-based idea at the school, what long-term benefits do you believe will occur?
5. What concerns do you have with your child/children attending a nature-based school?
6. What positive outcomes have you observed or experienced with your child/children attending a nature-based school?
7. What role have parents and students played in the process of opening and evaluating the nature-based school?
8. Describe how a nature-based school has changed the following:
    a. Your perception of what good teaching looks like

b. Your perception of what student engagement in learning

c. Your definition of a learning environment

d. Students' interest in school

9. How are your child/children engaged/learning while attending a nature-based school?

   Tell me what this looks like?

10. Have you seen changes in your child/children's behavior attending a nature-based school?

    Can you give me examples (without using specific student names)?

11. Have you seen changes in your child/children cognitively/academically attending a nature-based school?

    Can you give me examples (without using specific student names)?

12. Have you seen changes in your child/children socially and emotionally attending a nature-based school?

    Can you give me examples (without using specific student names)?

13. From your perception, what are the long-term effects that your child/children will face if they do not spend time in nature?

*Applies to Georgia only

Thank you so much for sharing your time and expertise with me today. After data analysis has been initially concluded, I will share my initial results from this interview with you to get feedback on the early conclusions. I look forward to sharing my findings and potentially working with you again.

Appendix E

RRB Approval

October 27, 2021

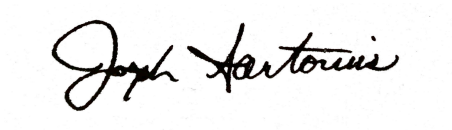
Re: Perceptions of Engagement in Nature-Based Schools in Missouri and Georgia

Dear Ms. Hambey,

On October 27, 2021 a review of your application and supporting documents for the above named research proposal was completed. The Research Review Board (RRB) for Southwest Baptist University has determined that the proposed research project meets the criteria for Exempt status as per policy 1.15.3 (A.1) in the faculty guidelines. As per the above policy "If the project is certified exempt, the principle investigator need not resubmit the project for continuing RRB review as long as there are no modifications in the exempted procedures". The study has now been approved, therefore, work on the project may begin.
If any modifications to the exempted procedures are made, the RRB will need to complete a new review of the changes to determine if the project remains Exempt or if further review is necessary.

Congratulations on the approval of your project, we wish you well during its completion.

Sincerely,



Joseph Sartorius, Ph.D.
Chair, Research Review Board
Professor of Graduate Studies