BARRIERS TO UTILIZING SCHOOL OUTDOOR SPACES: EXPLORING EXPERIENCES OF HIGH SCHOOL TEACHERS

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ABSTRACT

BARRIERS TO UTILIZING SCHOOL OUTDOOR SPACES: EXPLORING EXPERIENCES OF HIGH SCHOOL TEACHERS

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School outdoor learning spaces provide many mental and physical benefits for students, such as better physical health, improved concentration, and decreased stress. These spaces may also provide authentic, real-world opportunities to interact with what is being taught in class. Yet, even knowing the many benefits, teachers may not have the opportunity to conduct lessons in these outdoor spaces due to personal or systemic barriers. Elementary and middle school teachers' perceptions of barriers to utilizing these spaces have been well explored. However, there appears to be a lack of research looking at high school teachers' perceptions of the barriers they face. Therefore, the purpose of this study was to identify barriers high school teachers encounter in the utilization of their school outdoor learning spaces and provide strategies to minimize or overcome them. While there were similarities between barriers K-12 teachers encountered, results showed that there were differences between barriers that could affect how high school teachers overcome them. Better knowledge on these barriers along with teacher strategies can play a major role in increasing school outdoor learning spaces.

Keywords: high school teachers, barriers, outdoor spaces, environmental education

CHAPTER ONE: BACKGROUND

When many people imagine attending school lessons, they think of sitting in rows of desks listening to a teacher in front of the classroom lecture about a subject. Some may recall the boredom of having to sit in their seat all day even if they found the subject interesting. While lectures can be a great teaching method to provide a lot of information in a short period of time, many students may leave these lessons with little conceptual understanding of the topic (Linneman, 2019). Freire (2014) describes this method of teaching as the "banking concept of education" (p. 72). In essence, teachers are the sources of knowledge with the duty to fill receptacles (i.e., students) with the information they need to know. "Good" students are those who passively receive information and are able to regurgitate that information on tests (Freire, 2014).

Lecturing in this way is often critiqued for many reasons (Freire, 2014). A major critique is that this model does not take into account the knowledge that the student brings to the classroom and instead views the student as an "empty vessel" to be filled with information (Freire, 2014). Every student comes to class with their own experiences, so treating them like blank slates on which to transcribe information discounts the varying mental processes students go through when learning new information (Freire, 2014). Another critique is that this method limits students' imagination and creative abilities (Freire, 2014). When knowledge is "gifted" to students, this completely disregards education as a process of inquiry and does not allow students to critically consider reality. Additionally, bestowing information instead of allowing students to understand the reasons behind that knowledge leads to a surface level of understanding (Bacon & Stewart, 2006). Students are more likely to retain information when they have a deep level of

understanding, which means students retain information for a much shorter time with only a surface level of understanding (Bacon & Stewart, 2006).

In addition to lecturing, there are other dilemmas in today's classrooms and educational system that need to be addressed. One example is that not all students learn the same (Arthurs, 2007). In many classrooms, teachers go over the material on the test before students take the test. This can be very frustrating for the teacher when students cannot answer questions they clearly went over in class (Arthurs, 2007). One of the common reasons for this disconnect is that the information was delivered using only one method (e.g., lecturing, reading) for a specific learning style when many students need information delivered in multiple ways before they fully comprehend the material (Arthurs, 2007; Nilson, 2016). While teachers can incorporate more methods in the classroom, many primarily use lectures with an accompanying slideshow even though students only retain around 50% of the material (Arthurs, 2007). By incorporating various methods to meet multiple learning styles, a wider range of students can obtain a better grasp on the material and may retain over 95% of the information (Arthurs, 2007; Nilson, 2016).

One way to incorporate varying methods is utilizing outdoor spaces; however, another failing of our current educational system is the lack of connection to the outdoors (Nordén & Avery, 2020). A connection to nature can provide many benefits to students, such as improved mental well-being (Dring et al., 2020; Li & Sullivan, 2016), better academic performance (Hodson & Sander, 2017; Skinner et al., 2012), and improved physical health (Largo-Wight et al., 2018; Pagels et al., 2016). And while there has been a rise in the number of nature-based schools, many schools put little focus on teaching in outdoor spaces (Alexia, 2020). One reason this occurs is due to the incredible pressure on teachers to meet state standards and prepare for standardized testing (Browning & Rigolon, 2019). Teachers are held to strict standards which

can make them feel like they have no time to prepare and conduct lessons in outdoor spaces (Largo-Wight et al., 2020). Without experiences in outdoor spaces, students may find it hard to learn about ecological concepts and understand environmental literacy (Eick, 2012).

With some of the critiques of the current education system in mind, providing opportunities for students to learn outdoors can provide many benefits. Specifically, Norwood et al. (2021) found students had an easier time concentrating on the task at hand in outdoor spaces. Avci and Gümüş (2020) found students who participated in outdoor education activities and lessons had greater academic success than those who were in a classroom environment. Another major benefit that can come with outdoor lessons is the opportunity to deliver real-world, authentic experiences that provide a stronger connection between concepts and facts being learned (Eick, 2012). This can also help students develop a sense of ownership of the material and allow them to use their experiences to better understand what is being taught (Van Dijk-Wesselius et al., 2020). With these more meaningful experiences, students can have an easier time retaining what they learned (Eick, 2012).

Outdoor learning spaces can also provide teachers with opportunities to incorporate different instruction methods into their teaching (Barfod, 2022). One example is the benefits of utilizing both indoor and outdoor spaces focusing on the same subject. Teaching in both environments with different teaching practices can greatly enhance student learning (Barfod, 2022; Van Dijk-Wesselius et al., 2020). Similarly, introducing a topic indoors can provide a valuable starting point and knowledge base which can then be enhanced by taking students outdoors to directly experience the topic (Fägerstam, 2013). For example, taking students outside in the spring to dissect some flowers after they learn about different flower parts in the classroom

can help improve their understanding and provide more opportunities to retain the material (Bacon & Stewart, 2006; Eick, 2012).

Connection to Nature

Many students have been spending less time outdoors and have received little to no lessons in outdoor spaces (Largo-Wight et al., 2020). This disconnect also applies to life outside the classroom. There is a strong disengagement in recent years between humans and nature, which leads to a disconnect with the natural world and a lack of understanding of their place inside it (Akoumianaki-Ioannidou et al., 2016). The popular term 'nature deficit disorder,' coined by Richard Louv (2008) in his famous book, *Last Child of the Woods*, describes the increased disconnect between nature and children and the ill effects this separation causes (Palomino et al., 2016). Louv (2008) argues that exposure to the outdoors is important for children's mental and physical health, as well as their overall healthy childhood development. He talks about the correlations between children who experience nature deficit disorder and the negative consequences that arise, such as higher rates of physical and emotional illnesses, diminishing senses, and attention-deficit disorders. Direct exposure to the outdoors can help diminish these symptoms (Louv, 2008). In order to create a stronger connection between children and nature, it is imperative for educators to provide students with the opportunity to learn in the natural world (Largo-Wight et al., 2020).

Barriers to Teaching Outdoors

Students who engage in outdoor spaces during school time primarily do so during recess and other informal play periods (Malone & Tranter, 2003). While informal play in outdoor spaces provides benefits to student learning, such as breaks from formal learning and sensory stimulation (Malone & Tranter, 2003), lessons conducted by teachers in outdoor spaces can

provide better direction and improve learning by tying in curriculum-based programs to the outdoor spaces (Tekakpınar & Tezer, 2020). Teachers who can implement these programs in school outdoor spaces can provide students with engaging lessons that involve direct experience with the subject. With the proper guidance of a teacher in outdoor spaces, students will be provided with the freedom necessary for their innate curiosities and other natural inclinations to come out, which can greatly improve learning (Roberts, 2012).

There are many benefits to learning in outdoor spaces, yet many schools do not incorporate these spaces into their lessons (Van Dijk-Wesselius et al., 2020). This is often because there are barriers that teachers encounter that stop them from utilizing these spaces (Dring et al., 2020; Eick, 2012; Van Dijk-Wesselius et al., 2020). While it may seem easy to just walk outside with the class, there are many factors that may prevent this. For example, lack of time is a commonly cited barrier by teachers when they want to use these spaces (Dyrstad et al., 2018; Oberle et al., 2021; Prince, 2019). Creating lesson plans to incorporate outdoor spaces takes time and know-how that busy teachers may not have (Van Dijk-Wesselius et al., 2020). Additionally, taking students outside the classroom takes away time that could be used to teach them material for a future exam (Browning & Rigolon, 2019). Other barriers may include a lack of administrative support (Skage & Dyrstad, 2019), small outdoor area (Hodson & Sander, 2017), lack of outdoor knowledge (Van Dijk-Wesselius et al., 2020), small budget (Prince, 2019), or curriculum requirements (Akoumianaki-Ioannidou et al., 2016). With all these barriers being studied, what exactly is missing that would further expand on this research?

What is Missing?

Barriers have been examined in multiple studies, but most of this research was conducted at elementary and middle schools. There has been little research that addresses the barriers high

school teachers may face, and none found that solely focused on high school teachers. More specifically, some questions emerge including: Do high school teachers experience the same barriers as elementary and middle school teachers? Is there a barrier that is more or less common between all levels? If they do have the same barriers, are some easier or harder to overcome? Elementary, middle, and high school teachers have to prepare their students for what comes next but must do so while meeting different standards. Consequently, it is important to understand the barriers high school teachers encounter that may be different from elementary and middle school teachers.

Therefore, the purpose of this study was to identify barriers high school teachers encounter in the utilization of their school outdoor learning spaces and provide strategies to minimize or overcome them. For this study, a school outdoor learning space is any outdoor area that is or can be used to teach outdoors at a school. To address this purpose, there were two guiding questions. First, what barriers (if any) are limiting high school teachers from utilizing school outdoor learning spaces for their classes? Second, what strategies can teachers use to minimize or overcome barriers in utilizing school outdoor learning spaces?

The next section will review the literature about the benefits, barriers, and strategies of utilizing school outdoor spaces, followed by an in-depth look into the methods of this research.

CHAPTER 2: LITERATURE REVIEW

This review will examine the literature on outdoor learning spaces at schools and provide a better understanding of teachers' perceptions and realities in utilizing these spaces. Additionally, it will explore the barriers that may prevent high school teachers from utilizing their schools' outdoor spaces and propose possible strategies to overcome them. For the purpose of this research, outdoor learning spaces were defined as any outdoor area that is or can be used to teach at a school. These could be formal outdoor classrooms, improved outdoor facilities, or simply natural spaces. The primary focus of this study will be on schools in the Southeastern United States, but literature will be cited from around the world to provide an overview of the outdoor benefits and possible barriers teachers may encounter. Finally, due to a lack of research, the barriers discussed in this review will be coming from elementary and middle school teachers, which is why the proposed study will be exploring high school teachers' perceptions.

Benefits To Using School Outdoor Learning Spaces

There is a large body of research that shows the many physical and mental benefits students receive when learning in outdoor spaces (Frumkin et al., 2017; Largo-Wight et al., 2018). Studies that focus on physical benefits look at factors such as better health (McCormick, 2017; Ribeiro et al., 2019; Söderström et al., 2013) and physical fitness (Pagels et al., 2016). Studies that focus on mental benefits examine factors such as academic performance (Avci & Gümüş, 2020) and emotional well-being (Largo-Wight et al., 2018; Li & Sullivan, 2016). While there is still much to learn about student health benefits in nature (Frumkin et al., 2017), it is acknowledged by many that time in nature leads to overall better human well-being. For example, White et al. (2019) conducted a study on the recreational nature of participants and

concluded that 120 minutes of outdoor activity significantly increased the likelihood of good health and high well-being reports compared to no outdoor activity. Interestingly, they also concluded it did not matter whether 120 minutes of outdoor time happened all at once or over a couple of days. With many students spending less time outdoors during their free time (Largo-Wight et al., 2018; Largo-Wight et al., 2020), schools that make use of their outdoor learning spaces can help increase outdoor exposure and reap the benefits that come with it. This section of the review will explore the specific benefits of utilizing outdoor spaces in schools.

Physical benefits. Children who spend less time outdoors are more likely to have additional health issues than those who regularly interact with nature (Largo-Wight et al., 2020). Even with research reinforcing this, some schools are not as supportive of increasing or even allowing outdoor time for students. There may be more schools that have an outdoor focus or encourage outdoor time (Alexia, 2020), but the majority do not fully utilize outdoor spaces to conduct lessons. For example, some schools have actually lessened recess time due to the demands of academic excellency (Ribeiro et al., 2019). One reason this occurs is due to the incredible pressure on teachers to meet state standards and prepare for standardized testing (Browning & Rigolon, 2019).

While there have been multiple studies documenting the many benefits of being outdoors, one of the first studies to isolate the effects lessons in outdoor classrooms had compared to indoor classrooms was conducted less than ten years ago (Largo-Wight et al., 2018). Since then, more studies have come out supporting the health benefits of conducting lessons in outdoor spaces on school grounds (Harper & Obee, 2020; Largo-Wight et al., 2020). Not only does this apply to the general student population, but also to students with special needs. Children with

special needs that participated in green play settings experienced milder symptoms, improved concentration, and overall better health (Taylor & Kuo, 2011).

One aspect of outdoor lessons that leads to better health is being physically active in the outdoors. Outdoor spaces provide children the opportunity to play and learn in nature in a physical manner, and it is this exposure that consistently shows positive impacts on child health and well-being (Largo-Wight et al., 2018). While some may argue that the physical needs of students can be met solely through physical education indoors, some scholars contradict this. Pagels et al. (2016) found that indoor physical education returned lower accelerometer counts per minute than physical education conducted outdoors. It was also found that outdoor play could provide a sense of risk, or a perception of risk, which benefited students with an increase in physical activity, environmental awareness, resiliency, and mental health (Harper & Obee, 2020). Outdoor spaces provide many health benefits to students, and the use of these spaces has also been shown to increase student receptiveness when exposed to nature (Largo-Wight et al., 2020).

Academic and mental benefits. Another of the many benefits of doing lessons in outdoor spaces is improved student behavior. Being in nature has been shown to help calm students and improve their concentration on the task at hand (Kuo et al., 2018; Li & Sullivan, 2016; McCormick, 2017). For example, Norwood et al. (2021) took a look at the effects lessons in nature had on student learning and behavior compared to lessons inside the classroom. They found that teachers spend less time bringing class focus back on the subject material, which allowed the teachers to have more instruction time. This improved focus also led to reduced misbehavior and fewer reprimands. They found that teachers were less likely to be interrupted and could teach almost twice as long before redirecting class focus.

Additionally, improved concentration from outdoor lessons has been shown to benefit indoor lessons as well. Indoor lessons conducted after an outdoor lesson saw increased attention and focus on the subject matter compared to conducting indoor lessons one after another (Kuo et al., 2018). One suggestion on how students are able to stay engaged with material longer is that nature has a rejuvenating effect on students even while learning classroom material (Kuo et al., 2018). There have been studies looking at the benefits of recess on student attention span in the classroom (Jarrett et al., 1998; Pellegrini et al., 1995), and it is possible that a lesson conducted outdoors may provide benefits that are also found when students have a recess time (Kuo et al., 2018).

Outdoor classrooms and lessons have also been shown to heighten student motivation to engage in reading, writing, and drawing, even in students who normally struggled in literacy activities (Eick, 2012). By linking concepts and facts learned in the classroom to real-world experiences, students were able to make meaningful experiences by learning about familiar contexts and reflecting on what they learned (Eick, 2012). This is further supported by studies that investigated the effects garden-based learning had on student interest and development (Dring et al., 2020; Skinner et al., 2012). Students who participated in a garden-based program were more engaged in their science class and had improved academic self-perceptions, such as relatedness to school, intrinsic motivation, and perceived competence (Skinner et al., 2012). Some of the garden programs also incorporated multiculturism which allowed students to engage with each other's different cultures and provide a space to have real-world experiences of various cultures (Dring et al., 2020). School outdoor spaces can provide an excellent means to promote student interest in the outdoors and other academic areas, and they can also offer a place for students to destress and relax while learning (Dring et al., 2020).

Allowing students to use a part of their day outdoors has been shown to decrease stress and anxiety and promote better attention and learning (Largo-Wight et al., 2020). Additionally, being outdoors is not the only way for students to experience the stress-related benefits of nature. Li and Sullivan (2016) conducted a study looking into the effects different views from class windows had on students. They found that the views with greenery on the outside, as opposed to no windows or windows with building views, yielded greater attentional functioning and a quicker recovery from a stressful experience. Even without being outdoors, nature still has a direct impact on student cognitive performance (Li & Sullivan, 2016). With recovery from stressful experiences, a healthier environment is created for students, which can allow them to be better problem solvers and have greater focus on their academics (Largo-Wight et al., 2020).

While there have not been many studies looking solely at the direct link between academic success and outdoor spaces in schools, there are several that point towards a beneficial relationship between the two (Avci & Gümüş, 2020; Browning & Rigolon, 2019; Wu et al., 2014). For example, there is evidence that urban landscape designs that increase student exposure to vegetation at their schools also improve third grade reading performance (Hodson & Sander, 2017). Having a larger number of green areas around the school area can also improve academic performance (Wu et al., 2014). With an increase in vegetation around the school, students are more likely to have higher standardized reading and mathematics test scores (Wu et al., 2014). Avci and Gümüş (2020) also found an increase in academic performance in social studies courses that used outdoor educational activities and teaching methods.

There are many benefits to utilizing school outdoor spaces documented in the literature. However, while there has been a rise in the use of outdoor learning spaces in schools (Dring et al., 2020), many schools and teachers do not conduct classes in these learning environments even

with many positive benefits appearing more often in literature (Van Dijk-Wesselius et al., 2020). This is because there are many barriers that schools and teachers encounter when incorporating student learning into outdoor spaces (Dring et al., 2020).

Barriers to Using School Outdoor Learning Spaces

This section of the review will explore the various barriers schools and teachers face when implementing lesson plans outdoors. Due to the minimal research focusing on high schools, the majority of barriers in this section were taken from elementary and middle school studies. There are many benefits to conducting lessons in outside spaces, yet there are still many schools that ignore or underutilize these spaces (Van Dijk-Wesselius et al., 2020). Even though teachers may recognize the mental and physical benefits, implementation can present a challenge or barrier that prevents teachers from making use of outdoor lesson plans (Skage & Dyrstad, 2019) The barriers preventing teachers from using these spaces can come in many different forms (Dring et al., 2020). Barriers can include teacher related reasons, such as lack of experience or knowledge about the outdoors (Van Dijk-Wesselius et al., 2020), little to no training about conducting outdoor lessons (Tekakpınar & Tezer, 2020), limited curriculum flexibility (Akoumianaki-Ioannidou et al., 2016), or stringent preparation for standardized testing (Largo-Wight et al., 2020). Barriers can also come from administration, such as an overall lack of support (Skage & Dyrstad, 2019) or a limited budget for outdoor classrooms (Prince, 2019). Finally, accessibility barriers can also pose a problem, such as a lack of green space maintenance (Van Dijk-Wesselius et al., 2020), lack of accessibility for people with disabilities (Woolley, 2013), or not enough time to prepare (Prince, 2019). This section of the review will expand upon these three sections of barriers to utilizing outdoor learning spaces.

Teacher's knowledge base. Studies have shown that teachers have the desire to incorporate school outdoor spaces into their lesson plans (Akoumianaki-Ioannidou et al., 2016; James & Williams, 2017). However, many teachers also experience a sense of hesitance or lack of confidence when it comes to facilitating outdoor lessons (Dring et al., 2020; Skage & Dyrstad, 2019). There can be many reasons why teachers experience a lack of confidence, but one of the main causes is having little to no knowledge about the outdoors (Van Dijk-Wesselius et al., 2020). Teachers who have prior experience in the outdoors have an easier time taking their students outside and conducting lessons about the outdoors (Eick, 2012). However, even those who have some prior experience may still feel that they do not know enough to teach in outdoor spaces (Van Dijk-Wesselius et al., 2020). Also, teachers express that it is an unreasonable expectation to force teachers to conduct lessons on topics where they lack expertise (Dring et al., 2020).

Van Dijk-Wesselius et al. (2020) conducted a study that looked more in-depth into the teachers' perspectives on their lack of confidence in facilitating lessons in outdoor spaces. While they found teachers had the desire to implement lessons, teachers were unfamiliar with outdoor learning, which hindered their implementation of lessons. Some teachers even articulated their own fear of the outdoors, and they were afraid students would ask questions that the teachers would be unable to answer. Additionally, some expressed their confusion about what they were allowed to do in the outdoors and what was considered inappropriate. Due to this unfamiliarity, many teachers said they required some type of inspiration or ideas to help create or properly utilize outdoor lessons. Even with help in creating outdoor programs, teachers without inspiration find it challenging to continue creating new lessons (Van Dijk-Wesselius et al., 2020).

Similarly, another barrier for teachers is their own belief and confidence in instructing their students in a new environment. As Eick (2012) said, “Teacher beliefs are strong determinants of persistent action in the classroom” (p. 799). Without strong beliefs in the need for students to learn in outdoor spaces backed by knowledge about the outdoors, it would be difficult for teachers to succeed in incorporating outdoor lessons into their own pedagogy (Eick, 2012). Some teachers also expressed that they felt a lack of security in leaving their classroom and the need to switch to an unfamiliar pedagogical approach (Van Dijk-Wesselius et al., 2020). The feeling of uncertainty also extended to the loss of student control in outdoor lessons. They feared students would be distracted and unable to pay attention in outdoor spaces (Kuo et al., 2018).

Another barrier that teachers may encounter is the curriculum requirements that they are mandated to follow (Dring et al., 2020). It is rare for any curriculum requirements to need an outdoor space, and many teachers have said that the current curriculum does not support outdoor learning (Van Dijk-Wesselius et al., 2020). A similar aspect of this is the lack of formalization of outdoor learning in the curriculum (Van Dijk-Wesselius et al., 2020). The curriculum is already packed with material, so if outdoor education is not justified as essential, then teachers will have a harder time both seeing its use and implementing it (Quay, 2016). Teachers will have a harder time incorporating outdoor lessons into the curriculum because they are not taught how to do it in teacher education programs (Lloyd et al., 2018). Finally, even if a teacher is able to conduct outdoor lesson plans following curriculum standards, the school administration and other teachers may believe those lessons are not following standards, which becomes another barrier (Dring et al., 2020).

Administration. A common barrier for teachers trying to implement outdoor lessons is the lack of support from administration (Dring et al., 2020; Oberle et al., 2021). Without support, teachers may feel unprotected in using outdoor spaces and fear they will have to take full responsibility if the lesson does not fully meet administrative and parental expectations (Oberle et al., 2021). Administration can also limit or put a stop to any outdoor lessons. Some teachers have been told by their principals that lessons can only be conducted at certain times of the day (Oberle et al., 2021). This can greatly limit when teachers can utilize outdoor spaces due to constrained time limits and lack of flexibility (Oberle et al., 2021). Administration also plays a major role in professional development opportunities for teachers who want to learn more about outdoor learning spaces (Dring et al., 2020). These trainings and workshops are a valuable resource for teachers to better understand how to incorporate the curriculum into outdoor lessons, obtain experience from outdoor education organizations, and develop strategies to create educational outdoor lessons (Dring et al., 2020).

Another major barrier administration can present is withholding resources that would go toward creating better outdoor learning spaces and supporting programs in those spaces (Oberle et al., 2021). A well-resourced outdoor space can make an immense difference in whether teachers can conduct programs or even have the desire to use the space (Prince, 2019). The cost of the programs and the necessary equipment can be a major barrier to teachers (Shume & Blatt, 2019). Overall, the administration can play an important role in the success of outdoor programs, whether it be encouraging the teacher, distributing resources, or helping to implement the programs into school culture (Dring et al., 2020).

Accessibility. Even with the support of administration, there may also be barriers that can limit access to outdoor spaces. A common barrier teachers mention is the lack of time to properly

prepare or implement outdoor programs (Dring et al., 2020; Nordén & Avery, 2020). Teachers already have many designated responsibilities, so finding time to implement these programs in an already busy schedule can put a great deal of strain on the teacher (Nordén & Avery, 2020; Van Dijk-Wesselius et al., 2020). Many teachers end up having to volunteer extra time in order to plan these programs because it falls outside of their expectations and responsibilities (Dring et al., 2020). Even if they did a couple of outdoor programs, they may not have the time to fully integrate outdoor spaces into their lesson plans. It would come off more as an addition to their current strategies instead of an integrated part of them (Van Dijk-Wesselius et al., 2020).

The overall accessibility of a school's outdoor space can also form a barrier. For example, many school outdoor spaces do not have appropriately designed spaces for children with disabilities (Woolley, 2013). This could be because the designers lacked the knowledge of disability needs, the schools did not have the budget, or they did not take accessibility into account (Woolley, 2013). Additionally, physical constraints can also come in the form of small outdoor spaces, not enough greenery, and a lack of maintenance in those spaces (Van Dijk-Wesselius et al., 2020). Many schools do not have adequate outdoor spaces to use, so if teachers did want to incorporate outdoor learning, they would have to travel to another site with their class, which takes time, money, and a large amount of planning (Oberle et al., 2021).

Another barrier teachers have noted is the loss of control and fear that students may get hurt due to an unforeseen factor (Van Dijk-Wesselius et al., 2020). Some teachers expressed worries about wildlife, such as bees and wasps, harming a student and having a parent file a complaint to the principal (Oberle et al., 2021). The lack of control also extended to being unable to see every student at the same time as they could in the classroom. This caused worries that students could get hurt or get away with bad behavior much easier (Van Dijk-Wesselius et al.,

2020). Furthermore, uncontrollable weather could add barriers by making the outdoor spaces unsafe or preventing programs from taking place due to not having appropriate gear (Oberle et al., 2021).

Overall, there are many common barriers teachers have encountered in their journey to incorporate outdoor spaces in their classes. However, this list is in no way a complete review of all the potential barriers teachers may face. For example, other barriers that have been noted are students' fear of the outdoors (Shume & Blatt, 2019), students' desire for technology instead of outdoor experiences (Shume & Blatt, 2019), parent pushback (Oberle et al., 2021), and student culture (Oberle et al., 2021). These barriers can be very intimidating, especially for first-year teachers (Shume & Blatt, 2019), but there are strategies to help overcome them (Dring et al., 2020; Largo-Wight et al., 2020; Nordén & Avery, 2020).

Strategies to Implement Lessons in School Outdoor Learning Spaces

This next section will explore some strategies to overcome or mitigate barriers teachers may face in implementing lessons in their school's outdoor learning spaces. The use of these spaces is becoming more widespread in elementary and middle schools, and teachers who have or have tried to implement outdoor lessons can provide useful feedback for other teachers interested in adding outdoor lessons to their curriculum (Barrable, 2020; Dring et al., 2020). While some teachers may worry about the feasibility of implementation (Shume & Blatt, 2019), there have been multiple cases of successful implementation with multiple teachers agreeing it is both feasible and practical (Largo-Wight et al., 2020; Norwood et al., 2021). Before considering some strategies, it is important to note that methods to overcome a barrier may not be applicable to every school, and the strategy might not address all barriers a teacher encounters (Eick, 2012).

Outdoor programming. One of the most common barriers teachers mention is their lack of confidence in facilitating outdoor lessons (Lloyd et al., 2018; Sondergeld et al., 2014; Van Dijk-Wesselius et al., 2020). This may be because they do not believe in themselves (Eick, 2012; Oberle et al., 2021), do not know much about the outdoors (Dring et al., 2020; Van Dijk-Wesselius et al., 2020), or fear a new, unknown environment (Van Dijk-Wesselius et al., 2020). When starting an outdoor program at a school, it is extremely important for teachers to have a strong belief in the need for outdoor learning (Eick, 2012; Prince, 2019). It is key for teachers to have strong values and beliefs and be ready for any pushback that may occur (Prince, 2019). Teachers who already have personal experiences in the outdoors may already have strong beliefs about the benefits of outdoor lessons (Eick, 2012; Shume & Blatt, 2019), but even without those personal experiences, teachers can still develop strong values about outdoor education (Van Dijk-Wesselius et al., 2020). For example, teachers can find other like-minded teachers who also value the benefits of outdoor lessons and are willing to help spearhead their use in the school's curriculum (Oberle et al., 2021). Teachers may not be able to find strong support in the school system, so having fellow teachers to help can make a big difference (Oberle et al., 2021).

Another way for teachers to increase their confidence and gain inspiration is to ask for help or attend a training with an experienced outdoor teacher or trainer (Van Dijk-Wesselius et al., 2020). Someone with knowledge about outdoor programs can point out some simple activities to start with that both increase outdoor knowledge and confidence (Van Dijk-Wesselius et al., 2020). Teachers who do the activities themselves have said they felt a sense of relief and confidence in the number of outdoor learning opportunities they can provide students (Prince, 2019; Van Dijk-Wesselius et al., 2020). Additionally, while some areas may or may not have local outdoor education organizations, there are also many national agencies that provide

teachers with strategies and easy to understand outdoor programs, such as the North American Association for Environmental Education (NAAEE) and Children & Nature Network.

Even with help from experienced outdoor trainers and plenty of resources, some teachers may still feel a sense of fear in getting started (Largo-Wight et al., 2020). They may feel this way because they anticipate negativity from others (Shume & Blatt, 2019), are afraid they will not be able to control students (Kuo et al., 2018), are concerned with safety and student injuries (Van Dijk-Wesselius et al., 2020), or worry about educating in a new environment (Van Dijk-Wesselius et al., 2020). There will always be some uncertainty when incorporating outdoor lessons for the first time. Van Dijk-Wesselius et al. (2020) gave simple advice for teachers beginning outdoor lessons for the first time by saying, "Despite all the barriers, despite the lack of time, despite the realities of their educational practice, they [teachers] take a first step and go for it" (p. 12). Teachers already have a large workload and adding learning about the outdoors and how to switch to a new pedagogical outdoor mindset can be very daunting. That is why Van Dijk-Wesselius et al. (2020) recommend that teachers need to be decisive and just go for it. Sometimes teachers in their study even found that they were surprised by their own capabilities. Of course, this is not to say that teachers should skip straight to implementation without proper planning. However, sometimes teachers have to push past their self-imposed barrier of uncertainty to realize they are more capable teachers than they think.

Administration strategies. While there are personal barriers teachers have to overcome, there are also barriers in the school system that cannot be overcome with an approach of "just do it" (Van Dijk-Wesselius et al., 2020, p. 12). A school's administration or principal may not always be supportive of a teacher's utilization of outdoor spaces in their lessons (Oberle et al., 2021). Also, even if teachers have a supportive administration, there may be broader education

mandates that hold back implementation (Reese, 2019). However, there are a few strategies teachers can use to overcome these barriers. If a principal is not supportive, teachers can try and request to conduct a single outdoor lesson in order to show a principal the outdoor benefits that indoor lessons cannot provide. For example, Van Dijk-Wesselius et al. (2020) showed that a principal with positive experiences of outdoor lessons was willing to support more outdoor learning by letting go of other things.

If a teacher has the support of the administration, multiple opportunities may open up. With a major barrier for teachers being a lack of training or knowledge, there are professional development opportunities for teachers to learn more about outdoor pedagogy and gain confidence in conducting lessons outdoors (Dring et al., 2020; Sondergeld et al., 2014). These trainings can be a great way for teachers to find inspiration and motivation that can then be shared with students (Sondergeld et al., 2014). Administrative support can also lead to better funding, which is necessary for many outdoor activities that need new equipment or materials (Dring et al., 2020). Principals who advocate for implementing outdoor lessons may be open to allocating more money towards these programs, or they may also help teachers write grants and conduct fundraisers (Dring et al., 2020).

Gaining the support of the principal can also make a huge difference in parent/public feedback to incorporating an outdoor learning approach (Oberle et al., 2021). Children's parents may not agree with the shift to an outdoor educative approach (Shume & Blatt, 2019; Van Dijk-Wesselius et al., 2020), and having a principal that can moderate between the parent and teacher can save a good deal of stress and worry for the teacher (Oberle et al., 2021). A good way to mitigate parent concerns is for the teacher and the principal to address this change before conducting lessons (Oberle et al., 2021). For example, the principal can send out a letter to all the

parents informing them of the many benefits of outdoor lessons and addressing safety measures for the students (Oberle et al., 2021).

Improved accessibility. Additionally, having a safe and accessible environment is an important factor in a teacher's use of outdoor lessons (Prince, 2019). There can be many potential risks for teachers to take their students outside, so sometimes teachers may be overwhelmed with trying to create a safe space (Shume & Blatt, 2019). However, there are many strategies to keep students safe while also gaining the benefits of outdoor lessons (Harper & Obee, 2020; Van Dijk-Wesselius et al., 2020). Keeping students engaged and under control takes a different mindset in an outdoor classroom than in an indoor classroom (Van Dijk-Wesselius et al., 2020). Some recommendations for conducting outdoor lessons are to present small-step activities before jumping into larger lesson plans, set boundaries for students while also allowing exploration, and after explaining the activity and safety, trust the students' sense of responsibility (Van Dijk-Wesselius et al., 2020). Teachers who actively participate with the students will also better understand students' perspectives and be able to tailor the experience to match the goals of the teacher (Van Dijk-Wesselius et al., 2020).

To help mitigate concerns from the administration and parents, teachers may also need to clearly state what steps they are taking to keep students safe (Harper & Obee, 2020). Some strategies for this would be to clearly state the rationale for using outdoor spaces, document foreseeable risks and explain why the risks are worth it, invite parents to these activities, and find ways to avoid unclear policies (Harper & Obee, 2020). Some of these strategies may be easier than others, while some may not be applicable at all. For example, inviting parents to outdoor lessons may be difficult for some teachers to manage, but creating a document for parents explaining the benefits of outdoor spaces and the accompanying risks could be doable.

Finally, the overall accessibility and design of an outdoor space has to be taken into account. Some school outdoor spaces may be predominantly pavement and asphalt and have very few opportunities for child-plant contact, which can limit teacher lesson plans (Akoumianaki-Ioannidou et al., 2016). If that is the case, teachers would need to work with administration and maintenance staff to increase the level of greenery. Not only would this benefit outdoor lessons, but it could also improve the overall aesthetic and create a more comfortable, inviting environment for the school (Akoumianaki-Ioannidou et al., 2016). Another accessibility barrier that teachers encounter is the unpredictability of weather (Oberle et al., 2021). Barrable (2020) found that students were less likely to spread widely in inclement weather, and older students were inspired to take the lead in figuring out what to do with different weather conditions. Teachers can work with students in this environment to assess risk and the weather, thus creating a meaningful teaching moment.

Utilizing outdoor spaces for school lessons provides a plethora of benefits to students, so it is imperative for teachers to have access to these spaces at their schools (Oberle et al., 2021). However, many schools have limited use of outdoor spaces, and some are even reducing these spaces (Prince, 2019). That is why it is important for teachers to understand the benefits of outdoor spaces and take the lead in using these areas in their lesson plans (Hovardas, 2016). While some schools may be limiting outdoor areas, there is also a growing number of greening schoolyard efforts in other schools, which provides more opportunities for teachers to use outdoor spaces (Van Dijk-Wesselius et al., 2020). Teachers who now have these opportunities are in the prime position to show students, administration, and parents the student benefits of outdoor lessons (McCormick, 2017). Importantly, teachers have to realize that this change will take time, and they will undoubtedly encounter barriers along the way (Woolley, 2013).

With research already conducted at the elementary and middle school level, learning more about the use, or lack thereof, of school outdoor spaces at the high school level can greatly help the efforts of incorporating these spaces into lesson plans. Therefore, the purpose of this study was to identify barriers high school teachers encounter in the utilization of their school outdoor learning spaces and provide strategies to minimize or overcome them.

CHAPTER 3: METHODS

The purpose of this study was to identify barriers high school teachers encounter in the utilization of their school outdoor learning spaces and provide strategies to minimize or overcome them. Two guiding research questions were used to address this purpose. First, what barriers (if any) are limiting high school teachers from utilizing school outdoor learning spaces for their classes? Second, what strategies can teachers use to minimize or overcome barriers in utilizing school outdoor learning spaces?

Convergent Mixed-Methods Design

In order to address these questions, a mixed-method survey approach using both quantitative and qualitative data was used (Creswell and Creswell, 2018). The survey method was a very efficient method of reaching a wide audience in a short period of time while also allowing some flexibility when gathering data from a range of audiences (Mathers et al., 2007). The core design behind this method was a "convergent parallel design" where both types of data were concurrently collected (Creswell & Plano Clark, 2018). This was also a fixed mixed-method design (Creswell & Plano Clark, 2018), meaning both types of data were predetermined and planned before the research plan was implemented.

A mixed-method approach includes the benefits of both a quantitative and qualitative approach, allowing one method to expand upon the other (Humberstone & Prince, 2020). The quantitative approach can provide precise metrics that inform about a topic or phenomenon, which may be preferred by different administrations (Humberstone & Prince, 2020). However, quantitative data have predetermined answers, such as yes/no or options to choose from, and do not allow much response freedom, which could provide more insight into personal experiences.

When researching human-nature interactions, it can be difficult to acquire high-quality data without also diving into the "hows" and "whys" (Humberstone & Prince, 2020). Gathering qualitative data can provide meanings behind the data and share the individual lived experiences in the participants' own words (Marshall et al., 2022).

Population Selection and Sampling

The online survey for this study was part of a larger landscape analysis conducted by the Southeastern Environmental Education Alliance (SEEA; http://www.southeastee.com/). SEEA is a network of southeastern state affiliates that are a part of the North American Association for Environmental Education (NAAEE). The states represented are Kentucky, Tennessee, North Carolina, South Carolina, Mississippi, Georgia, Alabama, and Florida. Their main goal is to provide state affiliates and their stakeholders with opportunities to enhance environmental education efforts across the region. The survey was sent to administrators and teachers in the southeastern states to learn more about their use of environmental education at school and the spaces they use to conduct their lessons. SEEA used a purposeful sampling method (Creswell & Plano Clark, 2018) focusing on teachers and school administrators across the southeastern United States. After taking out administration and non-high school teacher responses, there were a total of 154 high school teacher respondents.

IRB Approval

This study did not need Western Carolina University IRB approval. While SEEA collected identifiable data in their surveys, the data SEEA shared with the primary researcher in this study was not identifiable. This study received confirmation from the Western Carolina University IRB office that it was exempt from IRB approval due to collecting non-identifiable data.

Data Collection

This study followed a mixed-method approach using an online survey (Mathers et al., 2007) that gathered demographic information, quantitative data about school outdoor spaces and barriers, and qualitative data about barriers and strategies. This method provided easily identifiable information on the barriers high school teachers have faced along with their experiences by asking descriptive questions about barriers (Creswell & Creswell, 2018). Both quantitative and qualitative data were retrieved from the same individuals (i.e., teachers) completing the survey. The survey contained parallel questions (Creswell & Plano Clark, 2018), meaning the same concepts were addressed in both the quantitative and qualitative questions, which in this case revolved around outdoor learning spaces.

The online survey was sent out to teachers and administrators using the Google Docs platform. The survey officially opened on September 6 and the last respondent was collected on November 5, 2022. Additionally, there were three respondents from the pilot survey that were analyzed with the previous data. Multiple avenues were used to disseminate the survey, such as using list serves, emailing associations involving teachers and administrators, working with state Department of Education offices, and word of mouth, commonly known as the snowball method (Cohen & Arieli, 2011). The questions provided data similar to other studies that have looked at barriers in elementary and middle schools. For example, prior studies examining teacher perceptions about barriers and the barriers themselves used surveys (Largo-Wight, 2020; Prince, 2019), interviews (Dring et al., 2020), focus groups (Oberle et al., 2021), surveys and interviews (Hovardas, 2016), and multiple methods including surveys (Sondergeld et al., 2014). The data from these studies provided both information about the barriers and teacher perceptions of those barriers, just as the current survey method did.

Survey. The full survey was comprised of 81 questions (see Appendix A for the full list of questions). Questions revolved around six broad categories: demographics, integration of environmental education into the classroom, outdoor learning spaces, field trips, professional development/learning for educators/administrators, and current support and needs. Data for this study was gathered from the non-identifiable demographic and outdoor learning spaces sections (see Appendix B for these questions). Other than the demographic and a few quantitative questions, the majority of the questions were at the end of the survey (i.e., questions 74-80) with the qualitative barrier questions after the quantitative barrier questions.

The quantitative questions were yes/no, multiple choice, or Likert-scale questions that addressed whether teachers gave lessons in school outdoor spaces, type of spaces, barriers in utilizing these spaces, the likelihood of integrating these spaces in their lesson plans, and what features or resources helped this integration. These questions primarily answered the first research question: What barriers (if any) are limiting high school teachers from utilizing school outdoor learning spaces for their classes? The four demographic and nine quantitative questions with preselected options were:

- Grade levels you teach
- What discipline or content areas do you teach?
- State
- Years you have been teaching
- Does your school have requirements for incorporating outdoor and environmental learning?
- Have you ever taken your students outside to learn on your school campus?
- If so, how often in the past 2 years?

- How likely are you to integrate outdoor learning into your instruction?
- Which of the following features and resources would help you incorporate (or increase) outdoor learning into your instruction?
    - For example, some options were available green space or available shade
- Which of the following do you have on your school campus? Which do you use in learning?
    - For example, some options were school gardens, a playground, or a greenhouse
- What are your barriers to outdoor learning? Please rate the following elements of teaching in outdoor learning spaces on your campus.
    - For example, some barriers included logistics, student behavior, or peer support
- How does your school fund environmental education and outdoor learning programs and spaces?
- When are outdoor learning spaces being used at your school?

The qualitative questions asked teachers to explain how these barriers affected them, how often these barriers occurred, and what strategies have they used to help mitigate or overcome them. These questions expanded upon the quantitative results and first research question while also answering the second research question: What strategies can teachers use to minimize or overcome barriers in utilizing school outdoor learning spaces? The three qualitative questions were:

- If there are other barriers to outdoor learning that were not identified above, please describe those here.

- Please describe specific examples of how barriers have limited your use of the school outdoor learning space and how often you encountered them (e.g., every program, seasonally)?
- Have you discovered any successful strategies to minimize or overcome the barriers you noted above? Please explain.

Data Analysis

As a mixed-method study, there were multiple kinds of analyses due to the different types of data. All data were first checked for data entry errors and any were removed or fixed (e.g., spelling errors, duplicate words) (Creswell & Plano Clark, 2018). Then, any data that contained teachers teaching elementary and middle school classes were removed so only high school teacher data were analyzed. After removing data outside this research scope, the data were analyzed using SPSS and sorted using the crosstab function. The demographic data provided context to the teacher responses and were analyzed to sort responses. While other non-identifiable data were analyzed, only two demographic questions were used to sort data with the other demographic data either being identifiable or not producing results that expanded upon the research questions. For example, a teacher's grade level was not used to sort data since this study only used high school data. The two demographic questions were used to see if, or how much, responses changed based on those attributes.

Next, the quantitative questions were analyzed using descriptive statistics (i.e., response frequencies) to provide information about the type of barriers teachers encountered, their frequency, and other factors that could expand upon barrier data. Barrier questions were looked at both individually and sorted to locate any patterns. Rank orders using frequencies were then created on the barriers encountered to help explain the data. While nine of the quantitative

questions were analyzed, only eight reported frequency data and were used to sort the barrier data due to one not producing results that expanded upon the research.

The qualitative section was analyzed using the five-step process described in Creswell & Creswell (2018). All data were read to gain a general idea of the responses and any spelling errors were fixed to help search for key terms later. Then, a thematic analysis was conducted for the qualitative questions individually. The next step was to code the data by assigning chunks of data to a specific word or category (Creswell & Creswell, 2018). These codes were developed based on emerging information from the responses. Descriptions and themes were created to go along with the codes. Descriptions provided detailed information about the data and several codes were tied to the description (Creswell & Creswell, 2018). Themes represented major findings in the data and helped section the data into main headings (Creswell & Creswell, 2018). Next, the themes and descriptions were gathered and sorted on how they should be represented in the qualitative narrative (Creswell & Creswell, 2018). The results were then analyzed as a whole (i.e., high school teacher perspective) before being sorted by the demographic and quantitative data (e.g., 9^{th} vs 12^{th} grade, green school or not). Finally, an intercoder was recruited to review 20% of the qualitative responses (Creswell & Creswell, 2018). This was done to help the trustworthiness of this research's findings.

After both the quantitative and qualitative data were analyzed, demographic and quantitative data were used to sort the quantitative and qualitative responses. The main findings of the frequency data and the sorting results were summarized, which were then interpreted in relation to the research questions. Next, a side-by-side comparison was conducted (Creswell & Creswell, 2018). This means the quantitative results were first reported and then the qualitative

results were discussed in order to confirm and further support the quantitative results. These results were then compared to past literature to add and/or support previous findings.

Per the guidelines in the Western Carolina University Experiential and Outdoor Education Student Handbook, I have chosen to complete the manuscript thesis format option. This option requires Chapters One, Two, and Three plus a full-length journal manuscript formatted to the requirements of a specific journal. The following chapter contains my complete manuscript, which I have chosen to submit to the Journal of Environmental Education. This journal requires authors to submit a manuscript that is approximately 6,000 words in APA format.

CHAPTER FOUR AND FIVE: BARRIERS TO UTILIZING SCHOOL OUTDOOR SPACES: EXPLORING EXPERIENCES OF HIGH SCHOOL TEACHERS

Abstract

School outdoor learning spaces provide many mental and physical benefits for students, such as better physical health, improved concentration, and decreased stress. These spaces may also provide authentic, real-world opportunities to interact with what is being taught in class. Yet, even knowing the many benefits, teachers may not have the opportunity to conduct lessons in these outdoor spaces due to personal or systemic barriers. Elementary and middle school teachers' perceptions of barriers to utilizing these spaces have been well explored. However, there appears to be a lack of research looking at high school teachers' perceptions of the barriers they face. Therefore, the purpose of this study was to identify barriers high school teachers encounter in the utilization of their school outdoor learning spaces and provide strategies to minimize or overcome them. While there were similarities between barriers K-12 teachers encountered, results showed that there were differences between barriers that could affect how high school teachers overcome them. Better knowledge on these barriers along with teacher strategies can play a major role in increasing school outdoor learning spaces.

Keywords: high school teachers, barriers, outdoor spaces, environmental education

BARRIERS TO UTILIZING SCHOOL OUTDOOR SPACES: EXPLORING EXPERIENCES OF HIGH SCHOOL TEACHERS

Introduction

When many people imagine attending school lessons, they think of sitting in rows of desks listening to a teacher in front of the classroom lecture about a subject. While lectures can be a great teaching method to provide a lot of information in a short period of time, many students may leave these lessons with little conceptual understanding of the topic (Linneman, 2019). This, along with several other critiques of the education system, can make people question if there is something that can be done to improve student education. This is where utilizing school outdoor spaces comes in. A connection to nature can provide many benefits to students, such as improved mental well-being (Dring et al., 2020; Li & Sullivan, 2016), better academic performance (Hodson & Sander, 2017; Skinner et al., 2012), and improved physical health (Largo-Wight et al., 2018; Pagels et al., 2016). Outdoor spaces can provide students with many unique learning opportunities to make learning easier, more fun, and something to remember.

However, there is a lack of connection to the outdoors in today's educational system (Nordén & Avery, 2020). Students who engage in outdoor spaces during school time primarily do so during recess and other informal play periods (Malone & Tranter, 2003). While informal play in outdoor spaces provides benefits to student learning, such as breaks from formal learning and sensory stimulation (Malone & Tranter, 2003), lessons conducted by teachers in outdoor spaces can provide better direction and improve learning by tying in curriculum-based programs to the outdoor spaces (Tekakpınar & Tezer, 2020). There are many benefits to learning in outdoor spaces, yet many schools do not incorporate these spaces into their lessons (Van Dijk-

Wesselius et al., 2020). This is often because there are barriers that teachers encounter that stop them from utilizing these spaces (Dring et al., 2020; Eick, 2012; Van Dijk-Wesselius et al., 2020).

The barriers preventing teachers from using these spaces can come in many different forms (Dring et al., 2020). Barriers can include teacher-related reasons, such as lack of experience or knowledge about the outdoors (Van Dijk-Wesselius et al., 2020), little to no training about conducting outdoor lessons (Tekakpınar & Tezer, 2020), limited curriculum flexibility (Akoumianaki-Ioannidou et al., 2016), or stringent preparation for standardized testing (Largo-Wight et al., 2020). Barriers can also come from administration, such as an overall lack of support (Skage & Dyrstad, 2019) or a limited budget for outdoor classrooms (Prince, 2019). Finally, accessibility barriers can also pose a problem, such as a lack of green space maintenance (Van Dijk-Wesselius et al., 2020), lack of accessibility for people with disabilities (Woolley, 2013), or not enough time to prepare (Prince, 2019).

As previously mentioned, barriers have been examined in multiple studies, but most of this research was conducted at elementary and middle schools. There has been little research that addresses the barriers high school teachers may face, and none found that solely focused on high school teachers. Elementary, middle, and high school teachers have to prepare their students for what comes next but must do so while meeting different standards. Consequently, it is important to understand the barriers high school teachers encounter that may be different from elementary and middle school teachers. With research already conducted at the elementary and middle school level, learning more about the use, or lack thereof, of school outdoor spaces at the high school level can greatly help the efforts of incorporating these spaces into lesson plans.

Therefore, the purpose of this study was to identify barriers high school teachers encounter in the utilization of their school outdoor learning spaces and provide strategies to minimize or overcome them. For this study, a school outdoor learning space is any outdoor area that is or can be used to teach outdoors at a school. To address this purpose, there were two guiding questions. First, what barriers (if any) are limiting high school teachers from utilizing school outdoor learning spaces for their classes? Second, what strategies can teachers use to minimize or overcome barriers in utilizing school outdoor learning spaces?

Methods

In order to answer the research questions, an online mixed-method survey approach was used (Creswell and Creswell, 2018). This method provided easily identifiable information on the barriers high school teachers have faced along with their experiences by asking descriptive questions about barriers (Creswell & Creswell, 2018). The survey questions were predetermined and planned before the research plan was implemented, and the quantitative and qualitative data were collected concurrently. Gathering both types of data afforded a broader understanding of high school teachers' perspectives. The quantitative approach provided precise metrics that informed about a topic or barrier, which may be preferred by different administrations (Humberstone & Prince, 2020). Gathering qualitative data helped to provide the individual lived experiences in the participants' own words (Marshall et al., 2022).

The online survey for this study was part of a larger landscape analysis conducted by the Southeastern Environmental Education Alliance (SEEA). SEEA is a network of southeastern state affiliates that are a part of the North American Association for Environmental Education (NAAEE). The states represented are Kentucky, Tennessee, North Carolina, South Carolina, Mississippi, Georgia, Alabama, and Florida. The survey was sent to administrators and teachers

in the southeastern states to learn more about their use of environmental education at school and the spaces they use to conduct their lessons. SEEA used a purposeful sampling method (Creswell & Plano Clark, 2018) focusing on teachers and school administrators across the southeastern United States.

Survey

The online survey was sent out to teachers and administrators using the Google Docs platform and was open from September 6 to November 5, 2022. Multiple avenues were used to disseminate the survey, such as using list serves, emailing associations involving teachers and administrators, working with state Department of Education offices, and word of mouth, commonly known as the snowball method (Cohen & Arieli, 2011). The questions provided data similar to other studies that have looked at barriers in elementary and middle schools. For example, prior studies examining teacher perceptions about barriers and the barriers themselves used surveys (Largo-Wight, 2020; Prince, 2019), interviews (Dring et al., 2020), focus groups (Oberle et al., 2021), surveys and interviews (Hovardas, 2016), and multiple methods including surveys (Sondergeld et al., 2014). The data from these studies provided both information about the barriers and teacher perceptions of those barriers, just as the current survey method did.

The full survey was split into several sections focusing on different uses of environmental education in schools. For this research study, data were gathered from the non-identifiable demographic and outdoor learning spaces sections. The quantitative questions were yes/no, multiple choice, or Likert-scale questions focusing on answering the first research question: What barriers (if any) are limiting high school teachers from utilizing school outdoor learning spaces for their classes? The qualitative questions asked teachers to explain how these barriers affected them, how often these barriers occurred, and what strategies have they used to help

mitigate or overcome them. These questions expanded upon the quantitative results and first research question while also answering the second research question: What strategies can teachers use to minimize or overcome barriers in utilizing school outdoor learning spaces?

Data Analysis

Given the exploratory nature of this study, data were analyzed using descriptive statistics, specifically frequency data, and were used to identify any broad gaps between the sorted categories. Both demographic and quantitative data were used to sort the quantitative and qualitative responses. The demographic data provided context to the teacher responses, and the quantitative questions provided information about the type of barriers teachers encountered and the frequency they experienced. The qualitative data further expanded the quantitative results about barriers and provided strategies to overcome them. The qualitative section was analyzed using the five-step process as outlined in Creswell & Creswell (2018). All responses were read and assigned codes, and the codes were later combined into themes. After analyzing the qualitative results, an intercoder reviewed 20% of qualitative responses (Creswell & Creswell, 2018). This was done to help the trustworthiness of the findings.

Results

For an overview of the results, see Figure 1.

Quantitative Results

Demographic and quantitative barrier data were analyzed using descriptive statistics (i.e., frequency data) in SPSS. Demographics provided useful categories for sorting the qualitative responses. Where useful, qualitative data were used to provide further explanation to quantitative data.

Demographics

The full SEEA survey collected K-12 teacher data (*n* = 540). The subset of data for this study only looked at high school teachers (*n* = 154) from eight southeastern states in the United States. The teachers' years of experience varied with the majority teaching for 21+ (*n* = 50, 32.5%), 4-10 (*n* = 39, 25.3%), and 11-15 (*n* = 27, 17.5%) years. Regarding school outdoor teaching requirements or expectations at their institution, 85.7% (*n* = 132) of respondents did not have any requirements for incorporating outdoor and environmental learning. Even without an expressed institutional environmental focus, many teachers responded that they were *very likely* (*n* = 49, 32.2%) or would *probably* (*n* = 49, 32.2%) integrate outdoor learning into their instruction. This was further evidenced in the 89.5% (*n* = 136) of respondents who indicated that they have taken their students outside on their campus at least once. While this is a high percentage, many reported that they *rarely* (*n* = 58, 38.2%) or *sometimes* (*n* = 48, 31.6%) took their students outside in the past two years.

Barriers to Integrating Outdoor Learning

A total of 14 barriers were analyzed and sorted based on how likely they were to be considered barriers to teachers integrating outdoor learning. The response choices provided were *not a barrier, sometimes a barrier,* or *always a barrier*; however, the reported percentages combined *sometimes a barrier* with *always a barrier* to more accurately show what barriers were most common. See Table 1 for the complete list of barriers and percentages. High school teachers reported that logistics (*n* = 117, 76%), such as time, distance, and clean up, were the most common barriers they encountered followed by a lack of supplies (*n* = 116, 75.3%). Lack of supplies could include anything a teacher may need to facilitate a lesson (e.g., clipboards, water quality kit, outdoor equipment). The next three highest barriers were lack of outdoor

spaces (*n* = 105, 68.2%), technology/connection (*n* = 105, 68.2%), and student behavior (*n* = 104, 67.5%).

When looking at a school's outdoor environment, dedicated outdoor learning spaces were more likely to be utilized. For example, over 60% (*n* = 25) of teachers who had access to a nature trail connected to campus or a designated outdoor classroom used them for outdoor learning. On the other hand, playgrounds, weather stations, or a cluster of trees were utilized by less than 40% of teachers. Interestingly, even though 50% (*n* = 77) of school campuses had a greenhouse, only 33.8% (*n* = 26) of teachers used greenhouses in outdoor learning. The qualitative data provided some explanation for this. Two teachers specifically referenced the agriculture teacher not allowing other teachers to use the greenhouse.

To help teachers incorporate outdoor learning, the majority of teachers (*n* = 108, 70.1%) stated that having available outdoor work surfaces, such as picnic tables, would increase their use of outdoor spaces (see Table 2). Available shade (*n* = 96, 62.3%) and seating (*n* = 88, 57.1%) were the next most requested, and in addition to work surfaces, shade and seating make up what is often considered an outdoor classroom. Other barriers, such as teaching materials (*n* = 88, 57.1%), lesson supplies (*n* = 79, 51.3%), and best outdoor teaching practices (*n* = 73, 47.4%), had high responses as well. Regarding funding, 24% (*n* = 37) of teachers stated they did not have funding for outdoor learning and 42.2% (*n* = 65) of teachers were unsure of funding opportunities or resources that could support outdoor learning initiatives. The highest reported funding source originated from the district/school budget (*n* = 30, 19.5%). Other sources of funding, stated by more than 10% of respondents, were from private grants (*n* = 26, 16.9%) and fundraisers (*n* = 18, 11.7%).

Using Demographic Data to Sort Quantitative Data

Over half of the high school teachers that reported having taken their students outside at least once responded that knowing what to teach was a barrier to integrating outdoor learning. Furthermore, even teachers who knew how to teach outdoors and were likely to incorporate outdoor learning still encountered barriers, such as logistics and lack of supplies. The question asking if teachers had taken students outside was sorted with the individual barriers too. Those teachers who had not taken their students outside had higher response ratings for *always a barrier* with 10 out of the 14 barriers. While the majority of reported barriers did not differ when sorted by total years teaching, those with more experience were less likely to encounter student behavior as a barrier.

Qualitative Results

Due to minimal responses and repeat answers from the quantitative section for the first qualitative question, only the responses of the other two open-ended questions were coded and used to derive themes. An intercoder was recruited to review the data to increase its reliability, which resulted in a reliability score of 96% agreement. Theme frequency was then analyzed for both barriers and strategies.

Barriers to Integrating Outdoor Learning

The first open-ended question asked about the specific barriers high school teachers encountered and had 49 responses out of the 154 total. This resulted in six emergent themes: outdoor space limitations (n = 20), lack of school support (n = 19), teaching obstacles (n = 15), safety concerns (n = 14), limited or no space (n = 13), and funding (n = 8).

The outdoor space limitations theme (n = 20) was defined as access to outdoor spaces and the design of those spaces. Fenced-off natural areas or downed trees blocking a path are

examples of access barriers, and an absence of a natural area, lack of work surfaces, or no outdoor internet access are design barriers. One teacher stated: “The students have to write on their laps and do not like this. There is no connectivity to Wi-Fi so you can’t use Chromebooks.”

The second theme, lack of school support (n = 19), was often referenced by teachers as any school staff or division that negatively affected outdoor use. Maintenance of outdoor spaces, such as maintenance staff ruining the space or allowing the space to become overgrown, was the largest portion of the theme (n = 7). Scheduling issues and direct discouragement of outdoor space use by their administration were additional factors mentioned. In addition, two teachers reported a lack of peer support, characterized by such things as one teacher monopolizing the use of the greenhouse. One teacher stated: “Teachers are expected to create and maintain spaces with no support from district/school.”

Teaching obstacles (n = 15) was the third theme that emerged. This theme represents specific barriers teachers encounter when planning to use the space or trying to teach in outdoor spaces. One teacher mentioned: “The time it takes to deviate from previous lesson plans and create one that focuses on outdoor spaces is significant, at least in light of the other duties required.” Lack of time was mentioned several times with teachers referencing their other duties or lack of time to create outdoor lessons. Additionally, teachers cited a lack of outdoor curriculum hindered them from utilizing the space. Finally, managing a class outside was another barrier with teachers stating student behavior and outdoor-related teaching methods, such as how to incorporate nature into the lesson, were a concern for them.

The fourth theme was safety concerns (n = 14) involving weather, such as lightning and hurricanes, and general safety, such as accidents, allergies, and fear of animals. Several teachers also stated a lack of appropriate clothing was a barrier because it stopped students from enjoying

lessons or was a safety concern due to the temperature. These concerns were addressed by multiple teachers with similar responses, such as: “It is difficult when students have severe allergies and when students do not have weather-appropriate clothing.”

The fifth theme, limited or no space (n = 13), was unique from the first theme, outdoor space limitations. This theme focused on whether there was a space to be used at all instead of a limitation with available space. Reasons a space might not be applicable for outdoor lessons could be campus size limitations or construction on a previous green space. For example, a large class is not able to fit in a small green patch between two buildings. One teacher stated: “We do not really have that much planted around campus. There is just one small area garden from a previous teacher.”

Funding (n = 8) was the last theme and included comments related to obtaining money and supplies for outdoor learning. One teacher commented: “Every year we have trouble finding funds for dirt for our greenhouse and outdoor raised beds.” While funding played a role in several other themes, funding had the lowest response count and may be contributed to including direct references of a lack of funding or needing supplies.

Overall, many teachers experienced a barrier to utilizing outdoor spaces with many experiencing multiple barriers. One teacher gave a great example of how many factors can limit outdoor space use: “We have somewhat limited space, construction destroyed 1/4 of our gardens. Material allocation (compost, mulch, soil, fertilizer, etc.) is difficult at best. We have limited facilities to germinate and propagate plants. I am lacking the biotech equipment and supplies to perform tasks that I would like.” While teachers shared many of their barriers, they also provided strategies they have used to overcome them.

Strategies for Integrating Outdoor Learning

The second open-ended question asked about specific strategies high school teachers implemented to help them utilize school outdoor learning spaces. Due to an error in the online survey, this particular question required a response instead of being optional, which may have led teachers to provide an answer simply to proceed with the survey. Of the 154 total responses, 86 stated "no" or N/A. Seven teachers did respond "not yet" or implied doing future research, which was counted as reliable data. There were a total of 57 entries that provided strategies, and six themes emerged from these responses: gathering support (*n = 18*), individual strategies (*n* = 11), just do it (*n* = 10), funding (*n* = 10), planning ahead (*n* = 8), and improving outdoor space (*n* = 5).

Gathering support was the largest and broadest theme (*n = 18*). Teachers recommended requesting help from school administration, peers, and volunteers. For example, peers could help develop lesson plans, set up outdoor spaces, watch over students, and so much more that would make outdoor lessons run much smoother. Additionally, forging partnerships was stated several times, which helped some teachers with both lesson development and implementation and securing funding to support outdoor learning. Student buy-in through lessons and school clubs was another beneficial strategy.

Within the teacher responses were many individual strategies that were outside the scope of previous themes, so these were grouped into the individual strategies theme (*n* = 11). Some strategies were general and may seem obvious, but it is important for teachers to keep these in mind. For example, making sure the lessons are entertaining and properly communicating with students can make outdoor lessons more impactful and beneficial. Others recommended starting out with short exposure lessons along with a growth mindset to help students adapt to a new

learning style. Using online materials or inside instruction can be a great way to give instruction in a familiar environment before going outside. When considering the importance of outdoor lessons, making sure to highlight the purpose with a strong message can help the administration and peers understand why outdoor lessons are necessary.

The third theme was "just do it" (n = 10). Teachers recognize that getting outdoors is not always easy, and sometimes being flexible or spontaneous is needed to get students outside. For those new to outdoor learning, just getting out and trying a lesson is the trick because sometimes the hardest part is getting started. The next theme, funding (n = 10), included finding ways to get financial support for outdoor classroom space or supplies for outdoor lessons. For teachers who were not able to find funding through their school, multiple teachers recommended applying for grants and setting up fundraisers to acquire funding.

The fifth theme that emerged was planning ahead (n = 8). Planning a program before trying to implement it can help overcome some of the aforementioned barriers. Taking appropriate steps ahead of time can make outside transition and lessons much easier. Suggested steps included creating interactive goals, reminding students the day before to wear appropriate clothes, and going over procedures inside before heading outdoors. Lastly, improving outdoor space (n = 5) emerged as a theme. It involved keeping up with the maintenance of the space, whether through maintenance staff or student maintenance, and making the space accessible. Other ways to improve the space would be setting up a garden, increasing plant landscape (e.g., planting trees, flower gardens), or clearing out a spot for students to sit.

Using Demographic and Quantitative Barrier Data to Sort Qualitative Themes

Demographic and barrier data were used to sort qualitative themes. This was done by using SPSS crosstabs for the six qualitative themes crossed with individual demographic or barrier questions. For demographics, the number of years teaching and the state they taught in were used to sort qualitative themes. For example, of the 19 teachers who indicated a lack of school support, 11 were more experienced (≥16 years). In the safety concerns theme, 12 of the 14 teacher responses were from more experienced teachers. On the other hand, of the 8 teachers who responded lack of funding was a barrier, 6 of them were less experienced (≤15 years).

The response rate for the eight states varied widely (n = 2-20). There were seven survey respondents from Georgia (see Table 3). Of the eight teachers who indicated funding was a barrier, three were from Georgia. Florida had 18 responses, and out of the 20 responses from the outdoor space limitation theme, six were from Florida. Additionally, there were 14 safety concern responses, and seven of them were from Florida. Florida having the densest population within the southeast may play a factor in the higher responses in outdoor space limitation and safety concerns in outdoor spaces. Lack of school support had 19 total responses, and of those, five were from North Carolina, four from South Carolina, and four from Kentucky. Teaching obstacles had 15 responses with five from North Carolina and four from Kentucky.

In addition to using demographic data to sort quantitative data, barriers from the quantitative section were also used to sort the qualitative responses. Overall, the quantitative data supported the qualitative data very well. For example, 19 teachers reported the theme of lack of school support, and 14 of them also indicated that *logistics* was a barrier on the quantitative portion of the survey. Similarly, 15 teachers reported the theme teaching obstacles and 12 of them indicated *logistics* too (see Table 4). Of the 20 teachers who reported an outdoor space limitations theme, 18 of them also labeled *accessibility* as a barrier in the quantitative section.

The theme lack of school support was similar with 14 of the 19 total responses labeling *accessibility* as a barrier. However, of the 8 teachers indicating the theme funding was a barrier, only 2 of them marked *accessibility* as a barrier (see Table 5). The theme limited or no space had 14 respondents, with 11 of them indicated that *student behavior* was a barrier in the quantitative section. The safety concerns theme had 14 total respondents with 11 stating *student behavior* as a barrier (see Table 6). The lack of school support theme had 19 total responses with 12 respondents indicating *what to teach* as a barrier. Only 8 out of the 15 total respondents from the teaching obstacles theme chose *what to teach* as a barrier (see Table 7). The quantitative barrier *how to teach* had a similar ratio to these two themes. Of the 14 responses in the safety concern theme, 10 of them stated *safety* was a barrier. The lack of school support theme included only seven out of 19 total respondents that indicated *safety* was a barrier (see Table 8).

Finally, teachers who responded that they would *very likely* or *probably* integrate outdoor learning provided 79% of the barriers listed in the qualitative question. In other words, the majority of teachers who explained their barriers were ones who were most interested in using outdoor learning spaces. In regards to why certain barriers had more or less responses, it was hard to draw conclusions on any specific causes. Overall, results identified multiple barriers to outdoor learning along with some specific strategies for managing or overcoming them.

Discussion

Through the use of a mixed method survey, 154 high school teachers identified barriers they have faced and provided strategies they have used to combat them. Outdoor learning spaces provide many benefits to student learning and emotional and physical health (Oberle et al., 2021). A majority of the teachers indicated they had taken their students outside at least once, so it could be assumed that many teachers understood the benefits of outdoor lessons. However,

many teachers in this study did not use outdoor spaces often in the past two years prior to this study. While COVID would have played a factor in this, it could also be argued that COVID-related protocols would have helped push teachers to use outdoor spaces more. Regardless of the reason, it is true these spaces were not being utilized often, and many of the respondents provided some of the barriers they have experienced.

Barriers to Integrating Outdoor Learning

Logistics (e.g., time management, distance, clean up) was the highest reported barrier. One potential reason for this is because of the amount of preparatory work and support a teacher needs to do before implementing an outdoor lesson. Teachers have many required duties and adding a whole new pedagogy to learn can be very time consuming, which is also commonly seen in both elementary and middle school studies (Dring et al., 2020; Skage & Dyrstad, 2019). Lack of school support was another major theme and included responses mentioning lack of maintenance support, scheduling issues, discouragement from outdoor learning, and lack of peer support. Maintenance of the outdoor space was a key issue in the qualitative responses. Having a safe and well-maintained area was a requirement for many teachers to utilize outdoor space, and what was in that space also influenced how much it is used for outdoor learning (Van Dijk-Wesselius et al., 2020). The results from this study indicate that obvious outdoor spaces, such as a trail or outdoor classroom, were much more likely to be used by teachers. This was similar to Harvey et al.'s (2020) study where the highest reported green spaces at schools were trees, planted areas, and dedicated garden spaces.

Another school support related barrier that was mentioned was lack of administration support. However, this was not a major barrier for the teachers in this study unlike previous studies which focused on elementary and middle school teachers (Dring et al., 2020; Oberle et

al., 2021). Similarly, parental concern was not as common of a barrier in this high school teacher sample as it was shown to be in lower grade levels (Oberle et al., 2021). Van Dijk-Wesselius et al. (2020) found peer support to be a common barrier in lower grade levels, but peer support was the least-stated barrier in this study's quantitative portion. Due to limited information in the current study, it was hard to make conclusions on why administration and peer support were not common barriers in high schools. The only mention of peer support being a barrier in the open-ended responses was in reference to the agriculture teacher not allowing other teachers to use the greenhouses. While it is understandable that agriculture teachers do not want greenhouses used improperly, this issue adds to the lack of outdoor space which was a commonly stated barrier in this study. Teachers with already limited options for outdoor space would find it difficult to get started with outdoor learning.

Lack of supplies was the second highest barrier indicated, with over 50% of teachers in this study requesting outdoor teaching materials and lesson supplies. Outdoor lessons can require supplies that teachers may not have access to if outdoor learning is new to the school. Additionally, if there is no funding to procure supplies, teachers must think creatively to implement outdoor lessons. This has been seen in all levels of K-12 schooling (Dring et al., 2020) and is often a barrier to outdoor learning as a whole. Many teachers in this study were unsure of the funds available for outdoor lessons or classrooms, and even if an opportunity comes along, teachers have to go out of their way and increase their workload for just a chance at receiving the funding. Grants were mentioned multiple times in the qualitative responses, and while these can make a huge difference, teachers may lack the comfortability or knowledge on how to write grants.

The outdoor space itself was a common barrier in this study with many responses referencing access to the space, the design, or even the limited space available. However, the outdoor space being a barrier was not referenced as much in previous research. Mentions of this fell more into the design of spaces in elementary and middle schools (Van Dijk-Wesselius et al., 2020), so high schools may more often lack usable outdoor learning spaces. Another explanation of this may be how teachers perceive outdoor learning spaces. For example, teachers can conduct an outdoor lesson in or around a cluster of trees; however, only 34% of teachers who had a tree cluster on campus used them for outdoor learning.

While many may see outdoor learning as beneficial, there are many barriers that need to be taken into account beforehand. To help overcome these barriers, many teachers have used their own strategies in order to implement outdoor lessons.

Strategies for Integrating Outdoor Learning

Incorporating outdoor lessons can be very difficult, and doing it alone makes it even harder. Gathering support to help implement lessons is one of the first strategies a teacher should try. Peer support was the least stated barrier for high school teachers in this study. Teachers should try talking to their peers to see if anyone has done outdoor lessons before or would be willing to help promote outdoor learning (Van Dijk-Wesselius et al., 2020). Additionally, administration was the third least stated barrier. Talking with administration and emphasizing the many benefits of outdoor lessons can go a long way in getting support. Presenting previous success stories, trainings taken, and risk management strategies can go a long way in obtaining their support and possibly getting funding (Dring et al., 2020). Parental concern was the second least stated barrier, so spreading the word with student families volunteering at an after-school garden may bring in help. Partnerships can provide trainings, bring in professionals for lessons,

and even provide funding. Reaching out in your community to see what groups may be willing to offer help can greatly ease the burden on teachers.

The next highest mentioned strategy was to take the class outside even if the teacher does not feel fully ready. Van Dijk-Wesselius et al., (2020) study also found similar results recommending teachers to "just do it" and be flexible. There are many barriers that may seem insurmountable, but sometimes just taking a leap can show both teachers and students that outdoor lessons are possible and very beneficial (Fägerstam, 2013). During a nice day, spontaneously deciding to move your lesson outside can help get past any mental blocks a teacher may have when starting outdoor lessons. If teachers are still uncomfortable giving outdoor lessons, a good strategy is to experience the environment yourself (Dring et al., 2020). This could be walking the school outdoor space and planning a lesson beforehand or attending a park tour and watching a guide give a program. Pre-planning ahead of time, such as going over procedures before heading outside, practicing a lesson plan with a peer, or planning a specific time to go outdoors, can go a long way in making outdoor lessons feasible and practical (Largo-White et al., 2020).

Limitations

This research had several limitations. The survey distribution may have been focused on more environmentally-oriented respondents and thus may have reached audiences that do not place value on using outdoor spaces. The questions used in this study were located toward the end of the larger SEEA landscape analysis survey, and some respondents may have been fatigued and ready to finish the survey. Additionally, there were a few questions that did not work as intended. First, there were many "no" responses in the strategy qualitative question, and this data could not be fully utilized due to the optional question being required. It was unclear

whether or not respondents were saying they did not have strategies or if they were just saying "no" to move on. Second, the first qualitative question was meant to provide additional barrier information, but respondents mainly reiterated previously stated barrier or left the question blank. Finally, the second qualitative question asked respondents about barrier frequency, but only two respondents addressed how often barriers occurred.

Recommendations for Future Practice

The strategies identified in this study are a great resource to help guide teachers in getting past barriers, and there are plenty of other methods to use. The following list is a set of major ideas teachers and/or administrators should consider if they want to implement more outdoor lessons.

- Space: Have available seating, shade, and something to write on so students can learn without being uncomfortable.
- Funding: Check school and foundation budgets, look for outside sources such as grants and partnering with other agencies, and fundraise if other sources are unavailable.
- Teaching: Teachers who are new to outdoor learning can attend an outdoor program, either from another teacher or nature center, before implementing their own to gain a better understanding and comfortability with outdoor spaces.
- Safety: Check spaces beforehand for any potential hazards, though be aware that the outdoors is not always predictable and injuries may occur. However, doing safety checks before students go to the space can greatly decrease these injuries from occurring.

Recommendations for Future Research

As this study focused on identifying barriers, there is research that can be done on why teachers are facing some of these barriers. Many teachers responded with *sometimes a barrier* in the quantitative section, so more research on how often they are experiencing a barrier or the causes behind the barrier would be very beneficial. Research into the demographics in relation to barriers could also provide more insight into what kind of teachers are more likely to experience different barriers. Additionally, learning more about a teacher's attitude toward using outdoor spaces could expand on personal barriers, such as lack of desire or not seeing the purpose of getting outside. Last, interviewing high school teachers and asking about barriers would provide more depth than this exploratory study.

Conclusion

There is immense value in taking students outside and learning outdoors. Using school spaces can be much more feasible for teachers to get students outside, so finding ways to smooth this process will help teachers use these spaces. An important note for teachers wanting to start using outdoor spaces is to understand the importance of outdoor learning and develop their own outdoor learning values (Dring et al., 2020). With very little literature focusing on high school teachers, this research helps add to our understanding of barriers that some high school teachers face when utilizing school outdoor learning spaces.

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Tables

Table 1

List of barriers and high school teacher responses.

Barriers	Always a barrier (%)	Sometimes a barrier (%)	Never a barrier (%)
Logistics	32.5	43.5	24
Lack of supplies	30.5	44.8	24.7
Lack of outdoor spaces	31.2	37	31.8
Technology/connection	22.1	46.1	31.8
Student behavior	17.5	50	32.5
Maintenance	16.9	46.8	36.4
Accessible spaces	24.7	35.1	40.3
Knowing what to teach	12.3	43.5	44.2
Knowing how to teach	12.3	40.3	47.4
Safety	13.6	36.4	50
Standards	12.3	35.1	52.6
Administration	8.4	31.8	59.7
Parental support	7.8	25.3	66.9
Peer support	7.1	22.1	70.8

Table 2

Features and resources that would help high school teachers incorporate outdoor learning into their instruction.

Features & Resources	Desired (%)
Available work surfaces	70.1
Available shade	62.3
Available seating	57.1
Teaching materials	57.1
Lesson supplies	51.3
Best practices for teaching outdoors	47.4
Professional development	44.2
Raised beds or gardens	40.3
Examples and success stories	39.6
Available green space	38.3
Community/Citizen Science local/global partnerships	37.0
Maintenance support from community partners	30.5
Staffing or volunteer support	20.1

Table 3

Qualitative themes by state.

State	Funding	Lack of school support	Limited or no space	Outdoor space limitations	Safety concerns	Teaching obstacles	Total
Mississippi		1		1			2
Tennessee		1		2		2	5
Georgia	3	1	1	1		1	7
Alabama	2	1	2	1	2	1	9
Kentucky	1	4	2	4	1	2	14
South Carolina		4	1	4	1	4	14
Florida		2	3	6	7		18
North Carolina	2	5	4	1	3	5	20

Table 4

Qualitative themes by the logistics barrier.

Logistics	Funding	Lack of school support	Limited or no space	Outdoor space limitations	Safety concerns	Teaching obstacles	Total
Not a barrier	4	5	4	9	3	3	28
Sometimes a barrier	3	8	4	5	7	5	32
Always a barrier	1	6	5	6	4	7	29

Table 5

Qualitative themes by the accessibility barrier.

Accessibility	Funding	Lack of school support	Limited or no space	Outdoor space limitations	Safety concerns	Teaching obstacles	Total
Not a barrier	6	5	4	2	5	7	29
Sometimes a barrier	2	9	3	11	7	6	38
Always a barrier		5	6	7	2	2	22

Table 6

Qualitative themes by the student behavior barrier.

Student Behavior	Funding	Lack of school support	Limited or no space	Outdoor space limitations	Safety concerns	Teaching obstacles	Total
Not a barrier	5	10	2	9	3	5	34
Sometimes a barrier	2	6	7	7	10	6	38
Always a barrier	1	3	4	4	1	4	17

Table 7

Qualitative themes by the what to teach barrier.

What to teach	Funding	Lack of school support	Limited or no space	Outdoor space limitations	Safety concerns	Teaching obstacles	Total
Not a barrier	4	7	6	9	10	7	43
Sometimes a barrier	3	11	7	11	4	8	44
Always a barrier	1	1					2

Table 8

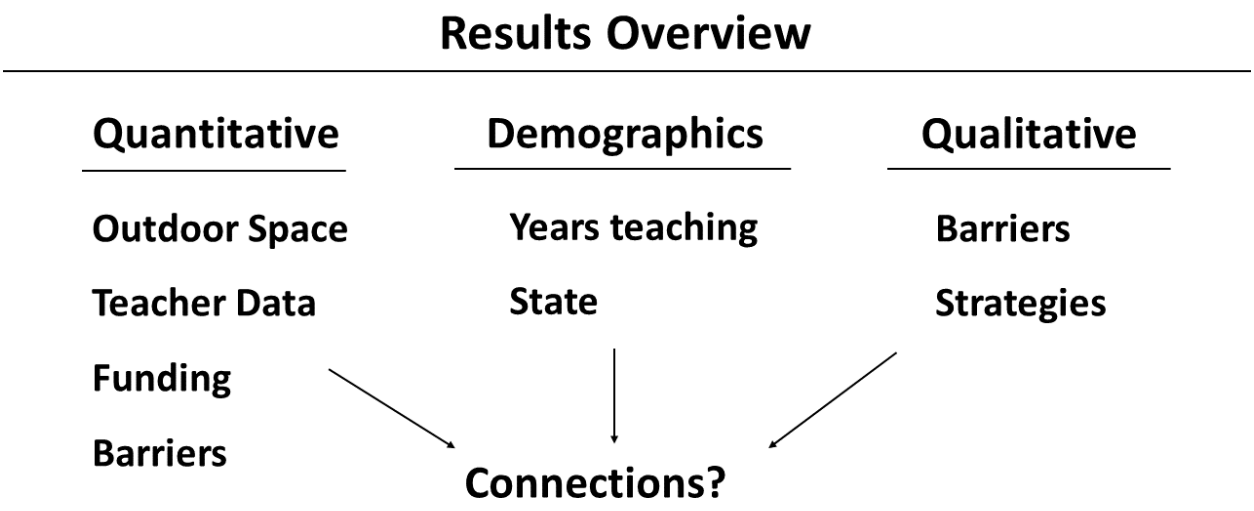
Qualitative themes by the safety barrier.

Safety	Funding	Lack of school support	Limited or no space	Outdoor space limitations	Safety concerns	Teaching obstacles	Total
Not a barrier	5	12	6	9	4	6	42
Sometimes a barrier	3	5	2	8	8	6	32
Always a barrier		2	5	3	2	3	15

Figures

Figure 1

Results Overview



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Southeastern Environmental Education Alliance: Environmental Education in Schools Survey - 2022

Thank you for taking part in this landscape analysis of environmental education efforts in the southeast. This analysis will take a comprehensive look at the scope of environmental education opportunities in schools. By better understanding the important work being done in the southeast, we can identify gaps and barriers to access, as well as opportunities for schools to partner with service providers to advance our collective efforts toward environmental literacy. By participating in this survey, you are agreeing to have your information listed as part of a state and regional landscape of environmental education in schools across the southeast.

Estimated time to complete: 20 minutes

By participating, you will be entered into a drawing for 1 of 120 $25 gift cards to the Outdoor Learning Store.

* Required

1. First and Last Name *

2. Email *

3. Title
   Optional

4. School Name *

5. School System/District *

_____

6. Type of School *

Mark only one oval.

- ◯ Public
- ◯ Private
- ◯ Charter
- ◯ Other: _____

7. Grades levels at your school *

Select all that apply.

Check all that apply.

- ☐ Pre K
- ☐ K
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12

8. School Address *

Street address (e.g., 14500 Real Drive)

_____

13. What is your primary role? *

Mark only one oval.

- ◯ Teacher *Skip to question 14*
- ◯ Administrator (school or district leadership, teacher-support positions) *Skip to question 37*
- ◯ Other: _____

Teachers

14. Years you have been teaching *

Mark only one oval.

- ◯ 0-3
- ◯ 4-10
- ◯ 11-15
- ◯ 16-20
- ◯ 21+

15. Average number of students you teach per year. *

_____

16. Grade level(s) you teach. *

Select all that apply.

Check all that apply.

- [ ] Pre K
- [ ] K
- [ ] 1
- [ ] 2
- [ ] 3
- [ ] 4
- [ ] 5
- [ ] 6
- [ ] 7
- [ ] 8
- [ ] 9
- [ ] 10
- [ ] 11
- [ ] 12

17. What discipline or content areas do you teach? *

Select all that apply.

Check all that apply.

- [ ] English/Language Arts
- [ ] Practical Living
- [ ] Health/PE (Physical Education)
- [ ] Math
- [ ] Technology
- [ ] Social Studies
- [ ] Science
- [ ] Art/Music/Dance
- [ ] Special Education or Intervention
- [ ] School Library Media
- [ ] Agriculture
- [ ] Business
- [ ] Other: _____

18. Name of School Administrator. *

An administrator is defined as those serving in school or district leadership positions or teacher-support positions.

_____

19. Number of students enrolled in your school.

Optional

_____

20. Is your school a **Title I school**? *

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Not sure

21. What percent of students in your school receive free or reduced lunch?

Optional

_____

22. Do you teach about climate science in your classroom? *

Mark only one oval.

- ◯ Yes, as outlined in my state's standards
- ◯ Yes, I regularly incorporate this above and beyond what is outlined in my state's standards
- ◯ No, it is in the standards but I do not teach this
- ◯ No, because it is not in the standards
- ◯ Other: _____

23. How much time do you spend teaching about climate science per year?

Optional. Please answer in number of hours (e.g., 12).

_____

Skip to question 24

Outdoor Learning Spaces (Teacher Questions)

The following questions cover **outdoor learning spaces** at your school. An **outdoor learning space** is any outdoor area that is or can be used to teach outdoors at your school.

These spaces could be formal outdoor classrooms, improved outdoor facilities, or simply natural spaces.

Thinking back **over the past two years**, please respond to the following questions under the context of **what actually happened, NOT what you would have done**.

24. Have you ever taken students outside to learn on your school campus? *

This could be as simple as transitioning your classroom instruction to an outdoor setting OR actively incorporating the outdoors (garden, trees, soil, stream) into your instruction.

Mark only one oval.

- ◯ Yes
- ◯ No

25. If so, how often in the past 2 years? *

Mark only one oval.

- ◯ Never
- ◯ Rarely (a few times a year)
- ◯ Sometimes (once or twice a month)
- ◯ Often (once or twice a week)
- ◯ All the time (almost daily)

26. Did the COVID-19 pandemic play a significant role in the number of times you held class outdoors? *

Mark only one oval.

- ◯ Yes
- ◯ No

27. If so, do you plan to continue teaching outdoors as COVID-19 policies change?

Mark only one oval.

- ◯ Yes
- ◯ No

28. Of the students you teach each year, what percent do you take outside? *

Mark only one oval.

- ◯ 0-25%
- ◯ 25-50%
- ◯ 50-75%
- ◯ 75-100%

29. How likely are you to integrate outdoor learning into your instruction? *

Mark only one oval.

- ◯ Not likely; it is difficult to incorporate outdoor learning into my instruction.
- ◯ Possibly, but I would prefer professional development to help me get started.
- ◯ Maybe; I have some experience or interest in outdoor learning, but need infrastructure or pedagogical support.
- ◯ Probably; I have experienced some success in outdoor learning, but need additional infrastructure or pedagogical support.
- ◯ Very likely; I already robustly incorporate outdoor learning into my instruction.
- ◯ Other: _____

30. Which of the following features and resources would help you incorporate (or increase) outdoor learning into your instruction? *

Select all that apply.

Check all that apply.

- [ ] Available green space
- [ ] Available seating
- [ ] Available shade
- [ ] Available work surfaces or tables
- [ ] Raised beds or gardens
- [ ] Teaching materials
- [ ] Maintenance support (weeding, mulching, etc.) from community partners
- [ ] Professional development
- [ ] Best practices for teaching outdoors
- [ ] Lesson supplies
- [ ] Examples and success stories
- [ ] Staffing or volunteer support
- [ ] Community/Citizen Science local and/or global partnerships
- [ ] Other: _____

Field Trips

The following definition will assist in answering the next set of survey questions. **Environmental education** (EE) is a process that helps individuals, communities, and organizations learn more about the environment, and develop skills and understanding about how to address global challenges.

31. Do you currently take your class on any field trips focused on environmental education or on learning outdoors? *

Mark only one oval.

- ◯ Yes
- ◯ No

32. (*If applicable*) When you take a field trip focused on environmental education or on learning outdoors, how much time do your students spend in organized experiences at the field trip site? *

Select all that apply.

Check all that apply.

- [ ] 30 minutes or less
- [ ] 31-60 minutes
- [ ] 61-90 minutes
- [ ] 90-120 minutes
- [ ] Full-day
- [ ] Multi-day, daytime only
- [ ] Multi-day, including night/evenings
- [ ] We do not do this

33. (*If applicable*) When you take an environmental education field trip, what would be the ideal length of time for your students to take part in an organized experience? *

Check all that apply.

- [ ] 30 minutes or less
- [ ] 31-60 minutes
- [ ] 61-90 minutes
- [ ] 90-120 minutes
- [ ] Full-day
- [ ] Multi-day, daytime only
- [ ] Multi-day, including night/evenings
- [ ] We are not interested in this

34. (*If applicable*) When taking your students on field trips, what is your priority? *

Mark only one oval per row.

	0 - Not important at all	1 - Low importance	2 - Slightly important	3 - Neutral	4 - Moderately important	5 - Very important	6 - Extremely important
Getting students out of classroom							
Learning something not taught in class							
Doing something fun and enjoyable							
Hearing from experts							
Experiencing standards-based programming led by another educator							
Visiting natural resources/spaces (e.g. creek or woodland) not available on campus							
Providing students with hands-on experience related to the subject matter							
Exposure to career opportunities							
Opportunity to plan and carry out project-based learning							

35. What limiting factors affect your ability to lead outdoor field trips? *

Select all that apply.

Check all that apply.

- [ ] Transportation costs
- [ ] Site fees
- [ ] Availability of chaperones
- [ ] Availability of transportation
- [ ] Student behavior
- [ ] Time
- [ ] Relevance to Academic Standards
- [ ] Other: _____

36. What types of professional support do you receive toward implementing environmental education and outdoor learning? *

Select all that apply.

Check all that apply.

- [ ] Administrative support to incorporate environmental education
- [ ] Administrative support to regularly take my students outside on campus
- [ ] Administrative support to take my students off campus
- [ ] Peer mentor or coach
- [ ] School- or district-scheduled environmental education professional development/learning
- [ ] School or district support to pursue environmental education professional development/learning on my own
- [ ] Other: _____

Skip to question 57

Administrators

An administrator is defined as those serving in school or district leadership positions or teacher-support positions.

37. Years you have been an administrator *

An administrator is defined as those serving in school or district leadership positions or teacher-support positions.

Mark only one oval.

- 0-3
- 4-10
- 11-15
- 16-20
- 21+

38. Number of students enrolled in your school *

39. Number of teachers employed at your school *

40. Is your school a Title I school? *

Mark only one oval.

- Yes
- No

41. What percent of students in your school receive free or reduced lunch? *

Skip to question 42

Outdoor Learning Spaces (Administrator Questions)

The following questions cover **outdoor learning spaces** at your school. An **outdoor learning space** is any outdoor area that is or can be used to teach outdoors at your school.

These spaces could be formal outdoor classrooms, improved outdoor facilities, or simply natural spaces.

Thinking back **over the past two years**, please respond to the following questions under the context of **what actually happened, NOT what you would have done**.

42. Do teachers at your school take students outside to learn on your campus? This could be as simple as transitioning classroom instruction to an outdoor setting OR actively incorporating outdoors (garden, trees, soil, streams) into instruction. *

Mark only one oval.

- ◯ Yes
- ◯ No

43. If so, how often (on average) in the past 2 years do teachers at your school typically take students outdoors for instructions? *

Mark only one oval.

- ◯ Never
- ◯ Rarely (a few times a year)
- ◯ Sometimes (once or twice a month)
- ◯ Often (once or twice a week)
- ◯ All the time (almost daily)
- ◯ I don't know

44. What kinds of professional support do you provide for teachers to support environmental education and outdoor learning? *

Select all that apply.

Check all that apply.

- [ ] Administrative support to incorporate environmental education
- [ ] Administrative support to regularly take their students outside on campus
- [ ] Peer mentor or coach
- [ ] School- or district-scheduled environmental education professional development/learning
- [ ] School or district support to pursue environmental education professional development/learning on my own
- [ ] Other: _____

Skip to question 45

Ethnicity/Race of Teachers (%)

Answer with percentages of total teacher population. If you are unsure, please leave this section blank.

45. White, not Hispanic or Latino - Teachers (%)

_____

46. Hispanic or Latino - Teachers (%)

_____

47. Black or African American - Teachers (%)

_____

48. American Indian or Alaskan Native - Teachers (%)

_____

49. Asian - Teachers (%)

_____

50. Native Hawaiian and Other Pacific Islander - Teachers (%)

_____

Skip to question 51

Ethnicity/Race of Students (%)

Answer with percentages of total student population. If you are unsure, please leave this section blank.

51. White, not Hispanic or Latino - Students (%)

_____

52. Hispanic or Latino - Students (%)

_____

53. Black or African American - Students (%)

_____

54. American Indian or Alaskan Native - Students (%)

_____

55. Asian - Students (%)

_____

56. Native Hawaiian and Other Pacific Islander - Students (%)

_____

Skip to question 57

Professional Development and Learning

57. What professional development/learning have you participated in about outdoor education or environmental education? *

Select all that apply.

Check all that apply.

- [ ] Undergraduate course(s) or training
- [ ] Graduate course(s) or training
- [ ] District professional development
- [ ] University-led professional development
- [ ] Industry-led professional development
- [ ] State environmental education association training
- [ ] Professional organization conference workshops
- [ ] Research about outdoor learning or environmental education
- [ ] None
- [ ] Other: _____

58. Within the past 2 years, how many hours have you spent in environmental education or outdoor education professional development opportunities? *

Estimate (to the nearest whole number, e.g., 13)

_____

59. What environmental education or outdoor education professional development has been the most effective for you and why?

Optional

_____

_____

_____

_____

_____

60. What environmental education professional development related topics would you be most interested in?

Optional

Integration of Environmental Education into the Curriculum

61. Which of the following terms, if any, do you use to describe what you do with students? *

Select no more than 5 options.

Check all that apply.

- [ ] Agriculture Education
- [ ] Citizen/Community Science
- [ ] Climate Education
- [ ] Conservation Education
- [ ] Environmental Education
- [ ] Education for Sustainability
- [ ] Environmental Justice
- [ ] Environmental Literacy
- [ ] Environmental Science
- [ ] Green Schools
- [ ] Health & Wellness
- [ ] Nature-Based Learning
- [ ] Outdoor Education
- [ ] Place-Based Learning
- [ ] Social Justice
- [ ] STEM/STEAM Education
- [ ] Youth Development
- [ ] None of the above
- [ ] Other: _____

62. What phrase best completes the sentence? **Environmental education in my school is taught** * **_____.**

Check all that apply.

- [ ] as its own separate subject
- [ ] in science
- [ ] in social studies
- [ ] in reading/language arts
- [ ] in another single subject
- [ ] as an interdisciplinary, integrated theme
- [ ] outside of the curriculum
- [ ] on special occasions (such as a field trip, Earth Day celebrations)
- [ ] it is not taught at my school

63. If relevant, why do you engage your students in environmental and outdoor learning?
Optional

64. Within the past 2 years, which of the following resources, curricula, or programming (if any), has your school used or had available?

Select all that apply.

Check all that apply.

- [ ] Environmental education curricula (e.g., Project Learning Tree, Project Wet, Project Wild)
- [ ] Environmental/sustainability school club or student green team
- [ ] Off-site residential programming (e.g. an overnight, multi-day immersive field trip to a nature-focused camp, environmental study research station)
- [ ] Short-term programming off site (such as a field trip to a science museum, nature center, or park; visit to a local land trust, community gardens, etc.)
- [ ] Short-term programming at your school (e.g, an assembly or in-school visit with nonprofits)
- [ ] Long-term community-based partnership (such as a local nature center that works with your school year after year, a local land trust that partners with your school, school garden support programs)
- [ ] Environmental competitions (e.g., Envirothon)
- [ ] Federal and state government agency support (such as national forests, national parks, state parks, state-run museums, state wildlife agencies)
- [ ] Municipal support (such as a library partnership with community-based environmental learning themes, town parks and recreation departments, town forestry departments, water districts, etc.)
- [ ] Community/citizen science programs with natural science themes (such as CoCoRAHS, iNaturalist, Journey North)
- [ ] University partnerships/support (e.g, extension, 4H)
- [ ] Environmental and conservation-related career learning opportunities (such as internships, co-ops, speakers)
- [ ] Community-based environmental learning and professional development: (from your state EE association, state science teacher's association, Ag in the Classroom, etc.)
- [ ] Other: _____

65. What are the barriers to integrating environmental education into your curriculum? Please rate the following elements. *

Mark only one oval per row.

	Not a barrier	Sometimes a barrier	Always a barrier
Scheduling/Time	◯	◯	◯
Pedagogical expertise	◯	◯	◯
Connecting to community partners	◯	◯	◯
Teacher buy-in	◯	◯	◯
Administrator buy-in / District or State Department of Education Support	◯	◯	◯
Availability of curriculum	◯	◯	◯
Parental support or buy-in	◯	◯	◯
Availability of environmental education equipment or materials (science teaching tools, etc.)	◯	◯	◯
Alignment to curriculum or standards	◯	◯	◯
Alignment to community values/priorities	◯	◯	◯

66. If there are other barriers to integrating environmental education into your curriculum that were not identified above, please describe those here.

67. What methods do you use to assess the impact of outdoor and environmental education? *

Select all that apply.

Check all that apply.

- [ ] Teacher observations or informal evaluations of student behavior and engagement
- [ ] Teacher assessment of student learning outcomes
- [ ] Measurable academic gains on state or national assessments
- [ ] We do not measure this
- [ ] Other: _____

68. Do you include any of the following specific instructional strategies to make environmental education more inclusive for diverse audiences? *

Select all that apply.

Check all that apply.

- [ ] Diverse representation in speakers and content
- [ ] Incorporating indigenous knowledge into lessons
- [ ] Making outdoor learning and field trips accessible to ALL students
- [ ] Materials available in different languages
- [ ] No specific instructional strategies are used for this purpose
- [ ] Other: _____

69. What tools would be most valuable for increasing environmental education opportunities in the classroom? *

Select all that apply.

Check all that apply.

- [ ] Standards-based lessons
- [ ] Connections to green job professions
- [ ] Field trips
- [ ] Professional development/learning
- [ ] Guest educators
- [ ] Teaching materials and lesson supplies
- [ ] Best practices for teaching outdoors
- [ ] Examples and success stories from other schools
- [ ] Citizen/community science
- [ ] Information on how to seek/set up partnerships
- [ ] Other: _____

Final Section. Almost Done!!

70. Has your school been recognized or has your school formally joined a Green Schools program? *

Check all that apply.

- [ ] Yes, US Department of Education Green Ribbon School
- [ ] Yes, state green school
- [ ] Yes, other green school (LEED, NWF Eco-schools, Project Learning Tree Green School, etc)
- [ ] No
- [ ] I don't know

71. Has your school or district engaged in any of the following green school initiatives or programs? *

Select all that apply.

Check all that apply.

- [ ] Reduce water use
- [ ] Reduce energy use
- [ ] Improve air quality
- [ ] Reduce transportation emissions
- [ ] Address safe chemical use
- [ ] Reduce waste (including recycling, composting)
- [ ] None of the above
- [ ] Other: _____

72. Does your school offer environmental education in any languages other than English? *

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Unsure

73. If you answered yes to the above question, which additional languages do you offer environmental education in?

Optional

_____

74. Which of the following do you have on your school campus? Which do you use in your learning?

Select all that apply. If none, then leave blank.

Check all that apply.

	On Campus	Use In Learning
Outdoor work surfaces for student learning	☐	☐
School garden(s)	☐	☐
Nature trail	☐	☐
Outdoor classroom(s)	☐	☐
Composting	☐	☐
Freshwater access (pond, river, lake, creek, stream, etc.)	☐	☐
Saltwater access (beach, shore, etc.)	☐	☐
Weather station	☐	☐
Playground	☐	☐
Clusters of trees (arboretum)	☐	☐
Forest or woodland	☐	☐
Greenhouse	☐	☐
Other spaces, amenities, or improvements (specify)	☐	☐

75. What are your barriers to outdoor learning? Please rate the following elements of teaching in outdoor learning spaces on your campus. *

Mark only one oval per row.

	Not a barrier	Sometimes a barrier	Significant barrier
Logistics (scheduling, time, distance, staging and clean up)			
Knowing what to teach outdoors			
Knowing how to teach outdoors			
Spaces are not accessible to all students			
Safety (animal/plant safety concerns, street crossings, weather, etc.)			
Student behavior			
Lack of outdoor learning spaces, amenities, or improvements (as described in previous question)			
Lack of outdoor learning supplies (clothing, books, tools, etc.)			
Technology/connectivity (wifi, electrical outlets, internet-devices, etc.)			
Alignment to standards			
Administration support			

Peer support			
Parental support			
Maintenance of outdoor spaces			

76. If there are other barriers to outdoor learning that were not identified above, please describe those here.

Optional

77. Please describe specific examples of how barriers have limited your use of the school outdoor learning space and how often have you encountered them (e.g. every program, seasonally)?

Optional

78. Have you discovered any successful strategies to minimize or overcome the barriers you noted above? Please explain. *

Optional

79. (*If applicable*) How does your school fund environmental education and outdoor learning programs and spaces? *

Select all that apply.

Check all that apply.

- [ ] Federal COVID relief funds
- [ ] Federal education funds
- [ ] Other federal funds or grants (EPA, NOAA)
- [ ] State government funds
- [ ] Private grants
- [ ] Partner funding
- [ ] Business support
- [ ] District/school foundation
- [ ] District/school budget
- [ ] Fundraisers
- [ ] In-kind donations
- [ ] Individual contributions
- [ ] We do not have funding for this
- [ ] I am unsure
- [ ] Other: _____

80. When are outdoor learning spaces being used at your school? *

Select all that apply.

Check all that apply.

- [ ] During the school day
- [ ] After school
- [ ] Summer
- [ ] Weekends/breaks
- [ ] Unsure
- [ ] Not at all
- [ ] Other: _____

81. Would you like to join your state's environmental education LISTSERV?

You can opt out at anytime!

Mark only one oval.

- Yes
- No

10. State *

Mark only one oval.

- ◯ Alabama
- ◯ Florida
- ◯ Georgia
- ◯ Kentucky
- ◯ Mississippi
- ◯ North Carolina
- ◯ South Carolina
- ◯ Tennessee

12. Does your school have requirements for incorporating outdoor and environmental learning? *
For example, in a school improvement plan.

Mark only one oval.

- ◯ Yes
- ◯ No

14. Years you have been teaching *

Mark only one oval.

- ◯ 0-3
- ◯ 4-10
- ◯ 11-15
- ◯ 16-20
- ◯ 21+

16. Grade level(s) you teach. *

Select all that apply.

Check all that apply.

- [ ] Pre K
- [ ] K
- [ ] 1
- [ ] 2
- [ ] 3
- [ ] 4
- [ ] 5
- [ ] 6
- [ ] 7
- [ ] 8
- [ ] 9
- [ ] 10
- [ ] 11
- [ ] 12

17. What discipline or content areas do you teach? *

Select all that apply.

Check all that apply.

- [ ] English/Language Arts
- [ ] Practical Living
- [ ] Health/PE (Physical Education)
- [ ] Math
- [ ] Technology
- [ ] Social Studies
- [ ] Science
- [ ] Art/Music/Dance
- [ ] Special Education or Intervention
- [ ] School Library Media
- [ ] Agriculture
- [ ] Business
- [ ] Other: _____

24. Have you ever taken students outside to learn on your school campus? *

This could be as simple as transitioning your classroom instruction to an outdoor setting OR actively incorporating the outdoors (garden, trees, soil, stream) into your instruction.

Mark only one oval.

- ◯ Yes
- ◯ No

25. If so, how often in the past 2 years? *

Mark only one oval.

- ◯ Never
- ◯ Rarely (a few times a year)
- ◯ Sometimes (once or twice a month)
- ◯ Often (once or twice a week)
- ◯ All the time (almost daily)

29. How likely are you to integrate outdoor learning into your instruction? *

Mark only one oval.

- ◯ Not likely; it is difficult to incorporate outdoor learning into my instruction.
- ◯ Possibly, but I would prefer professional development to help me get started.
- ◯ Maybe; I have some experience or interest in outdoor learning, but need infrastructure or pedagogical support.
- ◯ Probably; I have experienced some success in outdoor learning, but need additional infrastructure or pedagogical support.
- ◯ Very likely; I already robustly incorporate outdoor learning into my instruction.
- ◯ Other: _____

*

30. Which of the following features and resources would help you incorporate (or increase) outdoor learning into your instruction?

Select all that apply.

Check all that apply.

- [ ] Available green space
- [ ] Available seating
- [ ] Available shade
- [ ] Available work surfaces or tables
- [ ] Raised beds or gardens
- [ ] Teaching materials
- [ ] Maintenance support (weeding, mulching, etc.) from community partners
- [ ] Professional development
- [ ] Best practices for teaching outdoors
- [ ] Lesson supplies
- [ ] Examples and success stories
- [ ] Staffing or volunteer support
- [ ] Community/Citizen Science local and/or global partnerships
- [ ] Other: _____

74. Which of the following do you have on your school campus? Which do you use in your learning?

Select all that apply. If none, then leave blank.

Check all that apply.

	On Campus	Use In Learning
Outdoor work surfaces for student learning	☐	☐
School garden(s)	☐	☐
Nature trail	☐	☐
Outdoor classroom(s)	☐	☐
Composting	☐	☐
Freshwater access (pond, river, lake, creek, stream, etc.)	☐	☐
Saltwater access (beach, shore, etc.)	☐	☐
Weather station	☐	☐
Playground	☐	☐
Clusters of trees (arboretum)	☐	☐
Forest or woodland	☐	☐
Greenhouse	☐	☐
Other spaces, amenities, or improvements (specify)	☐	☐

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Technology/connectivity (wifi, electrical outlets, internet-devices, etc.)			
Alignment to standards			
Administration support			

Peer support			
Parental support			
Maintenance of outdoor spaces			

76. If there are other barriers to outdoor learning that were not identified above, please describe those here.

Optional

77. Please describe specific examples of how barriers have limited your use of the school outdoor learning space and how often have you encountered them (e.g. every program, seasonally)?

Optional

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Optional

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