Spring 5-6-2022

Outdoor Pursuits and Outdoor Learning at Rural Maine Schools: A Positive Outlier Approach

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OUTDOOR PURSUITS AND OUTDOOR LEARNING AT RURAL MAINE SCHOOLS:

A POSITIVE OUTLIER APPROACH

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A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

(in Interdisciplinary Studies)

The Graduate School

The University of Maine

May 2022

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An Abstract of the Dissertation Presented
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This study explored the barriers and facilitators to outdoor learning and outdoor pursuits (OPs) in some of the most rural isolated K-12 schools in Maine. The purpose was to understand why some of these schools incorporate a lot of OPs and outdoor learning into their curriculum while other schools do not. Outdoor pursuits and outdoor learning in school settings are worthy of study because they provide students with opportunities to increase physical activity, benefit from time in nature, and make important connections to local culture (Lim et al., 2017; Schafft, 2016; Trembley et al., 2015).

This study employed a comparative case study design and positive outlier approach to investigate the research questions. The first phase of the study used surveys sent to physical education teachers and school administrators to assess what was being offered for outdoor learning and OPs in the sample schools and used that data to identify schools that were offering students considerable outdoor opportunities. One positive outlier (PO) school was identified during phase one data analysis. The PO school and two non-PO schools took part in the next phase of the research which included multiple interviews, a site visit, and administration of the Rural Active Living Assessment (RALA; Yousefian et al., 2010).

Qualitative data analysis of interviews and creation of case narratives for each phase two school uncovered several important themes. Incorporating outdoor learning and OP time during the regular school day and curriculum–as opposed to relegation as an “extra” activity–seemed to be an important facilitator. Additionally, providing outdoor learning and OP related professional development

opportunities for teachers, including connections to curricular requirements, was considered critical. Underlying these themes was the apparent presence of a strong school culture and culturally relevant outdoor-based curriculum at the PO school (Moosung & Louis, 2019; Hardré, 2013).

DEDICATION

To my mom, Linda Smith Dyer, who showed me what it means to climb mountains and inspired me to do so.

ACKNOWLEDGEMENTS

The first and many thanks go to my committee who supported my goals and research ideas in their infancy. The commitment to serve on an Interdisciplinary Ph.D. committee requires some extra faith in the student (before they are even technically a student), and I will be forever grateful for the support you all gave me. To Sid, thank you for your encouragement, patience, and many reminders to not go down any (more) rabbit holes. *"A good dissertation is a done dissertation!"*

Many thanks to the participants in my research who shared their thoughts and experiences with me. It was not lost on me that you all took time you really did not have, during an inexpressibly challenging era in public education, to participate. I am deeply grateful.

To my secondary readers and coders: Thank you so much. I could not have done this without your assistance.

Many thanks to Doc for your steadfast support and belief in me.

Love and thanks to my family, friends, and colleagues for your encouragement during this professional and personal adventure.

And finally, endless thanks to Daniel for your never-ending support in all the many forms it came in: food to fuel me, editorial, Excel, and GIS skills, understanding of evenings and weekends filled with course work and writing, and faith in me through it all. I love you very much.

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CHAPTER 1

INTRODUCTION

The outdoors provides humans with opportunities to participate in physical activity and to benefit from the restorative power of nature (Bowler et al., 2010). For children, the outdoors is often a venue for the developmentally critical activities of play, exploration, and risk taking (Ramstetter et al., 2010). Outdoor spaces cultivate connection with and appreciation for the natural environment. In addition to increasing quality of life for residents, outdoor amenities are often important drivers of tourism and outdoor recreation economies in rural areas (Flora et al., 2016; Vail, 2010). Schools, particularly in rural areas, can be the nexus between all these facets of the outdoors. This study explored how some rural schools in Maine created connections to the outdoors, and what barriers and facilitators they experienced in those efforts.

Connections Between Schools and Time Outdoors

The state of Maine has a long history of allowing a significant amount of local control over how schools are operated (Herlan, 2021). The state Department of Education (DOE) mandates that Maine schools provide physical education (PE) instruction but does not regulate the frequency or duration of PE classes (Maine DOE, 2001). Additionally, the DOE does not have any requirements that schools provide non-PE physical activity (PA) opportunities, such as recess (Maine DOE, 2021; SHAPE America, 2016). Lastly, there are no state requirements regarding how much time students should spend outdoors during the school day (Maine DOE, 2001). As such, there is the potential for wide variation of in-school PA and outdoor opportunities across districts, schools, and even among individual classrooms within the same school.

Why the Outdoors Matters

Time spent in natural outdoor settings (i.e., areas that feature minimal manufactured or manicured spaces; playgrounds and ball fields are not considered “natural”) is crucial for the mental,

physical, and emotional well-being of children and adolescents (Roberts et al., 2020; Trembley et al., 2015). Additionally, research has demonstrated that time spent outdoors has particular benefits for children including increased moderate and vigorous physical activity levels, greater attention levels and lowered negative emotions, and improved learning transfer and academic performance (Becker et al., 2017; Bowler et al., 2010).

The majority of children in the United States do not get enough PA (Subcommittee on President's Council, 2012). One of the most fundamental benefits of outdoor time is that children tend to move more and move more vigorously outdoors (Gray et al., 2015). The U.S. Office of Disease Prevention and Health Promotion recommends that children and adolescents get at least 60 minutes per day of PA, but more than half of children and 92% of adolescents do not meet this recommendation (Troiano et al., 2008). Children who spend more time outdoors tend to have higher rates of PA and lower rates of overweight and obesity (Cleland et al, 2008). In addition to higher PA rates, a 2015 systematic review of research showed that increased outdoor activity participation is correlated with higher levels of cardiorespiratory fitness (Gray et al.).

In school settings, research has shown students have significantly higher PA levels when physical education (PE) occurs outdoors (Brusseau et al., 2015; Skala et al., 2012). These positive results were not limited to younger children. A study in Norway showed that providing certain outdoor facilities, such as sledding hills, around school buildings was correlated with higher rates of PA in high school students (Haug et al., 2010). This is an important finding because that age group typically sees drastic decreases in daily PA as compared to their younger peers (Subcommittee on President's Council, 2012).

The benefits of outdoor time are not all physical. The term *nature deficit disorder*, originally coined by Louv (2005), is used to explain the growing and concerning disconnect between children and nature. Louv's book compiled research showing that increasing time in nature contributes positively to children's creativity, emotional well-being, and connectedness to other people and the natural world

(2005). The term nature deficit disorder has stuck and research following the publication of Louv's book has continued to explore the connections between time in nature and health and well-being outcomes.

A 2010 meta-analysis of 25 studies demonstrated that exposure to natural outdoor spaces resulted in a decrease in negative emotions that was not found following exposure to indoor or non-natural spaces (Bowler et al.). A more recent literature review found generally positive affective outcomes in children following participation in nature programming (Roberts et al., 2020). Additionally, a review of research on school-based outdoor education programs showed positive academic outcomes, including greater motivation to engage in learning, improved grades, and higher reading and writing scores (Becker et al., 2017).

Research has clearly shown that most children in the United States are not physically active enough to best support their physical and mental health. Additionally, by many measures, children in the United States do not spend enough time outdoors in natural environments (Larson et al., 2019). Though increasing participation in outdoor activities alone is not a panacea to reversing the problem of insufficient PA, the benefits of such an increase could be a critical component of improving children's well-being.

Why Schools

Virtually all children in the United States have access to public K-12 education and for most of the calendar year a significant portion of their waking hours are spent in school (Lounsbery et al., 2013). Research has shown that schools are a critical access point of PA opportunities for youth (Subcommittee on President's Council, 2012). This is one of two main reasons that my research was conducted in public school settings.

The second main reason this study focused on public schools is that it employed an equity-orientation to answer the central research questions. As fundamentally accessible institutions, public schools are critical to any discussion about equitable access to services that support children's well-

being (Subcommittee on President's Council, 2012). Though private institutions, community programs, and family-level interventions can and do play an important role in meeting the needs of young people, equity in access can be one of their main constraints. Time, transportation, and fees can be barriers to participation in these out-of-school programs (Hoefer et al., 2001; Yousefian et al., 2009). Some communities have resources to support out-of-school or family-based outdoor interventions, while others do not. Schools, on the other hand, are duty-bound to provide learners with the most effective, accessible education possible.

Schools are important providers of PA opportunities to youth, and this appears to be particularly true in rural areas. Rural youth report that often their only access to PA occurs during the school day or through before- and after-school programs (Yousefian et al., 2009). Beyond their role as a place for education, rural schools often serve as centers of the community, such as being a gathering place for public events, local government meetings, and other activities that build and strengthen social ties (Schafft, 2016). Evidence from Canada suggests that physical activity interventions focused on smaller more rural schools have the potential to be the most impactful (Harvey et al., 2017).

Why Rural

The term "rural" has many different official definitions and a wide array of meanings and realities (Flora et al., 2016). Rural communities can have different histories, cultures, norms, economies, geographies, and more. There is no one type of rural, even when looking within a single state. The U.S. Census Bureau, using population density as the primary (but not only) source of data classifies places as either being urban areas, urban clusters, or rural areas (Geography Program, 2021). In Maine, 381 of the 453 incorporated towns and cities are considered rural according to the 2010 U.S. Census data (Geography Program, 2010). Another definition of rural is from the U.S. Department of Agriculture Economic Research Service, which identifies "frontier and remote" areas that are particularly isolated (2015). These rural areas exist all over the state with considerable variation: from unbridged islands to

forested towns bordering Canadian provinces to inland farming communities to coastal working harbors. Maine's rurality is a central characteristic of the state and an important aspect of the communities that were part of the sample population in my study.

In the United States, the word *rural* is often defined (both officially and culturally) as a place with few people, lots of open space, and some level of isolation (Flora et al., 2016). Because of relatively lower levels of built infrastructure, rural areas are often associated with natural resources and the natural environment. In the United States, this association stems at least partially from a long-standing obsession with the "wilderness sublime," etched in our cultural memory from popular writings, art, and other imagery that romanticized notions of isolated, "untouched" wilderness. As the industrial capitalist economy took hold on this continent, people living and working in urban areas began to seek respite in the outdoors (Richards, 2005).

The state of Maine has long been a destination for outdoor pursuit-oriented tourism (Irland, 2020); including activities such as skiing in the western mountains, hiking the Appalachian Trail, canoeing northern rivers, hunting and fishing in Maine's north woods, and more. Though outdoor physical activity has deep roots in Maine, the state is unfortunately not immune to the health challenges faced by rural America. In the United States, children in rural areas are more likely to be overweight or obese than those that live in urban areas, and despite popular perception that rural children must be more "outdoorsy," they are not significantly more active than their urban counterparts (Joens-Matre, 2008).

This apparent misperception–rural children are not as healthy, active, and outdoors as many people might tend to believe–was a central element of this study. This study sought to explore ways that rural communities themselves hold the solutions to increasing outdoor time and PA. I focused on some of the most isolated communities in Maine as the target population for this study. Communities were chosen because they had a single school that housed all grade levels from either pre-kindergarten or

kindergarten through 12th grade in the 2021-2022 school year. This meant they were some of the most rural and isolated communities in Maine that still had a population large enough for a school. They were generally too far from other communities to allow for school consolidation that would create larger but separate elementary and high schools. Schools in these very rural communities existed across the state from the northernmost county to coastal islands to the western mountains. During the 2021-2022 school year there were nine schools in Maine that were part of this population.

Statement of Focus

In this study I investigated the role of outdoor pursuits (OPs) and other forms of outdoor learning in public school settings in rural communities in Maine. I sought to identify the barriers and facilitators to providing OPs and other outdoor learning opportunities during the school day.

The term *outdoor pursuits* refers to those activities that occur in natural settings involving human movement without the use of motorized vehicles (Steffen & Stiehl, 2010). Outdoor pursuits require skills to partake in the specific activities, as well as additional skills necessary to be safe and comfortable outdoors. The type of outdoor pursuits accessible to an individual are determined in part by the geographic and climate characteristics of a region. There are a wide variety of outdoor pursuits including paddling, hiking, orienteering, skiing, snowshoeing, surfing, climbing, and mountain biking. Outdoor pursuits have been highlighted as an important component of the most recent national physical education standards from the Society for Health and Physical Educators (SHAPE America), making them a relevant component of any PE curriculum (2014). What all OPs have in common is their outdoor setting and inherent physical activity demands, which makes them worthy of study in the context of previously raised health and well-being concerns.

Though this research was primarily focused on outdoor pursuits because of the benefits of physical activity, I also considered other forms and contexts of outdoor learning, such as bringing non-PE content area classes outdoors for learning activities. For example, science classes may run field

experiments in the school garden, snowshoes may be available for use during recess, and outdoor spaces might be used for reading, writing, and art projects. In the context of the COVID-19 pandemic, outdoor learning became even more critical because of the decreased risk of infection in outdoor settings (Sharp, 2020). Though the original focus of this study was understanding outdoor physical activity opportunities, I used a broader "outdoors-inclusive" lens in order to see the complete picture of outdoor opportunities at each school.

Problem Statement

Though there is considerable research on PA in schools (Harvey et al., 2017; Skala et al., 2012), little has focused specifically on outdoor pursuits. A 2017 review of school-based outdoor learning outcomes found that research on outdoor PA was underrepresented (Becker et al.). This literature gap could be caused by issues related to generalizability (i.e., outdoor access is highly variable from school to school) or by other factors such as lack of funding. Although the potential benefits of offering OPs in schools are known, we are equally aware of many barriers to implementing these activities. Barriers include insufficient time and financial resources and access to equipment, facilities, and professional development opportunities for teachers (Oberle et al., 2021). There may be additional barriers in the form of policy limitations, concerns related to insurance and liability, and cultural or weather factors.

The gaps in research result in a lack of understanding about which schools are making OPs a priority and how they are overcoming barriers to implementation. In more than 10 years of professional experience in Maine, I have observed some schools put in a significant amount of effort to get students outside and active. Certain schools facilitate outdoor pursuits like hiking, snowshoeing, cross-country skiing, and orienteering for all students. Other schools make sure every student learns to downhill ski, paddle a canoe, and cast a fishing line. But I am keenly aware that many schools are not doing this kind of work, and thus not all Maine students are accessing the benefits of outdoor activities.

Research has shown that US children are spending less time outdoors than they used to (Larson et al., 2019; Larson, et al., 2011; Louv, 2005) even though spending more time outside would most likely confer numerous advantages (Bowler et al., 2010). We know that schools are important vehicles for providing students with resources and opportunities to be healthy for life (Yousefian et al., 2009). However, it is not well understood what barriers to outdoor activities are faced by schools and how they are or are not overcome. The purpose of this study was to explore how one "positive outlier" rural Maine schools overcame barriers to providing outdoor opportunities to their students.

Research Design

In this research project I used a modified case study design within a social justice interpretive framework using primarily qualitative methods (Creswell, 2013). The first phase of my research included surveying all nine schools in the population to assess the prevalence of outdoor pursuits (OPs) and outdoor learning. Results of the surveys determined which schools were *positive outlier* (PO) and *negative outlier* (NO) schools. Positive outlier schools provided more than typical opportunities for students to engage in OPs or outdoor learning during the school day. Negative outlier schools provided very few or no opportunities for students to engage in OPs. Schools in the middle of the spectrum that were neither POs nor NOs were considered non-PO schools. In the analysis of phase one participating schools, the median score was 23.6, while the positive outlier school had a score of 38 and the negative outlier school had a score of 13. One PO school and two non-PO schools participated in the second phase of the study.

The second phase of research involved interviews, Rural Active Living Assessment (RALA) completion, and least one site visit during a regular school day (Yousefian et al., 2010). Interviews were focused on the barriers and facilitators to incorporating OPs and other forms of outdoor learning during the school day, and were conducted with a PE teacher, at least one additional educator, and a building-level administrator. Sample questions for the interviews with PE teachers included:

What are the things in this school, or the greater community, that help you include outdoor pursuits in your PE program?

What are some of the barriers to implementing OPs that might seem "small"? I'm interested in hearing about every barrier, even if it might not sound like a big deal.

Interviews were recorded, transcribed, coded, and assessed for themes (Creswell, 2013). Field notes from the site visits included qualitative observations such as outdoor equipment availability and storage, status of outdoor facilities, and terrain, environmental, and climate features around the school. No other additional documents were requested during site visits. During data analysis, follow-up questions were sent to interview participants to clarify interview responses, if needed.

The quantitative portion of the research used two components of the RALA tool, the Town-Wide Assessment and the Program and Policy Assessment (Yousefian et al., 2010). This tool was chosen for its relevance to the topic and because of the locations in which it had been developed and tested. Importantly, this tool was *not* assessed for statistical reliability and instead researchers used expert experience and member checks to assess for feasibility. Questions in these two RALA components do not lend themselves to reliability assessments because they are focused solely on the existence or absence of specific facilities or policies. Beyond the RALA, I compiled publicly available demographic and financial information about each school. These quantitative measures were used to help describe the school and the community in which it was located.

Interdisciplinary Perspective

Schools and the communities in which they are situated are complex. School ecosystems are made up of many individuals (students, staff, teachers, parents/guardians, and volunteers) all interacting in complicated ways with each other and with the facility and physical environment. The ecosystem is further formed by the influence of policies, as well as cultural and social norms and expectations (Wattchow et al., 2014). I used theories and methods from various academic fields to

understand the complexity of school communities in relation to the research questions. Educational research methods formed the foundation in this study, but were supplemented with public health, rural sociology and economics, land use and management, and policy analysis.

CHAPTER 2

LITERATURE REVIEW

In this chapter I review the literature relevant to this study. Research related to outdoor pursuits, outdoor learning, rural schools, and children's physical activity is found in a wide range of fields: public health, education, policy, sociology, and more. Definitions of terms related to outdoor education are not agreed upon across all of these fields. Therefore, to create a thorough review of the relevant literature, I begin by discussing various definitions, terms, and disagreements. I then move on to reviews of specific topics of concern including physical activity (PA), outdoor and nature time, the role of schools, and rural-specific research. The chapter ends with a review of positive outlier methodology and discusses research gaps and discrepancies found in the extant literature.

Definitions

The term *outdoor education* (OE) has a long history and is often defined very broadly. I did not investigate all the various facets of OE in this study; the focus was on outdoor physical activities and outdoor learning. However, there are a variety of terms used in OE that need to be discussed and defined in context. Why do these terms and definitions matter? First, they are complex and contested. Some critics argue that the insistence upon using specific terms may be driven more by a desire to justify a purpose than to describe a true change in methodology (e.g., saying *outdoor education* instead of *outdoor recreation*; Brown, 2009). Second, it is critical to recognize that outdoor learning–that is *any* instructional experience that purposefully takes place outdoors–will not have predictable outcomes for the simple reason that outdoor learning itself is not well-defined. Therefore, caution must be used when reading research in the OE literature and one must not take for granted the meaning of the terms.

Outdoor education as a somewhat organized, roughly defined pedagogical approach gained prominence in the second half of the 20th century in Western countries, particularly in England, Australia, New Zealand, and across North America (Wattchow & Brown, 2011). Though not fully agreed-

upon, a general definition of outdoor education could be organized programming in nature using experiential learning theories with a goal of increasing "respect for self, others and nature" (Wattchow & Brown, 2011, p. xvii). Even this relatively simple description of OE is contested. Wattchow and Brown ask practitioners to consider, "is outdoor education a curriculum or a form of pedagogic practice, or both?" (p. xix). Not everyone in the field agrees on the answer to that question, a fact that some academics believe is problematic (Brookes, 2004). Yet, the related terminology gets even more complex.

Adventure is a term often used in conjunction with outdoor education. *Outdoor adventure education* (OAE) could be considered a type of OE that focuses on experiences with "adventure" activities, typically defined as requiring some level of physical activity and including some perception of risk. Adventure education (without the outdoors component) could exist anywhere and includes the same perception of risk, though that risk may be social and not physical in nature (e.g., through group problem-solving challenges; Brown, 2009; Steffen & Stiehl, 2010). Steffen and Stiehl believe that adventure education prioritizes affective learning outcomes over psychomotor learning outcomes, though, again, not all practitioners agree with that differentiation (2010).

The terms *outdoor pursuits* and *outdoor activities* are often used interchangeably. Both terms refer to activities taking place in an outdoor setting that require some level of physical activity. Both can be differentiated from OE and OAE in that they are not instructional approaches but are instead categories of activities. Specifically, the term outdoor pursuits is most often used in the context of physical education (PE) in the United States and is explicit in the requirement that the activity is primarily human-powered (Couturier et al., 2014; Steffen & Stiehl, 2010). In this way, cross-country skiing would be considered an outdoor pursuit while snowmobiling would not. However, some activities do not fit neatly into these definitions. Is fly fishing an outdoor pursuit? It is undoubtedly an outdoor activity, but it typically does not require a high level of PA. Is downhill skiing an outdoor pursuit? It takes place outdoors and requires PA, but it typically uses motorized transport in the form of a chairlift.

The use of *recreation* instead of *education* (i.e., *outdoor recreation*) refers to organized or unorganized activities whose primary purpose is for enjoyment, leisure, exercise, and/or socialization (Oncescu, 2015). One may participate in an organized outdoor recreation program that includes learning to cross-country ski. Still, an outdoor *education* program that includes cross-country skiing would typically have learning objectives that go beyond instructing the psychomotor skills.

As with OE, the meaning of *environmental education* (EE) varies in different settings and may include a wide variety of instructional strategies. Environmental education typically focuses on cognitive and affective outcomes related to understanding and valuing the natural environment and ecological systems (Ernst, 2012). Environmental education experiences may include outdoor pursuits or activities, for example, canoeing to explore a wetland environment. Outdoor education and EE are similar in how they can be incorporated into, or take the place of, more traditional instructional approaches. Either may be a singular experience (e.g., field trip to a nature preserve), part of a unit (e.g., four weeks of cross-country skiing in PE), or may serve as the foundation for a wholly reformed educational experience.

One final term that provides a way to connect all of these ideas together is *place-based.* Though some argue the term place-based has become overused, it still encompasses an idea that can have powerful effects on learners. Programs, curricula, and educators that embrace a place-based or place-responsive approach attempt to use the unique characteristics of a location as a central component of the learning experience, or even as a teacher itself (Wattchow & Brown, 2011). Outdoor and environmental education are not automatically place-based; it is certainly possible to be an outdoor or environmental educator and not instruct in a place-based manor. Indeed, OE is rife with examples of colonialist approaches to program development that do not bring an appropriate level of attention to the land and culture where the program is taking place (Beames & Atencio, 2008). As Wattchow and

Brown (2011) discuss in *A Pedagogy of Place*, using a place-based instructional approach harnesses the pedagogical power of relevance and is particularly compelling in outdoor settings.

Though physical activity opportunities were the primary focus of this study, they should not be considered in isolation. Take, for example, an educator who brings students on a nature hike as inspiration for a creative writing activity. The primary objective of such an experience would probably not relate to physical activity, but PA would still be involved. Even though this study primarily focused on outdoor physical activity, there are many forms of outdoor learning and it is helpful to understand how different approaches may intertwine and overlap.

Physical Activity Outdoors

Achieving sufficient levels of physical activity (PA) is essential to health and well-being. The U.S. Office of Disease Prevention and Health Promotion (USDPHP) recommends that children and adolescents get at least 60 minutes of physical activity per day. However, USDPHP's most recent Physical Activity Guidelines Midcourse Report stated that only 8% of adolescents and 42% of children in our country regularly met that goal most days of the week (2012). Physical activity is a critical component of health, leading many researchers to study which personal and environmental factors are correlated to higher levels of PA (Cleland et al., 2008; Gray et al., 2015). The built environment, school curriculum and policies, and geographic and demographic characteristics have been studied at length in relation to children's PA levels.

Time outdoors has been correlated with higher PA levels in children, through the use of various data measurement tools including self-reporting, parental reporting, direct observation, and remote observation (using accelerometers, pedometers, or GPS units; Gray et al., 2015). A 2008 study in Australia used objectively gathered PA data from accelerometers as well as parental reports of children's outdoor time and found a strong correlation between more outdoor time and greater PA

levels (Cleland et al.). A systematic review looked at possible correlates to PA and found consistent results among studies that assessed outdoor time (Gray et al., 2015):

> This review found that outdoor time is positively related to physical activity and negatively related to sedentary behaviour in children aged 3-12 years. Studies that examined habitual behaviours showed that children with higher amounts of outdoor time engaged in higher amounts of physical activity and lower amounts of sedentary behaviour than children who spend less time outdoors. Studies that examined acute behaviours showed that children were more physical active and less sedentary while they were outside than while they were inside. (p. 6467)

The fact that both habitual and acute outdoor time were associated with more physical activity in children is noteworthy. It does not appear that the children who are more physically active simply tend to be the "more outdoorsy" kids. Rather, the time outdoors seems to increase PA. Even in settings such as PE classes where PA is expected or required, children tend to move more outdoors.

A large study in Texas that used the System for Observing Fitness Instruction Time (SOFIT) tool during 211 PE classes found that children had significantly more moderate and vigorous PA in outdoor classes than indoor classes (Skala et al., 2012). That study also found other correlates to higher PA rates, including smaller class sizes and female teachers. Another US study that measured PA rates in PE classes using pedometers found that outdoor classes were more active (Brusseau et al., 2015). Perhaps less surprisingly, both studies also found that PA rates changed depending on the content of PE classes, for example skill instruction resulted in less PA and fitness activities resulted in more.

A recent review used a socioecological framework and a broad literature search in five languages to assess the current literature on correlates with children's outdoor time and outdoor play (Lee et al., 2021). This review was unique because the authors looked at studies that reported outdoor time or outdoor play in children ages 3-12, not just studies that specifically focused on outdoor PA.

Because the literature already provided such a strong correlation between outdoor time and PA, broadening the review to assess the correlates solely with outdoor time and play was warranted. As with other systematic reviews in this field, data reported in the 107 included studies was too heterogenous to allow for an accurate meta-analysis. However, there were some strong and consistent findings. Being female and/or being in a non-dominant racial/ethnic group was associated with less outdoor time and play. Additionally, colder temperatures and seasons were associated with less outdoor time and play. Being located in rural areas was consistently associated with more outdoor time and play. One of the authors' conclusions was that a lack of clear definitions and measurement tools was problematic in this field of study.

The literature shows that children who spend more time outdoors tend to be more physically active than their indoor peers and that when children are outdoors they move more than when they are indoors. However, outdoor time is not only associated with the physical activity component of wellness. Outdoor time and outdoor spaces appear to provide other advantages as well.

Additional Benefits of Time Outdoors

Numerous studies have looked for connections between time spent in natural outdoor spaces and additional (non-PA related) health or well-being benefits. A systematic review of the literature found that time spent in natural outdoor settings was correlated with some positive benefits to emotional well-being (Bowler et al., 2010). This review included 25 studies and found that evidence for a connection between time in nature and increased emotional well-being was stronger than for the evidence for other potential benefits, such as reduced physiological markers of stress. A more recent meta-analysis found consistent mental health improvements from a variety of nature-based therapies (Coventry et al., 2021). Neither of these reviews were specific to children, but they still provide a good starting point for understanding some of the variables at play.

Another recent review looked at the effects of school outdoor programming on well-being and 13 studies were found to meet review criteria (Becker et al., 2017). As has been reported in other reviews, the authors noted that the quality of studies varied significantly, restricting their ability to draw more significant conclusions. Overall, however, school-based outdoor curricula were found to result in positive academic outcomes for children, particularly improvements in grades and learning transfer. Additionally, these studies found that outdoor curricula resulted in positive social outcomes in children, especially related to the traits of "self-esteem, self-confidence…and sense of belonging" (p. 481). The authors cautioned that physical activity outcomes from in-school programming remained underrepresented in the research, though the association of positive academic results and outdoor time in natural spaces was consistent (Becker et al., 2017).

Wu et al. (2014) looked at academic performance and the amount of greenness around schools. The researchers used spatial assessment technologies to quantify the amount of green space or cover around schools and in surrounding neighborhoods, and then looked for any potential correlation to student academic performance. There were limitations to the study based on the time of year it was conducted. However, it is noteworthy that this research, which used a sample of 905 public schools in Massachusetts, found a strong correlation between higher levels of greenness and higher academic performance, even after researchers controlled for socioeconomic status. These findings suggest that there may be positive effects from time spent in more natural environments, even if the mechanism for such effects is not fully understood.

Finally, a longitudinal study of rural youth in New Hampshire found that those who took part in more outdoor activities appeared to have better developed social capital, which was related to positive outcomes in educational attainment and other markers of positive youth development (Seaman et al., 2014). The researchers found that associations between outdoor activity participation, educational outcomes, and other variables was complex but could be explained in part through the frame of social

capital. Outdoor activity participation alone could not explain the educational outcomes of students, but neither could it be dismissed:

> Our analysis indicates…that (a) family structures and processes are, as in other research, predictive of educational success, and (b) outdoor activity involvement among rural youth is one factor in an overall matrix of capital production that extends the influence of the family by leveraging community resources such as other adults who can confirm shared normative expectations. This network of social relations—of which outdoor activities are evidently a part—serves as a kind of capital that "pays off" in terms of educational expectations and success. (Seaman et al., 2014, p. 52)

This discussion about the complex relationship between outdoor activity participation and individual academic benefits was helpful in framing my study.

The potential positive effects of student outdoor time have led many schools to implement initiatives to increase time outdoors throughout the school day. Some of these initiatives have been studied by practitioners and researchers and may help provide important information on outcomes and suggest critical areas to focus future studies.

Schools and Outdoor Learning

As highlighted in the U.S. Physical Activity Guidelines Midcourse Report, schools are considered to be critical access points for interventions aimed at addressing the health and well-being of children (2012). Outdoor time and outdoor play have long been considered an essential component of early childhood education and considerable research has focused on providing outdoor learning opportunities in preschool ages. However, there has been less emphasis on school-aged outdoor learning (Edwards-Jones et al., 2018). The shift from child-led learning in early childhood education to a curriculum driven by statutory requirements and mandatory testing in elementary school has been associated with less outdoor time during the school day, and a particular reduction in free play (Waite et al., 2016).

A recognition of the importance and benefits of outdoor learning has led some schools to pursue interventions aimed at increasing school-day outdoor time. Some of these interventions have been large-scale, such as Forest Schools and the Natural Connections Demonstration Project in the United Kingdom. In contrast, others–such as the *udeskole* approach to outdoor learning in Denmark–are less of an intervention and more of a culturally embedded philosophy (Edwards-Jones et al., 2018; Waite et al., 2016). Though research in this area suffers from the challenge, as the Waite et al. title says, "comparing apples and pears," there are certain barriers and facilitators to outdoor learning that have been found consistently, even across very different cultural settings.

Barriers related to required student assessments and standardized testing were found to hinder the amount of outdoor learning opportunities in both Denmark and the UK (Waite et al., 2016). In schools that demonstrated more successful and longer-lasting outdoor learning programs, these barriers were somewhat mediated because time outdoors was not perceived as an extra that took away from requirements:

> Once LINE [learning in natural environments] becomes established as the norm, it becomes harder for it to be regarded as a passing fad and displaced by new competing directives and externally driven initiatives, and therefore more likely to become a sustainable feature of school culture. (Edwards-Jones et al., 2018, p. 52-53)

Time has often been perceived as a scarce resource that hinders efforts to pursue outdoor learning during the school day, but money and space are other resources that can be challenging (Oberle et al., 2021; Edwards-Jones et al., 2018). Research by Edwards-Jones et al. in the UK found that the more an educator faced challenges finding funding and other necessary resources, the more they were likely to lose enthusiasm for outdoor learning (2018). When examining funding for outdoor education, researchers found that, "an indicator of whether outdoor learning has become embedded within school priorities is…regular or dedicated core funding…allocated to [outdoor]-related expenditures" (p. 58).

Consistent funding that was part of a regular budget was found to be an essential facilitator to outdoor programming.

Though the two studies just reviewed were focused on outdoor learning outside of the United States, they highlight barriers and facilitators that are most likely also present in the US. This is particularly true with the barriers found in the UK, which shares many cultural and educational norms with the US, and where specific issues such as concern for liability are prevalent (Waite et al., 2016).

Another study from the UK raised important questions about whether there was equitable access to outdoor learning, even when opportunities are presented in a public-school setting. This research aimed to assess whether an outdoor learning program could improve attendance in a student population for whom consistent attendance was an ongoing problem (Price, 2015). Indeed, Price found that attendance was improved on outdoor programming days, although the study sample was very small. A secondary finding of that study was perhaps even more interesting; Price found that "people in authority often formed barriers that prevented participation in the OLP [outdoor learning program]" (p. 118). Though students were consistently more engaged on outdoor learning days and demonstrated more enthusiasm for outdoor learning than their other schoolwork, adults in power acted as gatekeepers that often directly hindered access to the OLP:

> Surprisingly, I found that the learners faced many barriers to their participation. External to the school were transport issues, home crises and withdrawal of consent by guardians. Internal barriers put up by the school included the exclusion of participants from the OLP [due to issues such as behavior] and cancellation of the OLP when participant numbers were reduced. (Price, 2015, p. 119)

This finding is striking. Even in public school settings where programming is likely to be highly accessible, students still faced barriers to participation. This study demonstrated that relying on parent/guardian permission, a practice that often reflects concerns over liability and litigation, may exclude some

students. Additionally, this study demonstrated problems with excluding or removing students from meaningful instructional opportunities due to student behavior or other challenges. Experts in child development have shown that it is best practice for recess never to be withheld from students in a punitive manner because it is so crucial to children's well-being (Ramstetter et al., 2010). Perhaps other forms of outdoor time during the school day should be held to the same standard.

Rural Areas: Specific Considerations for Physical Activity

Health disparities have consistently been found between rural residents of the United States and suburban and urban residents (Joens-Matre et al., 2008), prompting considerable research to address a critical area of wellness: physical activity (Gilbert et al., 2019; Kegler et al., 2013; Umstattd Meyer et al., 2016; Yousefian et al., 2009). Due to significant differences in demographics, economies, the built environment, and more, researchers have highlighted the need to consider specific assets and barriers to PA in rural communities and not just impose urban-centric solutions onto those areas (Umstattd Meyer et al., 2016).

Research has consistently found that rural children in the United States are more likely to suffer from health disparities than their urban counterparts (Moore et al., 2008). Harvey et al. (2017) found that students in smaller and/or more rural schools in Canada were less physically active than their peers in larger and more urban schools. Research from Iowa found slightly less consistent PA results; rural children were less active than peers from smaller metropolitan areas but more active than peers in urban areas (Joens-Matre et al., 2008). Most importantly, this study identified some key differences between geographic regions and the times of the day and week that children were more or less active. The authors used that data to provide suggestions to practitioners and researchers:

> Providing physical activity opportunities around lunchtime [recess] may be an effective strategy for increasing the physical activity of urban children, whereas increasing physical activity during

> physical education time and after school may be more important for rural children. (Joens-Matre et al., 2008, p. 53)

The importance of schools providing physical activity opportunities for rural youth was highlighted again in a qualitative study published the following year (Yousefian et al., 2009).

Yousefian et al. (2009) found that rural students relied heavily on their schools to provide physical activity opportunities during and after the school day. Transportation challenges in rural areas "increase the importance of school-based PA opportunities, as many students identified…school activities as their only option for engaging in PA" (Yousefian et al., 2009, p. 229). The importance of school-provided PA opportunities arose again in a 2016 literature review, which found school-based PA interventions were critical in rural areas (Umstattd Meyer et al.). The trend of school consolidation negatively impacted youth PA opportunities because it decreased the number of students who lived within a reasonable walking and biking distance from school (Umstattd Meyer et al., 2016).

Two main points are consistently found in the research on rural youth and physical activity. One is that rural public health issues, including those relating to children, demand rural-specific community-focused solutions. The second is that school-based physical activity interventions appear to be particularly important in rural areas where larger-scale built environment PA interventions (e.g., sidewalks or bike paths) may not be as feasible or effective.

Positive Outlier Research Methods

This study employed a comparative case study design within a *positive outlier* (sometimes called *positive deviant*) framework (Yin, 2014). Positive outlier methods are often used in public health research when the desired outcome is uncommon in a population but there appear to be some individuals or communities demonstrating the desired outcome. Those rare positive outliers demonstrate the desired behavior or outcome despite appearing to have the same barriers or disadvantages as their peers (Marsh et al., 2004). Though positive outlier methodology was first used in

public health issues such as child malnutrition, it has since been used in other areas including obesity and inactivity (Kegler et al., 2013; Sharifi et al., 2013). Positive outlier methodology involves identifying the positive outliers followed by close engagement with community members to gather information about the lived experiences of the positive outliers (Marsh et al., 2004).

Positive outlier research is unique in that it can uncover locally relevant information and solutions to public health issues that often emerge from highly complex systems:

> The central premise of [the] positive outlier approach is that solutions to problems that face a community often *already exist* within that community, and that certain members possess strategies that can be generalized and promoted to improve the outcomes of other members. (Sharifi et al, 2013, p. 194, emphasis added).

In my study, the "community" was public K-12 schools in rural areas of Maine. Using a positive outlier approach, I recognized that some schools may have already found solutions to the challenges of providing outdoor learning and activity opportunities to students, and that those solutions might be useful to other schools. This explicates a fundamental tenet of positive outlier approaches: researchers believe some communities or individuals already have identified solutions for many of their challenges, and those solutions just need to be uncovered and shared.

Positive outlier methodology "serves equity, in that it is informed by the wisdom of disadvantaged 'doers' of healthy behaviours and provides solutions accessible to those with similar socioeconomic constraints" (Marsh et al., 2004, p. 1178). This aspect of positive outlier research aligned with the equity framework of my study, which I considered to be a central component of my methodological approach.

This research would not be considered a complete positive outlier study in its full definition because it did not involve a program or initiative phase that followed the initial investigation (Marsh et al., 2004). However, not all positive outlier research goes onto the program/initiative phase. Kegler et al.

used qualitative interviews to uncover daily living and exercise practices of 29 physically active rural adults (2013). The researchers then discovered themes and provided suggestions that could be used to design interventions or provide a starting point for future research.

Research Gaps and Discrepancies

As this literature review has established, there is a considerable amount of research that touches upon all of the various aspects of my study. However, there is nothing in the literature that I am aware of that asks the exact questions I asked, nor has previous research used this same methodology for studying the same type of population.

Some research looked at rural youth and physical activity but not explicitly related to the outdoors (Kellstedt et al., 2021; Yousefian et al., 2009). Other studies looked at rural youth and outdoor activities, but not in school settings (Christiana et al., 2014; Seaman et al., 2014). Even more studies focused on school-based outdoor programming, but they were not limited to rural areas and/or they did not occur in the US (Becker et al., 2017; Edwards-Jones et al., 2018; Price, 2015; Waite et al., 2016).

One of the largest challenges in this field of research is the wide variety of theoretical or methodological frameworks employed. Rural research sometimes uses the community capitals framework, which includes consideration of natural, built, human, social, financial, political, and cultural capitals (Flora et al., 2016). Seaman et al. used social capital to frame their findings (2014). Beames and Atencio used social capital while arguing for a more place-based approach in outdoor education (2008). Other studies employed positive outlier frameworks to different research questions (Kegler et al., 2013; Sharifi et al., 2013). The study by Edwards-Jones et al. used qualitative interviews to learn more about barriers and facilitators to outdoor learning in UK schools (2018); however, they did not use a positive outlier approach. That study looked at all ranges of efficacy of outdoor education programs within schools: those that were highly successful, those that were struggling, and everything in between.

The positive outlier approach used in my study enabled pinpointing critical actions taken by schools with highly successful outdoor learning practices. I was able to look for specific practices and conditions at positive outlier schools while comparing them with non-PO schools. Assessing their location along the negative-positive outlier spectrum permitted me to identify the most relevant practices and conditions. As the research on rural communities and physical activity has shown, rural areas need rural-specific solutions (Umstattd Meyer et al., 2016; Yousefian et al., 2009). This study filled a gap in the literature since there are few studies about the barriers and facilitators to outdoor learning and outdoor pursuits in small rural schools. Most importantly, little is known about how specific barriers were overcome and how specific facilitators were cultivated.

CHAPTER 3

METHOD

Participants

The study sample included the nine schools in Maine that were inclusive of pre-kindergarten or kindergarten through 12th grade during the 2021-2022 school year. This sample was chosen as these schools represent some of the most isolated and rural communities in Maine, and thus are well positioned to help answer the research questions. Additionally, through previous professional experience, I knew that one of the schools in the sample would most likely be a positive outlier in terms of outdoor pursuits and learning.

I gathered publicly available demographic data for all nine schools in phase one from the Maine Department of Education. Data included school size, free-and-reduced price lunch eligibility rates, per-pupil spending, students with disabilities, and Title 1 status. Additionally, data was gathered about each school's proximity to open accessible land through the Trust for Public Land's "Nature Near Schools" project (Trust for Public Land, 2021).

The nine schools were in the towns of Dyer Brook, Ashland, Danforth, Greenville, Jackman, Rangeley, Islesboro, North Haven, and Vinalhaven. All nine schools were invited to participate in phase one of the study; six did so. Each school that completed phase one surveys was invited to participate in phase two, the comparative case study portion of the study. Three schools participated in phase two.

Procedures

Phase One: Initial Data Gathering and Analysis

The first phase of the study was focused on gathering demographic and outdoor curriculum and activity data for all nine schools. Institutional Review Board (IRB) approval from the University of Maine was sought and secured. An administrator and physical education (PE) teacher for each school was sent a formal email inviting them to participate in phase one of the study with a link to the survey through

Qualtrics (Qualtrics XM, n.d.). In most cases the school administrator was a principal, though some of the schools had other leadership structures such as a superintendent-principal combination position or a "head of school" position. A follow-up email was sent two weeks after the initial email to non-respondents and after another week, a follow-up phone call was made to non-respondents. A final outreach effort was made via email to alternative participants, if schools had one, such as a vice principal or a second PE teacher.

Phase one included two surveys: one for the school administrator and one for the physical education teacher. The administrator survey included questions about the existence of policies and programs related to outdoor time and outdoor activities at the school. An example question was, "Does your school provide daily recess for all elementary (Grade 5 and under) students?" The physical education teacher survey was aimed at understanding the main activities included in the PE curriculum and what facilities were available for use for PE classes. The PE teacher survey used definitions of outdoor facility elements as identified in Lim et al. (2017). This survey asked PE teachers to indicate whether various activities were or were not included in the typical annual curriculum. Additionally, PE teachers were presented with a list of facilities and were asked whether or not those facilities were present at the school, and if they were, whether they were regularly used for PE classes. See Appendix A for both surveys.

The results of both surveys were used to place all responding schools on a negative-to-positive outlier spectrum and to identify case schools for phase two of the study. The exact methods for analyzing phase one survey data are outlined in Appendix B. One PO and two non-PO schools participated in phase two. The goal was to have varied representation on the outlier spectrum (Yin, 2014).

Phase Two: Data Gathering on Case Studies

Phase two of the study involved interviews and on-site observations at the three case schools. Interviews with a school administrator, a PE teacher, and at least one other educator recommended by the school administrator were scheduled, and informed consent secured. Except for one group interview with elementary teachers at School F, all interviews were individual. Participants were offered the option of in-person or virtual (via Zoom) interviews. All interviews were recorded. The purpose of the interviews was to learn more about the barriers and facilitators to outdoor activities and outdoor time. See Appendix C for initial interview questions.

Also in phase two, I visited each case school during a regular school day to take field notes and complete two portions of the Rural Active Living Assessment (RALA), the Town-wide Survey and Program and Policy Assessment (Yousefian et al., 2010).

Qualitative Analysis

All interviews were transcribed using open Otter AI software (Otter for Education, 2021), with full quality checks by me. They were then coded using Taguette software (Rampin, 2022) and analyzed using two approaches. The interviews were coded using an inductive, categorical approach similar to methods outlined by Seidman (2013). They were also analyzed for connecting themes between the case schools, an approach explained in Maxwell and Miller (2008, Ch. 22). A case narrative for each school was written using data from surveys, interviews, field notes, and the RALA.

Three secondary coders assisted with data triangulation by reading and coding interviews and reviewing and providing feedback on case narratives. One secondary coder was a doctoral student, and the other two were faculty members in the School of Kinesiology, Physical Education, and Athletic Training. All secondary coders participated in a training to review the coding structure and software. Efforts were taken to protect interview participants' and school identities by using pseudonyms for the towns, schools, and participants. The identification key was kept in non-digital form in a locked office.

CHAPTER 4

RESULTS

Phase One Results

Of the nine schools in the sample, five schools participated fully in the phase one surveys. One school participated partially; School C completed the physical education (PE) survey but not the administrator survey. Three schools did not participate at all. It was clear through communication with schools that the COVID-19 pandemic was making the school year extremely difficult and this likely contributed to the low response rate. Multiple schools went between in-person and remote learning during the data collection period, and that likely made it challenging to prioritize anything extra, such as completing a survey. One PE teacher who completed the survey shared with me that at the time of my data collection their school had two weeks where only a tiny fraction of students were in school in person due to a large outbreak of COVID-19 (personal communication, September 2021).

Data collected from the phase one school administrator and physical education teacher surveys were analyzed primarily for quantity of outdoor pursuit and learning opportunities. Totals were used to place schools on a spectrum of negative outlier (schools that provided minimal outdoor opportunities) to positive outlier (schools that provided considerable outdoor opportunities).

The PE survey provided data in three main categories: Outdoor Pursuit Curriculum, Outdoor Facility Accessibility, and Outdoor Facility Use During PE Classes. The number of outdoor pursuits in the curriculum, outdoor facilities available, and outdoor facilities used for PE classes were tallied based on teacher responses. Based on given options, the number of “outdoor points” possible for each school was 39, although teachers had an opportunity to describe additional outdoor pursuits or facilities that were not included in the survey and were added to the tally. For example, ice skating was not a specific option in the survey but one school said it was part of their regular curriculum and that resulted in one additional point.

The school administrator survey provided data about outdoor-focused school policies and practices (e.g., recess policies and bike-and-walk to school programming) and school-based outdoor activities (e.g., outdoor education classes, outdoor learning, and outdoor-focused field trips). Based on survey questions, the number of "outdoor points" possible in the administrator survey was 12. Details about phase one analysis can be found in Appendix B.

Phase One Survey Results

Five schools completed the PE phase one survey, the results of which are shown in Table 1. The totals for these five schools ranged from five to 28. Two schools had a total of 16 and the fifth school had a total of ten. The school with the lowest score regularly included four outdoor pursuits in the PE curriculum, while the school with the highest score regularly included 12 outdoor pursuits in the PE curriculum. Outdoor pursuit facility availability and use also differed greatly. The top scoring school described eight different outdoor pursuit facilities at or adjacent to their school and all eight facilities were regularly used for PE classes. No other responding school came close to this total; three schools in the middle of the spectrum each had four outdoor facilities. None of those schools used all four facilities for PE. The top scoring school had the highest total in all three categories, while the lowest scoring school had the lowest total in all three categories.

Table 1 *Results of the Phase One Physical Education Teacher Survey*

School	Outdoor Pursuits in Curriculum	Outdoor Facility Availability	Outdoor Facility Use	Total
A	9	4	3	16
B	5	4	1	10
C	9	4	3	16
D	4	1	0	5
F	12	8	8	28
G	2	6	4	12

Five schools completed the phase one administrator survey, the results of which are shown in Table 2. There were fewer questions in this survey, so scores were closer together. The highest scoring

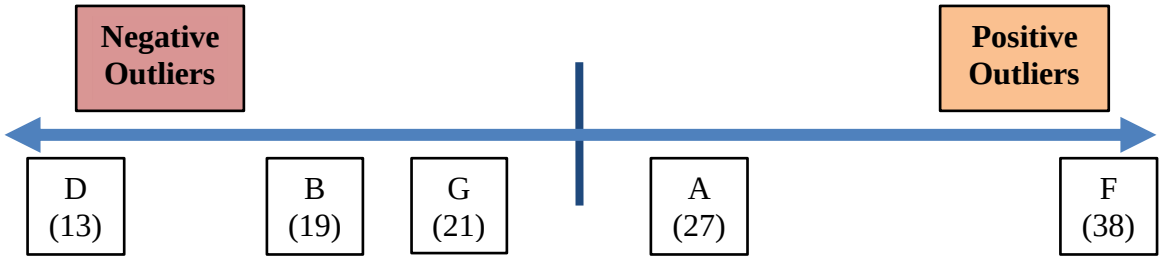
school had 11, while the lowest had eight. Three of the five schools had daily recess for all K-8 students. All five schools moved recess indoors due to rain; two schools moved recess indoors when temperatures dropped below 10°F and three schools moved recess indoors when temperatures dropped below 0°F. Two schools offered outdoor education courses as part of the curriculum. Only one school encouraged walking or biking to school; two others cited safety concerns for not doing so. All five schools encouraged teachers to take classes outdoors, and all described doing more of this during the COVID-19 pandemic. Additionally, all schools described typically offering outdoor-focused field trips that ranged from hikes and ski trips to boat trips and overnights at outdoor recreation facilities.

Table 2 *Results of the Phase One Administrator Survey*

School	Outdoor Policies & Practices	Outdoor Curriculum & Activities	Total
A	5	6	11
B	4	5	9
D	3	5	8
F	3	7	10
G	4	5	9

The lowest scoring school in the administrator survey was also the lowest scoring school in the PE survey. The highest scoring school in the administrator survey was tied as the second-highest scoring school in the PE survey. One school had incomplete data, so their location on the spectrum could not be calculated. Out of the five complete results, School D is on the negative outlier end of the spectrum and School F is on the positive outlier end. Schools A, B, and G are more in the middle of the spectrum, though School B tends more towards the negative outlier end and School A tends more towards the positive outlier end. The negative-to-positive outlier spectrum is shown in Figure 1.

Figure 1 *Schools with Complete Phase One Data on Positive-Negative Spectrum*



Based on the results of this study, School D is a negative outlier (NO) in terms of outdoor pursuits and outdoor learning, while School F is a positive outlier (PO). School F had double the number of outdoor facilities reported by the next closest schools. School D only reported one outdoor facility in their survey response, and they did not use it for PE. The most common outdoor facilities on-site at responding schools were trails and wooded areas. School F was the only school that reported having access to and incorporating rock climbing into their PE curriculum. None of the responding schools reported incorporating swimming or challenge (ropes) course activities in their PE curriculum. Every school included snowshoeing and outdoor hiking/walking in their PE curriculum. Results of the phase one surveys were limited by the number of respondents. The possible reasons for the participation rate will be discussed further in the Discussion chapter.

Phase One Qualitative Results

The phase one survey did not directly ask participants why their school did things in a particular way. However, some respondents provided commentary in an open-ended question at the end of the PE survey where they were invited to share any other information about their schools, outdoor activities, and outdoor learning. In response to this open-ended question School D reported, “We are [a] very small rural K-12 [school] with a high population of low income [students]. So we would love to have all of these [outdoor activities] available but we can't afford them.” Through this response it is clear that

funding is considered a barrier to providing outdoor pursuits. Conversely, School F provided the following response to the open-ended question:

> The shift outside this past year [due to the pandemic] made me realize that learning about my outdoor space and utilizing its richness is only limited by my imagination...things added this year were tapping trees and boiling for maple syrup, tree [identification], cooking over an open fire, wood harvesting and stacking,…securing a groomer for grooming the grounds as well as adjoining trails [for cross-country skiing], local fishing opportunities, etc. I would like to integrate bird ID, edible plants, search and rescue, wilderness first aid scenarios, and develop a sliding hill for beginner skiing and snowboarding lessons and sledding. (School F PE Survey)

In this response, the participant described a broad definition of outdoor pursuits and an exploration of further outdoor learning opportunities, despite already providing a considerable number of options. Though presumably some of these activities have associated costs (such as getting a groomer for ski trails), many of the newly explored activities had little or no financial burden. The educator described being limited only by their imagination, a markedly different approach from the previously described educator who implied that finances were the most significant barrier.

Demographic Data

The PO school in terms of outdoor activities and outdoor learning was also an outlier in other measurable areas. School F had the highest free- and reduced-price meal eligibility rates of any of the other schools in the sample at 100%, as they met the *Community Eligibility Provision* criteria by having a high-needs student population. [1] School A had the lowest percentage of the three cases schools with 34.6% eligible, and School G had the lowest reported rate of the sample at 16.5% (Maine DOE, 2019).

[1] The Community Eligibility Provision (CEP) provides schools serving a high-needs student population to apply for and receive funding that allows them to offer free school breakfasts and lunches to all students, without requiring individual families to demonstrate financial need. The CEP uses other government data, such as SNAP beneficiary numbers, to assess school eligibility for the program. (Maine Department of Education, n.d.)

The mean rate for sample schools was 48.1%, not counting School H for which data was not reported; the state average in that same time frame was 48.5% (Maine DOE, 2019). Except for Title 1 status and average student enrollment, I only used school data from prior to the COVID-19 pandemic to avoid situations where the pandemic might have skewed statistics, particularly absentee rates and operating costs. Table 3 shows these demographic data.

It is interesting to note that School D, who expressed financial burdens due to a high percentage of low-income students, had free- and reduced-price meal eligibility rate that was lower than this sample's mean. It is also interesting to note that School F's per pupil operating costs were more than $6,000 higher than at School D. School F had the highest per pupil spending of the three case schools in phase two, although it was only slightly higher than School A. The state average during the same time period was $13,851. The percentage of the student population that has a disability can increase per pupil spending, though that spending does not typically impact the experience of the general student population. School F had the highest percentage of students with a disability during the '18-'19 school year. That was more than 8% higher than the rate at School D, the school in the sample with the next highest percentage of students with a disability.

Table 3 *Demographic Data of Schools in Sample, with State Averages*

School	Avg. Student Enrollment '12-'21[a]	% Eligible for FRP Meals 2019[b]	Per Pupil Operating Costs '18-'19[c]	% Students with Disabilities '18-'19[c]	Title 1 Status 2020[d]	% Chronic Absenteeism '18-'19[c]
A	196	34.6	$21,530	9.6	Yes, schoolwide	13.2
B	162	44.0	$17,393	18.3	Yes, schoolwide	12.4
C	201	46.2	$20,106	13.3	Yes, schoolwide & targeted assistance	16.7
D	294	40.2	$16,532	23.0	Yes, schoolwide	21.6
E	354	61.4	$14,985	18.0	Yes, schoolwide	17.5
F	143	100 (CEP)	$22,976	35.4	Yes, schoolwide	11.5
G	92	16.5	$26,576	18.6	Yes, targeted assistance	26.4
H	61	Not reported	$33,667	8.6	No	16.1
I	176	42.1	$23,754	22.4	Yes, schoolwide	25.0
State Avg.	n/a	48.5	$13,851	17.8	n/a	16.8

[a] Maine Department of Education. (2021).
[b] NEO Nutrition Module. (2019).
[c] Maine Department of Education. (2019).
[d] United States Department of Education. (2020).

The Trust for Public Land's *Nature Near Schools* map (2021) was used to assess each school's proximity to open accessible land within a 10-minute walk of the school building. This map showed different types of conserved lands accessible to schools. If no conserved land was accessible according to the project, schools were prioritized based on health and equity data (schools with lower health and equity outcomes were ranked higher). None of the case schools had unrestricted access to conserved land according to the data. Out of the sample population, School F had the highest priority ranking (13 out of a total 268). The rest of this data can be found in Table 4. Importantly, this dataset did not

capture access to open space (including trails and outdoor classrooms) that was present on school grounds because these areas are not typically designated with conservation status.

Table 4 *Accessibility to Public Land by Schools*

School	Publicly accessible land within walking distance	If not, priority rating	If not, priority rank (out of 268)
A	No	25.9%	186
B	Restricted Access Only	29.3%	163
C	Yes	n/a	n/a
D	No	32.1%	141
E	No	30.8%	95
F	No	61%	13
G	Restricted Access Only	5.4%	266
H	Yes	n/a	n/a
I	Yes	n/a	n/a

Note: The Trust for Public Land. (n.d.). *Nature near schools: A discovery map*. Retrieved September 15, 2021, from https://web.tplgis.org/nature_near_schools/

Phase Two Results

Case Narratives

The demographic data, field notes from site visits, and interview transcripts were used to create a case narrative for each of the three schools that participated in phase two of my study.

Case School A

School A was a K-12 school located in Town A, a small community in one of Maine's *rim counties*, or most peripheral counties (Vail, 2010). It was designated as a Frontier and Remote (FAR) level 4 community, the most rural and remote designation (Economic Research Service, 2015). The town was a well-known destination for a variety of outdoor activities, especially those that are water- and mountain-based. It was home to long distance paddling and hiking trails and had a significant amount of infrastructure for a variety of snow sports. The local economy was highly dependent on tourism and second home ownership, and the area had a more than 100-year long history of tourism based on outdoor recreation (Maine Office of Tourism, 2022).

The school served approximately 200 students from two towns and four plantations (partially unincorporated communities). Some students in the outlying areas lived over 30 miles from the school. A garden with raised beds and a wooded area with a short informal trail were located on the school grounds. There was also a wooden building used for boiling maple sap into syrup. The school building sat within walking distance of the downtown area, several waterbodies, trails on local conserved land, and a town park with courts, fields, and public swimming area.

In-School Outdoor Opportunities.

Active transportation at School A (either walking or biking to school) was not very common, although the school had organized walk and bike to school days in the past. The bike to school event had not happened since the pandemic started, but they did organize a walking school bus in the fall prior to the interviews.

Students in grades 8 and younger had daily outdoor recess unless it was raining or the temperature (either actual or with wind chill) fell below 0°F. Children often built forts and played in a wooded area adjacent to the playground during recess. A sledding hill was used during recess when there was sufficient snow.

The school garden was organized by a volunteer who was also an educational technician and recess monitor at the school. Since this individual was outdoors during elementary recess times, the younger students were sometimes allowed into the garden space during recess.

Outdoor Learning.

Outside of recess, teachers could bring their classes out to the garden for lessons or use the produce for indoor cooking activities. The growing season was short in this area, but students were able to plant seeds in the spring and come back in the fall to harvest produce. The garden coordinator explained, “In the fall, the classes came back [and used vegetables from the garden]…one grade made stone soup and one grade made salsa and one made a potato soup. And so, the kids were very

interested and want to spend time in there." The garden was started primarily by grant funding and was sustained through additional grants and donations.

From a curriculum standpoint, the garden was described as an "extra." The garden coordinator hoped to obtain grant funding to purchase cooking supplies so classroom teachers could make more use of the asset, stating, "I'm hoping that I can encourage them to think about ways to tie it in more often. Even in the winter months, cooking or whatever."

Additional outdoor learning spaces included a full-sized *sugar shack* where students boiled down sap to make maple syrup. This was used by one of the elementary grades and their teacher, who had incorporated the activity into their regular curriculum. Finally, Elementary and Secondary School Emergency Relief (ESSER) funding was being directed to the construction of the school's first outdoor classroom.[2] It had not been completed at the time of the interviews, but the plan was for a roofed timber frame structure with seating, located near the woods and the playground.

Physical Education.

The physical education teacher, who was relatively new to the school and was a first-time teacher working under conditional certification, aimed to incorporate more outdoor activities in the curriculum.[3] At the time of the interview there were few outdoor activities in the PE curriculum, and the teacher did not believe there had been a strong outdoor component prior to their arrival, "I don't think so, not really. It was kind of inside, playing dodgeball." The PE teacher was hoping to include paddle sports and snowshoeing. The purchase of new snowshoes was budgeted but had not yet been ordered at the time of our interview. The teacher hoped to borrow resources from local businesses in the future, such as canoes and kayaks.

[2] ESSER funds were part of the federal Coronavirus Aid Relief and Economic Security (CARES) Act signed into law in March 2020 (U.S. Department of Education, 2021).

[3] Superintendents can apply to the Maine DOE to hire teachers without appropriate credentials as long as the teacher works towards meeting the certification requirements within a certain amount of time; this is referred to as working under a "conditional" certification.

Additionally, the PE teacher had signed the school up to participate in Winter Kids during the year that these interviews took place. Winter Kids, a Maine-based nonprofit focused on promoting health and wellness through nutrition and physical activity, sponsored winter activities. The program also offered the opportunity for schools to win money to support outdoor equipment and other gear, which was one reason the teacher enrolled.

Out-of-School Outdoor Opportunities.

The two primary outdoor opportunities sponsored by School A that took place out of the regular school day were weekly downhill ski programming during the winter and an outing club.

Downhill Skiing.

The weekly ski program was supported by the school through the scheduling of early releases once per week and providing transportation to the local downhill ski area. The downhill ski area provided discounted lift passes as well as free rentals and instruction to students during their weekly outings. This was a long-standing tradition in the community:

> So even as back as far as I can remember working here…we have our early release on Tuesdays in the winter, from eight to ten times....[Students] get all the rentals for free and eight afternoons of skiing. And you know, what it really does is, we have a lot of kids who ski and they're going to ski anyways. The biggest piece of this program is those families, like me when I was younger, that would never ski with their parents. They [get to] go skiing. (School A Administrator)

These weekly winter outings previously included other options such as ice skating and cross-country skiing, but at the time of the study was focused only on downhill skiing. The early release ski program also gave teachers dedicated professional development time (in the year of my study, approximately eight three-hour sessions). Finally, downhill ski racing was a varsity sport option for high school students.

Outing Club.

The outing club had been established for several years and was organized by school staff who volunteered to run the club outside of school hours. The club was primarily organized by the educational technician/recess monitor and the principal (who was a teacher at the school prior to becoming an administrator). The club also received logistical support and some grant funds from the Maine-based nonprofit Teens to Trails. The club was open to high school and middle school students, though at the time of the study was primarily attracting the younger ones. The club tried to organize both activities at the school and off-site trips.

During my visit to the school in early winter the outing club had recently hosted their first activity of the year, which was outdoor cooking on-site behind the school. Plans had been made for future off-site activities, such as snowshoeing, dog sledding, and indoor rock climbing at a facility about an hour away. Additionally, the club leaders were hoping to organize a multi-day canoeing trip in the spring. This was a trip the school did over 15 years ago, and they were hoping to offer it again.

Facilitators to Outdoor Learning and Activities.

Interview participants at School A cited several facilitators that assisted them in providing outdoor opportunities. These facilitators were mainly related to Town A's financial and facility assets.

Community Support.

The community was described as being generally proud and supportive of the school, particularly the arts and athletics. The administrator explained, "I think our community is proud of our school. They're very proud of athletics, you know, like basketball. And they're proud of our ski team." However, recent politically charged issues, particularly related to the pandemic, had caused notable divisions in the community and school.

Local nonprofit organizations and businesses supported outdoor activities at the school, often in the form of no- or low-cost access to equipment and facilities, including trails. The outing club

coordinator held other outdoor-related jobs in the community which provided the group with connections and access to borrow equipment such as canoes and kayaks.

Interview participants explained that the business and nonprofit support they received, as well as support from local taxpayers (year-round and seasonal residents), helped mitigate financial barriers. As the School A administrator explained, "So pretty much here in [town], we have some money here. Pretty much anything you ask for, you get, I think. Very rarely would we ask a business for something for the kids and they say no... We have some people that are very generous in our community." Though the administrator stumbled on the word, they recognized that their community was "wealthier" than many other rural Maine towns, and that status afforded them resources that other small schools may not have. The administrator simply stated, "We're lucky that way." Additionally, the outing club advisor had sought and secured a number of small grants to support the garden and the club.

Additional Facilitators.

A smaller but noteworthy facilitator was that the school valued Registered Maine Guide (RMG) licensing and made time available for the administrator, who has two RMG licenses, to pursue testing and training.[4] Additionally, the school planned to use ESSER funds to facilitate transportation through the purchase of a minibus. The minibus had not arrived at the time of the interviews but was cited as something that was going to help with outing club and other school field trips.

Barriers to Outdoor Learning and Activities.

The primary barriers mentioned by interview participants were limited student interest, time, and transportation. The COVID-19 pandemic created additional barriers. Cold weather was a barrier mentioned by one interview participant.

[4] The Maine Department of Inland Fisheries and Wildlife (MDIFW) oversees the program, which requires anyone receiving payment for outdoor guiding services to hold appropriate licensure (Maine DIFW, 2022).

Student Interest and Fitness.

All three interview participants explained that a lack of student interest was a barrier for both out-of-school activities such as outing club as well as outdoor activities in PE. There was strong outing club interest among middle school students, but the coordinator felt that they "lose them" once students reach high school. The club coordinator also felt that their primary position as an educational technician hindered the ability to garner student interest, "I'm on the periphery. I'm not in the classroom much." Middle and high school students had recently been given a survey to share what activities they would most like to do in the club. The middle school students had many ideas, and both the club coordinator and the administrator hoped that this would help spark more interest and enthusiasm in club activities.

The intersection between the lack of student interest and low student enrollment was noted by the administrator who explained, "Because when you have 59 high school kids, sometimes you're like, 'Only two signed up.' Well, that's actually not bad. You know, out of 59."

In PE, lack of student interest and a negative attitude sometimes hindered efforts to incorporate outdoor activities. As the educator said, "They fight, hard, not to do things…So definitely a barrier would be kind of their attitudes, I guess." I asked the educator where they believed this attitude came from: weather, bugs, getting dirty? "It's both. In the summer it's too hot, it's buggy. In the winter, it's cold, I didn't bring the right equipment." The PE teacher described struggling with student engagement and interest in other parts of the PE curriculum, not only in outdoor activities.

The PE teacher felt that a lack of physical fitness was not a primary barrier to students engaging in outdoor or other physical activities but was an issue for some students and sometimes manifested as a lack of interest. The administrator felt that a lack of student physical fitness was a bigger barrier and demanded consideration for planning trips like hikes.

Transportation and Staffing.

Although transportation was cited as a major barrier to incorporating outdoor activities and learning, interview participants indicated the true issues were with staffing and time. Funding for transportation was available, but a lack of available bus drivers was a considerable barrier. Time related to transportation was also a barrier, particularly for PE classes incorporating travel to off-site locations. As the teacher explained, “So, you know, by the time you get everybody on the bus there and back, [class] is kind of done.”

Another staffing-related issue identified was a lack of available substitutes, which stymied efforts to do longer off-site trips. This issue was raised by the PE teacher and the educational technician, who both provided first-hand accounts about the effects of low staffing numbers. (Indeed, on the day I visited School A, staffing was a major challenge and was evident in how staff negotiated coverage so that I could conduct interviews.) As the PE teacher, who was the only physical and health educator at the school, said, “If I was to take middle school somewhere, I have to get coverage for the elementary and the high schoolers. And, you know, so that just gets tricky sometimes being in a small school, especially right now [due to COVID].” The outing club organizer echoed these concerns when discussing the possible river trip in the spring, explaining, “I always think about the pain of having to replace all those people that you're pulling. If you pull three staff, you have to find [substitutes] for them. So, I don’t know.”

There was interest in starting a non-outdoor related after-school program for grades K-2. The school had funding to support such a program but had not moved forward because finding people to run it had been challenging.

Time: In- and Out- of the School Day.

Beyond the previously discussed transportation issues, time constraints were a significant underlying barrier to outdoor activities and learning in several ways. The pressure to provide sufficient

curriculum time for classroom teachers was cited as a barrier to doing outdoor activities, particularly those that were off-site or took longer amounts of time. As the administrator said, “Listen, I understand that this math lesson may be really important. But if we go hiking and incorporate some learning there, they’re going to be happier, they’re going to be healthier, and they’re going to learn the important stuff more.” Some educators valued and supported the benefits of outdoor activities, while others were not as open to incorporating such activities into their plans.

One interview participant suggested that this reluctance to incorporate outdoor activities might reflect educators’ personal interests, outdoor skills, or physical fitness levels. Despite being in a town built largely around outdoor activities, the participant stated, “not all our staff are super outdoorsy.” Some teachers might not be physically fit enough to hike comfortably, which may result in being less supportive for such trips or outings.

Another time-related barrier was PE periods of only 40 minutes in grades K-8. These shorter periods hindered the ability to get outside, especially when the activity was during the winter and getting cold weather gear on and off was required.

Despite wanting to expand outdoor learning offerings, the outing club advisor had several positions in the school, resulting in a very busy schedule with little extra time. As an example, this participant explained that people have suggested acquiring a greenhouse for the garden, however the school used to have one and it was not used very effectively:

> When people enthusiastically say we need a greenhouse, I have very little time in my day. So, there's no way, unless they give me time, that I want a greenhouse here because it wouldn't…we didn't use the six foot by eight foot greenhouse very well. So, I would love to have it and I've seen other schools that have amazing programs, but at this point, there's not enough support for me.

A final category of time barriers was related to adult personal time and curriculum development time. Out-of-school offerings (such as the outing club) required adults to volunteer their time, as the advisor positions were unpaid. As the club advisor put it, “It’s that wanting to give up your time outside of school, too. I mean, that’s another thing that some [people] are willing to do, and others aren’t.”

COVID: Capacity and Concerns.

The COVID-19 pandemic was cited as an underlying barrier in several ways, but perhaps most importantly participants felt the impacts had limited people’s capacity. The administrator recounted a discussion that occurred with staff in the fall about scheduling the annual bike to school event. Staff responded that they did not have it in them, “People are exhausted. They’re like, ‘Yeah, we don’t have the capacity to do that.’” Additionally, pandemic related restrictions and concerns hampered plans to do any outings that required transportation. Students were interested in rock climbing at an indoor facility about an hour away, but the advisor said that with COVID, “I haven’t pushed that. I haven’t pursued it.”

Case School B

School B was a K-12 school located in Town B in northern Maine. The town was considered Frontier and Remote (FAR) level four (Economic Research Service, 2015), the most rural and remote designation, and was in one of Maine’s rim counties (Vail, 2010). Town B was a small lakeside community with a busy downtown area located along a major through-road that doubled as the town’s main street. It was a popular destination for outdoor-based tourism, particularly in the activities of hunting, fishing, and motorized sports. Tourism and second home ownership were important parts of the local economy, which was also diversified through public service and forestry-based jobs (Maine Office of Tourism, 2022). Though not bilingual, interview participants explained that the community had strong ties to French-speaking Canada.

The school served approximately 125 students from two towns, multiple unorganized townships, and one plantation (partially unorganized town). The school had on-site access to outdoor

facilities, including a quarter-mile trail, a large school garden, and an outdoor classroom. The school building was located near the downtown area and within walking distance to many homes, business, and services. It was also within walking distance to a town park with courts and a playground, as well as public boat launches on a lake and a river. Though there was access to multiple bodies of water, there was no designated public swimming area in town.

In-School Outdoor Opportunities.

Active transportation, particularly biking to school, was common during the non-winter months at School B. The administrator estimated that about 80% of students lived within walking or biking distance of the school. School B allowed students in grades three and above to bike to school on their own, though parents could allow younger students to do so when accompanied by older siblings. There were bike racks outside the school entrance, which I was told were typically full in warmer weather. The school did not participate in formal bike or walk to school programming.

Students in all grades were provided with daily recess which was outdoors unless the air temperature dropped below 0°F (not counting windchill) or there was significant rain. The high school recess was called “activity time” and they were not required to go outside, though they often did.

> And they go out…they're active.…They run around outside. They swing on the swings. They have a recess and people are like, “Why are you giving your high school kids a recess?” Because they need to get outside. And they need a break. And there are some that don't want to, we don't force the upper grades out. (School B Administrator)

During outdoor recess students had access to the playground and a paved basketball court. In the winter the snowbanks were high enough for sledding. The middle and high school students did not have daily recess until some teachers took the initiative to implement a change several years prior to my visit. When the current administrator was a teacher at the school, they were part of the group of teachers who sought to make recess universal because they felt it was so important. The administration at the

time did not support the change in terms of providing recess monitors, so teachers took it upon themselves to monitor the older students' recess.

Physical Education.

The School B physical education curriculum was focused on lifelong physical activities, primarily because the classes were so small that it made games and team sports challenging. The teacher and others created a school weight room and fitness center which was used by older students during PE and in the early morning hours before school. Although there was pride in this facility, there was a note of sadness because it was located in the old art room, which was no longer used for classes because the school had been unable to find an art teacher.

The PE teacher incorporated some outdoor activities into the curriculum, especially those that made use of the school's wooded nature trail. The students went snowshoeing and used the trail for other activities, such as outdoor mindfulness, as the trail provided shelter from the cold and wind. PE classes used to cross-country ski, but they have not done so since the schedule moved to shorter periods.

Outdoor Learning.

Content area classes also made use of the trail and the well-established school garden for outdoor learning opportunities. The garden was organized and spearheaded by a volunteer from the community and had been built up to include multiple greenhouses and other amenities. Different teachers used the resource in different ways. The administrator explained it was not everyone's "forte…but the kids love it."

> And we started with one little greenhouse, and now there's four or five buildings, there's an outdoor classroom out there. And the students, 90% of [the work], it's done by the students. So different grades, kindergarten, fourth, seventh, are the biggest grades that work with [the]

farmer. So, [the farmer] helps them. Kindergarten digs the potatoes in the fall, the third graders and fourth graders planted all the garlic this fall for next year. (School B Administrator)

The garden offered a significant opportunity for outdoor learning, and also provided considerable quantities of fresh food for the school nutrition program. Enough food was grown in the gardens that it was financially beneficial for the school despite paying food service staff to process the harvest. Homemade school lunches regularly included tomatoes, potatoes, garlic, squash, and other ingredients from the school garden.

The third-grade class, in particular, used the nature trail throughout the year. It was used as a location for journaling, learning to harvest wild edible plants, and for other seasonal activities. The class also learned how to tie flies and used their creations to fly fish in the stream that ran alongside the trail.

It is worth sharing the story of a forestry and outdoor education (OE) program that School B planned several years prior to my study, but which never materialized. The school, after nearly four years of working to overcome bureaucratic hurdles, had been approved to offer an on-site forestry and OE program. The program would have included courses in forest recreation and management, maple syrup production, and Registered Maine Guide skills. The proposed program required special permission because it would have been a career and technical education (CTE) program outside the regional CTE programs run by the state. The major reason that School B requested permission for this program was that they were a two-hour drive from their assigned CTE location. However, by the time permission was granted by the state, the teacher lined up to run the program had left the school and the students most interested in the program had graduated. At the time of my visit, no attempts had been made to revive the plan.

Off-Site School Trips.

Historically, the school had fostered relationships with outdoor-focused nonprofit organizations to facilitate off-site (often overnight) trips to various nearby locations. These trips included activities

such as hiking and staying in backcountry cabins. These trips had not happened recently, due to financial challenges at one of the local nonprofits that resulted in decreased operating capacity, as well as the impacts of the COVID-19 pandemic. The school had also organized outdoor trips during the school day, such as an outing for the senior class to canoe on a nearby lake and hike a mountain. Seniors requested that the outing occur during the school day because so many of them were employed on weekends. For trips like these a local guide (who also taught at the school) provided access to canoes and assistance transporting equipment.

Out-of-School Outdoor Opportunities.

The primary out-of-school outdoor opportunities at School B were provided by an outing club. The club, formed in the last few years, was organized by one of the high school teachers who was also a Registered Maine Guide. The outing club organized out-of-school trips for activities such as canoeing, snowshoeing, ice fishing, and ATVing. They also organized some on-site activities to support their trips, including a session to make their own winter hats. The club was open to high school and middle school students, though interest levels were lower among the younger ages. The outing club advisor listed many activities they had planned but were cancelled due to the pandemic, as well as a long list of activities they hoped to do when the situation improved.

Another outdoor activity available to School B students (not organized by the school) was a hunting "camp" that students could access during the fall hunting season. This was set up and maintained by a local guiding business, and students were invited to participate after school.

> [The landowner] will allow hunting as long as no money exchanges hands. So, everybody helps put the tree stands up. Everybody helps bait. And when bear season's here we go to Bear Camp. Everyone brings something to eat. You sign in, you sign out. No one leaves until everybody's back. You have supper while you're waiting. And then everyone goes home….and it doesn't cost anything. (School B Outing Club Advisor)

Though this activity was not organized by the school, it was well-attended by students. As the club advisor explained, “Almost every kid in class shows up.”

At the time of my visit School B did not have an after-school program, though they used to be a 21st Century grant site.[5] When the 21st Century program was previously active, they incorporated a lot of outdoor activities and purchased a significant amount of outdoor equipment. The school was unsuccessful when they last reapplied for 21st Century grant funding and had not had an after-school program since.

Facilitators to Outdoor Learning and Activities.

The area around Town B had an abundance of local amenities to support outdoor activities. As one interview participant put it, “We’ve got every possible environment to do all the [outdoor] activities.” It was noted that motorized trails and waterways were particularly valuable assets. The facilities on school grounds, including the garden, the nature trail, and stream, were also cited by interview participants as facilitators to outdoor activities.

Policies at the school level facilitated outdoor time for students during the school day. These included a low minimum temperature policy for outdoor recess and the practice of giving all students in all grades recess time, as previously explained. Interestingly, a *lack* of policies and bureaucracy was perceived to be an asset by the school administrator, “And there’s not a lot of red tape that we have to go through. I think larger areas or bigger school districts, there’s a lot of channels [to go through to do things].”

The administrator also explained multiple times throughout the interview that the school valued social-emotional outcomes and the benefits that come from time outdoors.

[5] The 21st Century grant program is federally funded to support after-school academic programming in primarily high-needs schools (U.S. Department of Education, 2022).

> I mean, you know, there's as much education in that [hiking trip], as there is in sitting in a math class for today. Because, you know, especially the social emotional pieces, especially this time with everything else that's going on in our world. Let's get out and get healthy…. you speak to colleagues of mine, and they're like, "what was the purpose of the trip?" [And I say,] I don't know, they wanted to go hike a mountain! [*laughing*] You know, it's like, that's important to us here.

The PE teacher echoed the same sentiment about the importance of social-emotional learning, explaining that a foundation of the PE curriculum was "trying to focus on building up a community." The administrator clearly felt that these values were also expressed through the school's recess policies and extensive garden program.

Community, Family, and Business Support.

Considerable community support, including financial and in-kind donations from local businesses, helped to facilitate outdoor activities and outdoor learning. These donations supported school efforts such as the garden, which had been completely funded separate from the school budget. Donations also supported past student trips. This high level of community support was noted by the school administrator:

> It was always covered. And it was never a question. The kids want to go on an overnight and [the community] would open their wallets and send a check. And we see that a lot here. People know there's something that we really want to do [and] they make sure it happens for the kids.

Local businesses also supported outings by providing access to equipment or transportation, such as use of boats or commercial vans.

Access to outdoor equipment at the school was another potential facilitator, though at the time of the interviews it had often been unused. The school owned a considerable amount, including snowshoes, cross-country skis, archery equipment, and canoes. Much of this was purchased through a

grant in the early 2000s and was subsequently used primarily for after-school activities. Though originally purchased with after-school programming in mind, the equipment was accessible to everyone in the school community. As the outing club advisor stated, “That’s one good thing about this community, they share very well.”

The use of motorized outdoor sports was a facilitator to help overcome some of the transportation barriers, which will be described further in the next section. Many students rode snowmobiles to school in the winter, and those same snowmobiles helped transport students to activities such as ice fishing with the outing club. Families offered the use of their ice fishing shacks and equipment for club activities. Additionally, the outing club advisor’s personal UTV seated multiple people and had been used to transport students to outings.

Barriers to Outdoor Learning and Activities.

The most significant barriers to outdoor activities and outdoor learning at School B were transportation, safety and liability, and time. Additionally, there were some unclear barriers that will be explored in this section.

Transportation Challenges.

Because School B contracted all busing, they experienced additional challenges beyond what might be considered normal transportation barriers. There were only three buses available, two of which were used daily for regular routes. This left one bus for additional needs, and it was often scheduled to bring middle or high school teams to sporting events. Even if the extra bus was not in use, finding an additional bus driver was often a challenge. The administrator, along with several other teachers, were licensed to drive buses and often got called upon to be substitute drivers. The contracted busing was also expensive, which the outing club advisor felt was a barrier to access because the club “[doesn’t] have money for a bus.” This represented a slight disconnect with the administrator who explained their approach to trips and outings as, “I always say, ‘we'll figure out how to make it work.’”

For safety and liability reasons the school tried to avoid parents driving students other than their own children to school functions.

Safety and Liability Policies.

Safety and liability were a barrier to outdoor activities. The school had policies requiring adults to hold certifications to lead certain activities. School B required an adult to be water safety or lifeguard certified for any activity that happened on the water, including boating, even when participants were wearing personal flotation devices (i.e., lifejackets). Additionally, school policy required a Registered Maine Guide to be present for certain activities (see Footnote 4).

I asked the administrator about the history of the water safety certification policy and was told that it had been "past practice." Though it was not necessarily an official written policy, it was something that the administrator felt was important to maintain.

Deer hunting season was another safety concern interview participants mentioned. The outing club advisor preferred not to do any woods activities in the woods during that time:

> I'm not comfortable. I have all the hunter's orange [clothing] in the world but I just [*big pause*]. I know where people hunt, right here [*points to back of school*]. There's a stream in our back and outside of that stream, [they hunt] right there.

The timing of deer hunting season unfortunately overlapped with the downtime between fall and winter sports, an otherwise open spot in the calendar for outing club activities when students were not as busy.

Not Enough Time or Staff.

Student availability for outing club activities was limited, especially during school sports seasons. School sports included golf and cross-country in the fall, baseball and softball in the spring, and basketball in the winter, which was the most popular sport. With such small enrollment numbers, a large percentage of students played. The PE teacher explained, "It seems like, at least for the boys, the varsity basketball is like a year-round thing. They do summer [ball] and…it never really seems to stop."

Though school sports were not a barrier to in-school outdoor activities, they were cited multiple times by interview participants as being a barrier to outing club and other out-of-school opportunities.

Time constraints were also a barrier during the school day, particularly the time scheduled for PE classes. The school switched from block scheduling several years prior to the interviews, which meant the PE teacher saw students more frequently, but class periods were shorter. Cross-country skiing used to be included in the PE curriculum, but the teacher felt it became unfeasible once class periods dropped to 40 minutes. As the PE teacher stated, “By the time you get them laced up and out there, it’s halfway through your class already.” The teacher found that snowshoeing was still doable during the shortened periods.

Often, even when the school could get an outdoor trip planned, there were concerns about staffing coverage for the students not attending the trip. The administrator explained, “You know, there are no substitutes left in the world.” As with the bus driver shortage, this created real challenges in finding coverage if a few teachers accompanied students on a longer outing.

Weather and COVID.

Weather and its effects were mentioned less frequently as a barrier, but they did come up multiple times in the interview with the PE teacher. The town did not plow sidewalks, so active transportation to and from school became unsafe in the winter. Though the area was known for cold weather and people living there were generally prepared for it, it did result in fewer outdoor activity offerings. The PE teacher explained they spend more time indoors in the winter and that the winter temperatures can impact outdoor plans.

Finally, the COVID-19 pandemic was a significant barrier, particularly for the outing club. Pandemic related restrictions caused many cancellations of trips and outings for over a year. The advisor explained they had just gotten the club going, “Then COVID hit. So our overnights, our Katahdin trips, everything was just squelched. So this fall, we wanted to do an overnight trip with canoeing, COVID hit

again, it was squelched. And so, here we are." Transportation was a challenge because teachers could not take students in their own cars, and instead needed buses to provide more social distance. Additionally, the pandemic caused a lot of fatigue and stress that became a barrier. As the club advisor put it, "I haven't really gotten back into the groove because of COVID. When we had trips planned [but were cancelled]…it just took the wind out of my sails." The pandemic had less of an impact on in-school activities, but still resulted in cancellation of field trips and outings.

Unclear Barrier.

A significant but unclear barrier was preventing the PE teacher from using the available outdoor equipment more frequently. The teacher was very aware of the available outdoor equipment stating, "We have a bunch of the equipment, but I'll be honest, I haven't tested any of the stuff out." Some explanations were provided, such as shorter PE class periods. But the PE teacher expressed a desire to do more and even said, regarding use of the outdoor equipment, that "Sadly, I've kind of let it down." The teacher had one outdoor education course during pre-service training but stated that they still felt unprepared to implement more outdoor activities.

Case School F

School F was a PK-12 school located in the small community of Town F, which was a FAR level four community in one of Maine's rim counties (Economic Research Service, 2015; Vail, 2010). Town F had connections to Maine's forest and agriculture industries and offered some services to tourists. It was near well-known fly fishing and boating locations, but the town itself was not a significant tourism destination (Maine Office of Tourism, 2022). The tourism industry was considerably less developed than in Towns A and B. Town F had a small downtown area with some services and public access to a local waterway. A significant road passed through town near the downtown area. There was a relatively new playground in the downtown, close to an open area near the water.

The school served approximately 140 students from two organized towns, one plantation, and two unorganized townships. The school building was close to the downtown area and within walking distance of homes, businesses, and local waterways. The school had a large outdoor classroom area that featured three timber frame structures, multiple fire pits, a water spigot, storage sheds, and a natural play area. The grounds contained a school garden, an orchard, and an animal barn, as well as a community garden. The school had a paid part-time garden coordinator position. There was also a small wooded trail and a hill built up with rollers (i.e., large bumps) for biking and cross-country skiing. Finally, there was a top-rope rock climbing wall in the school's gymnasium.

The trailhead for a winter-only non-motorized trail was a 15-minute walk from the school. There were several additional multi-season hiking trails and other water access points, including a local river with whitewater and campsites within reasonable driving distance of the school. Though there was boat access in town, there was no designated public swimming area.

In-School Outdoor Opportunities.

Few students at School F used active transportation methods. The administrator estimated around 10% of the student population walked or biked to school. School F did not participate in formal walk or bike to school programming. One teacher lived in town and had an informal "walking school bus" where students joined together on the way to school.

Physical and Outdoor Education Classes.

School F was well-known for its outdoor programming. Physical and outdoor education classes at School F incorporated a wide variety of outdoor activities including canoeing, biking, cross-country skiing, snowshoeing, downhill skiing, survival and navigation activities, archery, fishing, and rock climbing. At the time of my visit, the school administrator had been at the school for six years and had spent their entire educational career in the same geographic area. They pointed out, "This school has, as

long as I've known about it, has always had a strong outdoor ed component." The School F administrator worked in alternative education in a previous job and had used an experiential place-based curriculum.

When School F originally received tobacco settlement funds in the early 2000s,[6] they purchased canoes and other outdoor equipment and built a large outbuilding for storage. The PE teacher at the time led efforts to purchase and maintain equipment and incorporated many outdoor activities into the PE curriculum. When that educator left the school, the expectation for subsequent PE teachers to maintain and use the equipment remained. (I did not determine if this expectation was formal.) Around that same time, the school contracted a local Registered Maine Guide to assist with outdoor activities and programming, particularly the outdoor education (OE) course. The guide became the lead instructor for OE courses and the PE instructor assisted. During these years, and continuing to the time of this study, OE was a course at the high school level. Additionally, outdoor education content was incorporated into regular PE classes at the lower grade levels.

The current PE teacher assessed outdoor skills in the middle and high school levels through a "badging" program. This badging program began as a way to implement a standards-based curriculum. The PE teacher wanted to make the standards and objectives more tangible and to help motivate students to set and work towards concrete goals. With the help of Rural Aspirations, a statewide nonprofit, the teacher created a skills-based badging program that aligned with specific standards and objectives. Students tested their skills (such as fire building or tarp set-up) and earned stickers, badges, and outdoor gear once they reached a certain level of mastery. Outdoor gear that students earned, including water bottles, survival kits, and backpacks was useful during class activities. This badging program began with a relatively straightforward goal of meeting the requirements of standards-based

[6] Maine used funds from the Tobacco Master Settlement Agreement to create the Fund for a Healthy Maine. Some of these funds went to physical activity and nutrition programming, as well as after-school programming. The funds were not earmarked specifically for outdoor education or outdoor activities (Office of Program Evaluation and Government Accountability, 2009; Maine Public Health Association, 2017).

education but ultimately became a program that provided students with clear objectives, motivated them to expand their skills, and incorporated the acquisition of tangible outdoor gear.

Some PE and OE activities took place on school grounds while others occurred close enough that students could use active transportation (skiing, walking, or biking) to reach the activity site. Sometimes the PE and OE classes used buses or vans when the activity was further from school. The school had three minivans available, but at times classes were too large and a bus was required.

The PE teacher was certified in both physical and health education but had neither certification when hired. The teacher used conditional certification and took two years of courses to acquire both teaching credentials (see Footnote 3). The PE teacher had worked at the school for 10 years but had also volunteered in the outdoor program for 10 years prior to employment. The PE teacher was a Registered Maine Guide. This licensure was especially valued by the school administrator who carefully considered safety and liability, particularly around water activities.

The school used a wide variety of funding sources and donations to meet equipment needs for outdoor activities. The tobacco settlement funds served as the catalyst (see Footnote 6); subsequent sources helped maintain equipment, as well as make additional purchases. Some supplemental funding came from a relatively humble source: an ongoing town bottle drive. The School F PE teacher recounted the inception of this funding source:

> Several years ago, I was the math interventionist and I kind of happened on a program that I really liked. We got a free pilot but it was only for a certain amount of time, but I saw what I thought were huge results. And so I approached the hardware store [in town] about just doing a month- or two-long bottle drive. And we brought in enough money to afford that program. And then when I became the PE teacher, he just kept letting me do that and…there were a lot of years that we couldn't really budget…anything because things were tight. But that was [a big

help]...I could find things used and it just gave me the freedom…to look for deals and…that's still going on today. (School F PE Teacher)

In addition to the ongoing bottle drive, the school had written and received several grants from both statewide and regional organizations. Some of these grants were significant, including a recent award that funded the purchase of a grooming machine for cross-country ski trails. Other grants helped start and maintain the school garden.

The PE and OE curriculum was focused on technical and psychomotor skill building, such as learning to cross-country ski, steer a canoe, or belay a rock climber. But it also placed a significant emphasis on social-emotional skills. The PE teacher explained, "It's just letting them take [personal] risks, feel that growth, and be okay with falling and getting back up, and be comfortable with being uncomfortable." In School F PE classes, students were allowed the space to figure things out on their own. Though skills were carefully scaffolded, and students were closely watched, they were also expected to continue trying after initial failure. The teacher recounted specific examples: one student was allowed to struggle for a while to put on cross-country skis without help, another student was allowed to struggle getting uphill so they could feel the joy of gliding down, and a third student was allowed to independently recover from a fall off her bike (that did not result in injury) so that she could see it was part of the learning process. When students were given more space they also observed and learned directly from their peers, something that the PE teacher felt was very valuable.

Over the years, relationships with numerous Maine-based nonprofit organizations had supported School F's outdoor-based work, and had provided equipment, training, and "human power." A statewide nonprofit called the Maine Winter Sports Center (later called Outdoor Sport Institute) provided free use of outdoor equipment, leadership and trip opportunities for students, and professional development opportunities for staff. The equipment was helpful, but according to the PE teacher, it was the professional development support that was even more valuable, "Those were just

some really important building blocks that…didn't keep me dependent on someone coming every week, but gave me enough modeling and access to equipment....And then [they helped with] stepping stones as far as how to get my own equipment."

Outdoor Learning.

Teachers and students at School F used the wooded area, outdoor classroom space, timber frame structures, garden, orchard, and barn for outdoor learning. The nonprofit Rural Aspirations provided curriculum support to teachers to implement outdoor learning that used these facilitates. Specifically, Rural Aspirations staff helped teachers align experiential and place-based curriculum with mandated standards, both in PE (as mentioned previously) and throughout grade level classrooms and upper-level content courses. The value of place-based curriculum components, as explained by the administrator, was that they increased relevance and connected students with their community. A tangible result of the place-based curriculum work was a field guide of the local community created by students. The field guide was researched, written, and published by middle level students and featured information about the built and natural environment around their community. The guide was one outcome of a larger place-based curriculum that middle level teachers had developed. This curriculum featured a six-week block of "regular" content leading up to a three-week block of place-based content that were tied directly together.

The effort to integrate place-based, experiential, and outdoor-focused curriculum went beyond the middle level grades and PE classes. Elementary teachers had also focused on integrating more outdoor experiences into their curriculum, particularly since the start of the COVID-19 pandemic.

None of the four elementary teachers who participated in the group interview had previous training in outdoor learning, even one who had an early childhood education degree. In 2020 these educators received training in the TimberNook curriculum, which was focused on nature-based sensory experiences and play. After the initial training, TimberNook programming was implemented during the

2020-2021 school year. The school ceased following the TimberNook program after one academic year but were still doing what they called “Outdoor Adventures,” where they incorporated a lot of outdoor play and learning. The kindergarten teacher explained, “Last year we did [TimberNook] once a week. This year it’s once every other week.” The reasons for this shift are explained in a later section.

The elementary teachers in the interview explained how they incorporated outdoor learning, (inspired by the TimberNook program) for two hours every other Friday and tied it primarily to science and social studies standards. Some of the teachers incorporated outdoor learning into other aspects of their curriculum as well, including writing, as explained by the first-grade teacher, “Once a week, we go outside, we have an experience and then the rest of the four days they can write about it by looking back at pictures that they’ve taken.”

I witnessed this specific outdoor learning activity during my visit, when the class went outside after recess. The students spent over an hour in the outdoor classroom area, and I watched as they settled into “playing.” The teacher explained to me their process and philosophy on outdoor play, which I placed in quotation marks above because the word play often denotes something separate from learning, which was not how these educators (nor I) would describe what happened during their outdoor time.

The outdoor play began with a quick huddle and encouragement from the teacher to “go make some magic.” The students quickly spread out in the woods and began. The wooded classroom area included trees, logs, boards, a small “kitchen” area, and on the day I visited, fresh snow. Several additional items were always left in the area: pallets, large wooden spools, and tires. Some items were taken out of a storage shed by the teacher: ropes of varying lengths, bowls, pots, and kitchen utensils like spoons and spatulas. The teacher also brought iPads that students used to photograph their activities towards the end of their experience. These photographs would be used as inspiration for their writing in the coming days.

Some students made pizza with the kitchen materials. Others stacked pallets and additional materials to create a boat, and then crafted a fishing pole from a stick and rope to fish from the boat. Students demonstrated gross motor skills such as balancing on and lifting and moving objects like logs. Students also demonstrated fine motor skills, such as tying knots and creating small structures. (Prior to my visit, students had created "fairy houses" in the woods, an activity where students imagine what a fairy would want and need in their house and construct these small abodes out of found materials.)

When students approached the teacher for help, to show off, or to "tattle," they were redirected to "go play" and to use their skills to work things out on their own. The teacher and educational technician were always carefully watching the students, but from a distance. It is important to note that this approach was similar to the space, time, and distance provided to students during PE class. Every few minutes the teacher would flit into a small group quietly to see and hear what they were working on before quickly stepping back again (the teacher called it the "butterfly" method of observation). When I asked why this observation method was used, the teacher explained that the goal was to observe the student activities (for example, hear how they were working together or what vocabulary they were using) but to not disrupt them.

These relatively hands-off methods came directly from the TimberNook training. I asked how the students knew where they were allowed to go in the woods, and the teacher explained they were taught the boundaries and were reminded by pink flagging tape that marked the edges of the outdoor classroom. When asked about safety, the teacher explained that issues were infrequent but if a child was doing something truly unsafe (for example, during that class a student was struggling to move an object that was much too big and risked dropping it on themselves) the teacher would step in to help briefly or suggest that the student try something else. The wooded area was managed, so hazards such as poison ivy were known to be absent. I visited during the winter when there was snow cover, so ticks

were not a concern at the time. Note this region had relatively low tick-borne disease rates but that all counties in Maine are home to pathogen-carrying ticks (Maine CDC, 2021).

Students were allowed to try new things and push boundaries. For example, I watched one student climb onto the outdoor classroom's handicap ramp railing (about 30 inches high) and jump off. When I asked the teacher about it, she smiled and shrugged. Though actions like that might be considered unsafe by some standards, in this setting the teachers were comfortable with students trying new things and they encouraged students to be aware of and responsible for their own safety.

Teachers discussed how social-emotional skill development was prioritized and shared many examples of the benefits of outdoor activities. One teacher remarked that students were taught to view themselves as problem solvers, something that was frequently practiced when lessons were outside. According to the teacher, social-emotional skills were strengthened when students were expected to resolve interpersonal conflicts on their own, which in turn fostered independence. Although a student's first impulse was often to seek mediation from a teacher, an outdoor setting allowed the teacher to maintain a greater physical and visual distance from students than in a classroom. Students relied more heavily on their own communication skills to manage their experiences.

The positive outcomes for students came in the form of physical skills as well as social-emotional and interpersonal skills. One of the School F elementary teachers also discussed the importance of allowing students to demonstrate and explore their psychomotor capabilities, which can be challenging or even impossible to do in a traditional classroom environment. A teacher recalled observing one student:

> I think about…a little boy [who received] occupational therapy. In the classroom he would just run and bump into the tables and the chairs and [be] on the ground…the classroom was so foreign; he just couldn't handle himself. I have a video of him outside, we have those big spools that the electrical wire goes on. And he took a two by four and laid it up against [the spool] and

> he was walking up it, his hands in his pockets, balancing. Walking up and down….That just proves he is capable. (School F Pre-K Teacher)

Outdoor learning opportunities provided a more open environment to the student, who then was able to demonstrate abilities not previously witnessed within the classroom.

The teachers felt that many of these social-emotional and regulatory skills transferred back into the classroom. They observed fewer behavior issues outdoors, and often noted that kids who struggled in the classroom did really well outdoors.

> I've also seen, they'll bring it into my classroom, too. I mean, the kids in my classroom are learning that if something bothers them, they're gonna say, "Hey, can you please do this?" They're communicating with themselves, like, "Hey, you're being too loud, please be quiet." Even just that instead of coming to me being like, [*in a whiny voice*] "They're being so loud!" They're now taking the ownership and saying, "Hey, listen, I did this outside to you. I can do it in here, too." And it works great. (School F First Grade Teacher)

Other teachers shared similar examples of skills developed during outdoor learning, such as conflict resolution and appropriate use of tools.

Though the outdoor learning time was–with few exceptions–relatively unstructured, it was not without skill-building or scaffolding. One teacher explained, "[The students] know that they have to be able to see one of us, they have to be kind to nature, they have to be kind to their friends, and themselves. And, of course, then we put the tools in there too." Appropriately caring for tools was something the teachers felt they needed to address, and it was a topic they had been tackling at the time of my visit. Expectations were communicated to students so they understood and could practice responsible behavior.

A final example of outdoor learning in School F was the recent addition of a high school elective course in 4-H.[7] The art teacher was instructing this course and, along with another educator, had been a driving factor behind the construction of a small barn and acquisition of animals. When I asked what motivated the art teacher to do this, the answer was that they simply liked it. High school students could choose between OE and 4-H as electives; as the administrator explained, "They're outside somehow."

Out-of-School Outdoor Opportunities.

Most of School F's outdoor opportunities were focused during the school day, except for weekly downhill ski outings during the winter and a long-standing outdoor adventure race in the spring. School F did not have an outing club.

The school provided transportation to the nearest downhill ski area for students in the after-school program. High school students that attended the after-school program 15 times before January and then twice-per-week throughout the winter earned free passes to the mountain. The administrator explained why providing incentives for high school students to attend the after-school program was important:

> We tried to do the incentive…for the [ski] trips even before we had that [21st Century] grant. It is so big for our kids to go skiing and it's a great Thursday or Friday night activity…. You know, just to know kids were up doing that [healthy activity] and [coming] home really tired.

Passes and transportation were funded by a federal 21st Century grant (see Footnote 5).

For many years the school had hosted an outdoor adventure race that was open to the public and attracted dozens of racers. Many older School F students participated in the race, and though it was outside of the school day, the event was connected to the curriculum because they practiced and prepared during PE and OE classes. It was very much a community event, as the PE teacher explained,

[7] 4-H is a youth development program that focuses on hands-on learning and leadership skills overseen by the University of Maine Cooperative Extension (University of Maine Cooperative Extension, n.d.).

"A huge piece of the community is involved with running the thing: [the] fire department and tons of volunteers. So, it became a community effort, for sure." Though COVID had disrupted the event recently, there were plans to continue it.

Facilitators to Outdoor Learning and Activities.

There were many facilitators at School F that appeared to center around money but were more fundamentally about community support. Access to funding allowed the school to buy outdoor equipment and create outdoor spaces. The school had successfully applied for both large and small grants from Maine-based foundations. The school had also received larger federal grants including 21st Century funds to support the after-school program and ESSER funds that were used to build three new timber frame outdoor classrooms (see Footnote 2). A local educational nonprofit was housed in the School F administrative offices and helped School F, as well as other area schools, apply for and manage grant funding. Additionally, the regular school budget included support for outdoor activities and learning.

Community Support.

Multiple interview participants viewed the funding of outdoor activities through the regular school budget as direct support from the community. The PE teacher explained, "Even when the tobacco [settlement] money scaled back, the community built it into their budget to support [the outdoor education program] every year." While all funding sources were described as critical facilitators, financial support from the community was especially cherished beyond the simple dollar value:

> Well, and that is where our community also helped, you know, the budget. It's in our budget every year. Maybe not always to the degree [the PE teacher] would like [*laughs*]. But um, it's there. It's well taken care of, I feel like. They have nice equipment, and people expect that. They'll have it and be able to go [on outings], you know? We've never gotten pushback on that. Sometimes, like this year, they have a large [OE] class. They're beyond capacity. And sometimes

it's down to five or six [students]. But even with that fluctuation, people want to keep it alive. So, it's important. (School Administrator)

The community placed a high value on outdoor education and outdoor learning and prioritized funding to support those efforts. Facilities and equipment were able to be maintained year after year due to the support of the community. In a similar vein, the physical education and elementary teachers all discussed the importance of parental support.

The administrator believed that some of the strong community support for outdoor programming stemmed from a desire to make sure students felt they could remain in the community after they graduated if they chose. This made the school a potential solution to the problem of rural "brain drain," instead of a cause of it (Biddle and Azano, 2016):

> I think so much of our economic base for the adults is either agricultural or guiding or the hotel industry, you know, that kind of thing. The cabins. That they see these kids can, not just be attached to the community, but make a living that way. And so I think that's a huge part of it for us. And I think that's why the adults support it so much. They can see that these kids could stay here. We haven't gotten to that level yet, but I think we can. I know that's something [the PE teacher] is striving for right now is for kids to stay in the area and work in the recreation field. (School F Administrator)

Separately, the PE teacher explained that even if students did not end up working in the outdoor industry, they would surely be able to transfer those skills–particularly social-emotional–into whatever career they pursued. Additionally, the teacher believed that the outdoor skills they learned would help them lead healthy and active lives regardless of their career or professional path.

The school budget was one way that community support was turned into funding, but it was not the only way. The administrator explained, "Anytime we put out a request for certain supplies or anything else, they just bombard us with whatever we need." Individuals in the community put their

own funding and in-kind support into these efforts. A specific example of the high levels of community support was an annual multi-day trip to the Katahdin region for middle school students entirely funded by the community. It was explained that in the upcoming year the school will be taking over organizing and funding the trip, not for financial reasons but because it was becoming a challenge for the older community members to organize the outing:

> Well, they are an older group. And, financially it wasn't so hard for them, but to provide the people to staff [was a challenge]. So, we said that we would do that. And we're going to use some of our ESSER funds on that. And we'll take it over in our own budget over time. (School F Administrator)

Though the structure would be changing, the initial community support was what got the experience started and made it part of school tradition. Other examples of direct community support included a donation of property for the outdoor classroom, a land survey to facilitate that gift, and the use of heavy equipment to create terrain features for skiing and biking.

Outdoor programming at the school was a source of pride even for individual families that placed a high value on non-outdoor activities, such as basketball. Particularly at the middle and high school levels, basketball was very important to the community. However, despite representing an additional time commitment for some students, basketball was not a barrier to family support for outdoor activities in the school. The PE teacher explained, “Those same families [that are really into basketball] have been incredibly supportive of building the outdoor classroom and…the ski hill and taking the kids downhill skiing…[as well as] building the cross-country ski [trails]. It all meshes pretty well.”

Time and COVID as Facilitators.

Time management was an important facilitator to outdoor learning and activities. Careful planning of the school schedule allowed for larger blocks of time during which teachers could plan more

extensive lessons. In the year of this study, middle and high school PE and science periods were scheduled back-to-back, so the teachers could coordinate outings and activities. The administrator explained, “They could have a three-hour period if need be…eighth and ninth [grades] together, and then ninth and tenth. So science and PE are doing a lot together right now.”

In School F, COVID-19 was surprisingly cited as a significant facilitator to outdoor learning and activities. As already mentioned, the money from ESSER helped to add more outdoor classroom space. Educators also explained that the pandemic further increased student motivation to be outdoors. Being outdoors during the pandemic reduced viral transmission risk, gave students with break from wearing masks, and provided some mental relief. The gym was repurposed as additional cafeteria space during the entire 2020-2021 school year (due to social distancing requirements), so the only option was to hold PE classes outdoors. The PE teacher explained students soon grew accustomed to this and even became upset in the rare cases when they were kept indoors to work on other skills:

> There wasn't any, “Eh, it’s kind of cold, let's just go inside.” …And then it really got to the point where the kids would give me a hard time if I did choose at times to stay in and do an indoor, like a lecture or you know, show a video, whatever it is. They’d be like, “Why aren't we going outside?” Or if I felt like the weather was really on edge, you know, that day or whatever, they just couldn't comprehend why we weren’t going [out], specifically the junior high. It was so funny. (School F PE Teacher)

The elementary teachers interviewed felt that the pandemic allowed them more opportunities and support to explore outdoor learning. Outdoor education had long been a well-established component of PE at the high school level, but the pandemic allowed it to be extended to younger students in earnest for the first time.

Expectations and Cooperation.

Multiple educators at School F explained that increasing student responsibilities helped facilitate outdoor learning and activities. Elementary educators discussed how the high expectations they held for students in the outdoor classroom area combined with scaffolding skills worked well. The younger students had been taught not to go near the OE students, especially when they were working with fire, and the younger students had "got really good with that [expectation]," according to an elementary teacher. Similarly, students in PE and OE were expected to come to class prepared with appropriate clothing. If a student did not have outdoor clothing of their own, the PE teacher provided it from extras on hand and explained, "Once I know they have it, they're responsible to bring it." These high expectations and consistent student follow-through made it easier to go outside.

Finally, high levels of cooperation, strong interpersonal relationships, and shared beliefs about priorities within School F were clear facilitators. The administrator explained that the teachers truly worked as a team, and that there was not any one person carrying the load of this work. I asked the elementary teachers directly why they were all so enthusiastic to do this work; was it a reflection of their own personal interests in the outdoors? Their initial reaction was laughter, but a couple did self-identify as "outdoorsy." Rather than being driven by their own interests, they explained, they do this work because they see the benefits to students and as an educator team, they support each other. Despite differing academic and personal backgrounds, the staff interviewed demonstrated a shared belief in the importance of outdoor learning and a commitment to continue their efforts.

Barriers to Outdoor Learning and Activities.

Multiple members of the School F staff described time constraints associated with professional development, documenting student outcomes, and meeting curriculum standards as the most significant barrier. Major time commitments were necessary to develop and implement outdoor education into the school curriculum:

> This isn't hard to take care of, but the time to connect our curriculum with outdoors [is a barrier]. It's not just something you just throw on paper and go. And so, [the elementary teachers] had incredible training at the pre-K through fourth through TimberNook. And now [we need] to tie that to our curriculum, because I do think there are learning experiences out there that can happen. So, to ask a teacher to take the time to write that and develop that is hard to do. This year we have a curriculum coordinator. And so for her to work with them, I think we're going to end up bridging that gap and have some curriculum addressed outside that they can bring in and work on all week and talk about. (School F Administrator)

This demonstrates how many of the barriers cited by interview participants at School F were sandwiched by facilitators. Even when addressing hurdles they faced, interviewees were quick to point out how they overcame them. In this case, the newly hired curriculum coordinator (interestingly, a position funded by ESSER) was expected to help alleviate some organizational and planning burdens.

On a foundational level, the School F educators believed in the value of outdoor learning and wanted to do supportive curriculum work. The challenge was in finding the time:

> [TimberNook] was very new for public schools, specifically. They're usually like their own program in the summers, and private schools usually take on that where they can be more flexible. But we found that with TimberNook, it was hard to manage in a public school setting, with trying to fit in our curricular things, our requirements and everything…. And the other thing that I want to add on to is not just only the physical part of the set up and tear down of TimberNook [activities] during the actual school day. But on top of it, you had to do this professional development to kind of back up with the science behind it. And that was something that was also at the end of a workday, you had to do extra and it wasn't built into like maybe our half days, we could spend time working at that curriculum, or having monthly meetings where

> we meet with staff and work through the stuff that we were assigned with the program. So that's what I mean by things had to give. (School F First Grade Teacher)

These time constraints, along with financial barriers associated with TimberNook's per-student cost, were the major reasons the elementary teachers dropped Outdoor Adventures to once every other week and ceased participation in the official TimberNook program. This was the only area of the interviews at School F where overt frustration was evident.

An additional challenge which emerged during implementation of TimberNook and Outdoor Adventures was collecting data and reporting on student outcomes in order to support the outdoor learning curriculum. One elementary teacher explained, "Part of where we dropped the ball was really communicating that data to the administration, because the administration didn't get trained [by TimberNook]." While explaining these barriers in the interview, they also shared they had upcoming professional development time set aside to work through some of these data, outcome tracking, and curriculum challenges.

Student preparedness and weather conditions were cited as relatively small barriers at School F and were again sandwiched by facilitators when discussed by interview participants. Even though it could be challenging for teachers when students did not come to class with appropriate clothing for outdoor activities, the school had extra clothing and boots on hand to accommodate incidental cases of student forgetfulness. This extra gear included rain suits and boots for elementary students that were purchased in part with ESSER funds. During PE classes, students typically wanted to fully participate in outdoor activities and so were motivated to come prepared:

> I'll leave kids inside with an assignment if they're not prepared, and that remedies it because they want to go outside, they want to be involved with what's going on. I think having the right stuff for being comfortable is a big part of enjoying being outside. If you're not comfortable... [*laughs*]. If you're cold or whatever, that's not a lot of fun for anybody. (School F PE Teacher)

It is important to note that coming to class prepared was a significant portion of students' grades in PE and OE courses. Some students might be externally motivated to avoid a poor grade, regardless of the level of internal motivation for participating in outdoor activities themselves.

A weather-related barrier was that School F cancelled outdoor recess and outdoor learning when the temperature dropped below 10°F. This policy could, at times, inhibit opportunities to participate in outdoor activities. One way the PE teacher addressed this was by focusing on indoor activities during December and January, which are often the coldest months with the most unreliable snow conditions.

Concluding Thoughts.

All School F interview participants cited activities, initiatives, and work they wanted to tackle next, and there were no unclear barriers holding them back. Though they were excited to share what they currently did, they were equally excited to share how there were going to keep improving their outdoor learning and outdoor activity opportunities. These educators had visions for improvement and next steps, and were aware of their barriers, limitations, and capacities.

Phase Two Analysis

The results of phase two interviews and site visits helped uncover themes between case schools. Of particular importance was uncovering themes that were unique to the PO school, or that were notably different between the PO and non-PO schools. Though there were some common barriers in each school, there were differences in how each school addressed those barriers and whether or not they were able to overcome the challenges.

Community Values and Expectations

It was evident that all three phase two communities valued outdoor learning and activities at their schools. Town F demonstrated a clear expectation for outdoor activities to be an integral part of the curriculum. This was reflected in the way that the School F community supported inclusion of

outdoor learning and activities in the regular school budget, and in the way that community members volunteered with in-kind donations to support this outdoor programming. The importance of community values will be explored further in the Discussion chapter.

Making and Finding Time

The PO school (School F) primarily implemented outdoor pursuits and learning during the school day, and to a lesser extent, as part of official after-school programming. This meant that out-of-school time was less of a barrier at the PO than it was in Schools A and B. All schools offered varsity sports and because of low enrollment each school had a high percentage of students on sports teams. Since the outdoor offerings at School F primarily occurred during the school day, practices and games did not impede student participation. Conversely, time was a considerable barrier at the non-PO schools, often because there were fewer in school opportunities for outdoor pursuits and learning. Because outdoor opportunities primarily occurred after the school day at non-PO schools, time was an inherent constraint.

School F also arranged their schedule to provide longer blocks of time for outdoor learning and OPs. This contrasts with Schools A and B where both PE teachers reported having class periods that felt too short to incorporate many OPs. An interesting note is that all schools had similar length PE classes (40 minutes), though School F had longer time blocks for OE classes. The School F PE teacher regularly took students cross-country skiing and biking, whereas the School A and B PE teachers felt that their class periods were not long enough to facilitate those activities. This could be a result of differences in educator comfort levels with the activities, a concept that will be discussed further in the section on training and professional development.

Risk, Safety, and Liability

All interview participants, particularly school administrators, expressed considerable concerns about student safety and liability. Despite those concerns, as well as the time and effort involved to

"check those boxes," as one administrator put it, each school was usually able to move beyond barriers related to safety and liability. This was particularly true when it came to having Registered Maine Guides (RMGs) on staff. The value of RMGs was considered by all schools to be crucial in allowing students to take part in outdoor activities, particularly those related to water and fire. All three case schools had at least one RMG on staff. School B required water safety certifications for any water activities, which was a different policy than either School A or F had.

Though all three schools discussed the challenges and concerns around safety and liability, School F participants discussed the *benefits* of risk more than the other schools. Both the elementary and PE teachers discussed the importance of risk taking, both physically and socially, and how much students can learn from taking risks and seeing the outcomes. They all shared anecdotal examples of the positive outcomes of risk taking. Importantly, they also mentioned that parents were generally understanding about the importance of risk taking. Though minor injuries sometimes occurred, teachers felt a simple conversation would help parents understand that the benefits outweigh the risks in outdoor activities.

It is important to note that at least one School F elementary teacher received specific training that helped them consider risks and benefits of different outdoor play and outdoor learning activities, and how to communicate those considerations to parents. The teacher shared an anecdote where they used that training to debrief an incident with parents in which their child suffered a minor injury. According to the teacher, having that training was helpful and the parents were ultimately understanding. It was clear School F teachers felt supported by both administration and parents, and that training they had received boosted their confidence to make decisions about risk and safety.

Money and Access

Interestingly, money was either not a barrier or not a significant barrier for any of the three case schools. Each administrator explained that they receive support (for the most part) to do what they

want related to outdoor activities. Interview participants at each school mentioned ways their communities assisted them, such as donations of money or equipment, access to loaned equipment, or providing other support.

One of the big differences, however, was whether schools needed to borrow equipment (for example, canoes) from an organization or business in the community, or if they were able to do the activity using their own equipment. School A felt that they could borrow anything they needed from people or organizations in the community, but even with that access they did not take advantage of it very often. The School A administrator explained, “You know, the more you have, the easier it is. If we had our own batch of canoes on a trailer, I have a truck, [and could just say], let's go canoeing!” The need to borrow equipment seemed to add another roadblock that impeded access.

School F owned their own equipment and did not mention needing to borrow anything, aside from initial experiences with nonprofits such as the Maine Winter Sports Center. That seemed to be a facilitator because they were able to participate in desired activities when it worked for their schedule. School B both had their own equipment and borrowed equipment from others in the community. However, even with access to their own equipment they did not always make use of it.

Power to Implement Change

Schools A and B both had educators with formal outdoor activity training, even those that were not PE teachers. In fact, the School A outing club advisor had the most formal outdoor pre-service training of all the participants in the study, as their undergraduate degree was in outdoor education. However, despite that level of expertise, they did not feel that they were in a position of power to make much change towards incorporating more outdoor activities. They offered support to teachers and the outing club but described themselves as being “sort of on the periphery.” They were employed as an educational technician and felt the power to incorporate outdoor learning was in the hands of classroom teachers.

In a similar way, the outing club advisor in School B felt their ability to increase outdoor opportunities within the school was limited to the club. A rare expression of frustration in the interviews was the outing club advisor feeling that the PE program should take better advantage of the equipment access the school had. The School B outing club advisor also had formal training in outdoor education primarily through extensive training and experiences in previous employment, though they had taken one related course during their undergraduate program. The School B PE teacher had also taken one outdoor education course as part of their undergraduate program of study, but felt that they remembered very little of it by the time they arrived at School B. The issue of training will be explored further in the next section. In both School A and B, the two educators with the greatest experience and training in the outdoors felt they had very little power to make change in curriculum-based outdoor activities and learning.

Training: Pre- and In-Service

I asked questions about pre-service and in-service training in each interview. Except for the School A educational technician, every participant stated they either had no pre-service outdoor training or that it was very limited.

In-service training and professional experiences through other jobs were a common theme across the case schools. School F educators discussed many opportunities for in-service training focused on outdoor learning and activities. In Schools A and B, participants mostly discussed how outside experiences and personal-time (as opposed to in-service) training was important. This is a noteworthy distinction.

The PO school clearly prioritized in-service outdoor-focused training for both classroom teachers and the PE teacher. These trainings were paid for by the school (through regular budgets or grants) and were supported by the administration. At Schools A and B, some of the educators and administrators went out of their way to organize or support their own training. In some cases staff sought additional

training with the support of their school (e.g., School A administrator took time off for their RMG exam). In other instances, educators attended training on their own time and at their own expense. For example, at School A one of the participants explained that they joined the county search and rescue organization simply so they could get and maintain their Wilderness First Responder (WFR) certification for outing club trips.

A lack of training and experience was cited as a barrier by the School B PE teacher. This may have been one of the reasons that they did not make more use of the available equipment and that they felt particularly burdened by short class periods.

Positive Feedback Loop vs. Roadblock

One of the most notable differences at School F was how facilitators to outdoor learning and activities built upon one another in an additive fashion and created a culture where outdoor offerings were valued, expected, and sustained. Initial professional development for elementary teachers supported their use of the outdoor classroom. And once teachers recognized the improved student outcomes, they were more motivated to continue outdoor learning and get more training. The incorporation of cross-country skiing and snowshoeing helped spur construction of new trails with access near the school, which provided additional venues for outdoor learning. Grants that supported equipment purchases led to more frequent use of equipment, which in turn prompted increased funding in the regular school budget. Though nonprofits have supported School F, that support was considered helpful but not essential for continued success.

The facilitators at School F were additive and reinforcing. This appeared to make it easier to get around barriers because there were multiple paths to move forward. For example, access to equipment and training from the Maine Winter Sports Center ended when that nonprofit restructured. However, the teacher felt adequately trained to continue implementing the outdoor activities and was able to identify multiple funding sources to purchase equipment. Students continued to have access to the

same outdoor opportunities despite new barriers that were created by the absence of the nonprofit and their equipment.

Another example of additive and reinforcing facilitators is how School F elementary teachers incorporated outdoor learning. There were many initial facilitators: an extensive outdoor classroom, considerable access to professional development, and a team approach to the implementation. After the teachers began outdoor learning programming, they acquired a keen awareness of the positive student outcomes. Then, when they faced new barriers due to the constraints of time, curriculum standards, and program funding, the teachers were able to adapt and overcome the challenges: changing the schedule, seeking new ways to implement it (e.g., during writing time), and working together on curriculum adaptation.

This contrasts with some of the non-POs, where the facilitators were more singular and linear. When the facilitators were structured in this way, it appeared to be harder to move past the inevitable barriers that pop up. At School B many of their outings relied on support from outdoor nonprofits. When COVID-19 and organizational changes at those nonprofits interrupted the typical plans, they did not have as many resources to move past the roadblock. School B had considerable outdoor gear available that had previously been used by the after-school program. When the after-school program shut down (due to non-renewal of the 21st Century grant), there was no longer someone in charge of the equipment. The PE teacher felt barriers in terms of time and professional skills to make use of that equipment, and the outing club advisor had additional time barriers. In another example, School A implemented more outdoor learning during the '20-'21 academic year due to COVID-19 social distancing guidelines. However, that programming did not continue once those restrictions were dropped.

Rural Active Living Assessment Results

Data from the two RALA tools, the Town-Wide Survey (TWS) and the Program and Policy Assessment (PAPA), are presented in Tables 5 and 6 below. All three communities had relatively high

TWS scores (see Table 5) because they tended to have safe access to multiple opportunities for physical activity. Items in the TWS that all communities had were schools were in downtown areas, local trails nearby, and nearby parks and other open spaces. Town A was the only town with access to a public swimming beach and pool. The highest possible score for the TWS was 100.

Table 5 *Results of RALA Town-Wide Survey*

Town	*School Location*	*Trails*	*Parks & Play*	*Water*	*Recreation*	TWS Total
A	15	12	25	10	13	75
B	15	12	23	2	21	73
F	15	12	23	2	9	61

Towns A and B had more organized community-based physical activity programming, which partially accounted for their higher scores in the PAPA (see Table 6). Town A scored higher in the school programs section due to their history of walk and bike to school programming. The highest score for the PAPA was 100. The RALA was not focused solely on outdoor physical activity, and it did not appear that the town RALA scores correlated to outdoor opportunities at the case schools.

Table 6 *Results of RALA Program and Policy Assessment*

Town	*Town Policies*	*Town Programs*	*School Policies*	*School Programs*	PAPA Total
A	3	26	15	25	69
B	0	26	15	10	51
F	3	0	15	10	28

CHAPTER 5

DISCUSSION

This study examined why some rural Maine schools make considerable use of outdoor pursuits (OPs) and outdoor learning while other schools do not. I explored the barriers faced in providing OPs and learning opportunities, and how schools were or were not able to overcome those barriers. Specifically, this research investigated how one positive outlier (PO) school was able to provide such a wide array of outdoor opportunities, and how this school overcame barriers and capitalized on facilitators to implement outdoor components of their curriculum.

Theoretical Frameworks

One of the research findings is the possible overlap between increased access to outdoor learning and OPs and the presence of certain elements of a "strong school culture" that are most associated with improved student outcomes. An analysis by Moosung and Louis (2019) showed that five elements of school culture were most closely associated with lasting improvements in schools: *academic press* (i.e., having clear learning standards and high expectations), providing necessary support to students in need, having a community with high levels of trust and respect and low levels of negativity, and the presence of professional learning communities (PLCs). These elements are illustrated in Figure 2 below. My research did not assess school culture or academic outcomes. However, elements of a strong school culture were discussed by some interview participants and became evident through the process of data analysis and coding.

Figure 2 *Strong School Culture*

The elements of a strong school culture as described by Moosung and Louis (2019).

School Culture

I will begin this discussion with a focus on professional learning communities, which are considered the foundational element of a strong school culture (Moosung & Louis, 2019). Research has shown that PLCs typically demonstrate a shared sense of purpose and care for students, link instruction to the shared purpose, and incorporate teacher-led decision making (Deal & Peterson, 2016). Many of these elements were mentioned in interviews. The importance of teamwork, an especially critical element of PLCs, was noted by multiple interview participants from School F (Moosung & Louis, 2019).

> You know, it's not just the young ones. It's not just the ones you would think are outdoorsy, you know…I think they see the value in it. And it came about at a time when you really didn't have a choice [during the pandemic]. You had to get outside….And so it really helped. But they do have that mindset…that's when they get to work as a team. And so that's really big, too. It's not like one person's carrying it. [Grades] 2 3 4, they have a new fourth grade teacher this year. But as a team, they're strong. And then the Pre-K, K and 1, they've been doing it for a couple years now. And they're really strong. (School F Administrator)

In interviews, the elementary teachers discussed ways that they worked together to plan curricula, incorporate outdoor learning, and overcome specific barriers to their plans. Importantly, the elementary teachers described themselves as being a strong team, and separately the administrator said the same thing.

In terms of school negativity, School F had the lowest rate of chronic absenteeism in all nine schools in the sample (Maine DOE, 2019). (Note: these absentee rates were taken in the year prior to the pandemic.) High absentee rates are one indicator of negativity when school culture is measured (Moosung & Louis, 2019). Refer to Table 3 for the rates of chronic absenteeism in the nine sample schools. Other aspects of negativity, such as teacher absenteeism, were not available for this sample.

All School F educators discussed the importance of both academic and social-emotional student outcomes and stated that it was necessary to have clear goals related to student outcomes. These clear goals and associated high expectations are examples of academic press (Moosung & Louis, 2019). Though administrators from School A and B also mentioned student outcomes, they were not discussed as explicitly and extensively as they were at School F and the topic did not carry over into other interviews at the non-PO schools. (It is possible that they were not discussed by outing club advisors because their roles with the clubs were non-curricular, but standards were also not discussed by PE teachers.) Interestingly, during qualitative analysis the code of *expectations* was not used in School A or B, but it was present in School F. Often this code appeared where educators were explaining the clear and high expectations they had for their students.

Similarly, the qualitative code of *standards* (i.e., academic standards) was used frequently in School F interview coding, but not at all in School A or B. The School F PE teacher discussed how standards were used to provide clarity in objectives for the students. Standards were connected to a *barrier* to outdoor learning for the elementary teachers (with the exception of the pre-k teacher) because they felt pressure to meet academic standards that were not inherently tied to outdoor

learning or experiences. However, the teachers felt it was worth the extra work to make those connections because the social-emotional outcomes were so positive. Though I did not interview any upper-level teachers, the School F administrator explained that the middle and high school teachers had been working over several years to tie their academic standards to a place-based, outdoor-oriented curriculum. Universally, in School F interviews, standards were discussed as an important part of having high academic expectations for students. The standards themselves were not really the barrier, but the time required to connect standards to desired instructional strategies and curriculum content could be a challenge.

Multiple participants at School F discussed how outdoor learning and outdoor activities helped support all students, but sometimes provided positive learning experiences and opportunities to the students that needed it the most. This is an example of the student support aspect of strong school cultures (Moosung & Louis, 2019). School F educators shared multiple anecdotes of students who struggled in classroom settings but found success during outdoor learning and activities. This aspect of student support was not mentioned as explicitly or frequently in Schools A or B. School A participants mentioned that outdoor programming, such as their ski program, provided all students with important opportunities but the connection was not made to academic success.

It is important to note that the non-PO case schools also showed evidence of strong school culture. After the PO school, Schools A and B had the next lowest rates of chronic absenteeism of the nine schools in the sample, and all three were below the state average (Maine DOE, 2019). The other six schools were either at or above the state average. School culture was addressed explicitly at School B, particularly when discussing the importance of caring for each other. One example the administrator provided is that School B's teacher contract includes the ability to take medical leave to care for neighbors or other community members, even if they are not related.

Because this study did not assess school culture using standardized tools, the connections are preliminary, but the results are striking. The apparent presence of a strong school culture at the positive outlier school was surprising and opens the door to further investigation.

Locally Relevant Curriculum

In addition to school culture, the results of this study highlight the potential importance of strong positive connections between rural schools and their communities. School F interview participants frequently mentioned the strong connections between their school and the community; the community supported the work of the school in myriad ways and parents and guardians felt the outdoor-oriented curriculum was highly relevant to the local culture. Higher levels of student motivation have been associated with strong connections between communities and rural schools, and also curricula that is carefully attuned to the needs of local communities (Hardré, 2013).

There is also evidence that the use of locally relevant curricula in rural schools is associated with increased teacher satisfaction and lower staff turnover (Roberts, 2013). Decreased staff turnover is associated with stronger school cultures, as discussed in the previous section (Moosung & Louis, 2019). These strong connections between the school and community, along with the presence of a culturally and locally relevant school curriculum, were an important finding from the PO school.

Recommendations

Based on the data from the three case schools, I have developed four main policy and practice recommendations for rural schools and communities that wish to start or expand implementation of outdoor pursuits and outdoor learning at their school. These recommendations stemmed from the ways that School F differed from Schools A and B. However, they should not be considered a blueprint for steps because every school and community has different assets and barriers. Instead, these should be considered suggestions that may help a school and community move forward with their goals in a way

that is most relevant to their location and culture. Additionally, I provide some state level recommendations to support outdoor opportunities at schools.

In-School Time

School F's outdoor pursuits and outdoor learning opportunities happened almost exclusively during the school day, with additional opportunities associated with the school-sponsored 21st Century after-school program. This practice centered outdoor pursuits and outdoor learning as academic, and not a co-curricular "extra," which decreased conflicts with out-of-school activities and increased accessibility to all students.

Schools that wish to expand outdoor pursuits and learning could start by implementing them during the school day. This may require some creative scheduling. One way School F did this was to create blocks between PE and science classes so that outdoor pursuits in PE could be combined/connected to outdoor learning in science classes. Other suggestions from School F included connecting recess to classroom outdoor learning in order to decrease transition time with outdoor clothing. School F elementary teachers also collaborated on outdoor learning plans to decrease the burden of set-up and clean-up.

Alignment with Curriculum and Standards

Schools and educators may want to align their outdoor learning and outdoor pursuit opportunities to academic standards and curricula. If outdoor learning is explicitly working towards curriculum requirements and goals, it may help avoid the feeling that it is impeding on "academic time." Some of this alignment work could be done in teams of teachers, in collaboration with peers at other schools (particularly helpful for PE teachers who may be the only ones in their school), and/or with the help of curriculum coordinators.

Standards and expectations with social emotional learning (SEL) outcomes could be an emphasis in this part of curriculum planning. School F educators noted that SEL outcomes were a major reason

they prioritized outdoor learning, so it may make sense for schools to prioritize those outcomes. A focus on SEL may be particularly useful at the beginning of outdoor learning initiatives.

As much as possible, administrators should support educators in this work by providing time for curriculum planning individually or in teams. Explicit training and time to support curriculum alignment, during both on-site during professional development days and attendance at relevant conferences or courses, helped the School F teachers align their outdoor learning with mandated curriculum requirements.

Long-term Considerations

School F applied for and accessed a lot of grant funding to support their work, particularly initially, but they also incorporated base funding for this work into their regular school budget over time. The base funding greatly facilitated the stability and long-term growth of their outdoor programming. This recommendation also aligns with findings from Edwards-Jones et al. (2018) that showed that longer-term core funding allocations were associated with longer-lasting outdoor initiatives.

Schools that wish to implement or increase outdoor pursuits and learning should seek out free or low-cost resources from outdoor oriented non-profits and should apply for external funding or donations to support initial work. However, at the same time, schools should consider long-term funding and support strategies. Like School F, could your school begin with donations/grants and make plans to start incorporating annual funding into a regular budget? Could an annual or on-going fundraiser (like School F's bottle drive) help support outdoor learning?

This long-term planning may be particularly important as schools consider what it might look like to get "back to normal" after having an influx of extra funds from COVID relief. As much as possible, schools should consider purchases of equipment or upgrades to facilities that will be long-lasting. Additionally, focusing efforts on establishing core facilities such as a wooded trail or an outdoor classroom that can be used for many kinds of learning activities should be highest priority.

Finally, if new facilities are created or equipment purchased, thought should be given to who will oversee the maintenance and use of the equipment. If, for example, a school decides that the PE teacher is responsible for equipment maintenance, they should ensure that the teacher has the knowledge and support to do that work, and that those expectations are passed on if the PE position experiences turnover.

Community Relevance

The final recommendation is for schools to consider what types of outdoor pursuits and outdoor learning are most relevant to their local community's landscape, culture, and economy. School F felt that their outdoor curriculum work was very relevant to the local community's priorities, and they made particular use of local assets such as a river and a bog that were special to their area. Schools could consider what is most relevant to their location and culture, and what special places might help connect students to their local outdoor environments. If a community has a lot of inland water access, the school may wish to incorporate paddling, boating safety, and fishing in their outdoor pursuit PE curriculum. That same school might consider incorporating watersheds, stream ecology, water insect lifecycles, and water clarity into their science and social studies curricula throughout several grade levels.

State Level Recommendations

State level recommendations in Maine are somewhat challenging to produce due to the high level of local control in Maine's public education system. However, based on the data from this study, I have two main state level recommendations to support outdoor learning and pursuits in Maine schools. My first recommendation is for the state to explicitly incorporate outdoor pursuits and learning in appropriate statutory curriculum requirements and policies. In PE this could mean adding outdoor pursuits to the Maine Learning Results. The state could also add requirements for daily student outdoor time (within reasonable weather conditions), which could be met via recess, PE classes, or other outdoor learning opportunities. Outdoor time in such a policy might not always be during strictly

defined OP or outdoor learning but having a state level requirement even about simple time outdoors would convey the importance of these activities.

My second state level recommendation is regarding access to natural outdoor spaces. The state could prioritize, through funding and partnerships with land conservation organizations, providing access to natural outdoor spaces either on school grounds or within walking distance of schools. As shown in the Trust for Public Lands' *Nature Near Schools* map, many Maine schools do not have access to open spaces. The state could require any new school constructed with state funding to include access to open natural spaces either adjacent to or on school grounds. For existing schools, the state could spearhead efforts to connect schools with conserved or accessible open lands. The exact mechanisms of accessibility would depend on the location but might include things such as conservation easements, land purchases or swaps, establishing trails or other facilities on existing publicly owned land, or supporting school use of privately owned land through education about Maine's landowner liability laws.

School F used the donation of a privately owned parcel of land to establish the outdoor classroom spaces, and they used trails on other private and conserved lands adjacent to the school for various activities. It is very hard to incorporate outdoor pursuits and outdoor learning without access to open, especially natural (meaning not playing field), areas. Therefore, increasing schools' access to such places should be a priority.

Strengths and Limitations

The main limitations in this study were the small original sample sizes and low participation rates. The small sample size limited interpretations and confirmation of the data. Additionally, the low participation rates limited opportunities for cross-case analyses. There may have been some self-selection bias that resulted in the low participation rates, but it was not possible to ascertain what (if

any) differences might have existed between the schools that chose to participate and those that did not.

Additionally, the use of both individual interviews and one group interview at School F was a limitation. Group interviews provide opportunities for participants to play off each other's responses, which was not possible in the individual interviews. Limiting the study to include only individual or group interviews would have eliminated that potential weakness.

It is important to note that the COVID-19 pandemic may have played a role in the low participation rates. Throughout the study I heard from multiple educators that the pandemic had caused so much disruption many people were unable or unwilling to take on anything extra, such as participation in a research project. Despite its small size, the original sample was appropriate given the research question. However, having greater participation in both phase one and phase two of the research would have been ideal.

There were two main strengths of this study: the comparative case study design and the positive outlier methodological approach. The positive outlier approach was a key strength of this study because, through my own professional experience, one school was known at the outset to be a positive outlier in relation to the research topic. That PO status of School F was confirmed during phase one data analysis, which provided reinforcing support for the PO method. Phase two data gave insight into the possible complex mechanisms behind the PO status of School F, particularly in relation to school culture.

The comparative case study design allowed for in-depth data gathering and analysis of the three case schools, which provided a greater understanding about the characteristics of both the PO school and the two non-PO schools. Though cross-case comparisons were limited due to sample size and participation rates, the data was comprehensive enough to lead to substantial insights about the three schools and to make some conclusions about the findings.

Future Research

This study uncovered three potential areas for future research: exploring the possible effects of an outdoor learning and OP interventions on school culture, studying possible associations between improved student outcomes and outdoor learning activities, and identifying the impacts of culturally relevant outdoor curricula in rural schools.

A fascinating but extremely challenging area for future study would be exploring the potential connection between school culture and the presence of outdoor learning and activities. Specifically, it would be valuable to assess for a possible cause and effect relationship between the presence of a strong school culture and the facilitation of high levels of outdoor learning and pursuits. This possible relationship would be worth exploring because both variables–strong school culture and outdoor learning and activities–have been connected to improved student outcomes (Moosung & Louis, 2019; James & Williams, 2017; Price, 2015). Future research could ask the question: Does an intervention of outdoor learning and/or outdoor pursuits help improve a school's culture? However, creating a strong study to answer this question would require a Solomon four-group design (Campbell & Stanley, 1963). That kind of design would be incredibly challenging to undertake due to the participant numbers required and variables involved.

The second possible area of future research would consider if and how in-school outdoor opportunities result in improved student outcomes. Some research in this area already exists, though as explained in my literature review, many of these studies have designs or methods that limit their utility. Similarly, research that has explored associations between extra-curricular activities and improved student outcomes has consistently suffered from research design weaknesses (Raffo & Forbes, 2021; Shulruf, 2010).

In my study, educators shared numerous anecdotes attributing improved student outcomes in areas such as behavior and learning engagement with the presence of outdoor learning and OP

opportunities. A possible next research step would be to explicitly study specific student outcomes from an outdoor learning or OP intervention. Such a study would ideally focus on objectively measurable student outcomes and avoid some of the design problems found in previous research. A pretest-posttest control group design would be ideal for exploring this research question (Campbell & Stanley, 1963).

A final area of future research would explore possible relationships between small rural schools and the cultural, economic, and geographic relevance of their curriculum. The educators at School F, particularly the administrator and PE teacher, discussed how relevant their outdoor- and place-based curricula were to the local economy and culture. As rural schools have often struggled with the complexities of their role in relation to student aspirations and an increasingly global economy, this would be a critical area to study further (Biddle & Azano, 2016; Flora et al., 2016).

This aspect of future research could ask the following questions: Can a locally relevant and responsive curriculum increase community support and connections in rural schools? Can a K-12 curriculum connected to the local assets of culture and economy decrease long-term out-migration in rural communities? Do schools with an existing strong school culture tend to find and incorporate unique curriculum components (e.g., studio art, orchestral music, marine science, etc.) that are particularly relevant and valued in their communities? This area of research could also explore the intersections between the existence of an outdoor-based recreation and tourism economy and the types of outdoor activities that local families and youth participate in. There is some evidence that rural residents may have negative perceptions of outdoor activities that are perceived to be done primarily by tourists (Abildso et al., 2021). This potentially fraught relationship between the tourism economy and the local community's valuation of outdoor pursuits would be important to explore.

These are all complex questions, and such research would need to be exploratory. Considering the PO example from my study, it may be that School F has cultivated a strong school culture, at least in part, because outdoor activities are highly relevant to the community's traditions, economy, and values.

It is possible that the outdoor activities help preserve and reinforce the school culture. Exploring these kinds of potential but complex relationships between the relevance of the school curriculum and the important aspects of the school and community culture would be a significant next research step, particularly in rural areas.

Summary

The findings from my study have practical implications for educators and facilitators in outdoor learning and pursuits. Additionally, the findings from this study can help inform both future research and future interventions.

The most significant practical outcome from this study is that the analysis of barriers and facilitators could help schools and other stakeholders determine how they might approach implementing or increasing outdoor learning and OPs in their own educational communities. An example of the potential use of phase two data relates to in-school versus out-of-school outdoor programming. It was clear from the data that additional barriers were often present when outdoor programming occurred outside of the school day. In contrast, incorporating outdoor learning and OPs into the school day seemed to be a facilitator.

Another key lesson learned about barriers and facilitators is how important in-service professional development was for the PO educators. Both in PE and OE settings and for classroom teachers, in-service professional development that was fully supported by the school was crucial. For classroom teachers, using the resources from professional development for team-based curriculum planning seemed especially useful. For PE teachers, professional development assisted with getting more comfortable facilitating specific activities and using new equipment. In contrast, educators at the non-PO schools often described either lacking outdoor-oriented professional training or seeking it out on their own time and at their own expense. The importance of professional development is also supported in the literature (Oberle et al., 2021; Zhang, 2021).

The findings from this study can help inform future research in this field, as well as the development of future school-based outdoor interventions or programs. Schools that wish to incorporate more outdoor learning or OPs, or want to find greater success in their current offerings, can use the lessons learned from the participating schools in this study to support their next steps. Despite the heterogeneity of rural communities there are many practical findings in this study that all schools may find useful.

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APPENDICES

Appendix A: Surveys

School Administrator Survey

School Information

1. School Name
2. Number of students in school
3. Does your school provide Pre-K? (Yes; No; Other)

School Outdoor and Physical Activity Curriculum and Policies

1. Does your school provide daily recess to all elementary school students (Grade 5 and under)? (Yes; No; Other)
2. Does your school provide daily recess to all middle school students (Grades 6-8)? (Yes; No; Other)
3. Please describe what, if any, weather conditions lead to outdoor recess being moved indoors.
4. What indoor space(s) are used during indoor recess?
5. Are students able to be physically active during indoor recess?
6. How many physical education (PE) classes do elementary (Grades 5 and under) students have per week? (1; 2; 3; Other; I don't know)
7. How many TOTAL minutes of PE do elementary students have per week? (45 min or less; 45-60 mins; 60-75 mins; 75-90 mins; more than 90 mins, please provide number; I don't know)
8. How many physical education (PE) classes do middle school (Grades 6-8) students have per week? (1; 2; 3; Other; I don't know)
9. How many TOTAL minutes of PE do middle school students have per week? (45 min or less; 45-60 mins; 60-75 mins; 75-90 mins; more than 90 mins, please provide number; I don't know)
10. What is the PE course requirement for high school students?
11. Is outdoor education (OE) a PE option for middle and/or high school students? (Yes; No; Sometimes)
12. *If yes above:* Please briefly explain the outdoor education (OE) course offerings at your school. (For example, what grades can take OE, how often is it offered, etc.)
13. Does your school encourage walking/biking to school? If so, please describe how.
14. Does your school provide bike racks or other bike storage areas to students? (Yes; No; Other)

School Outdoor Spaces and Programs

1. Please explain if your school has any access to wooded areas, trails, waterbodies, or other open spaces without needing to use transportation.
2. Does your school encourage teachers to utilize outdoor spaces for classroom instruction? Please briefly explain your answer.
3. Please briefly explain how your school's use of outdoor spaces has changed (if at all) since prior to the COVID-19 pandemic.
4. In a typical year (prior to the COVID-19 pandemic), does your school offer field trips to outdoor destinations/activities? (Yes; No; I don't know)
5. *If yes above:* Please briefly explain your school's typical outdoor destination/activity field trip(s).
6. Does your school provide other outdoor programming outside of the school day? (For example, outing club or garden club.) (Yes; No; I don't know)
7. *If yes above:* Please briefly explain your school's outdoor co-curricular offerings. (Name of club/program, ages served, etc.)

8. Please feel free to share any other information about your school and outdoor learning, activities, or facilities.

Physical Education Survey

Background Information

1. Your School:

2. How long have you been teaching PE at this school?

Physical Education Curriculum

3. Please indicate if your school PE program currently offers content in the following activities on a regular basis (at least ONCE in a typical school year; please ignore disruptions due to the pandemic).

Content		
Tennis or Pickleball	Y	N
Badminton	Y	N
Golf	Y	N
Volleyball	Y	N
Soccer	Y	N
Ultimate Frisbee	Y	N
Baseball or Softball	Y	N
Basketball	Y	N
Football (touch or flag)	Y	N
Hockey (floor, field, or ice)	Y	N
Dance	Y	N
Yoga	Y	N
Gymnastics	Y	N
Jump Rope	Y	N
Strength/Fitness Training	Y	N
Swimming	Y	N
Paddling (canoeing, kayaking, or stand up paddleboarding)	Y	N
Rowing or Sailing	Y	N
Biking or Mountain Biking	Y	N
Cross-country Skiing	Y	N
Snowshoeing	Y	N
Downhill Skiing or Snowboarding	Y	N
Outdoor Hiking, Walking, or Running	Y	N
Orienteering, Geocaching, or other Navigation Activities	Y	N
Rock Climbing or Bouldering (indoors or outdoors)	Y	N
Challenge Course (high or low ropes)	Y	N
Group Cooperative Games or Challenges	Y	N
Archery	Y	N
Fishing (any type)	Y	N
Other Outdoor Education Activities (shelter building, fire starting, etc.)	Y	N

4. Please list any other activities not named here that you regularly incorporate into your PE curriculum.
Facilities
5. Please indicate which of the following facilities you almost always have access to for PE classes at your school. For each listed facility please pick one of the four options.

NO FACILITY (your school does not have that facility)
NO ACCESS (meaning your school has the facility but it is not available for PE; for example, the multipurpose room can't be used during PE classes)
YES ON SITE ACCESSIBLE (your school has the facility and it is regularly available for PE)
YES OFF SITE (the facility is available off site but is accessible within walking distance; for example, a wooded trail system near the school).

Please mark one of the YES options if the facility is almost always accessible except for occasional conflicts (for example, school picture days). Please mark one of the YES options if the facility is accessible, even if you DO NOT CURRENTLY use it for PE (for example, you do have access to an outdoor classroom area but you do not currently use it for PE).
Facility
Indoor Gymnasium
Indoor Multipurpose Room
Indoor Fitness Facility (weight room)
Indoor Climbing Area (rock climbing wall)
Indoor Swimming Pool
Outdoor Field Diamond (baseball/softball)
Outdoor Field (soccer/field hockey)
Outdoor Court(s) (basketball and/or tennis)
Outdoor Painted Game Area (four square, hopscotch, etc)
Outdoor Playground
Outdoor Natural Playground (play features primarily made of natural materials, such as rocks or log bridges)
Outdoor Swimming Area (any outdoor waterbody with designated and safe swimming access)
Outdoor Paddling Area (any waterbody with boat access)
Outdoor Challenge Course (high and/or low ropes elements)
Outdoor Natural Surface Trail (maintained dirt, chipped, grass, or other natural trail that is long enough to use for walking or running)
Outdoor Paved Trail (paved path with no motorized vehicle access)
Outdoor Open (grassy) Hill
Outdoor Garden
Wooded Area (forested area that is not primarily a property border or fencing)
Outdoor “Classroom” (outdoor space with seating and other features for school activities)

6. Please indicate if you regularly (more than once per year in a typical school year) make use of each area for PE classes.
Same facilities list as above
Options:
Yes, we regularly use this facility for PE
No, we do not use this for PE
Not Applicable, we do not have this facility

6. Please list any other facilities not named here that your school/community has and that you use for PE classes.
7. Please feel free to share any other information about your school and outdoor learning, activities, or facilities.

Appendix B: Survey Analysis

Physical Education Survey Analysis

1. # of Outdoor Pursuit Activities in curriculum: answered as "yes"
    a. Swimming; Paddling; Rowing/Sailing; Biking; XC Skiing; Snowshoeing; Downhill Skiing; Hiking; Navigating; Climbing; Challenge Course; Cooperative Games; Archery; Fishing; Other OE; Other if OPs
    b. __/15 possible (more possible if other activities listed)
2. # of Outdoor Facilities Accessible: answered as either "yes" option
    a. Climbing; Indoor Swimming; Natural Playground; Outdoor Swimming; Outdoor Paddling; Challenge Course; Trail; Paved Trail; Hill; Garden; Wooded; Outdoor Classroom
    b. __/12 possible
3. # of Outdoor Facilities Regularly Used: answered as "yes"
    a. Climbing; Indoor Swimming; Natural Playground; Outdoor Swimming; Outdoor Paddling; Challenge Course; Trail; Paved Trail; Hill; Garden; Wooded; Outdoor Classroom; Other
    b. __/12 possible (more possible if other OP Facilities listed)
4. Sum Total __/39

Administrator Survey Analysis

1. # of "Yes" or Outdoor-positive answers to the following questions about Policies and Practices:
    a. Does your school provide daily recess to elem students?
    b. Does your school provide daily recess to ms students?
    c. Outdoor recess moved indoors – if minimums are less than 10F = 1
    d. Does your school encourage walking or biking to school?
    e. Does your school provide bike racks?
    f. TOTAL = __/5
2. # of "Yes" or outdoor-positive answers to the following questions about outdoor curriculum and activities:
    a. Is OE a PE option for ms and/or hs students?
    b. Do you typically have outdoor-oriented field trips?
    c. Does your school provide other outdoor programming?
    d. Outdoor facility availability = 1
    e. Does your school encourage teachers to use outdoor spaces for instruction?
    f. If outdoor focus/access increased during pandemic = 1
    g. Other outdoor opportunities = 1
    h. TOTAL = __/7
3. Sum Total = __ / 12

Final Tally

Each case school's total was summed and responding schools were placed relative to each other on the positive outlier and negative outlier spectrum

Appendix C: Interview Questions

Administrator Questions

Order	Question
1	*Tell me a little bit about this school and community. What are your priorities in this school? What are you most proud of?*
2	*Tell me a little bit about outdoor activities and outdoor learning in this school. Where does outdoor learning fit in your priorities?*
3	*What are some of the things in this school or community that help you meet your priorities for outdoor learning?*
4	*What are some of the things in this school or community that make it harder to meet your priorities for outdoor learning?*
5	*Were outdoor activities or outdoor learning a part of your pre-service training or any professional development you've been part of?*
6	*What kind of financial support is there for outdoor learning? Does the school budget regularly include funding for outdoor learning? How is it used?*
7	*What are some of the barriers to implementing outdoor learning that might seem "small"? I'm interested in hearing about every barrier, even if it might not sound like a big deal.*
8	*What are some of the ways you have found to overcome the barriers to outdoor curriculum, even if those things might seem really small?*
9	*With outdoor learning, do you make connections with local partners, programs, or locations? Are any of the outdoor learning initiatives connected to community service?*
10	*Does your school or district have any written policies related to outdoor learning or outdoor time, like recess?*
11	*Is there anything else you'd like to tell me about your school or this community, especially as it relates to outdoor activities and learning?*

PE Teacher Questions

Order	Question
1	*Tell me about your PE program. What are your priorities in terms of objectives and curriculum?*
2	*What do you see as your students' physical activity levels generally? In what ways are they most active, or are there any times or places where they seem to be less active?*
3	*Tell me a little bit about outdoor activities/pursuits in your PE curriculum. Where does outdoor learning fit in your priorities?*
4	*What are the things in this school, or the greater community, that help you meet your goals in the PE program?*
5	*What are the things in this school, or the greater community, that help you include outdoor pursuits in your PE program?*
6	*What are the things in this school, or the greater community, that make it harder to meet your goals in the PE program?*
7	*What are the things in this school, or the greater community, that make it harder to include outdoor pursuits in your PE program?*
8	*Were outdoor activities or outdoor learning a part of your pre-service training or any professional development you've been part of?*
9	*How much discretionary funding does the PE program have to spend on equipment annually? Does any of that funding support outdoor pursuits?*
10	*What are some of the barriers to implementing OPs that might seem "small"? I'm interested in hearing about every barrier, even if it might not sound like a big deal.*
11	*What are some of the ways you have found to overcome the barriers to outdoor curriculum, even if those things might seem really small?*
12	*Does your school or district have any written policies related to outdoor learning or outdoor time, like recess?*
13	*Is there anything else you'd like to tell me about your school or PE here, especially as it relates to outdoor pursuits?*

Other Teacher Questions

Order	Question
1	*Tell me a little bit about your classroom and your students. What are some of your most important priorities as a teacher here? What are you most proud of in this school?*
2	*Tell me a little bit about outdoor activities and outdoor learning in your teaching. Where does outdoor learning fit in your priorities? What about non-academic outdoor time, like recess, what is that like here?*
3	*What are some of the things in this school or community that help you meet the outdoor-related priorities you have in your classroom?*
4	*What are some of the things in this school or community that make it harder to meet the outdoor-related priorities you have in your classroom?*
5	*Were outdoor activities or outdoor learning a part of your pre-service training or any professional development you've been part of?*
6	*How much discretionary funding does each classroom receive annually? Does any of that funding support outdoor learning?*
7	*What are some of the barriers to implementing outdoor learning that might seem "small"? I'm interested in hearing about every barrier, even if it might not sound like a big deal.*
8	*What are some of the ways you have found to overcome the barriers to outdoor curriculum, even if those things might seem really small?*
9	*With outdoor learning, do you make connections with local partners, programs, or locations?*
10	*Does your school or district have any written policies related to outdoor learning or outdoor time, like recess?*
11	*Is there anything else you'd like to tell me about your classroom or your school, especially as it relates to outdoor activities and learning?*

BIOGRAPHY OF THE AUTHOR

Lauren Jacobs is a daughter of Maine. She grew up in Winthrop, Maine, and graduated from Gould Academy in Bethel in 2003. She went on to Bates College in Lewiston, where she majored in English and graduated with honors in 2007. At Bates she was a member of the Nordic Ski Team.

After stints in Québec City and Vermont, she returned to Maine and worked in the nonprofit sector helping increase outdoor sport opportunities and access for Maine children. She also taught physical education in a PreK-8 school. She attended graduate school at the University of Maine, graduating with a Master of Science in Kinesiology and Physical Education in 2017. Her master's thesis research investigated the way Maine elementary schools decide when students go outside for recess and physical education classes.

She is a lecturer in outdoor leadership in the College of Education and Human Development at the University of Maine, where she also coordinates the outdoor leadership concentration and minor within the School of Kinesiology and Physical Education.

Lauren is a Registered Maine Guide and loves spending time outdoors on Maine's waterways and trails. When not in the woods she can be found tending her garden.

She is a candidate for a Doctor of Philosophy degree in Interdisciplinary Studies from the University of Maine in May 2022.