2020

Taking a Walk on the Wild Side: Case Studies of Programs that Integrate K-12 Curricula with Adventure Sports and Outdoor Learning

Jonathan Trzepkowski
Minnesota State University, Mankato

Taking a Walk on the Wild Side: Case Studies of Programs that Integrate K-12 Curricula with Adventure Sports and Outdoor Learning

By:

Jonathan Trzepkowski

A Thesis Submitted in Partial Fulfillment

of the Requirements for the Degree of Master of Science in

Experiential Education

Minnesota State University, Mankato

Mankato, Minnesota

08-07-2020

Taking a Walk on the Wild Side: Case Studies of Programs that Integrate K-12 Curricula with Adventure Sports and Outdoor Learning

Jonathan Trzepkowski

This dissertation has been approved by the following members of the examining committee:

_____

Dr. Julie Carlson, Advisor

Minnesota State University, Mankato

_____

Dr. Jason Kaufman, Committee Member

Minnesota State University, Mankato

_____

Dr. Steven Maynard, Committee Member

State University of New York, Plattsburgh

Taking a Walk on the Wild Side: Case Studies of Programs that Integrate K-12 Curricula with Adventure Sports and Outdoor Learning

Jonathan Trzepkowski

A Thesis Submitted in Partial Fulfillment of

the Requirements for the Degree of Master of Science in

Experiential Education

Minnesota State University, Mankato

Mankato, Minnesota

Abstract

In the United States there are a number of schools that utilize outdoor learning and adventure sports as part of their educational approach. The purpose of this case study was to analyze several programs that utilize adventure sports and outdoor learning in their curriculum and then present their distinguishing features in case study form. This case study selected 16 schools/programs that used adventure education or outdoor learning and created a profile for each one using a set of common guiding questions. This paper offers an interpretation of the findings that goes beyond the 16 profiles by synthesizing common components of the schools. While no two programs had exactly the same characteristics, there were some common components that many of the schools regularly identified with or emulated. These common components were the bond with the learning space that they utilize, their educational approach, and their process of reflection. Additionally, many schools indicated that the lens in which their students viewed and interacted with the outdoor environment, the physical environment around the students, and attributes of their program delivery as their most unique features. Although there were many features that the programs shared in common, it was the way in which each program blended and utilized these features that led to each program's individuality.

Table of Contents

FOREWARD

As a child, I wanted to be many things: a firefighter, explorer, hunting and fishing guide, farmer, and engineer were just a few of my early dreams. One dream that tended to stick around more than the others was being a teacher. At first, it was because teaching seemed to be the only adult profession that still had summer vacation. Over time, my interest grew as I came to respect many of my teachers for the time and effort they put into my education. Many of these teachers were also coaches for the various sports I played. They were committed both on and off the field to support me with both my academic and physical growth.

After my parents convinced me to not get a job as a ranch hand and part time hunting guide in Texas, I attended college and received a degree in Expeditionary Studies. This program taught me skills such as kayaking, backcountry skiing, and how to travel in the wilderness. Although I had always gone on day hikes and on car camping trips as a kid, this was like nothing I had previously experienced. I soon merged my love for the outdoors with my passion for teaching and was a full time outdoor instructor; teaching skiing and snowboarding in the winter, paddling in the summer, and backpacking in the fall. As I gained experience coaching, I began to realize the scope of my instruction. It was far more than how to just handle a kayak or walk down a trail. My students and I discussed weather patterns, pressure systems, tides and hydrology. Together we planned nutritious meals and reflected on our personal growth. We also shared problem-solving strategies when encountering unexpected difficulties. I found that the longer my groups spent together outdoors, the more in depth the discussions and the

content became. I also began to notice how these skills related to the student's Science, Technology, Engineering, Environment, Arts, and Math (STEEAM) classes.

One of the main reasons I pursued a career in teaching outside the classroom was because of the stress of being "locked" inside and having to teach to a test that wouldn't be attached to anything practical. Working outdoors gave me much more freedom to explore learning rather than teaching. In pursuit of my Master's Degree, I have become more engaged in the state of our educational system. This led me to think: What if my expeditions and outdoor classroom can enhance the national educational system while also aligning with its standards?

The larger vision for this project is to create a traveling school that would move across a country, or many, researching a problem developed by the students with the help of faculty. This school would exist both in reality and online. The group in the field would be researching more remote areas while schools participating online would provide data and answers from areas near them. This would allow schools to work together and see their peers in the field, "doing" school as well as get students to engage the outdoor environment close to home. The field portion would only be open to high school aged children while any age could participate in the online portion. Overall, this program would be designed to expose students to the outdoors and provide a link to their studies with experiences; especially to those that would not otherwise have access to the outdoors.

The field portion would consist of a handful of guides and teachers that travel with a group of 10-15 students for three month sections. These students would be

participating in the expedition as well as completing experiments and gathering data to help support the larger research. Students would also be responsible for field reports that could be streamed online giving a firsthand account and doing some question and answer activities with the online community. The field team may also participate in public outreach as they pass through cities and other high population areas. Having older students take the lead is important because of the physical requirements of an expedition as well as role modeling what is possible to younger students. These students will be recruited from towns and cities along the route to limit the amount of travel expenses and to show students that they can have adventure that starts at their doorstep.

The online portion of the school would consist of an online database of lesson templates that will complement the lessons and research being done by the field team as well as an area for schools that are not in the field team to add their own data to contribute to the experiment. Schools that would like to participate can join in from anywhere around the country or even the world to participate. This could allow schools connections to check in with the field team as well as with other schools to compare results or work together on an experiment. Although the curriculum would be designed as an immersive experience that will cover all subject matter, teachers should also be able to opt into just joining the group on certain sections to meet only certain education requirements; science for example. This would help the reception of such a program as not every teacher will be able to fully commit to such a program as I am imagining. This paper is part of a larger process of seeing if this vision is possible, what barriers I may need to overcome, and what schools are already doing to realize my vision.

CHAPTER 1

Introduction

Background of the Research

There are many problems involved with creating an educational platform that integrates K-12 education standards and Adventure Sport Education (ASE); especially as laid out in the forward. The main motivation of this paper is to survey what programs and schools have achieved at least part of the vision of a traveling school as well as exploring what evidence there currently is supporting the idea that this type of educational approach can be effective.

Currently, there are several approaches to outdoor learning that each have their own pros and cons. There are center-based, and expedition based approaches that offer growth in personal and group development (Greffrath et al., 2011). Some use the outdoors as a reflective tool while others use it to generate content. In some cases what is defined as outdoors and accessible can vary greatly between urban and rural schools, as well as those that may have access to a better transportation system (Barnett et al., 2006). Regardless of the model, teachers generally face the same barriers to delivering and integrating ASE as well as outdoor learning into the classroom setting. These barriers commonly include: a lack of instructor comfort in the subject matter, lack of time, lack of interest, politics, dangers and safety concerns, and the worry that students will be distracted outside (Finn et al., 2018; Macquarrie, 2018; Shumaker et al., 2012). Programs have had to address overcoming these barriers in order to be successful.

Most models currently available are geographically bound, causing students to have to travel to participate in the program. This excessive travel and the costs associated with it give the impression that adventure and learning need to happen in exotic locations. Schools such as NOLS (National Outdoor Leadership School) and IWLS (International Wilderness Leadership School) have addressed this issue by having several "campuses" around the world. Another model set forth by Aaron Doering shows that students do not need to be present for the process and that connecting online can be just as valuable (Doering & Veletsianos, 2008). Still other models use the existing parks, playgrounds, and green spaces available to interact with the outdoors that is currently available to them (Barnett et al., 2006). Each model addresses the issue of how to expose students to the most outdoors while trying to eliminate barriers to students and teachers.

Internationally, there is also much interest in outdoor learning. In the UK there is a mandate to include outdoor time into their educational plan (Harris, 2018). Teachers at every grade level are required to include it into their curriculum. Although this provides some great examples of what *can* come from integration of ASE into learning standards, these models have their shortfalls when applied to the United States. This can include the freedom teachers have to leave school grounds as well as the support that teachers receive from the school district and other supporting entities. Since teacher support is listed as a top enabler, this will have to be considered when trying to apply these models in America. While engaging in outdoor learning students will not, usually, be directly active with the facilitators or programs for more than one school year and more often, these exposure times will be much shorter.

Problem and Purpose Statement

The main goal of this research is to develop expedition experiences that highlight involvement with the local natural environment that enhance educational systems and are aligned with their established academic standards. Before the feasibility of developing a traveling school can be determined, there is a need to examine similar or related programs and schools that already exist. With as many different programs and schools seeking to use adventure sports and nature as part of their curriculum, there are an equal number of ways that each program is unique. Examining several of these existing programs using a case study approach while also using elements of a descriptive and analytical studies, is an appropriate way to organize and more clearly reveal their unique features.

Therefore, the purpose of this study is to analyze and present, in case study form, the distinguishing features of several programs that utilize adventure sports and outdoor learning in their curriculum studies. This study will catalogue some of these programs as to how they are using the outdoors and expeditions in their learning, how this interacts with and engages curriculum, how students are engaging or participating in the curriculum and expedition, which student demographics are being represented, and what training, if any, supporting teachers receive in delivering curriculum. Developing a big picture idea of what is happening when combining the outdoors with curriculum will help identify what areas are already being covered as well as determine what areas are yet unexplored.

Significance of the Study

There have been many writings that have already contributed to supporting the effectiveness of outdoor learning, the barriers faced by teachers in implementation, benefits of exposure to nature, and there is also a host of previous case studies as to the impacts of individual programs. As of yet, there has not been a document which compares several programs side by side on how they are meeting educational requirements. This serves to benefit the community of research by comparing the strengths of each program as well as identifying gaps in programming across the entire educational community.

Key Terms

Adventure

For this study, an unusual, novel, or exciting activity, such as a trip or experience, or by the excitement produced from such an activity. Adventures do not need a dangerous component and should be novel to the students participating.

Adventure Learning

"A hybrid online educational environment that provides students with opportunities to explore real‐world issues through authentic learning experiences within collaborative online learning environments" (Doering, 2006, p. 200).

Adventure Sports

Generally considered action sports or extreme sports that are prerceived to have a high degree of risk and/or physical exertion. These often include sports such as climbing, paddling, high/low ropes courses, biking, hiking, skiing, etc.

Expedition

For this study, a class that lasts for three days or more where the students are immersed in the outdoors full-time without full access to modern amenities. For example, a class where the students had been self-supported and slept outdoors, even at a campground, but were not allowed any "front country" amenities, would be considered an expedition.

Experiential Education

A teaching philosophy that informs many methodologies in which educators purposefully engage with learners in direct experience and focused reflection in order to increase knowledge, develop skills, clarify values, and develop people's capacity to contribute to their communities (Association of Experiential Education, 2020). Experiential education is the approach while experiential learning is the action and outcome.

Forest Learning

"Forest School is a child-centred inspirational learning process, that offers opportunities for holistic growth through regular sessions. It is a long-term program that supports play, exploration and supported risk taking. It develops confidence and self-esteem through learner inspired, hands-on experiences in a natural setting" (Forest School Association, 2020)

Guide

An individual whose primary focus is on delivery of technical outdoor skills and providing group safety.

Instructor/Coach/Teacher

An individual who is leading the students who focuses on facilitating curriculum delivery.

Outdoor Trip/ Field Trip

An outdoor event where students are completely immersed in an outdoor environment lasting less than three days or an outdoor event that lasts more than three days, but students have access to electricity, running water, and other modern amenities. For example, a five day trip to a local state park where the students participate in outdoor learning during the day but return to cabins or a hotel at night would be considered an outdoor trip.

Outdoor Learning

Instruction that primarily happens in a natural environment outside of the physical building.

School/Program/Institution

For this study, a place or setting that focuses on learning; specifically related to curricula studies. School, program, and institution may be used interchangeably.

CHAPTER 2

Literature Review

There is a diversity of outdoor programs in existence that experience a wide variety of variables and challenges. There are an equal number of ways in which programs attempt to tackle these challenges and highlight the advantages of such programming. Each approach is unique. The main areas of focus for this review will be the physical environment that students learn in, the different education focuses, the length of time that the instruction takes place, the teaching pedagogy used for instruction, as well as enablers and barriers experienced by instructors in implementation.

Physical Environment

Traditionally, learning areas consisted of a desk in a classroom with the teacher at the front. In an outdoor environment, this organization is often not the case (Macquarrie, 2018). To get outdoors, teachers use a diversity of spaces to "escape" the classroom. These can include urban parks, field trips and adventure centers, wilderness expeditions, and other locations close to home. Although some of these locations might not traditionally be attributed to outdoor learning, they can still be valuable spaces. When trying to maximize the populations reached all types of environments should be considered. In the words on Miller (2012), "Learning can happen anywhere (p.79)."

Urban Parks

Urban Parks are often a very accessible way for teachers to take their students outdoors. Many individuals have trouble accessing nature at a wilderness scale. However, it has been shown that exposure to nature in smaller doses, such as park visits, can help

relieve stress and aid in direct attention restoration (Sullivan & Kaplan, 2016; Ulrich et al., 1991). Sullivan & Kaplan (2016) argued that the simple viewing of nature, such as a plant, even if in an artificial environment, can cause involuntarily distraction; much like white noise. This combination of directed attention and white noise can create an environment of optimal arousal for learning. In a study of 15 teachers from Zurich, Switzerland who took students into the outdoors for learning the instructors initially reported fears that the students would not be able to focus as much on the task and may need to be redirected frequently (Lindemann-Matthies & Knech, 2011). These concerns often proved unfounded. In many ways, urban students accessing nature in urban areas for outdoor exploration increases the way that students care about the project or lesson since they relate closely to the environment around them (Defelice et al., 2014). In a sample study of 30 random students from the Boston School District that participated in outdoor programming taking place in Urban Parks, total of 18,400, the participants showed an increased interest in science and in the sense of stewardship that they had over the parks (Barnett et al., 2010). This connection with environment around them and the park itself leads to increased student engagement with the project.

Adventure Centers and Field Trips

Adventure centers and field trips have been the poster activities for modern outdoor education. Many times, adventure centers have high/low ropes courses and ziplines, while others simply have a large outdoor space and are facilitated with other activities and props. Although center-based programming provides opportunities for both personal and professional growth, the strength is in team development (Greffrath et al.,

2011). Programs have used this to their advantage by integrating physical education credits that meet the standards of team sports (Cross, 2019). Adventure center-based programming utilizes reflection and debriefs of activities about further applications as a vital component of its process (Cross, 2019; Greffrath et al., 2011). Taking time to reflect is a theme that is commonly seen in many forms of outdoor education.

Field trips are another way that teachers commonly access outdoor spaces. These can include trips to the local zoo or nature center, a trip to the woods, or a garden of some kind. It would initially seem that closer distances would make field trip access easier. However, according to Lindemann-Matthies & Knech (2011) closeness to outdoor environments did not correlate directly to more time outdoors. In another study, teachers reported that walking distance was the easiest and the most cost and time-effective option (Barnett, 2006). Adventure centers and field trips have been implemented often and have shown much success in improving the communication and teamwork of a group. When used effectively this can create a productive learning environment.

Wilderness Expeditions

Wilderness expeditions are often considered the gold standard of education outdoors. These immersive experiences often put participants outdoors for a week or more. This time frame allows students to relax and become accustomed to the environment. The same effects of nature experienced by the students in the urban park are amplified by the isolation and novelty of the environment. After three days, however, there is generally a shift in how students perceive their environment and themselves (Williams, 2018). For extended to long-term trips students begin to connect with nature

and think about life in a different way. In a study of 56 participants in an Outward Bound class there was a 50% increase in creativity and problem solving tasks (Atchley et al., 2012). Wilderness expeditions often have a profound impact on an individual's personal development, rather than the development of team skills (Greffrath et al., 2018).

Each physical environment where outdoor education takes place is unique in its own way. Creating a connection with the environment that the students can relate to is an important aspect in all outdoor environments (Bell et al., 2006; DeFelice et al., 2014; Thorburn, 2018). This connection increases student involvement in the activities and curriculum. It is the environment that defines outdoor education and there are different considerations for each learning environment. Often, the students' time needs to be split between traditional indoor settings and the outdoor ones.

Education Focuses

Outdoor programming has a history of very diverse implementation including teaching at-risk youth, guiding children on forest trips, substance abuse recovery, preparation programs, environmental education, and social justice (Goodman, 2008). This study primarily focuses on ways that connect these uses with a curriculum that were found to have five generalized focuses. These focuses included physical education, STEM (Science, Technology, Engineering, and Math), generalized curriculum integration, environmental education, and are used as a way to engage students in a career field or activity.

Physical Education

Physical education has shown to be a way that many schools introduce outdoor programming. The physical demands and sporting nature of many adventure sports and outdoor activities lend themselves as a natural partnership with physical education standards. Although natural, physical demands can often be a barrier as well. Engaging students in low impact activities such as paddling, biking, and hiking creates a more welcoming experience for the general student and is something that they will be able to pursue for a lifetime (Schwab & Dustin, 2014). These activities also provide an alternative opportunity for students to be introduced to physical activities that are not traditional team sports, which are the focus of many physical education classes (Cross et al., 2019). In addition to providing a new avenue for students to participate in outdoor recreation and team sports, outdoor adventure education also creates skills that students are more eager to use. In a study of 228 British university students, that completed both a pre- and post- participation survey, in an adventure education course showed a large development of student's group work skills and a higher intention to use these skills in the classroom through the completion of the outdoor education segment (Cooley et al., 2016).

Although stand-alone adventure sport physical education curriculum has proven beneficial it has been shown that when combined with other curricula, its benefits increase even more. A study of 44 children from two fourth grade classes in Massachusetts showed that when outdoor physical education was paired with science education in a co-curriculum there was an increase in both science test scores and interest

in the environment (Finn et al., 2018). Using adventure sports to meet the physical education standards provides new opportunities for students to participate as well as helps increase their interest, especially when paired with another area of study.

STEM (Science, Technology, Engineering, and Math)

Recently in K-12 education, there has been a push toward focusing on STEM in the curriculum. Although, traditionally, these subjects are taught independently there has been a move toward looking at how they overlap and work in conjunction with one another. Outdoor programming provides a prime platform for this delivery because of the way that it fully involves the student with the activity. While participating in the outdoors activities students get to see both natural elements, such as the terrain, in contrast with human elements, such as maps. Just as in the STEM fields students engage both natural senses as well as instruments that enhance the senses to find a solution (Houghham et al., 2018). While on outdoor trips, especially ones that take place in a novel location or cover any distance encountering different cultures is part of the experience. Even though STEM is generally associated with jobs and activities within the four fields such as a scientist, programmer, engineer, or statistician there is room to view how aspects of STEM and adventure education revolve around cultural components as well. Merging culture and STEM can help students better understand how problem solving can be universal and help create cultural appreciation (Miller et al., 2012). With its immersive nature as well as the diversity of experiences offered outdoor education brings an experience that is as inseparable as the aspects of STEM itself. This creates an organic experience for the student, which is representative of the learning objectives of STEM.

Generalized Curriculum

Generalized curriculum covers a large number of subjects. This differs from STEM education in that instead of focusing on the integration of subjects such as in STEM, generalized curriculum focuses on subject specific curriculum standards. Outdoor learning lessons can focus on one set of standards, or can meet the needs of many classes. Overall, teachers that were less bound by curriculum standards felt more confident in incorporating outdoor education.

In interviews of 20 forest school practitioners, Harris (2018) found that the absence of standardized assessment was thought to decrease the stress of the students and teachers allowing the class to adopt different learning styles and engage in more student-initiated learning. When instructors do need to incorporate curriculum standards MacQuarrie (2018) found that outdoor learning was well suited to support interdisciplinary connections increasing knowledge acquisition and retention, after interviewing 14 teachers from Ireland and Northern England. However, over time both parties, bound or unbound by standards, reported increased confidence in delivering their lesson plans and the effectiveness of each lesson. Those instructors that needed to meet curriculum standards taught many different subjects including English, mathematics, science, art and design, geography, music, and even computing (MacQuarrie, 2018).

Although many teachers sought assistance in introducing outdoor learning and Adventure Learning in their classrooms very few teachers followed suggested lesson plans in their entirety; many chose to pick lessons that applied to what they needed, or only partially followed the lessons (Doering & Velestianos, 2008). This varied

application is evidence of the necessity for teachers to create lesson plans that conform to the students' interests. Although not followed to the letter, the classes still followed the general path that was set forward. This is reflective of the way outdoor adventures happen, the group may not stop exactly where it planned all the time, but they still follow the same general route that was planned.

Environmental Education

Environmental Education is arguably the form in which most students experience outdoor education. These experiences usually focus on knowledge and understanding of the environment and environmental challenges. Programs hosted at local nature centers and outreach days at zoos are popular activities for students to engage in outside of school and are popular destinations for field trips. Participation in environmental education has shown to increase the student's awareness of their place in nature as well as their pro-environmental values. In a study of 451 school aged children ranging from under seven to older than ten participating in an environmental education outreach program showed increased perceived health and wellbeing, a better nature connection, and increased pro-environmental values after taking a pre- and post- participation survey (Sheldrake et al., 2019). Those students who already rated themselves as having high scores showed less improvement than those who initially ranked themselves as lower before participating in the programs that were hosted once a week for one to six weeks (Sheldrake et al., 2019). When using the outdoors as part of environmental education simply being outdoors is not enough to create a meaningful experience. Time must be taken for students to reflect on the experience, particularly when it comes to discussing

the morality of our place in the environment (Thorburn, 2018). Being surrounded by the environment when outdoors does not automatically equate to the children learning about it, care must be taken to make sure student engagement is meaningful.

Generalized Engagement

Often it is essential to engage students in learning that may not be directly related to curriculum. This can include giving students a way to be more active when not in class or to give an orientation to a new campus. With the prevalence of cell phones and free applications, geocaching has become a way to engage students in an outdoor activity that requires a little experience and utilizes tools that the students already possess and gives students a pathway for creating their own caches (Suarez & Dudley, 2012). The use of outdoor-based first-year experience programming has also shown an increase in retention and greater knowledge of campus facilities as compared to students who received the same orientation in a traditional (indoor) setting (Bell, 2012). The goal of every education plan is to give students the tools for them to explore their questions. This includes the knowledge of the resources available to them and where those tools are. Although many students will attend a new school only a few times in their life, positively introducing them and allowing them to get to know the physical space they will be learning is important.

While outdoor education has been shown to meet the needs of all curriculum standards it is rarely implemented as an exclusive approach to meet all curriculum needs. Many variables may lead teachers to implement outdoor education with one subject versus another. Some subjects are tested more rigorously, and teachers are less likely to

pursue outdoor education in these areas as compared to other subjects that are not as tested (Harris, 2018). Some subjects tend to have a much more natural connection to the outdoor environment, such as environmental studies as compared to chemistry. It is also dependent on the role of the teacher in the classroom and who develops the student's curriculum. In K-6, one class is usually assigned to one teacher, while in grades 7-12 the students may encounter many teachers throughout the day. Whether the instructor is responsible for one subject or general education will also determine what subjects are focused on. Despite these many variables, educators have found ways to meet the curriculum standards for students in K-12 and a diversity of other areas using outdoor education.

Length of Program Delivery

The length of time that outdoor education units run varies greatly. There are many variables including the role of the educator, the amount of freedom and budget provided, the goals of the unit, as well as the time and equipment available that dictate the amount of time that can be spent outdoors. To maximize immersion, it would be best to be outdoors for at least three days in order to regulate the body to the outdoors and create an optimal mindset (Williams, 2018). However, spending time as a class overnight can create many logistical problems since many teachers have that time window split into short (e.g. 50 minutes) class periods for the school year; which lasts an average of 36 weeks in the United States (National Center for Educational Statistics; n.p.). The demands of each teacher are unique but there are a few basic models that are used by schools that highlight the outdoors in their educational philosophy. These include

intensive courses, semester or multi-week long programs, and outdoor engagement that lasts for the school year.

Intensive Courses

These engagements with outdoor education are usually highly immersive but short in time. Although these courses often take place at exotic locations with overnight accommodations they can also happen as a series of local day trips. This includes events such as staying overnight at a camp for the school week, doing a series of all-day events, or any other event that is not sustained throughout the rest of the school year. These intensive trips or experiences are implemented throughout the school year. Some focus on group development and orientation type activities at the beginning of the year (Bell, 2012), while others put students in the field as the primary data gatherers throughout the school year (Veletsianos et al., 2015). These opportunities provide the most in-depth experience but generally are not sustainable time commitments for most teachers.

Semester/Multi-week

Implementing outdoor education across an entire semester or for multiple weeks is possibly the most popular implementation method, as this is how many schools arrange their schedules. During these programs, outdoor learning usually takes up a smaller but more manageable time in the learning environment; such as meeting for a few hours a week over a longer time period. Teachers responsible for teaching one classroom of students may devote a section of time to outdoor learning per week while educators with multiple classes may focus the majority of each class period to outdoor learning. These

provide opportunities to merge classroom instruction and outdoor learning that can serve to strengthen learning (MacQuarrie, 2018).

Full School Year

Implementing outdoor learning over a yearlong timeline is usually an extension of the multi-week model and may include intensive courses. Having more time allows students to let their ideas mature more and for them to take on more intensive projects (Wilhelm et al., 2014). Although being flexible and able to develop a lesson plan around students' questions is important in all lengths of programming, it is especially important to do so with longer projects. It also allows students the opportunity to experience the outdoors in a diversity of ways.

The length of time that a teacher commits to outdoor education depends on many variables. Regardless of any model, there is always a length of time devoted to classroom instruction or using facilities, such as labs, that are not present in the natural environment. This indoor time can be more effective when the classroom portion of the exercise compliments the outdoor section. For example, a student that attends an outdoor learning class for Biology, on topic A, then goes to an indoor English lecture, on topic B, the next period does not see the same benefits as if the courses were connected; with both courses focusing on topic X. In the end, teachers generally take advantage of what implementation method is most supported by their educational setting.

Teaching Philosophy

Although every teacher's style is unique, there are a few prevalent teaching philosophies that have historically been, and still are, prevalent in outdoor education.

Concepts of experiential education, particularly ideas forwarded by American educational philosopher, John Dewey (1938), are still found in many delivery styles. Dewey promoted the use of pragmatic learning using his pattern of inquiry that involves questioning, investigating, creating, discussing, and reflecting on new ideas for students. Newer learning concepts such as adventure learning are helping shape a different model by combining distance education and outdoor learning. Some models are more prevalent in Europe, such as forest schools, allowing students to use nature as the classroom more freely. Each of these philosophies can provide the same outdoor based learning opportunities for students to lead the questioning, engage in the research and data collection, come up with their own solutions, and reflect on the process. However, the main difference is in how the students engage with the outdoors during these sessions. In this section the prevalent teaching philosophies of experiential learning, adventure learning, and forest education will be discussed.

Experiential Learning

This educational philosophy, popularized by John Dewey, and best articulated in his 1938 publication "Experience and Education", highlights students "doing" the learning and reflecting on the activity, rather than being passively fed the information. This method of inquiry is meant to create educative experiences that lead to an expanding world of subject matter (Dewey, 1998). Highlighted in Dewey's process was the need for reflection after the experience. Reflection is necessary as it allows students to process the events and view how they could have improved the process and what other applications their experience may have (Wilhelm, et al., 2014). Dewey's model of reflection serves as

a great basis for reflection but can fall short of the modern need for students to reflect on the morality of their actions (Thorburn, 2018). Although not many schools or programs operate under the direct title of Experiential Education, the themes and processes are heavily reflective of many outdoor learning experiences.

Adventure Learning

Adventure Learning is defined as " a hybrid online educational environment that provides students with opportunities to explore real‐world issues through authentic learning experiences within collaborative online learning environments" (Doering, 2006, p.200). To bring this vision to fruition classes participate in online learning centralized around an expedition team. Center points of this distance involvement are an online chat room where different classes post their findings and questions for the team, as well as weekly trail reports from the expedition team. This connection increases student engagement with the activity (Koseoglu & Doering, 2011). Having an adventure is the cornerstone of this philosophy. Having an adventure that is time-bound, encompasses a storyline, and has the involved participants addressing an issue in need of action will create the best involvement when using this teaching approach (Veletsianos et al., 2015). A good storyline encompasses a sequence of lessons, in which each new step is driven by student's questions that arise from their interactions with phenomena that they are studying (What are Storylines, n.d). Using this learning philosophy and class structure to teach agriculture, environmental science, and history has allowed teams of educators to reach thousands of students and expose them to communities and regions outside of their own.

Forest Education

Forest education is focused on using learning opportunities that are brought forward by student's play and interaction with nature to lead the inquiry process (Turtle et al., 2015). The valued outcomes for student development focus on both physical and social skills as well as an understanding of the natural environment (Lindermann-Matthies & Knecht, 2011). This approach separates itself from direct involvement with the curriculum, although there is an acknowledgment that curriculum-based goals are being addressed (Harris, 2017). Unlike other learning philosophies, in forest education, going outside as part of the class is required. This time outdoors can be done in sessions to different areas and allows each session to have a distinct focus to reflect the student's questions. This aids in its implementation in urban areas or when teachers do not have access to the outdoors during all their sessions. The mandated time outdoors can be daunting to some teachers who cited students' lack of attention and classroom discipline being concerns that they faced pre-implementation (Lindermann-Matthies & Knecht, 2011). Forest education offers a blend of traditional classroom instruction with focused outdoor activities mixed in. With a target of both the development of student knowledge as well as social development forest education offers a diverse learning experience.

While many aspects of the different teaching philosophies overlap, they each address the use of the outdoors in the classroom differently. Experiential Learning creates projects or activities that students complete and reflect on, giving the students a chance to improve and apply skills elsewhere. Adventure Learning gets the students exploring their local area and making connections with other students around the world, while Forest

Education focuses on using nature as the starting point of questioning and using the ideas developed to be further explored. In all three, students leading the questioning which creates a need for the teachers to be educated about the process that the students are going through. Since it is not possible to foresee every obstacle teachers may be pushed out of their comfort zone as they learn with the students (Hooks, 2017). This is all part of the process and part of what makes this approach to education unique and challenging.

Enablers and Barriers to Implementation

Wanting to utilize outdoor education in the classroom is the first step, and probably the easiest, that any instructor must take. When moving forward to implementing outdoor education there are common barriers that can prohibit the implementation of outdoor education. These range from having less freedom of what material they are going to teach (Barnette et al., 2006) to the time administration allows classes to go outdoors (Atencio & Ten, 2016). Some challenges are more perceived by teachers than others, yet each challenge presents its own hurdles for them to overcome. Fortunately, there are also ways that teachers can be supported in their efforts. Although it may not be possible to remove every barrier by creating enough support in key areas, these difficulties can be overcome.

Barriers to Outdoor Education

With its diverse implementation style and varied context that it is delivered in, outdoor education can create many barriers that are unique. Significant barriers that commonly present themselves are lack of comfort in the environment, dangers and safety concerns, fears that students would have trouble concentrating, time limitations, and

politics (Shumacher et al., 2012). How these factors affect the teacher's application of outdoor education is varied.

Teacher Comfort. When teaching outdoors classroom instructors are pushing the comfort zones of themselves and their students. In an interview of six teachers and one administrator it was discovered that discomfort for teachers can stem from not having perceived control of their classroom, being unfamiliar with the outdoors themselves, and a lack of interest in the environment (Shumacher et al., 2012). Given the student-led nature of the programming, teachers can often find themselves being asked questions that they do not have answers to or the lesson going down a different line of inquiry than anticipated (Hooks, 2017). Being caught off guard and not knowing answers can make some teachers unwilling to put themselves in this situation. Lindemann-Matthies & Knecht (2011) found that after a few trials, teachers from Zurich, Switzerland, became more comfortable with this but took some practice to get used to the process. Shumacher et al. (2012) concluded that some teachers simply were not motivated by the outdoor setting. When the instructor is unmotivated or insecure while delivering the lesson, it can create a cascade effect that goes onto the students.

Danger and Safety. Danger and safety are perceived very differently from one person to another. While one may view an activity such as a walk down the trail as exciting and novel the next person could be entirely bored with the experience. Since outdoor learning happens in a host of environments the specific types of dangers and risks are vast. While visiting an urban park there will be a greater threat from other people, while a class taking a hike up a mountain may be at a greater risk for

hypothermia. Safety concerns are a perceived barrier, however, they rarely serve as an actual barrier to participation (Ernst, 2013). The researcher believes this to be related to the programs that teachers choose to run or hire out as related to their comfort level outdoors. Since most K-12 teachers do not regularly teach outside they are more likely to outreach to centers or guide services for all but the simplest of outings.

Student Behavior. Many teachers perceived student behavior would negatively affect student participation and lead to the students not being able to stay on task. In most cases, teachers found the outdoor environment had the opposite effect and students became more engaged (Lindemann-Matthies & Knecht, 2011; Shumacher et al., 2012). This effect can be contributed to the ratio of "soft" and "hard" fascinations in the outdoor environment. Kaplan (1995) found that having to continually focus your voluntary attention created “hard” fascinations that worked against the grain of your mind and caused mental fatigue, while letting your mind naturally focus on elements allowed for “soft” fascinations and restored cognitive function. The outdoors is full of soft fascinations, like the wind in the trees or the gurgle of a brook. It is also full of hard fascinations, such as having to navigate down the trail. An indoor classroom is usually filled with hard fascinations but lacks soft ones. This combination of both hard and soft focuses makes the outdoors an ideal environment for students’ brains to process ideas and concepts (Kaplan, 1995). The outdoor environment also gives students a larger area to work in than a traditional classroom provides. Harris (2017) noted, “Forest school practitioners found that the larger physical space enabled the children to engage in

behavior that was not possible in a classroom situation…"(p.228). Overall, student behavior is presented as a perceived barrier rather than representing a severe obstacle.

Time Limitations and Politics. In the modern classroom teachers are put under more and more strain to meet testing requirements and minimum scores. This can create an environment in which a new instructor will be hesitant to implement a new and time-consuming learning process for fear of resistance (Schumaker et al., 2012). This is one of the reasons why experienced instructors are more likely to utilize outdoor education in their lesson plans (Lindemann-Matthies & Knecht, 2011). A group of 46 early childhood education teachers from northern Minnesota found that time was not a real barrier as they were still spending the same amount of time on curriculum, just in a different environment (Ernst, 2013). Perceived time limitations and politics can be insurmountable barriers in an unsupportive environment but can be non-existent in one that already has an outdoor learning environment.

Educators seeking to start integrating outdoor education into their lesson plans can be overwhelmed by the barriers facing them. Some of these barriers are simply perceived and will not hinder progress with some planning. Other barriers are very real and will push instructor's limits and lead to some creative thinking. In the end, outdoor learning has been implemented in many classrooms and it has been shown that most of these barriers can be overcome.

Enablers to Outdoor Education

Although it may not be possible to eliminate every barrier to the implementation of outdoor education, the administrators and teacher educators can provide support to

teachers that may help them overcome these obstacles. This support can come in many forms including teacher education, helping provide materials, creating a culture of outdoor learning, and providing a source of feedback. These sources of support come from both within and outside of the classroom.

Teacher Education. Teacher education is continually listed as a very important contributor to implementing outdoor learning. This corresponds directly to eliminating the barrier to teacher comfort. Since many educators may be unfamiliar with their new, outdoor, teaching environment gaining a level of understanding in this new space will increase confidence. This can be achieved through a mentor program within the organization or by attending outside training (Lindemann-Matthies & Knecht, 2011; Veletsianos et al., 2015). When interviewing five teachers that had used supporting curriculum and educational tools for Adventure Learning, Veletsianios et al. (2015) noted that teacher collaboration and communication increased the experience for both the teachers and the students. In addition to operating in a new environment, educators may also need to learn the new pedological approaches and how to apply those (Veletsianos et al., 2012). Teacher education is a vital component in delivering outdoor learning. One educator can only reach so many students, increasing the number of teachers with the knowledge and increased confidence that comes through training will help reach more students effectively.

Administrative Support. Aside from giving the instructors freedom to use the outdoors as part of the education environment administrations can do much more. Administrations can acknowledge the achievements of teachers who teach outdoors,

which can help encourage more teachers to integrate the outdoors into their classroom (MacQuarrie, 2016; Shumacher et al., 2012). In a positive culture less experienced instructors will be encouraged, and supported, in trying new teaching techniques, thus actively working to break down a barrier for less experienced instructors to implement outdoor teaching. Administrations can also help organize and oversee the aforementioned mentoring program and help provide teacher training (Shumacher et al., 2012). Interviews with fourteen teachers from eight schools in Scotland and North of England found that teachers also appreciated the patience administration had as the projects developed over the semester or even the entire school year (MacQuarrie, 2016). Although administrative support is listed as a top enabler of outdoor education it is generally listed as a broad supporter rather than being a decisive actor.

Relevant and Accessible Materials. Teachers have long relied on textbooks and curriculum guides as a source of information for the students and as a guide through the material. Following this familiar practice of providing relevant and accessible materials for teachers to use and implement will help aid in teachers taking their classes outdoors. To create an experience that meets the unique needs of each class it is to be expected that teachers will not implement the lessons and supporting materials verbatim. Creating a curriculum that is flexible so that teachers can implement it ways that work best for their situation will aid in the application in the classroom (Veletsianos, 2015). When developing these curricula planning well in advance and considering several avenues of inquiry are important (Miller et al.,2013). Activities and workshops that revolve around problem solving or research processes will allow students to engage in a broad line of

inquiry (Veletsianos, 2015). Making these materials in an online format will allow students to access it from home and potentially engage their whole family in the experience (Doering & Velesianos, 2008). Whether the curriculum is teacher created or provided by an outside source it is important to keep it flexible, base it around general processes rather than specific ideas, and make it accessible to students.

Summary

Each iteration of outdoor learning is unique in almost every way. The areas that teachers have accessible to them vary greatly; from city parks to wilderness preserves. Educators take advantage of what opportunities they have whether they are taking a walk to an urban park, arranging a field trip to an adventure center, or taking the time for a full-blown expedition. Each approach has its strengths and shortcomings while still creating unique opportunities to take the classroom outdoors.

The focus of the outdoor experience is catered to the needs of the institution, whether that is for meeting curriculum standards or providing an alternative activity for students to get outdoors. Teachers have found success in using the outdoor classroom to meet the requirements of physical education, STEM studies, generalized curriculum, environmental education, and has been shown to generally increase interest in the content. The versatility of the outdoor classroom allows a host of educational goals to be met that can be both teacher and student generated. Many times, the structure of these outdoor experiences is dictated by a time schedule that is out of the teachers' control. Teachers will implement these lessons as intensive courses lasting a semester or an entire school year.

While teaching, there are common pedagogies used to create an environment that the students feel free to lead. These pedagogies draw heavily from the philosopher, John Dewey, and experiential education, as well through newer methods such as Adventure Learning and forest education. These methods generally encourage student driven inquiry and can sometimes put teachers in an area of learning that they did not anticipate. This often requires flexibility in teacher's lessons.

Teachers work hard to combine these elements of place, educational focuses, the time they have to plan and implement programs, and presenting the information in a way that their students will understand. All this must be accomplished while overcoming the many barriers they face including lack of comfort in the environment, dangers and safety concerns, politics, and fears of losing control of the classroom. Administering outdoor education is a very involved process that requires a lot of work from the teacher, administration, and students. When working together this can lead to a learning environment with increased engagement and learning for all participating.

CHAPTER 3

Research Methods

The purpose of this study was to analyze several programs that utilize adventure sports and outdoor learning in their curriculum and then present, in a case study form, their distinguishing features. While seeking how each program deals with challenges in using the outdoors as a medium for education it was essential to find what makes each program unique. This approach combined elements of a descriptive and analytic approach as I sought *what* programs and standards currently exist and *how* these programs operate and integrate elements of K-12 standards, respectively.

This chapter discusses the criteria for sample case selection, data collection procedures, and the data analysis process culminating in the creation of program profiles. While a common list of guiding questions was used with each evaluation it was inevitable that additional questions and points were added. This added to the overall diversity that each program displays. Data was collected from organizational websites, email inquiries, and conversations with representatives. During the time of data collection, COVID-19 had an effect on how schools were delivering information. This study focused on how the selected programs delivered content for their "normal" courses and did not take into account any temporary changes that were implemented in response to the situation.

Case Selection

Prior to data collection, there were an unknown number of schools that offered outdoor learning as part of their curriculum. This was due to the number of individual teachers that may implement outdoor learning independently, statistics of this

implementation method are not part of a national database, and the general lack of a universal definition of what classifies as outdoor education. For this reason, schools and programs with outdoor education goals in their mission statement and in their advertising of student activities were selected. A population of 30 programs in the U.S. was identified that provided outdoor learning for K-12 grade students as a part of their missions or as a whole. After the initial screening of the programs, 20 were initially selected for the study; 16 of which were ultimately included for data collection and analysis.

Selection Criteria

While selecting programs for this study a number of factors were considered including setting, length, and educational goals. Programs that used the outdoors in both an expedition environment and as part of the classroom were included. The length of delivery needed to be at least one semester or equivalent credits; including programs offering overnight and day programming. Most importantly, the programs needed to have the objective of meeting K-12 curriculum goals; inclusive of state, national, or private curricula.

Programs

Due to COVID-19 not all of the 16 selected schools were able to be reached for discussions with staff members. Six schools were reached for discussions, allowing for complete profiles to be created, while 10 schools could not be reached and resulted in incomplete profiles using the company's website and promotional materials. The programs that have complete profiles are: Chadwick School, Camp Chewonki, The

College School, High Mountain Institute, Ripple Effect, and The Riveredge School. Programs with incomplete profiles are: Adventure Learning, Colorado Rocky Mountain School, Inspiring Girls Expeditions, International Wilderness School, Pali Institute, Proctor Academy, National Outdoor Leadership School, Outward Bound, World Class Academy, and World Ocean School. A brief introductory description of each program follows below.

Adventure Learning. Being less of a program and more of an educational approach, this method of learning was developed by Aaron Doering and used four distinct expedition programs to meet educational goals. While the expedition team pulled pulk sleds over 5000 miles of Arctic conditions, students interacted with the team online and teachers were given suggested educational plans to coordinate with the expedition.

Chadwick School. Serving K-12 students in three countries, Chadwick School offers AP courses and focuses on College preparation. Since it's founding in 1935 the school has always used the outdoors as a way to create a healthy lifestyle for students to succeed in.

Camp Chewonki. Having operated since 1915, the camp currently offers a mixture of a K-8 school as well as a semester program for seniors. Adventures at Chewonki start at the 400-acre campus and extend into the surrounding wilderness.

The College School. Beginning in 1963 as a lab school for Webster University students to use innovative teaching methods, the school has always pushed for innovation. On a 28-acre campus with a LEED certified living building, this school is able to bring innovation to its students in many ways.

Colorado Rocky Mountain School. On a 325-acre campus, hosting students in grades 9-12, the school has had the mission of preparing adolescent boys and girls for college since 1970. Offering programming during the summer time allows students who cannot attend the school full time an opportunity to have part of the same experience.

High Mountain Institute. On an 80-acre campus, the institute hosts juniors and seniors in their log cabins heated by wood that the students stack themselves. Designed to be where the mind and nature meet, the school is an immersive experience for the students.

Inspiring Girls Expeditions. With the goal of increasing the diversity of professionals in STEAM related fields, this program takes girls on 12-day educational expeditions with all female guides and professional scientists. This program is the only one in the study with gender identified specific programming.

IWLS. Based out of Haines, AK the International Wilderness Leadership School has been operating since 1992. With 10 locations worldwide, IWLS delivers programs in the mountains, rivers, and oceans around the world. Programming is offered to participants over the age of 15.

NOLS. This school, named the National Outdoor Leadership School, was founded in 1965. It is headquartered in Lander, Wyoming, with 16 campuses in the U.S. and abroad. NOLS provides a multitude of wilderness adventure and educational expeditions for participants over the age of 14.

Outward Bound. Founded in Scotland in 1934, Outward Bound has since expanded to operate in 30 countries with over 250 locations worldwide. Eleven of these

locations are in the United States (US) with its US headquarters located in Golden, CO. Outward Bound provides a host of outdoor opportunities for children, including "troubled youth," for those aged 12 and older.

Pali Institute. With three zip lines, five archery ranges, and five challenge courses on a 274-acre campus, there is plenty to keep students engaged in the outdoors. Offering a modular approach, schools are able to select from a number of "classes" offered by the institute to meet the schools program requirements.

Proctor Academy. The academy offers outdoor trips as part of its curriculum requirements for both boarding and day students. Unlike other schools students do not necessarily have to take advantage of this opportunity. Proctor Academy is one of the oldest schools in the study, having opened in 1848.

Ripple Effect. Developed in 1999 from an idea that a group of kayakers hatched on a trip from Maine to Florida, the program is meant to have an effect that extends beyond the initial experience. Using their base in Casco Bay, Maine, Ripple Effect hosts and delivers programming to surrounding schools and helps teachers integrate the lessons at the program site and the classroom.

The Riveredge School. As a public school, any student is able to attend the 379-acre campus of Riveredge School. Being the youngest school in the study, opening in 2018, the school has provided a unique perspective on opening an outdoor school in the current educational climate.

World Class Academy. The World Class Academy (WCA) is an accredited private high school that combines academics, athletics, travel, and culture to create a

unique educational experience. While attending the school, students choose one of four disciplines to pursue: kayaking, kite boarding, climbing, and mountain biking. In the 2018/19 school year the climbing program visited a dozen locations worldwide.

World Ocean School. With classes taking place on a 1925 Grand Banks Schooner that is a registered national historic landmark, students experience history as they are hosted at numerous day, multi-day, and multi-week programs. With ports in Massachusetts and the Virgin Islands, programming is offered year round.

Data Collection

To collect data the researcher used guiding questions in which answers were first written in long form, and then condensed later for the purposes of increasing readability and enabling analysis. Using the guiding questions as a starting point, the programs were reviewed using the procedures listed below.

Guiding Questions

In order to complete the goal of determining the feasibility of creating a mobile outdoor education program, a list of guiding questions was created to ensure that all areas are covered. The set of questions and the complimentary sub questions were meant to evaluate the educational, philosophical, and logistical properties of each program. These guiding questions served as a starting point, with additional probing questions added during the data collection and analysis steps. The guiding questions were:

1. Does the program have a stated purpose for taking the students outdoors?
2. In what ways, if any, is the expedition (outdoors) used to meet education requirements?

   a. What educational standards does the program meet?
   b. Are K-12 curricula standards a regular part of the programming?
3. What percentage of the curriculum is based outdoors?
   a. How are the indoor classes connected to the outdoor curriculum?
   b. How is the outdoor time integrated into the classroom setting?
   c. How much time is spent focused specifically on the outdoor/adventure curriculum?
   d. What subjects are covered using the outdoors/adventure sports?
4. While outdoors, is any non-curriculum education addressed?
5. What is the average travel distance to the outdoor learning site for the students participating in the program?
   a. What does an outdoor learning site look like for the program (urban parks, wilderness, etc)?
6. What is the program's teaching methodology/philosophy?
   a. Is it related to any existing teaching methodologies (experiential education, forest education, place-based, service-based learning, etc.)?
   b. Are there any popularized learning models that are incorporated into the program's methodology (Kolbe's learning cycle, Dewey's model of inquiry, Fitts and Posner's Three stage cycle, etc.)?
7. Is reflection integrated into the program's activities?
   a. In what ways?

b. Does the program have a different reflection process for indoor and outdoor activities?

8. Who is the target audience (intended participants and clients)?

Procedures

There were three main phases of data collection for this study. The first stage of data collection consisted of identifying programs that met the selection criteria. This phase consisted of investigating programs that the researcher was already familiar with and using search engines to identify additional programs to add to the study. If programs matched the selection criteria and did not overly emulate a program previously selected, it was included in the study.

The second phase of data collection involved a more comprehensive analysis of the programs' websites and other available internet-based material. These sources included news articles, brochures, reviews/testaments, and other third-party evaluations. During this section, the researcher answered some of the guiding questions and identified additional questions to include before the third stage of data collection.

The third phase of data collection consisted of contacting representatives via email or phone calls who work for the selected programs to gather information to answer the guiding questions. Due to COVID-19, and the challenges this presented for schools, only six of the 16 programs were able to arrange discussions. When contacting programs, the researcher had discussions with individuals that held the title of Dean, Head of School, Head of Outdoor Programming, Outreach Director, Program Director, and Chair of curriculum development. While contacting these companies the researcher supplied

the agency with the data collected in the first two stages to allow agencies to make any changes to the data. Primarily this information was collected through email, video meetings, and phone communication with the representatives. The conversations were not carried out as formal interviews, were not audio-recorded, and the persons contacted were not serving as human subjects. Therefore, no university IRB approval was sought.

Data Analysis

Data will be analyzed in three ways; long narrative form, in a summary table, and finally as a full profile.

Long Narrative Form

Throughout the study, recursive data analysis took place during each phase of collection and documented in long narrative form in answering the guiding questions. For the programs that involved discussions with representatives, data collected in the first two stages of research was shared with the organizations during the third stage so that they could make any changes needed for accuracy. After reviewing the information, no programs chose to make any changes.

Summary Table

Once all recursive data collection was finalized, data from the long forms were further analyzed and condensed into a summary table (see Table 1, Chapter 4) where the programs are compared side by side. The program features that were included in the table included what educational standards were met, what percentage of the curriculum covered was outdoors, subjects covered, the average travel distance for students, what outdoor sites were used, the teaching methodology employed, and the target audience of

the program. The condensed summary table was used to compare the similarities and differences between the programs and also used in constructing the profiles for each of the identified programs.

Profiles

The features that were included in the Summary Table (Table 1, Chapter 4) along with the long form data were expanded to create a profile of each of the 16 programs. This process resulted in four headings for reviewing and presenting each program profile: (a) Stated Purpose for Being Outdoors, (b) Standards Met and How the Outdoors is Used to Meet Them, (c) Teaching Methodology, and (d) Reflection. The profiles that were created for the programs that included discussions with program/school representatives were considered to be comprehensive and therefore labeled as "complete profiles." The profiles for programs that did not involve discussions with representatives were labeled as "incomplete profiles."

The profiles highlight the distinguishing features of each program and the common features between them that appear to be markers of success and help to identify any areas that are not currently addressed. This helped identify programs that are worth emulating as well as any areas that future programming may consider expanding into.

Chapter 4

Results

The purpose of this study was to analyze several programs that utilize adventure sports and outdoor learning in their curriculum and then present, in a case study form, their distinguishing features. While seeking how each program deals with challenges in using the outdoors as a medium for education, it was essential to find what makes each program unique. In order to accomplish this, 30 schools were initially selected for the study with 16 ultimately being included. After being selected, a partial profile was created, using internet resources to answer the guiding questions, before contacting schools and programs to have a discussion about the questions that could not be answered using their website and promotional materials. Due to the COVID 19 pandemic, only six schools could be reached for a discussion. This created a mix of complete profiles, where the researcher was able to have a discussion with schools, and incomplete profiles, where the researcher was not able to contact the program. Despite not being able to be reached for comment, many key questions were able to be answered using the program's website and promotional materials. As a result, most incomplete profiles were included in the study.

Complete Profiles

Chadwick School

Opening in 1935, the Chadwick School has always emphasized taking students outdoors. With beginnings in Palos Verdes Peninsula, California, the school has expanded to offer sibling campuses in South Korea and Vietnam. For the purposes of this

study, only the campus in the US was contacted. Currently, Chadwick School offers grades K-12 in three separate Schools: The Village School (K-6), The Middle School (7/8), and The Upper School (9-12). Most of the students come from within 10-15 miles of the school, but they travel over 200 miles when traveling on expeditions. Chadwick School conforms to AP (Advanced Placement) and IB (International Baccalaureate) standards and focuses on college prep.

Stated Purpose for Being Outdoors

The stated purpose for being outdoors evolves with each school level. In The Village School, the purpose is to seed a love for the outdoors and build skills that will be relied upon in later grades. In The Middle School, the focus shifts to physical challenges that cultivate life skills and strengths that students didn't know exist, while increasing their world perspective. In The Upper School, the sessions revolve around developing the technical skills and confidence to complete the capstone trip.

Standards Met And How The Outdoors Is Used To Meet Them

While Chadwick School strives to maintain AP and IB standards, they currently do not use the outdoors to implement curriculum. In The Village School students do use the outdoors more; however, this time quickly decreases as the students move into more advanced grades. Despite this, the school recognizes the positive effect that adventure education and going outdoors has on student performance and it is reported that many teachers strongly support the outdoor portion of school.

To introduce students to the outdoors the expeditions slowly grow in complexity from day trips in Kindergarten, a five-day trip in 6th grade, and a 22-day capstone trip

during their senior year. While on trips in The Village School, students focus on history, civics, and natural sciences and how they can be applied outdoors, along with self-care in the environments. When students move into The Middle School the focus becomes more on observing ecosystems, history, and culture in the areas they explore. In middle school students also learn technical skills such as rappelling, outdoor living skills, and navigation, as well as gain reflective tools such as journaling. In The Upper School students focus almost exclusively on technical, leadership, and reflection activities.

Teaching Methodology

While in the classroom students are taught under traditional classroom standards. However, when on trips the focus is on Experiential Education. On their website, Chadwick School heavily references the idea that the place of learning plays a major role in the student's experience. This is especially emphasized in The Village School.

Principles and values that are rooted in Experiential Education are evident in the Chadwick School's approaches. John Dewey's (Progressive Education) model of inquiry is represented in the field courses, especially in the form of expressing oneself and exploring the outdoors. Grant Wiggins' Understanding by Design and Kolb's experiential learning cycle are also prominently represented in the learning models employed by instructors throughout all grade levels.

Reflection

While participating in outdoor programing with Chadwick reflection is considered to be a foundation of the experience. In The Middle School students are introduced to journaling and monitored solitude as forms of reflection. During the senior trip students

take four days and three nights of solitude. Although there are not forms of reflection that are required during regular class time, it is meant to be a form of practice that they can use if they choose to.

Camp Chewonki

First opening its doors in 1915 under the name Split Rock Camp, Chewonki was an all-boys outdoor camp. Since its inception Chewonki has evolved to offer summer camps for all genders, a traveling natural history program, a semester program for high school students and a school for grades1-8. Currently the 1-8 school serves about 30 students from the local area (within 60 miles), while the semester program can attract students from across the entire country with students traveling up to 2000 miles to attend camp. For the 1-8 school the classrooms are combined into grades 1-3, 4-6, and 7-8; although this can change as enrollment changes. The campus sits on a 400-acre plot of land located in Wiscasset, Maine; with many adventures extending off campus and into Quebec.

Stated Purpose for Being Outdoors

Chewonki hopes to use nature to create connections with classroom material and help students find their place in nature. Although the school did not explicitly plan to use the outdoors at its inception, through practice, it has been found to be the best way to make that connection.

Standards Met And How The Outdoors Is Used To Meet Them

For students attending the summer camp there is no explicit covering of curriculum, although instructors still use the opportunity to try and make educational

connections. When attending the grade school and the semester long program curriculum is integrated into the outdoors. The traveling nature program can help cover various curriculums based on the request of the hosting schools. This curriculum for grades 1-8 and the semester is aligned with NGSS (Next Generation Science Standards) and New England Learning Standards. Because Chewonki only offers up to grade 8 and semester programs for high schoolers these transcripts are accepted across the country.

While attending the school, grades 1-8 and the semester program students can be expected to be outdoors every day with almost no exceptions made for weather; especially during lunch, which is eaten outdoors. Especially for grades 1-8 students will be outdoors using it as a space for testing their inquiries and formulating questions to be answered. In the semester program, high school students maintain a slightly more traditional classroom but take time for a trip down to the marsh for their lab time.

In the field, students in grades 1-8 will cover all manner of subjects, while the semester program will primarily cover biology in the outdoor environment. Data and information collected during these outdoors sessions is often brought back to the classroom for analysis. At the end of grade 8 the final exam is referred to as “the celebration of learning.” It is a group based exam where they must go to different stations and solve different problems or projects that are given to them by the instructors that can be solved using the processes they have learned. This is followed by a BBQ and celebration of what they have accomplished.

In addition, the outdoor classroom students embark on outdoor trips that grow in length yearly, starting with day trips in grade one and culminating in a five day trip in 8th

grade. These trips are educational and designed to teach outdoor living skills, self-reliance, leadership, community involvement, and help find the student's place in nature.

Teaching Methodology

Place based education is one of the main methods of instruction at Chewonki. This serves as a building block that can help students find their place in the community, nature, and in their team. Students are asked to fill out team contracts when working together to help cement this. In addition to place as a focus, Camp Chewonki also utilize several learning models to keep learning at the forefront. These include EGG (Essentials, Group needs, Group wants); recognition of the safety/challenge/panic zones; the three P's (Pieces, Patterns, and Processes); and the experiential learning cycle sequence of Do it, So what, Now what. When considering success students are judged on application of the processes rather than the knowledge of items.

Reflection

Reflection is regularly integrated in the learning and activities at Chewonki. Students are given a chance to reflect, either freely or with a prompt during a daily reflection period at the beginning and end of the day. During wilderness trips, reflection can be led by the "leader of the day." When students return indoors they are also encouraged to write about the experience.

The College School

First opening its doors in 1963 as a lab school for experimental teaching styles for students at the Webster University's Education Department, innovation in teaching has always been at the forefront of the school's mission. Over time the school has become

independent of the university and began offering outdoor programming in the early 70's after being inspired by what was being offered by Outward Bound. Currently The College School serves over 250 Pre K-8 students within a 60-mile radius, with most being within 10 miles from its campus in Newark, Delaware. The school has a 28-acre property in a watershed as well as a LEED certified living building.

Stated Purpose For Using The Outdoors

The College School's (2020) purpose of going outdoors is to offer "age appropriate trips [that] provide children with fresh, life-altering experiences and new challenges, along with opportunities to apply skills learned in the classroom, collect data for use in the classroom, solve problems, bond with classmates and teachers and develop self-confidence" (College School, Adventure Education section, para. 2).

Standards Met And How The Outdoors Is Used To Meet Them

Curriculum standards are regularly addressed in outdoor programming offered by the school. The College School is certified through the Independent Schools of St. Louis and meets those curriculum standards. While addressing standards, attention is paid to make sure that students will be able to successfully transition into a traditional high school, with a reported 95% percent being accepted into their first choice high school. While attending, students participate in ERB (Education Records Bureau) testing every year, although the school maintains that these scores do not affect the teaching at the school and are not stressed as performance benchmarks for students. In addition, the school also maintains safety standards of their outdoor programming with NOLS (National Outdoor Leadership School) and other applicable governing bodies.

When outdoors, students use the space to enhance and collect data for all of their classes. This includes math, science, ecology, vocabulary, civics, and other subjects covered in Pre K-8. Twice a week, students get a chance to go outdoors full time to explore. The indoor and outdoor time is so interwoven that it can be hard to delineate between what parts of different subjects are being covered indoors vs. outdoors.

To introduce the students to the outdoors the trips in younger grades are shorter and more inquiry based while in higher grades the outdoor time can become more involved. This is highlighted by a rite of passage trip that is taken in 6th grade and includes a solo night. While outdoors, students participate in paddling, climbing, working in the green house, and other adventure activities. Non-curriculum items covered include leadership, self-confidence, environmental sustainability, and personal development.

Teaching Methodology

Teaching at The College School utilizes experiential education, theme based learning, and reflective learning. Using these processes students are asked to develop their own line of inquiry to a problem. When administering lessons, The College School is influenced by Jean Piaget (Constructivist Education), John Dewey (Progressive Education), Theodore Sizer (Coalition of Essential Schools), Howard Gardner (Multiple Intelligences), and Loris Malaguzzi (Reggio Emilia).

Reflection

Inside the front doors of the school, there is a quote that reads: “The reflection on the experience is as important as the experience itself.” This quote in the prominent place it holds emphasizes the importance that is given to the reflective process. Students are

often given reflection projects such as making a film, presentation, or other project that can take up to a 1/3 of the trimester. After completion, the student's achievement will be displayed on "the wall of reflection" for others to view. The school does not use a set form of reflection for their projects and it is up to the teachers and students to decide on something appropriate. With the interwinding of the indoor and outdoor classes this project allows for reflection of both environments.

High Mountain Institute

First opening its doors in 1998, High Mountain Institute (HMI) (2020) was developed as a space where "nature and minds meet" (High Mountain Institute, Our Story section, para. 1). HMI hosts approximately 50 students, in their junior and senior year of high school, on their 80-acre campus where they live in cabins. Students take an active role in maintaining the facilities with chores that include cooking, cleaning, stacking firewood, etc. As it is a boarding campus, students typically travel up to 2,000 miles to attend the institute in Leadville, Colorado.

Stated Purpose For Using The Outdoors

The website of HMI (2020) aptly explains its intent on using the outdoors. It states, "At HMI, wilderness expeditions help our students reach their full potential… As the semester progresses, students are given more autonomy, working up to the point where they might travel and make decisions independently of instructors… The wilderness offers a chance for our students to unplug from technology and the typical stresses of high school life while connecting with their peers and instructors" (High Mountain Institute, Wilderness Expeditions section, para. 1).

Standards Met And How The Outdoors Is Used To Meet Them

Reaching curriculum standards using outdoor and adventure learning are a regular part of the programming. HMI is accredited by the Association for Colorado Independents Schools, which is an affiliate of National Association of Independent schools. Public and private schools accept the accreditations from this organization across the country.

While at HMI students can expect to spend about 2/3 of their time in the classroom and about 1/3 outdoors. On a weekly basis this consists of a 3 hour outdoor lab session and is supplemented by five weeks exploring the Colorado and Utah landscape. The expeditions and outdoor time allow students time to collect field samples that will later be reviewed in the lab and also make connections from content covered in the classroom setting. The staff that leads the students in the classroom is the same that led in the field, leading to an integration of classroom and outdoors.

While afield subjects such as Practices and Principles: Ethics of the Natural World; Literature of the Natural World; Natural Science; United States History: Western Perspectives; Advanced Placement United States History; Mathematics (Algebra II, Precalculus, Advanced Placement Calculus); Spanish (Intermediate, Advanced-Intermediate, and Advanced); and Independent Study are covered. Covering so many subjects is achieved by reading books that relate to the regions in which the group will travel or learning about different cultures that they may experience. The classroom and outdoors are considered natural extensions of each other and are not separated.

In addition to covering a diversity of curriculum in the outdoors, HMI also ensures time to cover non-curriculum items such as building a foundation of outdoor living skills, wilderness risk management, and leadership skills. While on campus, instilling a sense of community through the group doing their own chores is a key focus.

Teaching Methodology

At HMI several teaching methods are used and focused on. Overall HMI's focus is on Understanding by Design (Grant Wiggins), with a strong emphasis on the processes they use to achieve the results rather than on the actual result. With a strong influence of John Dewey (Progressive Education), HMI emphasizes elements of place, service, and community-based education. Combining these elements with a mentorship opportunity allow students to readily integrate into the learning environment. Although Experiential Education is the foremost learning method, the school takes care to keep some semblance of a regular classroom when it can. This allows students to both enter and leave the environment more seamlessly since this is only a temporary program for the students and they will need to reintegrate into their home schools when returning.

Reflection

Reflection is an important part of HMI's approach. Favoring solo reflection, there is a 20 minute time period built into every daily meeting and every other Sunday students are given a four-hour period to reflect. This can include guided or focused reflection based on staff prompts or can be open time. HMI uses similar reflection methods for both its indoor and outdoor programs.

Ripple Effect

Founded in 1999 by a group of kayakers that paddled from Maine to Florida who were inspired by the connections they made opened a school with the goal of becoming a community-based youth development organization specializing in adventure and wilderness experiences that builds confidence and self-esteem. With the aid of a 26-acre private-island, Cow Island, Ripple Effect (RE) reaches over 3500 youth and adults yearly. RE is a program based outdoor center that works with other schools and programs to develop curriculum that is needed for each school. Schools that travel to Cow Island come from districts within 50 miles. During summer camps students may travel from all over the New England area to attend. The traveling outreach program will also travel across the New England area but mostly stays within 100 miles of its base in Portland, Maine.

Stated Purpose For Using The Outdoors

By taking students outdoors RE hopes to create a shared outdoor community experience. Part of the founding philosophy that was developed during a kayak trip was talking about, addressing, and taking "healthy risk" in the outdoors.

Standards Met And How The Outdoors Is Used To Meet Them

Almost all programs can be offered with or without working on curriculum. The staff at RE are able to create custom programs for each school depending on the requirements needing to be met. There are several programs, such as the Ripple Effect Outdoor Leadership Education (ROLE), that are able to better integrate curriculum since this course spans multiple weeks. When a school does request curriculum based learning

RE will work with the teacher to develop supporting curriculum before and after the trip to make the most out of the field time that happens. Although many programs may not directly engage with curriculum, an emphasis is made to draw connections between the classroom and natural environment in every program.

RE primarily focuses on development of outdoor leadership skills. While participating in programs emphasis is put on outdoor living skills, leadership, self-discovery, and safety. Most programs take place entirely outdoors. During the ROLE program RE staff visit students at their school once a week to work on these skills. Outdoor trips take place on the coast of Maine, in the White Mountains, and in whatever environments they can find around the schools they visit.

Teaching Methodology

RE operates using experience-based learning and emphasizes the community connections that are formed while outdoors. While helping students phrase questions about the outdoors RE uses Dewey's model of inquiry and helps students find their way through Kolb's experiential learning cycle. In order to connect the learning to the outdoors students are asked to find something physical in the environment that represents what they have learned.

Reflection

While reflection is a part of every exercise there is an emphasis that it should not be forced. In order to help facilitate this a number of different reflection tools are used. For younger students a faster and more active reflective style is needed while with older

students, solo time is often utilized. Many of these reflection activities are used in both indoor and outdoor programming.

The Riveredge School

The Riveredge School (RS) opened its doors as a school in 2018 in Newburg, Wisconsin. Currently the school offers students an opportunity to attend K-4 in a multiage classroom. The 379-acre campus features 10 miles of hiking trails and a research conservation center. The center is operated independently of the school. Before becoming a school RS existed as an education facility at the nature center. Any public school student in Wisconsin can apply to attend and are accepted on a lottery basis. Most students commute from within a 40-minute drive.

Stated Purpose For Using The Outdoors

The RS (2020) goal for outdoor learning is to "Utilize the natural world as a tool for learning throughout all subject areas" (Riveredge School, Curriculum section).

Standards Met And How The Outdoors Is Used To Meet Them

As a regular part of programming, RS aims to meet state and national standards. This includes common core, NGSS, and Wisconsin state standards. Upon graduation students are able to transfer into any other state school.

While attending class students take every practical opportunity to go outside, regardless of the weather. In many cases the indoors is simply used to help meet the students' needs to stay comfortable. During the fall and spring the outdoors utilized much more given the cold weather in the wintertime and the young age of the students, this

time can decrease in the winter. Every Friday is an explore day and during this day it is quite common for students to stay outside all day.

The outdoor classroom helps students engage in every subject. This includes the implementation of lessons specifically designed to interact with nature, such as the math with nature lesson. While outdoors students are also engaged in non-curriculum activities such as outdoor living skills, fire cooking, tracking, skiing, and snowshoeing. Interpersonal skills such as whole child skills and emotional skills are also covered in the outdoor classroom.

Having developed from a nature center the school has experienced some pros and cons. The school benefits from the reputation it already had and from the many connections that had already been made. However, when transitioning from a nature based (preservation and conservation) to an experience based program (hands on with nature, 4th graders can break branches) there have been some conflicts of interest. Additionally, there have been some shortcomings when transitioning from outreach and engagement events to sustained education throughout the year. Overall RS is grateful for the support they receive from the center and are looking at ways to further cultivate the relationship between the, now, two separate organizations.

Teaching Methodology

At RS the methodologies of inquiry-based learning (Joseph Schwab), nature-based, and community based learning are featured as the three pillars of the school. While utilizing community learning, time is taken to draw attention to the place that the learning is happening as well.

RS utilizes a host of validated learning models including the Hope Survey Logic Model and whole child development practices. Teachers are expected to deliver community responsive education. In addition to these methodologies RS also participates in Projects WET and WILD, published by the Project WET Foundation and the Association of Fish and Wildlife Agencies, respectively.

Reflection

RS recognizes reflection as a key component to learning. Specifically, the program aims to use reflection as a way to generate new ideas and the next steps to take. Because of the school's young age and the fact that COVID has interrupted their second, year there are not any set or formalized reflection periods, as of yet. Currently reflection primarily happens during the morning meetings and weekly circle discussions.

Incomplete Profiles

Adventure Learning

Adventure Learning (AL) is a concept that has been applied by Aaron Doering since the year 2000 that has included connecting K-12 students in their classrooms with over 15 individual expeditions for four separate projects covering six continents by outdoor professionals and teachers. One of these projects was Go North! which spanned six individual expeditions from 2004-2010 and consisted of over 5000 miles of Arctic travel. Another was the North of 60 Degrees project, which consisted of five individual expeditions that took place north of 60 degrees of latitude. Students learned about climate change, Arctic geography and culture, and issues of sustainability, as they followed the Go North! team. The Earthducation series, which spanned from 2005-2014 and consisted

of six separate expeditions. The goal of Earthducation was to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. A fourth project of AL was the Changing Earth Project from 2016-2017 that explored Arctic Bay and a crossing of Iceland. Through its online course offerings, the programs have reached over 15 million students.

Stated Purpose For Using The Outdoors

These AL expeditions do not directly take students outdoors. Instead the expeditions serve as inspiration for students who may not have direct access to the outdoors and to serve as a connection and point of interest for the students. The expedition is meant to be a hook to grab students' interest in the environment and show them how their studies can be applied outdoors.

Standards Met And How The Outdoors Is Used To Meet Them

The standards met are highly variable based on the teacher delivering the course content. Online learning material, lesson plans, and teacher implementation guides are available for teachers to use. When administering lessons each one can be hosted individually or they can be delivered throughout the semester as a unit. Lesson plans created by the organization meet general common core science standards but leave enough room for teachers to add or subtract material so that they can meet their own standards and goals.

Many lessons encourage students to go outdoors and explore their own environment and report back to an online audience. This encourages students to not just engage with the expedition team but also to engage with other schools that are

participating in the program. Although this is the design, it is up to the individual instructor on how much time is spent outdoors.

Teaching Methodology

The core methodology used in AL is online teaching. Given that the expedition is often hundreds of miles from cell service, let alone the students they are trying to teach, there is a very unique delivery process. The expedition teams create lessons in advance so that as they generate field content it can be more easily sent to a support team. The support team then edits and posts the information for the schools to view. This integration of technology is in stark contrast to many other outdoor programs that boast the absence of technology as a redeeming quality.

Reflection

There are no specific reflective processes mentioned for Adventure Learning.

Colorado Rocky Mountain School

Beginning around 1953 Colorado Rocky Mountain School (CRMS) set out to become a boarding school for college bound boys and girls. Starting in 1970, after being inspired by John Dewey and Outward Bound, the school began offering outdoor classes as part of its regular curriculum. Today CRMS sits on a 325-acre campus located in Carbondale, Colorado and serves 160 students in grades 9-12 that represent 22 different states and 12 countries. Of this population, 93 students board at the school and 41% of students receive financial aid to attend. In addition, CRMS also offers a full scholarship, five week education summer program for promising public school students with the aim

of empowering them as leaders when they return to their communities and preparing them for college.

Stated Purpose For Using The Outdoors

CRMS (2020) uses outdoor trips to provide "another unique opportunity for students to build on the skills they are learning in the sports program, as well as time to deepen relationships with their peers and faculty members" (Colorado Rocky Mountain School, Outdoors section, para. 4).

Standards Met And How The Outdoors Is Used To Meet Them

It does not appear that CRMS uses outdoor learning to meet curriculum requirements. At CRMS the outdoors is used to develop the whole student rather than address different subjects. CRMS is accredited by The Association of Colorado Independent Schools, The Association of Experiential Education, The National Association of Independent Schools, The Association of Boarding Schools, Western Boarding Schools Association, and The Small Boarding Schools Association. CRMS splits the outdoors involvement of students into Sports, Outdoor Trips, and Service. For this study the sports section was not covered, as they don't address adventure learning.

There are three main outdoor trips that the students attend. The first is a 10-day wilderness orientation for incoming students that includes three days of service learning with the US Forest Service and a backpacking trip through the Colorado high country. The other two trips are hosted in the spring and the fall for all to attend. While afield the focus of instruction is listed as personal development, learning technical skills, outdoor living skills, and reinforcement of the school's values. CRMS's website does make

mention of the benefits that students will gain in the classroom such as a better bond with classmates, confidence, and inspiration.

Unique to CRMS, there is an outdoor component specifically devoted to service. Although some of the activities do not qualify as outdoor learning, others do. To achieve this service requirement outdoors students can work in the garden, help on a ranch, join the river watch, build trails, or support the outdoor community by repairing bikes, tuning skis, or setting routes on the rock wall.

Teaching Methodology

CRMS claims their school to be heavily influenced by John Dewey (Progressive Education) and his teachings on experiential education. The most pronounced aspect of experiential education that appears to be used is service-based learning. As part of graduation requirements seniors complete a senior project where they are away from home and school for three weeks. Upon their return they present their experiences to peers, family, and a panel made up of students and faculty.

Reflection

Reflection on the process is a key component of experiential education as developed by John Dewey who was identified earlier as an inspiration to CRMS, however, the website makes no mention of any specific reflective processes or events.

Inspiring Girls Expeditions

With the purpose of creating diversity in STEAM, fields Inspiring Girls Expeditions (IGE) invites girls, or those who identify (cis girls, trans girls, non-binary youth, gender non-conforming youth, and any girl-identified youth), on a 12 day

expedition that is led by women and with women scientists. The first expedition ran in 1999, Girls on Ice, and has since expanded to offer 8 other individual expeditions across three states and three countries. IGE (2020) is a "collaborative multi-institutional partnership between several decentralized branches" (Inspiring Girls Expeditions, Who We Are – Our Branches section, para. 1). With the headquarters in Oregon State University IGE works with six other organizations and universities to deliver programing.

Stated Purpose For Using The Outdoors

The IGE (2020) website asserts, "By encouraging girls' natural curiosities, inspiring them to connect their interests in science and art, and cultivating trust in their own physical capabilities, we motivate more women to pursue their passions in science and outdoor activities" (Inspiring Girls Expeditions, Who We Are – Our Philosophy section, para 1).

Standards Met And How The Outdoors Is Used To Meet Them

While attending an IGE event students can expect to be challenged physically and academically, however they do not receive credit. The purpose of IGE programming is to inspire the participants to want to further pursue a STEAM field. In the field the students design and complete a field study that is dictated by the environment they are in. In the schedule provided online an average of five days were set aside for this. While in the field the team is accompanied by professional women scientists, artists, and guides using the outdoors as the classroom.

While in the field for the 12-day program an average of eight to nine days are spent in the field, with two days of travel, two basecamp days for pre-trip briefing,

presenting the trip, and reflecting. Trips take place in kayaks, on glaciers, and in the mountains with bases located in Alaska, Colorado, Canada, and Switzerland. This allows youth to access a diverse number of environments and work with an equally diverse staff. Currently all individuals who attend the program do so tuition free.

Teaching Methodology

IGE does not list a specific teaching methodology that they use.

Reflection

At the end of each event students are asked to present their trip to the public and have time listed for reflection in the expedition schedule. The IGE site does not list any specific reflective practices used during this time.

International Wilderness Leadership School

Based in Haines, AK the International Wilderness Leadership School (IWLS) has 10 satellite locations worldwide, delivering programs in the mountains, rivers, and oceans. There is no listed minimum age on the website, but it does mention teenager in the description of youth programs. Many of the IWLS trips are targeted toward college aged students. There are two youth trip offerings. Accredited by the Association of Experiential Education, IWLS advertises college credit but can also accommodate high school credit as well.

Stated Purpose For Using The Outdoors

When taking students outdoors IWLS (2020) is “dedicated to preserving and protecting our invaluable natural environment through education” (International

Wilderness Leadership School, Why IWLS? – Social & Environmental Commitment section, para 2).

Standards Met And How The Outdoors Is Used To Meet Them

IWLS provides credit to various schools and works with each one to make sure that requirements are met. The ability to meet so many different requirements stems from the association with professional affiliates including: Association for Experiential Education, American Canoe Association, Wilderness Medical Society, the Red Cross, Leave No Trace, and Association for Challenge Course Technology.

During the outdoor trips, youth can participate in a seven or nine day trip while being self-sufficient in wilderness settings. On the trip, students study subjects such as leadership, risk management, group dynamics, environmental ethics, and communication skills. During the experience students use the outdoors as their primary learning environmet. In order to receive credit students must work with IWLS.

Teaching Methodology

Following the axiom, "See one, Do one, Teach one," IWLS takes an experiential education approach to teaching by having the students peer-teach each other. Students are given a lesson, on lesson planning to help aid them in their teaching.

Reflection

Though there is time set aside in the programming schedule at the end of the trip for reflection, the website does not identify what reflection methods are used.

Pali Institute

Established in 1990, The Pali Institute (PI) sits on a 274-acre campus in the San Bernardino National Forest near Running Springs, California. Within the campus there are five challenge courses, three ziplines, five archery ranges, a recreation field, and five miles of hiking trails. PI hosts a range of programming targeted toward different grades including day trips (3-12), wilderness trips (7-12), and hosting overnights on the PI campus (4-12). While staying overnight on the campus students are hosted in cabins. PI is accredited through The Association of Environmental Education and The Western Association of Schools and Colleges.

Stated Purpose For Using The Outdoors

The stated purpose for PI (2020) using the outdoors is so that "students will experience the thrill of seeing, touching, and learning about the environment and our impact on the world" (Pali Institute, Mission section, para 1).

Standards Met And How The Outdoors Is Used To Meet Them

PI offers programming concentrated in outdoor education, science, and leadership with each program customizable to individual school needs. This is accomplished by the institute offering over 30 classes during the day and night and allowing schools to select the classes that best fit their needs. Many of these classes have STEM/STEAM focuses integrated into the delivery and all are in alignment with Common Core and NGSS standards.

During each one of its three distinct program offerings PI utilizes the outdoors to bring lessons to life, in different ways. During day trips PI primarily utilizes the

environment as a change of pace allowing schools to choose a teambuilding event and three curriculum based classes, giving students a brief taste of the outdoors. During the wilderness programming which lasts three days the group covers a set 10 mile route which primarily focuses on teambuilding and leadership while encouraging the students' classroom teachers to join the trip to be part of the bonding experiences that backpacking can offer. Hosting schools for three to five day overnights on the campus is PI's primary focus. During this time students will use the outdoors as the primary learning environemnet, completing various outdoor education, science, and leadership activities.

With the goal of "bringing the textbook to life" PI's classes are meant to supplement students' traditional classroom environments. Curriculum based classes cover subjects such as biology, physics, natural sciences, geology, ecology, outdoor studies, astronomy, art, and physical education. Although many items are curriculum based PI also offers non curriculum subjects such as leadership and also takes care to include LNT (Leave No Trace) education while students are participating in all programs. LNT takes a large part of the wilderness programming.

Teaching Methodology

PI's website lists experiential education as a core delivery method but does not elaborate further.

Reflection

As part of the course offerings to teachers, PI offers several reflection courses that can be integrated into the programming.

Proctor Academy

First opening in 1848, Proctor Academy (PA) now hosts 360 high school students, representing 30 states or provinces and 15 foreign countries, on its campus in Andover, New Hampshire. With a privately owned and operated ski hill on campus and boasting 2500 rural acres of campus, students are presented with many opportunities to be outdoors. The 280 boarding students at the school manage the forest in the surrounding area so that they can cut, split, and ultimately heat the campus with the wood. The cornerstone of PA's off-campus education are five term-long programs; European art classroom, mountain classroom, Costa Rica abroad, ocean classroom, and Proctor in Spain. Although these are not required, a reported 80% of students take advantage of these opportunities.

Stated Purpose For Using The Outdoors

PA does not have a specific stated purpose for going outdoors since the outdoor classes are part of their broader off-campus education. However, the PA (2020) website does list the importance of off- campus education by stating: "To our community, off-campus programs are not separate, but integral to the Proctor experience, providing hands-on learning opportunities that allow students to truly connect to the content they are studying" (Proctor Academy, Off-campus Programs section, para. 1).

Standards Met And How The Outdoors Is Used To Meet Them

Although Proctor does not provide an accrediting association or standards met on its website, one of its missions is college preparation and many graduates go on to attend a host of well recognized colleges. While attending, students can take AP courses on

campus. PA's website does not list how much time is spent outdoors on the campus for education. The main outdoor time for students is during the wilderness orientation and off-campus study programs in the mountain and ocean classrooms.

The wilderness orientation does not cover any curriculum items but instead serves as a teambuilding exercise and focuses on personal, physical, and emotional growth. While attending the semester long ocean and mountain classrooms students are able to earn English, science, literacy, and art credit. In addition, the students learn seamanship and expedition skills while also learning group dynamics and developing interpersonal skills.

Teaching Methodology

In the classroom students are exposed to experiential education. However, specific education approaches used in the off-campus classes are not identified. The location of activities, both indoors and outdoors, is described as a major factor in students' learning. This suggests the use of place-based learning being part of the educational plan.

Reflection

There are not reflective practices that are specifically mentioned on the webpage.

National Outdoor Leadership School

This school, named the National Outdoor Leadership School (NOLS), was founded in 1965. It is headquartered in Lander, Wyoming, with 16 campuses in the U.S. and abroad. NOLS provides a multitude of wilderness adventure and educational expeditions for participants over the age of 14. When offering programming these ages

get broken into ages 14-15, 16-17, 16 +, and 18-22. There are additional offerings that high school students would not qualify for. During trips students can spend between 14 and 30 days in the field participating in various adventure sports and outdoor activities.

Stated Purpose For Using The Outdoors

NOLS (2020) utilizes the outdoors to achieve their mission of "be[ing] the leading source and teacher of wilderness skills and leadership that serve people and the environment" (NOLS, About our Mission section, para 1).

Standards Met And How The Outdoors Is Used To Meet Them

When taking a course, students will need to work independently with NOLS to arrange class credit. NOLS primarily advertises physical education and leadership as the class credits that students can receive. While on the course the teaching is independent from the student's classroom environment. Students are outdoors during the whole course and utilizes outdoor space as the learning environment.

Teaching Methodology

NOLS uses place-based education as its advertised form of education. Program descriptions and advertisements additionally indicate a broader use of experiential learning based models such as problem-based learning.

Reflection

Time is set-aside in the program descriptions for reflection; however, the website does not cover any specific practices.

Outward Bound

Founded in Scotland in 1934, Outward Bound (OB) has since expanded to operate in 30 countries with over 250 locations worldwide. Eleven of these locations are in the United States (US) with its US headquarters located in Golden, Colorado. Outward Bound provides a host of outdoor opportunities for children, including "troubled youth," for those aged 12 and older. These ages are more or less broken down into groupings of 12+, 14-17, 16-18, 17-21, and 18+. There are other age groups that would not accommodate K-12 students. Trips generally last 4-28 days, with one that lasts 50 days.

Stated Purpose For Using The Outdoors

The OB (2020) website explains, "The sea, mountains, and desert provide training that no institute or university can offer. These landscapes, in tandem with Outward Bound principles, teach the hard, technical skills necessary for survival, but also teach the relevant skills necessary for life" (Outward Bound, History section, para. 3).

Standards Met And How The Outdoors Is Used To Meet Them

OB works with schools to put together an independent study course for each student. In doing so OB meets many standards. Non-curriculum based subjects include leadership, personal development, and environmental ethics.

Teaching Methodology

While training its educators, OB focuses on expeditionary learning. This is based on expedition travel leading leadership development, skill development, teamwork skills, and conflict resolution. Instructors model this expeditionary learning while serving as a sounding board for students.

Reflection

At the end of a trip, students embark on the final expedition to recognize how they can put what was learned into action after leaving. On a trip over 14 days long, students 16 and older who have demonstrated that they can be responsible are given a chance to have solo time at the end of the trip to reflect. The time and autonomy that students have during this time increases with age and trip length from instructors checking in every few hours to once a day.

World Class Academy

Students attending World Class Academy (WCA) have the option of pursuing one of four adventure sports while pursuing their education; this includes kayaking, climbing, kiteboarding, and mountain biking. Any high school student who has a passion for one of the disciplines is welcome to attend the school, based out of White Salmon, Washington; for one semester up to four years. Before attending the academy, students must already possess skills that are above average. For example, climbers must be able to climb grade 5.12, kayakers must be able to roll on both sides, and kite surfers must be able to relaunch in all conditions (waves, high wind, and fast current). With an emphasis on small student/teacher ratios, 3:1, students are given individualized attention for their athletic, scholastic, and personal development.

Stated Purpose For Using The Outdoors

The outdoors is used to develop students academically, athletically, and personally in an equal manner at WCA. The international locations they choose give opportunities for students to develop in a diversity of ways.

Standards Met And How The Outdoors Is Used To Meet Them

WCA is accredited by AdvancED and offers AP courses as well. During the week students dedicate three days specifically to classes. When having class, the location will dictate what the classroom looks like. It can be a hotel lobby, at a local library, or under the shade of a tree. The website describes the classroom as being around the students all the time.

During the semester students cover all the subjects that are common in a four year traditional high school. This includes multiple course offerings of science, math, history, language arts, Spanish, and electives. Teachers make a point to heavily utilize the place around the students to integrate into the lesson plan. This can include going to a Spanish speaking country, learning about world history in Brazil, or studying the environment around them. In addition to the rigorous academic standards, students also focus heavily on skill development. This includes dry land training as well as regularly meeting with a mentor group to discuss development. WCA also uses the outdoors to develop character, cultural awareness, and life skills.

Teaching Methodology

WCA highlights the use of place and of service based learning in their educational approach. While at the academy students are pushed to develop academically, athletically, and personally in an equal manner at WCA. Through developing this way, students can apply lessons learned in each area to the other; such as their dedication to training transferring to dedication to their studies.

Reflection

Reflection is a key component to student development at WCA. One way in which WCA achieves this is through mentorship groups that meet regularly. These groups can consist of peers and the instructors where they discuss the overall development of the student and help them set performance and training goals.

World Ocean School

Starting in 2006, the World Ocean School (WOS) began offering educational classes aboard its 137' Grand Banks Schooner named, *Roseway;* which is a registered U.S. National Historic Landmark. With summer and winter ports in Boston and The Virgin Islands, WOS offers single, multiday, and semester long programming year round. The *Roseway* hosts students in elementary and middle school. Most of the students attending day programming are recruited from the local port areas. Students attending the nine-week semester course can be recruited from further away. The students attending WOS represent a diverse population with 44% black, 23% Caucasian, and 9% Asian; 73% of these students come from low-income households.

Stated Purpose For Using The Outdoors

The purpose of WOS seems to be less focused on directly exposing students to the outdoors and more about getting children to interact with the ship, and using the ship as the motivation, helping drive the questions of the students.

Standards Met And How The Outdoors Is Used To Meet Them

While developing programming with instructors, the staff at WOS work with each attending school to develop lessons that meet their needs. Subjects covered, as listed on

the webpage, include science, math, language arts, and history. These subjects can be covered during 45 minute dockside lessons, multiday programming, or can be delivered over multi-week programming as the boat moves between the summer and winter anchorages. All the lessons delivered happen on the boat.

The *Roseway* provides an opportunity for students to apply much of what they are learning and see the real world implications. Originally built in 1925, the ship itself is a lesson on history and sailing amongst the blue ocean gives students access to countless other learning opportunities. On the ship, students are given responsibilities that grow as their seamanship improves. During the nine-week voyage students will begin charting the course of the boat and selecting the route through the Virgin Islands. This allows students to develop skills in leadership, navigation, and communication. Additionally, they learn about simple machines. During the nine-week voyage students also have the chance to stop at several ports along the way and experience the various cultures. All of which contribute to their personal development.

Teaching Methodology

The WOS website does not list a specific teaching style, however, it does mention that the experience of working on the ship and the places students travel on it as being integral to the success of their program.

Reflection

The WOS website does not list or talk about any specific reflective processes used.

Table 1

Summary of School Features (in Alphabetical Order)

	Education Standards	% Curriculum Outdoors	Subjects Covered	Average Travel Distance	Outdoor Site	Teaching Methodology	Target Audience
Adventure Learning	Varies	Varies	Earth sciences. Can vary.	Students attend electronically	Varies. The expedition travels around the world	Online Learning	Grades K- 12
Chadwick	AP and IB standards	0%	None	Less than 15 miles	National parks and forests, land conservancies, and other public lands in California	Place based Learning	Grades K-12
Chewonki	NGSS and New England Learning Standards	98%	All	Less than 50 miles.	Campus and Wilderness	Place based and Service based learning	K-8 on campus. High schoolers in Semester program
College School	Independent Schools of St. Louis	40% on a weekly basis	All	Less than 60 miles.	Urban settings, wilderness areas, campus greenhouse, residential nature center.	Adventure Education, Theme based Learning, and Reflection Education.	Pre K-8
Colorado Rocky Mountain School	AP Standards	0%	Leadership, Outdoor living skills, LNT	Unknown	Wilderness settings and public lands across the western US	Experiential Education	Grades 9-12
HMI	Association of Colorado Independent Schools	33%	Ethics, Literature, US History (AP), Math, Spanish	2000 Miles	5 weeks in the wilderness of Colorado and Utah. Weekly outdoor lab.	Place and Community based education	High school Juniors and Seniors

	Education Standards	% Curriculum Outdoors	Subjects Covered	Average Travel Distance	Outdoor Site	Teaching Methodology	Target Audience
Inspiring Girls Expeditions	None. The goal is outreach.	75%	None for credit. Covers STEAM for outreach.	Unknown	Kayaking, mountaineering, climbing in Alaska, Colorado, Canada, and Switzerland	Unknown	High School Girls
IWLS	Varies	95%	Leadership	Unknown	Wilderness and public land settings across 10 locations	Experiential Education	Teenagers +
NOLS	Varies	95%	Leadership and Physical Education	Unknown	Wilderness and public lands across 22 campuses	Unknown	Ages 15+
Outward Bound	Varies	95%	Varies.	Unknown	Wilderness and public lands across 22 satellite campuses	Expedition Learning	Ages 12+
Pali Institute	Common Core standards, NGSS, STEM/ STEAM	90%	Science (biology, Natural Sciences, Physics, Geology, Ecology), Outdoor Studies, Astronomy, Art	Unknown	On campus, public lands	Experiential Education	Grades 3-12
Proctor Academy	Unknown	One semester	Science, English, Math.	Unknown	Campus, boat, public lands	Experiential Education	Grades 9-12
Riveredge School	Common Core, NGSS, and State standards	75%+	All	Less than 30 miles.	Campus and field trips to local community	Inquiry, Nature, and Community based Learning.	Grades K-4

	Education Standards	**% Curriculum Outdoors**	**Subjects Covered**	**Average Travel Distance**	**Outdoor Site**	**Teaching Methodology**	**Target Audience**
Ripple Effect	Varies	98%	Varies. Will help with curriculum development pre and post programming.	About 50 miles	Private Island, White Mountains, Maine Coast, urban settings.	Experienced-based and Community Connectiveness.	Grades 3-12.
World Class Academy	AdvancED accredited	Unknown	All	2000+ miles	Based in Washington State. Travels to 6 continents.	Place and Service based Education	Grades 9-12 with advanced skill set.
World Ocean School	Unknown	100%	Science, math, language arts, and history	Unknown	Unknown	Not stated	Elementary and High School

CHAPTER 5

Conclusion

The main motivation for this case study was surveying programs and schools that have achieved at least part of the researcher's vision of creating a traveling school. As well as, exploring what evidence currently supports the effectiveness of this type of educational approach (see Foreword, p. v). By creating profiles of programs that utilize adventure sports and outdoor learning in their curriculum, the researcher identified distinguishing features of 16 programs that included stated purposes, standards met, use of the outdoors, teaching methodologies, and use of reflection. Examining publicly available materials of all of the programs and having conversations with individuals from six of the programs provided further insight into how each program deals with challenges in using the outdoors as a medium for education. This chapter offers an interpretation of the findings that goes beyond the 16 profiles by synthesizing the common components of the schools. It dives deeper by comparing these findings with research from the Review of Literature (Chapter 3) on different environments, delivery length and styles, educational focuses, and the many barriers that teachers have faced. The comparisons aid in determining what program attributes are the most preferable. Finally, this chapter will present implications of the study and recommendations for further research.

Discussion of the Findings

While no two programs had exactly the same characteristics, there were some common components that many of the schools regularly identified with or emulated. These were the *bond with the learning space* that they utilize, their *educational*

approach, and their *process of reflection*. Additionally, many schools indicated that how students viewed and *interacted with the outdoor environment*, the *physical environment* around the students, and attributes of their *program delivery* as their most unique features. These are all discussed in the following paragraphs.

Bond with the Learning Space

Across the board, many programs showed a deep connection to the space that they occupied. Although the physical environment varied drastically, each school had a special connection to the land they used. This was especially apparent while having discussions with the school officials. Whether it was the student-maintained facilities, their campus, a funny story from a recent trip, or a classic trip that has been used by many classes as part of the learning process, staff members were always enthusiastic to share their experiences.

Educational Approach

While each school implemented their approach to education in a unique style and location, the general approaches were derived from some of the same concepts. Experiential education (n=5) was the most common approach implemented by schools, and identified as such. The two methods of teaching experiential education, without calling it such, that were identified by schools were service- or community-based (n=5) and place-based (n=4) learning (see Table 1, Chapter IV). Two programs had educational approaches that were unique. These were Outward Bound, which utilized Expedition Learning, and Adventure Learning, that used the educational approach of connecting learners and expedition members through technology.

John Dewey popularized experiential education in the early to mid 1900s. The practice is still being implemented today with High Mountain Institute, Chadwick School, and Ripple Effect naming him as a specific influence. When implementing this practice, care is taken to create educative experiences that lead to an expanding world of subject matter, which is a highlight of Dewey's model. As discussed in the Review of Literature, John Dewey remains a prominent figure in experiential education with few schools inside and outside the study directly attributing their model of experiential education to him.

More broadly implemented were aspects of service- or community-based and place-based learning with nine of the 16 of schools in the study utilizing this form of education. This is in agreement with earlier discussions that although John Dewey and experiential education served as an influence, modern practice concentrates on specific elements or types of experiential education. When analyzing the use of service-based learning, schools that also utilized community- based (n=3) learning were included in this category due the substantially overlapping goals described for each type of learning. This included goals such as completing a service project for the community, interacting with the community to provide a service such as a farm stand, or in other ways serving the community as part of community-based learning. Both service-based and place-based learning are meant to create stronger connections with the physical environment; this may be attributed to most schools having a strong connection with their learning environment, as mentioned earlier in this section.

Teaching methodologies that were less broadly applied and served as defining characteristics for the organization were theme-based learning, reflection education, inquiry-based learning, and expedition learning. The College School utilized theme-based and reflection learning. Theme-based learning is having a theme that students can center their learning around, such as butterflies or a current issue. Reflection learning is more in depth than most as students at the school can spend up to 1/3 of a trimester specifically focused on a reflection project, such a community presentation. This length of time was the most time given to reflection of any of the programs in this study. Inquiry learning was the basis of learning for the Riveredge School. Serving grades K-4, the school primarily uses the outdoors as a way to ask questions and learn about the environment around them. Outward Bound employed expedition learning. They placed an equal emphasis on personal and intellectual development and it can be facilitated anywhere.

Reflection Processes

With 12 of the 16 programs having reflection included as part of their programming, it appears that reflection fulfills a major role in outdoor learning and adventure sports. There were four programs that were not able to be contacted and simply did not have reflection listed on their website. Amounts of time for reflection varied. Some day-programs set aside an hour for reflection, while one semester-long unit set aside a third of the time for reflection. In general the longer the program ran; the longer period of time was given for reflection. The various reflective processes can be separated into solos, projects, and thought provoking exercises.

During a solo, a student is left on their own in the outdoors for a period of time, except for wellness and safety checks. The solo lasts between one and four days to give the student a chance to be alone and think about the meaning of the experience. The type of project students were asked to complete varied but could consist of community presentations, coordinating an event, or something that the students developed to represent the meaning and feelings of the experience, such as a film. A thought provoking exercise involves many reflection activities such as selecting a postcard to reflect feelings, speaking to the mountains and valleys of the experience, or any other number of reflection activities. This was most often implemented during a day activity or as a shorter daily reflection during a larger trip.

Although not specifically discussed as part of reflection activities, there were some teaching styles identified by the schools that intrinsically involve reflection. These teaching styles involve those influenced by John Dewey, such as experiential education and its sub-genres of place and service based education, as well as, forest schooling. When taking this into account, a positive correlation is revealed between the amount of schools using reflection regularly and the types of teaching styles that are represented.

Interaction with the Outdoors

While going outside was the broad goal of each school, many viewed the unique interactions through the lens in which their students viewed nature as defining characteristics. These can be generally classified into three categories: as a source of inspiration for studies, a source of data, and as an area to develop personal skills to better handle school situations.

As Inspiration. This approach was mostly highlighted in the younger grades (K-5). The approach merges well with the curriculum for that age as much of the focus is on how to form questions, expanding vocabulary, and gross motor development. This was documented as being used in urban parks, on the school's campus, and on field trips. Wilderness areas were, with one exception, not documented for this age group primarily because the students lacked the physical stamina for such a sustained trip.

Using nature as inspiration, outdoor trips were generally shorter in length, about two hours or less. The exceptions to this were the Chadwick School, Camp Chewonki, The College School, and Riveredge. At Chadwick School, students start with two one-hour sessions in Kindergarten and culminate into two five-day trips in sixth grade. While attending Camp Chewonki students spend one full day a week outdoors in addition to eating outdoors every day. The College School exposes Kindergarteners to wilderness and builds on these experiences until a "rite of passage" trip in the sixth grade that includes a solo night. For students at Riveredge, the goal is to spend a majority of the time outdoors while being outdoors the whole day each Friday. It appears that the schools that were able to get younger students outdoors longer had introduced these students to the environment slowly over time.

Data Collection and Analysis. The outdoor classroom or expedition was often used as a source of data or a way to analyze the processes learned in class. Although it varied by school, most started using the outdoors in this way starting around fifth/sixth grade up until graduation. When asked what subjects were covered, only one school reported using the outdoors to cover one subject. All other schools that integrated K-12

curriculum into their structure (n=10) covered multiple classes in the outdoors. It was uncommon to see the classes separated into outdoor periods as seen with indoor classrooms. This was also true for programs that did not regularly offer curriculum based programming (n=4). While outdoors, the classes are heavily integrated into one another and there is little distinction during the activity between the subjects. This agreed with the findings of Macquarie (2018), who found that teachers used outdoor learning to support interdisciplinary connections, increasing knowledge acquisition and retention.

While outdoors, the typical subjects covered by the schools included math, science (including: biology, chemistry, physics, earth science, etc), physical education, environmental education, leadership, and STEAM. These subjects were the most engaging, as discussed in the Review of Literature. Subjects that were also covered, that did not surface during preliminary literature research, included astronomy, foreign language, and literature/English and would fall under the category of generalized curriculum and the diversity of curriculum recommended by MacQuarrie (2018).

Personal Skills. Although not directly meeting the goal of integrating curriculum into the outdoors, many programs claimed that the skills learned as part of the outdoor trip are essential to the success of students in the classroom. These skills or traits often included personal confidence, learning reflective techniques, creating bonds with classmates, Leave-No-Trace skills, and leadership. In total, six schools or programs utilized this approach, including many of the most renowned names in adventure education like NOLS, IWLS, and Outward Bound. Many of these programs also utilized wilderness in their programming more consistently than other programs. NOLS

advertises that students can receive credit for attending a course but only advertise up to one credit of physical education and leadership for a 60-day course. IWLS also advertises high school credit but does not list credits available and asks students to have their guidance counselor call IWLS to arrange credits. Both IWLS and NOLS have a substantially larger offering of college credits that can be received. Outward Bound does not offer credit for their courses, but are much more targeted toward middle school students. With an equal emphasis on developing character and intellect, Outward Bound seeks to help develop students in the classroom. Of the major names in the industry, they are the only one to offer programming in the classroom.

There are also schools, such as Chadwick and Colorado Rocky Mountain School, which use the outdoor program to offset its school portion. On paper, the classroom and the outdoor environment are separate; however, the schools maintain that part of their academic success is due to the outdoor program. At Chadwick School, the outdoors plays a more prominent role, academically, in younger grades. As students become older the outdoors becomes less of a classroom and more of an area of personal development. During these times outdoors, students receive the most concentrated time in their schooling to develop their reflection skills, a key takeaway to their success in the classroom. While attending Colorado Rocky Mountain School, students are exposed to an expedition as part of the initiation into the school. This is in addition to two trips that the whole school takes in the fall and spring. Both schools cited the rigorous AP and IB curriculum that students engage in being a reason that the outdoors wasn't more integrated in the older classrooms. This is a common barrier that teachers face when

making the decision on using outdoor and adventure education as set forth by Shumaker et al. (2012).

Physical Environment

Almost every single program had a unique way in which they utilized the environments around them. Despite this unique environment, they can be broken down into three categories: campuses, local lands, and continental scale implementation. Although each program tended to focus on their primary area, almost all the programs in the study used a little of each type of location. The locations being used were addressed in the Review of Literature, with the exception of on campus learning. These locations included urban parks, adventure centers and field trips, as well as wilderness areas.

Campuses. Many schools had access to a large campus area (n=8), from as small as 20 acres to 25,000. These campuses provided a host of amenities such as high and low challenge courses, hiking trails, recreation fields, different biomes to study, and nature centers. Although the selection of activities varied at each campus, every school was very proud of their campus. Schools utilized their campuses more for everyday learning. When students went on multi-day trips, most schools were not able to accommodate that length of trip on their campus and utilized a different area. Hosting an overnight trip on campus is a unique attribute that most schools don't have. Usually access to natural environments is a limiting factor for schools trying to implement outdoor learning (Lindemann-Matthies & Knech, 2011). However, the school administration providing materials, in this case space, and encouraging teachers to use them served to overcome two substantial

barriers to the implementation of outdoor learning (MacQuarrie, 2016; Shumacher et al., 2012).

Local Lands. Local, describes an area less than 400 miles from the school, by the researcher's definition. However, most schools operated in area within 100 miles of the school location. Schools that operate on a continental scale and mostly utilize areas around each of their locations are included in the next section. A majority of the schools accessed local lands in the outdoors for their regular programming (n=8); many other schools used these areas for their longer class trips (n=7). When venturing off campus the general trend was using public lands. This came in the form of wilderness areas, state forests, BLM land, national parks, and community parks, just to name a few of the classifications of land. There was also use of local nature centers or adventure centers to help facilitate learning.

When utilizing the local lands around them, schools took advantage of every opportunity available to them. This provided the best for urban children studying outdoors in an environment they were familiar with and creating a deeper connection to it (Defelice et al., 2014). Using local lands often involved visiting centers to present information, thus making it easier on teachers and removing one of the barriers to implementation, and visiting wilderness areas that allowed them to connect on a deeper level and create more consistent engagement (Bell et al., 2006; DeFelice et al., 2014; Thorburn, 2018). Most of these sites were either within five miles of the school or over 75 miles away. Being close to the outdoors did not necessarily guarantee more outdoor time. Walking distance is usually the best option before taking a full field trip to access

the outdoors, which is consistent with what Lindemann-Matthies & Knech (2011) proposed.

Continental Scale. Some organizations have developed several campuses or satellite locations that allow students the option to attend different locations that may have different focuses. In this study NOLS, IWLS, Inspiring Girls Expeditions, and the World Class Academy were the four organizations that used this approach. While the Chadwick School does have multiple locations around the world, the focus is not to get students to attend each one and they each operate within their own area; for that reason this school will not be included in this section.

NOLS utilizes 16 campuses around the world with each one offering its own distinct environment and training opportunities. Students are invited to pick a course and see where it can take them or choose a location and take what is offered. IWLS has 10 locations around the world; students are again invited to join a course or location that interests them. Both of these programs have students meet on the campus for a pre and post-trip briefing and will utilize the campus for pre-trip training. Most of the activities take place off campus and on public lands. Each organization does update their program schedule; however, there are usually staple trips and the course offerings change little from year to year. For those that attend Inspiring Girls Expeditions there are eight different expeditions to choose from around the world. Each one takes advantage of the distinct areas around it and are offered year to year. While attending the World Class Academy, students are based out of the single campus in Washington. They travel to destinations around the world where there are no satellite campuses. During these trips,

students and teachers use whatever facilities are available, including public libraries or the shade under a tree. The WCA has four separate disciplines offered at different destinations and the trips change from year to year. This was not a model that was discussed previously in the Review of Literature.

Program Delivery

Program delivery consists of many aspects including length of time, the focus of the activity, and also the method that is used. Many of these approaches utilize several of the features discussed above, but when combined create very distinct programs.

Adventure Learning. This is the only program that was delivered without the students being physically present for the experience. Despite this, students were still able to follow along with the expedition and engage with the members in the field digitally. This format allowed students from different areas to connect and compare findings. With the encouragement to go outdoors and use the facilities at hand and use the provided lesson plans this creates a very unique experience for each class participating.

Camp Chewonki. The program utilizes both an expansive campus as well as the local wilderness. Chewonki hosts middle school students, semester high school students, and summer campers it is a very versatile program. With students graduating at 8th grade, Camp Chewonki strikes a balance for adventure education making sure that students have the skills to succeed in a traditional classroom too. Offering classes that are grouped together with different grades in each classroom students are able use each other for support both in and out of the classroom.

Chadwick School. Students are given the chance to explore themselves and the environment around them creating stronger interpersonal skills and increasing bonds amongst classmates, while learning outdoor skills. These skills transfer to the classroom and help students succeed while not outdoors as well. With the ability to work with students from K-12, the program is able to have an impact year after year.

College School. Using national governing bodies as a standard to be met, the College School sets safety and age appropriate experiences as its standard. Merging the classroom and the outdoors into one seamless process, the outdoors is used to collect data and to generate questions for the classroom. The two learning experiences are very much entwined. This school also needs to help students create habits that will help them succeed in a traditional classroom. The College School stands out as the only school that mentioned participating in standardized testing.

Colorado Rocky Mountain School. Providing a plethora of opportunities to engage in the outdoors or adventure sports through service crews and two expeditions a year, there are plenty of ways to be outdoors. Students can complete their service through various non-outdoor/adventure actives or they can work on a ranch, participate in trail building, tune skis and bikes, set routes at the rock gym, or help with trip logistics. The fall and spring trips are another way for students to go mountain biking, climbing, kayaking, and hiking to name a few of the activities offered.

High Mountain Institute. With a campus that is heated with the wood students stack, to the meal service being completed by the students, HMI creates an environment where students learn important life skills but also the appreciation of the effort to care for

a community. Students get into the field once a week for lab and the go on a total of five weeks of expeditions. As only a semester program, students follow a more structured schedule than programs that last longer in order to ease students' transition in and out of the program.

Inspiring Girls Expeditions. This program identifies itself as the only one to heavily advertise engagement with STEM and other curriculum activities and not provide credit. Over the 12-day course there is not enough time to earn credit. The goal of the program is to motivate and inspire the students for a lifetime. With an all-female group including students, guides, and professional scientists, there are plenty of chances to be inspired for the high school students.

IWLS. With 10 locations around the world, this program really excels at offering older students an opportunity to get outdoors and develop themselves interpersonally. IWLS creates longer courses by stringing together multiple 10-15 day trips in a row, creating a unique multi-sport experience while students are in the field.

NOLS. Boasting 22 worldwide campuses NOLS has the distinction of being tied for the most satellite campuses with Outward Bound. This provides students with an opportunity to pursue many different disciplines in a variety of locations. Offering credit for leadership and physical education, NOLS does also offer some of the fewest curriculum credit options. With advertised groups for children 15 and older students will have most of high school to take advantage of these opportunities.

Outward Bound. Offering both destination trips as well as programming that can be delivered in the classroom from its 22 locations, Outward Bound has an opportunity to

serve youth in many different locations. With an emphasis on developing the character and the mind there is an equal effort given to developing the whole student. Outward Bound is the only school to utilize the expedition learning educational approach.

Pali Institute. What makes Pali stand out is its action packed campus, as well as it's modular approach to lesson planning. With teachers being able to select what programs their group takes part in Pali Institute are able to customize the experience for each group. This allows groups that attend an overnight or for the day to have an experience that best suits them.

Proctor Academy. Although not technically required for graduation, students are offered several outdoor classes that they are able to choose from. This is one of only two examples where students are given the opportunity to choose if they partake in the outdoor segments. When not off traveling, students are responsible for various tasks to help run the campus including managing the forest on campus to cut and split wood to heat the campus.

Riveredge School. Being the youngest school in the study this program shows that new programs can begin and that modern barriers can be overcome. In this program students are asked to spend the most time outside of any other program given the school only goes to grade five, with a whole day devoted once a week and a yearly goal of being outside more than inside. Outside of class, students are encouraged to participate in outdoor activities that can be hosted on the campus.

Ripple Effect. With the goal of trying to extend the experience past the event, Ripple Effect hopes to live up to its name. Offering summer camps, school programs, and

outreach events that travel to schools there are many different ways for schools to get involved. This program also offers a semester program for high school students. Ripple Effect is one of two programs that work with teachers before and after the trip to develop curriculum and help teachers continue to make the connections.

World Class Academy. This is the only school in the study to emphasize performance of adventure sports as part of its mission statement. Utilizing many locations around the world WCA creates a classroom that truly surrounds the student. With the smallest teacher to student ratio at 3:1 this program provides individualized attention to each student's development by utilizing mentor groups.

World Ocean School. World Ocean School is truly a unique experience where class takes place on a national historic site. Students can engage in day trips or multi-week adventures that sail down the Eastern seaboard. With anchorages in Boston and the Virgin Islands this classroom can operate year round and has one of the largest operating areas for a single campus school. World Ocean School also has the most advertised diversity and the largest percentage of students coming from low-income households (73%) in the study.

Personalized Implications of the Study

This study has impacts both personally for me, the researcher, as well as more broadly in contributing to the body of knowledge for adventure sport and outdoor instructors teaching curriculum. The initial inspiration for this paper stemmed from a desire to combine skill sets that I have and am developing in a quest to develop my own program. Through this process I have gained valuable insight in which I feel has helped

shape my vision of how adventure sports and education can be combined. The most influential insights are in the area of places the school will go, the age range that can be involved, and the delivery style that the program uses.

With any trip, the first question is often, “where do I go?” When looking into developing a traveling school this was also my first question. Through this research I have found that it really doesn’t matter where I go, it is how I utilize the opportunities that come up. Schools throughout the study have operated on private campuses, public parks, public lands, and on a ship. Each school has owned the environment that they have and taken advantage of the unique opportunities that each area of operation presents. When traveling, it may not matter where the school goes but considerable knowledge of the area is required to have a meaningful experience; more than can be done with an internet search. When planning a trip of any scale it would be prudent to make local connections that can be part of the group. These can be both educational as well as cultural experiences. This realization came from the programs having bonded with their learning space. Although the students in my envisioned program may not return to the same space day to day, finding a way to make that meaningful connection with the places visited is of high importance.

During this proposed programming, students will be required to be self-sufficient. In general, as students get older they become more independent and grow stronger, making it easier to carry larger loads for longer periods. This is exemplified during the study when most programs started their first self-supported trips around sixth grade. These early trips, and the ones that preceded them, are generally shorter and less

"intense." Although the older students often go out for longer adventures there is still substantial time and ways that younger students can be involved. Taking a lead from programs that includes K-6 education getting younger students out on day trips or sessions with low physical input but high enrichment is very valuable. Although taking these younger students on the entire trip may not be feasible, working with younger students to get outdoors can make a great community outreach project for the older students as they travel through different towns. This younger demographic can also be included with different delivery styles, which is talked about next. While every age range cannot physically, emotionally, or developmentally make the trip; outreaching to these younger demographic is just as valuable and holds potential as a "feeder" program for future trips.

When it comes to delivery styles of education there are a host of different approaches that can be utilized, as discussed earlier. Although in practice a host of other approaches will likely be used, the three that would fit the mission of the traveling school best are place-based, Adventure Learning, and expedition-based learning. Place-based education fits well as it will focus the group on taking advantage of opportunities that are not available elsewhere and help the students form a closer connection to the land in which they are traveling; something that is very important. Utilizing Adventure Learning will create an environment for students who are not able to attend the expedition to be involved; it will also allow participants to be a part of the process before and after attending. A critical component of Adventure Learning that will need to be developed prior are the supporting lesson plans and implementation guide to help teachers facilitate

the lessons in the their classroom. The final main teaching method to be employed is expedition learning. While the group leader will be able to create connections ahead of the group and plan lessons, there is so much learning that happens day to day on an extended trip that cannot be overlooked. This can be substituting an ingredient while cooking, learning about weather systems while determining the forecast every day, and even dealing with the emotional distress that comes with getting lost or dealing with equipment malfunctions. These events can both reinforce the academic learning and help in the character development of the students.

This paper has helped shape the researcher's view of what adventure education and outdoor learning can be it be and has also contributed to the larger researching community. Although many studies have reviewed or studied individual programs, to the researcher's knowledge, a document has not been created that compares the characteristics of so many programs at once. This can be used as a starting point for other research questions or as reference for others looking at how to utilize the outdoors and adventure sports in an educational environment. Overall, it is the hope of the researcher that this piece will help better define what implementing educational standards into adventure sports and outdoor learning looks like, to help better clarify common or unique practices, and provide examples of programs that have accomplished this.

Future Research

The scope of this study extended to the current practices of what different programs were using. In future research this could be extended to include past practices,

how COVID affected the practice, and what role professional adventure based certifications play in the application of this style of learning.

Education is a constantly evolving practice that can be reviewed and refined with each new iteration of implementation. While this study focused on the current practices of each program it was not clear with most programs, especially the programs that could not be reached for a discussion, what other styles or practices were used previously to get to the program that is presented today. Additionally, there was not discussion on how these practices may be applicable in future contexts. For example, with the current COVID epidemic schools are utilizing new teaching methods that they traditionally did not use. Looking into what methods will continue to be utilized and what was abandoned could be an interesting line of inquiry.

While many programs utilize the outdoors it is unclear as to how certifications, especially adventure sport certifications, play a role on what are required. These certifications could include those offered through national governing bodies such as American Canoe Association or American Mountain Guides Association. This line of questioning was added partway through the discussion process, but enough of a response pool was not generated to extrapolate any meaningful data. The schools that did respond showed a mix of varied responses that would be interesting to explore further. The final area needing further review is in the services utilized to implement outdoor education. This research covered what services were utilized for field trips but did not ask whether guide services or other such businesses were used during other outdoor trips.

Concluding Thoughts

While on this journey to document how adventure sports and outdoor education were used to meet educational standards the researcher was able to gain a perspective in which to develop their own outdoor programming. This paper can also serve as a reference for those looking into the field themselves or can serve as a catalyst for continued research. Having documented and compared each program can help provide a larger perspective on how the fields of outdoor learning, adventure sports, and K-12 education can be combined to create a one of a kind educational experience for the students.

Outdoor learning and utilizing adventure sports to meet educational standards is still a loosely defined field. There were several organizations and programs that advertised this style of education but were not included in the study because of their limited use of the outdoors and the trips not being connected to educational outcomes. Those schools that met the criteria for the study utilized all manner of outdoor spaces, often many, to help meet curriculum standards. In these spaces, instructors employed many different teaching methods including experiential education, place-based, service-based, expedition-based, and Adventure Learning to help meet standards. These standards consisted of national standards such as NGSS, common core, and STEAM, as well as state and program based standards. While attending these programs, students were able to explore large campuses, public lands, and in some cases choose a destination in order to receive the education, both domestically and internationally. Each program

combined these aspects of place, educational approach, standards, and location to create an experience that was unique to each program.

Works Cited

Adventure Learning. (2020-June 10) [Website of *Aaron Doering.]* https://chasingseals.com/

Association of Experiential Education. (2020-June 15) [Multiple pages and sections.] https://www.aee.org/about

Atchley, R. A., Strayer, D. L., & Atchley, P. (2012). Creativity in the wild: Improving creative reasoning through immersion in natural settings. *PLoS ONE, 7*(12). doi: https://doi.org/10.1371/journal.pone.0051474

Atencio, M., & Tan, Y. S. M. (2016). Teacher deliberation within the context of Singaporean curricular change: Pre‐ and in‐service PE teachers' perceptions of outdoor education. *The Curriculum Journal*, *27*(3), 368–386. doi: https://doi.org/10.1080/09585176.2015.1127843

Barnett, M., Lord, C., Strauss, E., Rosca, C., Langford, H., Chavez, D., & Deni, L. (2006). Using the urban environment to engage youths in urban ecology field studies. *The Journal of Environmental Education, 37*(2), 3-11. doi: https://doi.org/10.3200/JOEE.37.2.3-11

Bell, B. (2012). Assessing the effectiveness of an adventure-based first-year experience class. *Journal of College Student Development*, *53*(2), 347-355. retrieved from: http://muse.jhu.edu/content/crossref/journals/journal_of_college_student_development/v053/53.2.bell.html

Camp Chewonki. (2020, June 10). [Multiple pages and sections.] https://camp.chewonki.org/

Chadwick School. (2020, June 11). [Multiple pages and sections.] https://www.chadwickschool.org/

College School. (2020, June 10). [Multiple pages and sections.] https://www.thecollegeschool.org/

College School. (2020, July 13). [Multiple pages and sections.] *Adventure education.* https://www.thecollegeschool.org/about-tcs/forward-thinking-education/adventure/

Colorado Rocky Mountain School. (2020, June 12). [Multiple pages and sections.] https://www.crms.org/

Colorado Rocky Mountain School. (2020, July 13). *Outdoors.* https://www.crms.org/outdoors/

Cooley, S. J., Burns, V. E., & Cumming, J. (2016). Using outdoor adventure education to develop students' groupwork Skills. *Journal of Experiential Education, 39*(4), 329–354. doi: https://doi.org/10.1177%2F1053825916668899

Cross, R., Sanchez, P., & Kennedy, B. (2019). Adventure is calling, and kids are listening. *Journal of Physical Education, Recreation & Dance, 90*(6), 18-24. doi: https://doi.org/10.1080/07303084.2019.1614121

Defelice, A., Adams, J. D., Branco, B., & Pieroni, P. (2014). Engaging underrepresented high school students in an urban environmental and geoscience place-based curriculum. *Journal of Geoscience Education, 62*(1), 49-60. doi: https://doi.org/10.5408/12-400.1

Dewey, J. (1998). Experience and education: The 60th anniversary edition. West Lafayette, IN: Kappa Delta Pi. (Original publication 1938)

Doering, A. (2006). Adventure learning: Transformative hybrid online education. *Distance Education, 27*(2), 197–215. doi: https://doi.org/10.1080/01587910600789571

Doering, A., & Veletsianos, G. (2008). Hybrid online education. *Journal of Research on Technology in Education*, *41*(1), 23–41. doi: https://doi.org/10.1080/15391523.2008.10782521

Ernst, J. (2013). Early childhood educators' use of natural outdoor settings as learning environments: An exploratory study of beliefs, practices, and barriers. *Environmental Education Research*, *20*(6), 735–752. doi: https://doi.org/10.1080/13504622.2013.833596

Finn, K. E., Yan, Z., & Mcinnis, K. J. (2018). Promoting physical activity and science learning in an outdoor education program. *Journal of Physical Education, Recreation & Dance, 89*(1), 35-39. doi: https://doi.org/10.1080/07303084.2017.1390506

Forest School Association. (2020- August 11) *About* https://www.forestschoolassociation.org/what-is-forest-school/

Goodman, G. (2008). *Outdoor education philosophy.* In J.R. Jelmberg & G.S. Goodman (Eds.), The outdoor classroom (pp. 17-28). Hampton Press.

Greffrath, G., Meyer, C., Strydom, H., & Ellis, S. (2011). Centre-based and expedition-based (wilderness) adventure experiential learning regarding personal effectiveness: An explorative enquiry. *Leisure Studies, 30*(3), 345-364. doi: https://doi.org/10.1080/02614367.2011.552623

Harris, F. (2018). Outdoor learning spaces: The case of forest school. *Area, 50*(2), 222-231. doi: https://doi.org/10.1111/area.12360

High Mountain Institute (2020, June 10). [Multiple pages and sections.] https://www.hminet.org/

High Mountain Institute. (2020, July 13). *Our story.* https://www.hminet.org/about-us/our-story/

High Mountain Institute. (2020, July 13). *Wilderness expeditions.* https://www.hminet.org/hmi-semester/wilderness-expeditions/

hooks, b., (2017). *Teaching to transgress*. DEV Publishers & Distribution.

Hougham, R. J., Nutter, M., & Graham, C. (2018). Bridging natural and digital domains: Attitudes, confidence, and interest in using technology to learn outdoors. *Journal of Experiential Education, 41*(2), 154-169. doi: https://doi.org/10.5408/12-399.1

Inspiring Girls Expeditions (2020, June 12). [Multiple pages and sections.] https://www.inspiringgirls.org/

Inspiring Girls Expeditions. (2020, July 13). *Who we are – Our branches.* https://www.inspiringgirls.org/who-we-are

Inspiring Girls Expeditions. (2020, July 13). *Who we are – Our philosophy.* https://www.inspiringgirls.org/who-we-are

International Wilderness Leadership School. (2020, June 10). [Multiple pages and sections.] https://iwls.com/

International Wilderness Leadership Expeditions. (2020, July 13). *Why IWLS? Social & Environmental Commitment*. https://iwls.com/why-iwls/

Kaplan, S. (1995). The restorative benefits of nature: Toward an integrative framework. *Journal of Environmental Psychology,15*(3), 169-182. doi: https://doi.org/10.1016/0272-4944(95)90001-2

Koseoglu, S., & Doering, A. (2011). Understanding complex ecologies: An investigation of student experiences in adventure learning programs. *Distance Education,* 339-355. doi: https://doi.org/10.1080/01587919.2011.610292

Lindemann-Matthies, P., & Knecht, S. (2011). Swiss elementary school teachers' attitudes toward forest education. *The Journal of Environmental Education, 42*(3), 152-167. doi: https://doi.org/10.1080/00958964.2010.523737

Macquarrie, S. (2018). Everyday teaching and outdoor learning: Developing an integrated approach to support school-based provision. *Education 3-13, 46*(3), 345-361. doi: https://doi.org/10.1080/03004279.2016.1263968

Miller, B. G., Doering, A., Roehrig, G., & Shimek, R. (2012). Reports from the field: Fostering indigenous STEM education: Mobilizing the adventure learning framework through snow snakes. *Journal of American Indian Education, 51*(2), 66-84. retrieved from: http://www.jstor.org/stable/43608629

Miller, B., Hougham, R., & Eitel, K. (2013). The practical enactment of adventure learning: Where will you AL@? *TechTrends, 57*(4), 28-33. doi: https://doi.org/10.1080/09585176.2015.1043925

National Center for Educational Statistics. (n.d.). *Private School Universe Survey (PSS)*. Retrieved from https://nces.ed.gov/surveys/pss/tables/table_2004_06.asp

NOLS. (2020, June 12). [Multiple pages and sections.] https://www.nols.edu/en/

NOLS. (2020, July 13). *About our mission.* https://www.nols.edu/en.about/mission/

Outward Bound. (2020, June 12). [Multiple pages and sections.] https://www.outwardbound.org/

Outward Bound. (2020, July 13). *History.* https://www.outwardbound.org/about-outward-bound/outward-bound-today/history/

Pali Institute (2020, June 10). [Multiple pages and sections.] https://www.paliinstitute.com/

Pali Institute. (2020, July 13). *Mission.* https://www.paliinstitute.com/about/

Proctor Academy. (2020, June 12). [Multiple pages and sections.] https://www.proctoracademy.org/

Proctor Academy. (2020, July 13). *Off-campus programs.* https://www.proctoracademy.org/off-campus/

Ripple Effect. (2020, June 10). [Multiple pages and sections.] https://www.rippleffectmaine.org/

Riveredge School. (2020, June 11). [Multiple pages and sections.] https://theriveredgeschool.org/

Riveredge School. (2020, July 13). *Curriculum.* https://theriveredgeschool.org/curriculum/

Schwab, K., & Dustin, D. (2014). Engaging youth in lifelong outdoor adventure activities through a nontraditional public school physical education program. *Journal of Physical Education, Recreation and Dance, 85*(8), 27-31. doi: https://doi.org/10.1080/07303084.2014.946189

Sheldrake, R., Amos, R., & Reiss, M. J. (2019). Children and nature: A research evaluation for the wildlife trusts. Retrieved from: https://www.wildlifetrusts.org/sites/default/files/2019-11/Children%20and%20Nature%20-%20UCL%20and%20The%20Wildlife%20Trusts%20Full%20Report.pdf

Shumacher, S. L., Fuhrman, N. E., & Duncan, D. W. (2012). The influence of school culture on environmental education integration: A case study of an urban private school system. *Journal of Agricultural Education, 53*(4), 141. doi: https://doi.org/10.5032/jae.2012.04141

Suarez, P., & Dudley, J. (2012). Finding their way: How geocaching is an adventure for all, including teens.(feature: Hot spot: STEM). *Young Adult Library Services, 10*(2), 32.

Sullivan, W. C., & Kaplan, R. (2015). Nature! Small steps that can make a big difference. *HERD: Health Environments Research & Design Journal, 9*(2), 6-10. doi: https://doi.org/10.1177/1937586715623664

Thorburn, M. (2018). Moral deliberation and environmental awareness: Reviewing Deweyan-informed possibilities for contemporary outdoor learning. *Journal of Adventure Education and Outdoor Learning, 18*(1), 26-35. doi: https://doi.org/10.1080/14729679.2017.13220000

Turtle, C., Convery, I., & Convery, K. (2015). Forest schools and environmental attitudes: A case study of children aged 8 to 11years. *Cogent Education*, *2*(1). doi: https://doi.org/10.1080/2331186X.2015.1100103

Ulrich, R. S., Simmons, R. F., Losito, B. D., Fiorito, E., Miles, M. A., & Zelson, M. (1991). Stress recovery during exposure to natural and urban environments. *Journal of Environmental Psychology,11,* 201-230. doi: https://doi-org.ezproxy.mnsu.edu/10.1016/S0272-4944(05)80184-7

Veletsianos, G., Miller, B. G., Eitel, K. B., & Hansen, D., (2015). Lessons learned from the design and development of technology-enhanced outdoor learning experiences. *Tech Trends 59*(4), 78–86. doi: https://doi.org/10.1007/s11528-015-0874-6

Veletsianos, G., Doering, A., & Henrickson, J. (2012). Field-based professional development of teachers engaged in distance education: Experiences from the arctic. *Distance Education*, *33*(1), 45-59. doi: https://doi.org/10.1080/01587919.2012.667959

Waite, S., Rutter, O., Fowle, A., & Edwards-Jones, A. (2017). Diverse aims, challenges and opportunities for assessing outdoor learning: A critical examination of three cases from practice. *Education 3-13, 45*(1), 51-67. doi: https://doi.org/10.1080/03004279.2015.1042987

What Are Storylines? (n.d.). Retrieved April 8, 2020, from https://www.nextgenstorylines.org /what-are-storylines

Williams, F. (2018, November 12). *The nature fix: the three-day effect.* Retrieved from https://www.rei.com/blog/camp/the-nature-fix-the-three-day-e

World Class Academy. (2020, June 10). [Multiple pages and sections.] https://worldclassacademy.com/

World Ocean School. (2020, June 12). [Multiple pages and sections.] https://worldoceanschool.org/