Using technology to engage students in outdoor education: Does it inhibit or benefit the students' experience?

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Abstract

In this paper, the benefits and drawbacks of incorporating technology into outdoor education are discussed. The data was collected during an inquiry based project for an educational technology course. This research is important because of the growing epidemic of children staying indoors with their technology rather than going and enjoying outside. There always seems to be a divide between outdoor education, or being outdoors in general, and modern technology. However, by using modern technology students may be engaged and drawn into outdoor education. Therefore, incorporating technology into outdoor education may be something to consider. This study analyzed the possible effects on students of incorporating technology into an experiential learning opportunity of being outdoors. The participants of this study were predominantly Education students at Mount Royal University, Education faculty members, as well as people from other occupational backgrounds who felt strongly about outdoor education.

Introduction

Figure 1. Outdoor education word cloud

I have a large passion for outdoor education. Although I never experienced it through a classroom, I grew up in Northern Alberta with the forest as my backyard. Each day I was outside exploring and learning from the greatest teacher, the environment. Being outdoors is where I feel most connected. Not only to nature, but to myself as well. As a future educator this is something, which I would love for my students to experience as well, which is one of the reasons as to why the topic of incorporating modern technology into outdoor education interests me. At first the idea truly repelled me, but some arguments fought in defense of incorporating technology brought up great points. Before I get into the background, I will first start with an explanation of outdoor education.

What is outdoor education? As defined by Simon Priest (1986), "Outdoor Education is an experiential learning process by doing, which takes place primarily through exposure to the out-of-doors. In outdoor education the emphasis for the subject of learning is placed on relationships, relationships concerning people and natural resources" (p. 13). Although this simple definition

does not quite stress the importance of outdoor education on the child, it serves as a basis of describing what the learning process is through the idea of outdoor education being an experiential learning process. This study will be investigating a few key questions regarding outdoor education. The key questions to keep in mind are as follows; Does incorporating modern technology into outdoor education limit the student's experience of being outdoors? Or perhaps, in moderation, does it engage the students and enhance their learning experience? If so, how do we find a balance? These questions will be analyzed through an experiential learning model (Kolb, 1984).

An experiential learning process has four elements to it (Figure 2). Although they will be described in chronological order, they do not necessarily take place as so. Starting with the concrete experience, which is the actual experience itself. Then there is reflective observation, which is reviewing and reflecting on the experience. Abstract conceptualization is concluding or learning from that experience, and, finally, active experimentation is planning or trying out what has been learned.
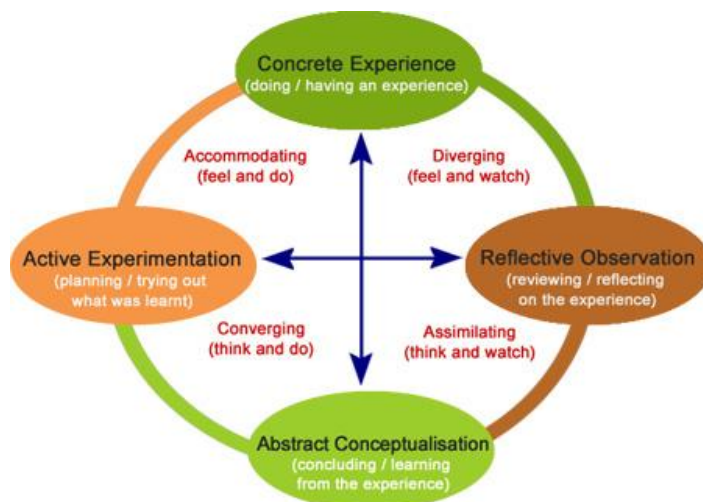

Figure 2. An experiential learning model (Kolb, 1984)

Background

There has been quite a bit written about the relationship of technology and outdoor education. To start with the book *The Last Child in the Woods* by Louv (2008), describes the disconnect from nature that our children our experiencing in society today. Louv coined the term nature deficit disorder, not as an actual diagnosis, but to explain some effects on children, or people in general, that being disconnected from nature has. Some of the many effects were a decrease in the ability to pay attention, as well as an increase in physical and mental illnesses (Louv, 2008, p. 58). This is important to keep in mind concerning incorporating technology into outdoor education because of the sensitive topic of how our children are disconnected from nature, and my belief is this disconnect is largely in due to their over use of technology. Robert (2006) has the same perspective, for in his paper he believed that certain trends in society encourage individualism. These trends and individualism actually counteract the goals of outdoor education. The goals of outdoor education are to promote a greater understanding of self, others, and the environment. However, modern technology, such as mobile devices, have really shaped the students' understanding of these aspects (n.p). Some other studies showed that this was not quite the case.

A study conducted by Rutche et al. (2009) whose objective was to evaluate whether mobile devices can be used an as effective learning instrument in outdoor education experiences. The authors' findings were that handheld devices are in fact capable of pairing the benefits of computer technology with a direct nature experience. They found that outdoor educators can benefit from the engagement that incorporating these devices may have on students (p. 1066). To further this particular view I found an educator's blog concerning technology in outdoor education. Gerstein (2013), uploaded a video to one of her blog entries. The video showcased

how technology could be incorporated into outdoor education. A quote from this video is as follows, "It's an inspirational look at the many possibilities today's technology provides for encouraging interest in... our environment" (n.p). Gerstein (2013), believes that mobile devices provide through their portability, "instantaneous, contextual observations in the field or whenever spontaneous learning opportunities arise" (n.p). She in her role as an educator, believes that these technological devices can be used to engage students in outdoor education and enhance their learning experiences.

A lot of the background research, or perspectives, on incorporating modern technology in outdoor education were similar to these above sources. There seems to be a great divide on whether technology can be beneficial for the students, or if it adds to a disconnect between nature and students. This study will investigate some of the reasons why this divide may be and make sense of it.

Research Context

Settings and Participants

My study was conducted primarily online. Although a couple interviews were conducted at Mount Royal University. The participants in my study were primarily Education students at Mount Royal University, although Education professors were interviewed as well. Along with current practicing teachers and people from various occupational backgrounds (Figure 3). My research participants were selected on the basis that they were above the age of 18 years old, so no written consent was required from the parents. They were invited to partake in my survey as long as they had a perspective on outdoor education. The majority of my participants were my peers in the Bachelor or Education program, a couple family members, as well as various people I have no personal relationship with. My participants were all protected because their

answers were anonymous even from me. This is with the exception of the interviews. For these interviews permission was provided by the participants to use their information and/or names in my study (Figure 3).
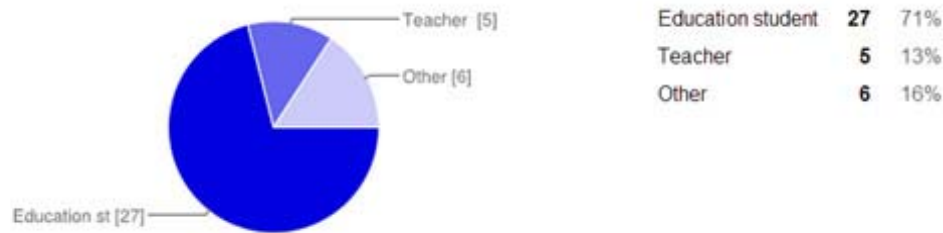

Education student	27	71%
Teacher	5	13%
Other	6	16%

Figure 3. Demographics of research participants

There were a total thirty eight participants. Twenty-seven were Education students, five were teachers, and six were from various other occupational backgrounds.

Methods of Investigation

Research Design

This study tried to answer the question of whether technology being incorporated into outdoor education is beneficial to the child's experience, or if it limited it. My research design was qualitative in nature. I chose this approach because I found that for this particular paper it was the most efficient way of getting different peoples' perspectives on the subject matter. The study was for primarily those who have experienced outdoor education. However, others who had a perspective about outdoor education were also invited to participate.

Data Collection

I used various methods of data collection. The first being an online survey which was completely anonymous. I created this survey through *Google Forms*. This is where I gathered the majority of my data as it had the largest amount of participants. I also recorded an interview with an Education professor. To organize this data *Google Forms* automatically created charts

and graphs from some of the more quantitative data from my survey. I then went through the more qualitative data and put some of the information in a *Google Spreadsheet* to create graphs and charts as well. Furthermore, I used the *Tagxedo* application to create word clouds, which helped to show the various themes that came up. Through *Google Docs* I was able to organize my qualitative data into different categories per question that was asked. My interviews were digitally recorded and I used the recordings to take notes and to add its data into the categories from my survey on *Google Docs*.

Findings

After identifying the demographics of my research participants (Figure 3) I asked in my survey how the participants had experienced outdoor education (Figure 4). The next question investigated ways in which technology had been incorporated into their outdoor education experience (Figure 5). The third and fourth questions were whether technology was a great tool in engaging students, and what the drawbacks of incorporating technology were in outdoor education (Figures 6 and 7).
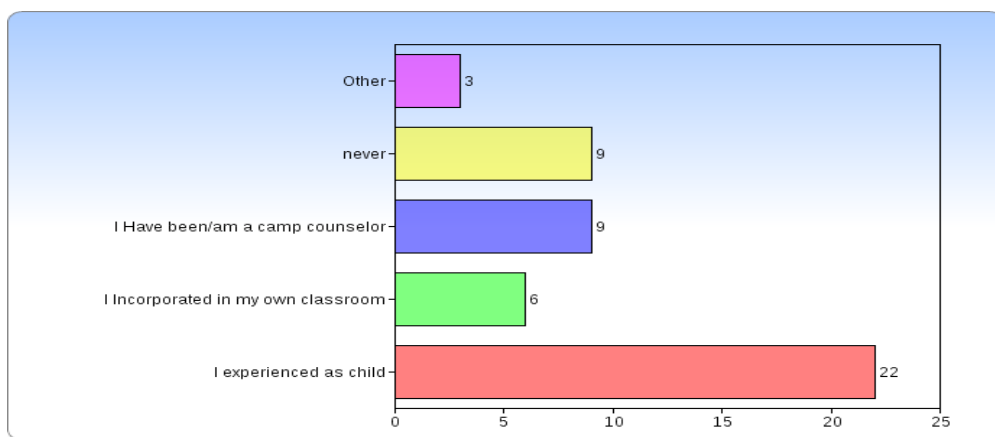

Figure 4. How the participants had experienced outdoor education.

Out of thirty eight participants, twenty two had experienced the outdoors as a child. Six had incorporated it into their own classroom. Nine had been a camp counselor. Nine had never

experienced it themselves, and three people had experienced it in another fashion.
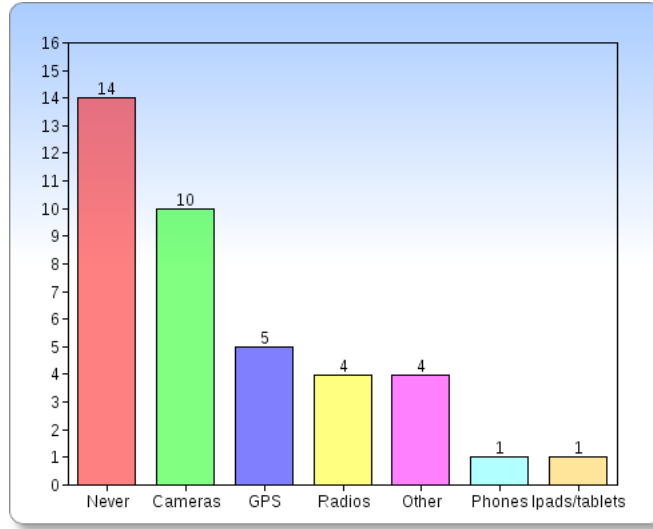

Figure 5. Types of technology incorporated into their outdoor education experiences

Fourteen participants said technology had never been incorporated into their outdoor education experiences. Cameras were the most popular and common amongst the different technological devices. GPS, radios, and other forms had been incorporated minimally, and phones and iPads/tablets had only been incorporated by one participant.
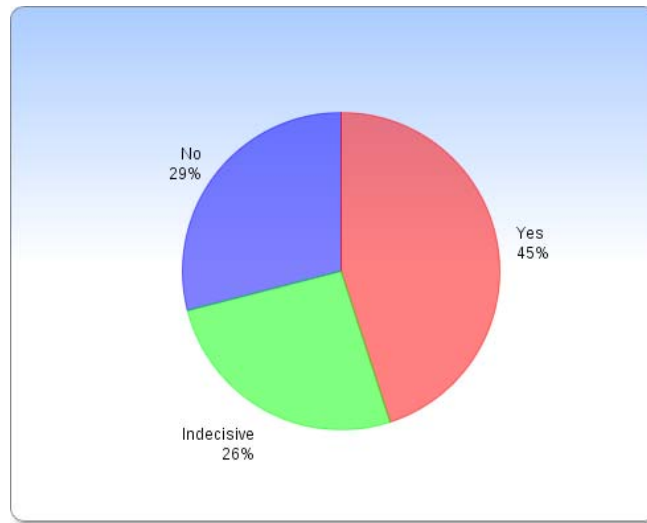

Figure 6. Is technology a great tool in engaging students in outdoor education?

Forty-five percent of the participants indicated that technology was a great tool for engaging students in outdoor education while twenty-six percent were indecisive, and twenty-nine percent said no.
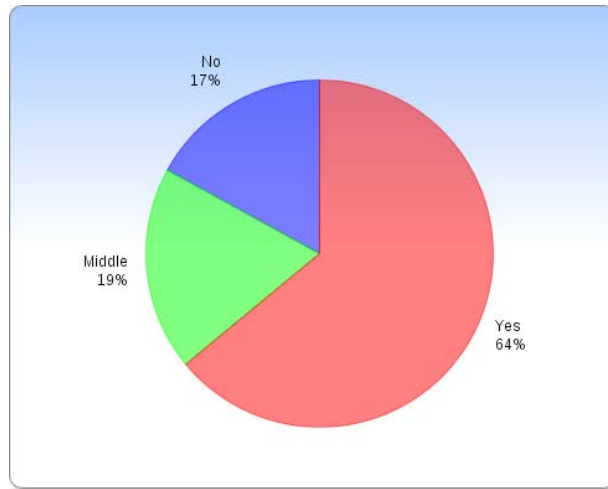

Figure 7. Does Technology limit the experience of being outdoors?

Sixty four percent of the survey participants indicated that technology limits the experience of being outdoors, nineteen percent were in the middle, and seventeen percent said that it did not limit the student's experience.

The next survey question asked participants to identify the benefits of incorporating modern technology into outdoor education. The following four themes were generated from the responses to this question:

1. Documenting knowledge and celebrating experiences

(slideshows/pictures/blogs/discussion forums). Some students might never be able to go out and experience the natural environments, but they would still like to view, experience and virtually engage with it.

2. There are certain technologies that make life better in the outdoors

Satellite phones create an element of safety that wasn't there before them. GPS reduces

the number of questions of how much further do we have to go. I do use the results of GPS tracking to plot out elevation plots - which along with this I will teach algebra to my grade 9 class.

3. Technology could be used for references and navigations

Identifying plants, animals, etc... To help with decision making (ie. What to do).

4. Technology is great in case of an emergency

It is important to be able to get in contact with the school or the students' parents in case something goes wrong. Also a GPS can be very helpful if you happen to get lost. Cameras are also great to help keep the memories of outdoor education and to prepare presentations after the excursion is complete.

The final survey question focused on the drawbacks of incorporating technology into outdoor education. The key themes identified are as follows:

1. Can become distraction

The focus is taken off of full outdoor experiences, can hold back students from trying, need to 'watch' devices/ technology if the students do not use the technology properly. If too much focus is placed on the technology as opposed to it enhancing an experience or place.

2. The presence of technology is felt in our entire lives

Outdoor education should be a chance to get away from technology.

3. Technology can hinder the students' connection with the environment

They can be too caught up in their technology and might miss what is happening around them. Also, I believe students may rely on technology to help solve problems they come

across in outdoor education when they could be using critical thinking and problem
solving skills to fix the issue themselves.

4. Overuse of technology will take away from authentic experiences in the outdoors

5. If you bring too much technology then people will be become too dependent on it

Conclusions and Recommendations

My findings were full of contradictions. This is because when asked whether technology
was a great tool in engaging students' in outdoor education 45% had said that it was, yet the
very next question was whether bringing technology into outdoor education limited the
students' experience and 64% said that it did. Furthermore, the results for the benefits of
bringing technology outdoor were more numerous than the drawbacks of brining it. My
findings really demonstrated the major gap between the ideas of bringing technology outdoors
or not. It seems as though there are so many benefits that modern technology may be able to
have a place in outdoor education. However, a lot of the drawbacks were the distraction, taking
away from the experience, or the students' developing a dependence on the technology itself. I
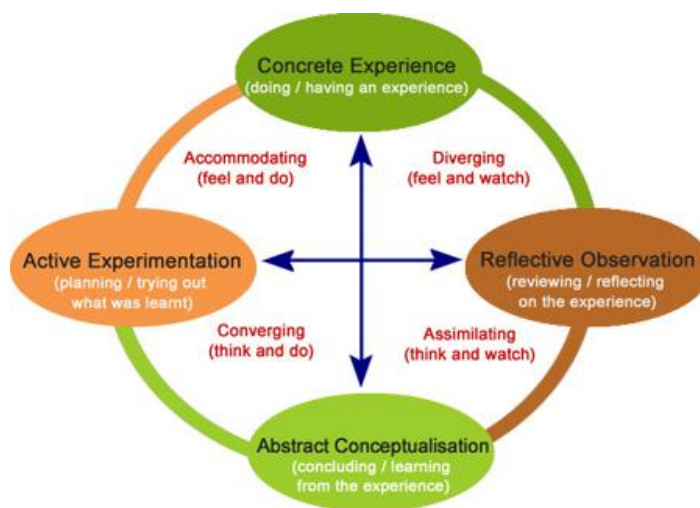decided to go back to the approach of experiential learning and what that means (Figure 8).

Figure 8. Where technology may play a role in the experiential learning model (Kolb, 1984)

In outdoor education, the concrete experience is going outside and learning from the environment. Not learning from the technology that we bring outdoors. However, from reading background resources, and conducting my own research, my ideas on bringing technology into outdoor education has shifted quite a bit. As outdoor educators, we do not want to take away the concrete experience of going outdoors. Not in the least bit. What we do want is for our students' to have the best most meaningful experience outdoors that we can possibly give them. So, what role does technology play in that?

With regards to outdoor education, technology is not the concrete experience. However, its presence, if used properly, may actually be a great tool in allowing the other aspects of this model to come to life. As technology allows for students' to have resources that they may be able to review and reflect on their learning experience. These resources may be used to conceptualize the experience by the students' making videos, or any sort of presentations or assignments, on what they have learned, which will help solidify their understanding. Finally, technology can aid a student in planning and trying out what they have learned.

This whole process is about student engagement and connecting with the outdoor environment, and most importantly deriving meaning from that experience. It is in the hands of the teacher to create that experience in whichever way he or she would like to. To incorporate modern technology may allow for a better understanding and meaning making of the experience later on. However, the teacher must facilitate the experience in a way that allows for the connection to nature with minimal distraction from technology. The disconnect of children and people in our society with nature today is truly a dilemma. To go outdoors and to experience education through connecting with nature, themselves, and others, is probably one of the greatest things we can do for our children. Technology needs to be carefully and

thoughtfully incorporated, but perhaps not viewed as an enemy, but a tool for further learning and meaning making.

  For future research there is much that can be done on this topic. There could be more studies concerning students' learning experiences in outdoor education and technology's role in that. It seems as though there is not enough research with a large group of students.

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