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PREPARING TEACHERS FOR THEIR ZOO TRIP WITH AN INTERACTIVE
WEBSITE.

by

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A capstone submitted in partial fulfillment of the requirements for the degree of Master
of Arts in Education: Natural Science and Environmental Education.

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CHAPTER ONE

Research Question and Development of Capstone Project

Chapter One Introduction

Zoos and aquariums have seen an attendance of 50 million children visitors every year with 12 million of those being student learners on field trips (Association of Zoos and Aquariums, 2018, Annual Survey Results, Informal Science Education). Often, these institutions engage guests with live animals which can range from the abundant to the rare and endangered. Students have been given a chance to meet these animals they might never again see in their lifetime and in my experience, it's an exciting day for them. There is a lot of knowledge to be gained from a field trip to the zoo such as general information about the animals, ways to help endangered species, and honing their observation skills by watching the animals and noting behaviors and characteristics.

According to Willis, Weiser, and Kirkwood, (2014) field trips are not just a 'day off' from school, they serve to provide enriching experiences that help students to explore the world outside of their direct environment. However, for students to benefit from this experience, an effort must be made to ensure that learning is happening before, during, and after the field trip. This can take preparation on part of the teacher, which is where this capstone comes in. The capstone seeks to answer the question *how can an interactive website help teachers plan a more effective field trip to the zoo?* By building this digital resource for teachers, they will have the tools and information to create a field trip to the zoo that will not only be fun but a wonderful learning experience for their students.

This chapter will focus on the personal background as well as the professional one of the writer so that the reader can gain more insight into how interest was sparked in this area of focus. It will also serve to provide rationale for why it was decided to create a website to help teachers in their field trip preparation. This chapter will conclude with a look into what the next three chapters will seek to inform the reader.

Personal Background

My childhood was filled with a fascination with nature—plants, animals, the sky, the ocean, you name it, I wanted to know about it all. This fascination and love came from years of spending time outdoors and attending various science museums, zoos, and nature centers. Both of my parents worked so various school vacations were spent at grandma's house with my brother and our two cousins. In addition to playing games, swimming, and watching movies, most of our time was spent at the beach, various zoos around South Florida, and walking miles upon miles at various interesting nature trails.

I can vividly remember visiting the Florida Institute of Oceanography in Stuart on a cold rainy day, wearing a too big jean jacket and standing excitedly outside of the doors waiting to go inside to pet the stingrays. We had gotten there too early and one of the employees had seen us waiting outside and invited us into the back where they kept some of the stingrays not inside of the touch tank. There was a beautiful spotted eagle ray that she let us feed and I was over the moon! The rest of our day was spent in front of the touch tank and walking the nature trails.

The trails were a favorite because the institute's proximity to the water allowed thousands of fiddler crabs to live along the paths. My brother, cousins, and I spent hours catching them in little cups and examining their claws before releasing back to hide in

their holes again. At the end of the day my grandma took us across the street to the beach where it was too cold to swim, but we enjoyed walking along the water searching for shells and looking for jellyfish that washed up with the storm.

Though difficult to recall every single name of the places visited, the experiences remain vivid in my memories. Though those adventures were influential in the passion cultivated for animals and the environment, it was really my grandma's love of nature and the outdoors that fueled my own interest. Her enthusiasm and wonder never waned. I can never recall her being disinterested to learn the name of a new flower or bored by a keeper talk at a local nature center. Nature is fascinating, and that was something that I learned from her.

Many people lose their fascination as they grow older but mine only seemed to cultivate. In the early 2000s, in middle school, my grandma enrolled us in a nature camp for the summer—the first summer not spent at her house. It was disappointing not to be spending time with her over the summers anymore but exciting to be visiting a camp devoted entirely to nature. Campers learned how to dissect owl scat, build a campfire, and help care for the birds of prey kept in the back of the nature center. My enthusiasm for all that I had learned carried over into the school year when some friends and I decided to join Earth Force, an environmental activist club that met after school once a week. We tested the water quality of local bodies of water, visited cypress swamps, and talked about problems facing our environment.

During the second year of the club, we were able to have hundreds of plants donated to the school for us to plant at the lot right next to us. It was owned by the school and had a small pond in the middle but did not serve much of a purpose at the time. It had

been cleared out years before which had made it kind of a boring outdoor area that no one typically visited. A huge event was organized in which volunteers could help with planting native plants and trees around the lake and even some freshwater plants at the edges. Even a bunch of benches were donated so that there was an area provided for students to sit and enjoy themselves after school. It also was meant to present a close, natural area for teachers to use as an outdoor classroom. It felt so empowering to be a part of something that benefited the community and the school. This is where a passion for conservation began to blossom.

Professional Background

In 2015, after graduation from college, I interned with Tampa Bay Watch, a nonprofit dedicated to restoration and education. The internship was with the Bay Grasses in Classes program which built salt marsh nurseries on the school grounds across Pinellas and Hillsborough County, Florida. We worked with one main teacher whose students spent the year caring for the nursery, daily. Every so often we would visit the schools and help the students harvest the salt marsh for future planting at a restoration site in Ruskin. The work was dirty, but again, it felt good to be contributing time to restoring habitat for future generations to enjoy. I enjoyed working with kids, which was something I had not considered previously. They asked questions about the salt marsh and the restoration process and then listened to the answers that were given, which was felt really good. I had zero experience with teaching, informal or otherwise, before that internship but it was a great feeling to be able to share my knowledge. The experience felt similar to those museum docents and zookeepers that always so diligently answered my questions as a kid and I realized I had finally found my passion.

The next year, 2016, I was interviewed for an environmental educator job with Tampa Bay Watch and was hired. I had received my bachelor's degree in marine science so being able to combine a love for the ocean with a budding love for teaching was a dream. Students from across the bay area visited Tampa Bay Watch while I was there and at the beginning of each field trip, the instructors would use a PowerPoint presentation to share a short lecture about the Tampa Bay estuary and its importance to us.

On first day presenting the Power Point I was nervous but generated the courage to complete the presentation. It was more fun than anticipated. The presentation relied on a lot of participation from the students, so I asked them questions and told them jokes—I tried to just have fun with it. Little-by-little I got better at managing my time, asking the right questions, and timing my jokes perfectly.

Presenting the PowerPoint was the first time I was contributing something to my job. It was hard working in the Florida sun all day, pulling in nets bogged down by algae, and always having to adapt to whatever challenges were thrown at us each day, but it all felt worth it. I learned so much about the Tampa Bay estuary and the animals that lived there, and even more about teaching methods and taking charge of a classroom. I am grateful for having this opportunity to work with such a wonderful organization.

My contract with Tampa Bay Watch ended and after a couple years in customer service, working towards my masters and forever searching for employment in environmental education, in 2017 I was hired at Jungle Island in Miami, Florida. Though not hired in the education department, I was taken on as a part of the animal staff which

was an exciting transition. Animals are as much a part of the environment as anything and it was exciting to be learning more about the natural world in this position.

Though the animal department is separate from the education department, it was the department guests saw more often as it was primarily for housing animals of all kinds. Though different from customer service, staff from this department were the ones usually around when a guest had a question about an animal or needed directions through the park. Though others may have gotten into this field to get away from people, I saw it as an opportunity to work on my education skills through talking with park guests.

The first two weeks were spent googling all the information to be found about all the animals I would be working with: pygmy goats, red kangaroos, rhinoceros iguanas, blue and gold macaws, etc. I did not want to be the person just holding the door open for guests to enter the kangaroo enclosure, my goal was to help visitors get something more from their experience. It was not enough for the guest to go home excited to tell their friends how they petted a kangaroo, but also that male kangaroos can grow up to 6 feet tall and can jump 30 feet horizontally. It was important to me that the visitor experience was memorable and that they left with new knowledge about the animals they had come to love and enjoy.

In November of 2017, I was presented with an opportunity to get back into the field of environmental education. Though working with the animals never ceased to amuse or entertain, being offered the position of instructor was more in line with my aspirations and goals and was not an opportunity to miss. With Science Eye, I have worked with teachers and their students inside and out of the classroom to provide hands-on science education programs. With Funky Fish Ocean Camp, I have been able to bring

local and out-of-state students to the beach to explore all aspects of the ocean. Though these organizations have been thrilling to work for, changing jobs has changed the scope of my project which will be discussed in the next section.

Project Context and Rationale

The capstone project was chosen as a solution to unpreparedness. Field trips are often viewed by students as a ‘break’ and without being prepared to capture their attention with activities and background information, this focus of the trip can become blurry and possibly lost. The website being created can become a way for teachers as a one-stop-shop for their zoo field trip needs.

Initially, my capstone project was aimed specifically for a field trip to Jungle Island. Many schools in the South Florida area take field trips to Jungle Island throughout the school year but the current website does not cater to educators and their students, providing information mostly for day-to-day visitors. There is general information about the zoo but no resources for educators who may want more background information for pre- and post- field trip activities. The original capstone goal was to create a website for educators visiting this particular zoo so they could effectively plan their field trip to ensure that it was meeting the educational needs of the students and the standards imposed by the state of Florida.

However, after leaving Jungle Island, the scope of my capstone project shifted focus from a particular zoo to be a resource for educators planning a field trip to a zoo. Though still focusing on a field trip to the zoo, the website will be a general educational resource for the state of Florida, that teachers can use and adapt to fit their specific needs. According to Anderson, Kisiel, and Storksdieck, (2010) field trips to institutions such as

zoos are important because they provide meaningful experiences for students.

Meaningful in that they have long-lasting consequences as students often remember their field trips vividly which can often prompt them to remember specific content learned.

The authors also note how field trips can also provide students with multiple different modes of learning such as cognitive, affective, social, aesthetic, motivational, and so on which can help to reach more students than say a lecture or PowerPoint presentation.

Effective preparation for field trips is an important part of what makes field trips successful. For the purpose of this capstone, success is thought of as what the students gained from the experience. A primary assumption of this capstone is that more can be gained when students are effectively prepared for their field trip because they can make connections between their prior knowledge and the knowledge gained through the experience of visiting a zoo. According to Bitgood (1989) planning is the most important step of any field trip. One of the goals for this capstone is for teachers to have access to a new resource for pre- and post- activities and information for them to use to help their students have a successful and meaningful experience that they can remember for a long time.

The second goal for this capstone is to provide a resource for teachers who are not able to actually visit the zoo during the school year. Barack (2005) describes how field trips, for all their benefits, are now becoming more and more uncommon in schools. The authors attribute the decline in field trip to budget cuts and the shifting focus to standardized tests. As a field-based educator, it is unfair for students to miss out on what could be very enriching experiences just because their school cannot afford for them to visit. Thus, virtual field trips are invaluable in these situations. This capstone project is

designed to support two groups of teachers; those preparing for their trip to the zoo and those teachers who are not able to bring their students to the zoo but still want to provide their students with a similar enriching experience.

Summary

Zoos and aquariums are entertaining and fun but when visiting, teachers should ensure field trip experiences should provide a memorable educational experience. Informal science institutions are a great resource to get students interested in the subject area of focus but if unprepared the educational goals can become lost. The question *how can an interactive website help teachers plan a more effective trip to the zoo* is what this capstone has sought to answer. To do this, a website has been created with information about the animal's visitors might see, provide pre- and post- activities, and other resources for teachers to use to make the most out of their field trip. With a background in marine science and environmental education, in addition to the enriching experiences gained in nature growing up, a passion for educating children about the environment and conservation has been cultivated. This is what has helped bring about this question and has fueled a passion for helping children learn as much as they can on their field trips and in the classroom.

The next chapter has taken a look at the literature available that is pertinent to this topic. It begins by looking closely at what has made field trips successful and how teachers can prepare to continue to make them so. It has also explored the equity issue present in which schools are able to actually take these field trips and provide these out-of-school experiences. Also explored in the literature review is the accessibility issues such as how to make technology accessible to all students and their parents as well as

exploring the equity issues present in schools unable to participate in field trips. Lastly, the review has explored technology in the classroom as more and more it's been integrated into the classroom and if this integration is a good thing or another distraction to students.

While the second chapter has included a review of the literature available the third chapter of this capstone has included more in-depth information about the project itself, such as a general overview, rationale, and a timeline for completion. The fourth chapter then concludes the capstone paper with what was gained from the project and also what other ideas may have stemmed from completing the capstone project.

CHAPTER TWO

Review of the Research Literature

Chapter Two Introduction

This capstone project is designed as a resource for teachers to better prepare for their field trip by answering the question *how can an interactive website help teachers plan a more effective field trip to the zoo?* The literature has explored three main topics, the field trip experience, accessibility, and technology. Each of these topics have provided background information and how it has related back to the capstone question. The end result of this review has provided a clear view of why a digital resource such as this could be beneficial to teachers and students everywhere.

The first section about the field trip experience has provided information about the field trip itself. Field trips are taken by teachers and students in almost every school in America and thus can be an important part of the school curriculum. The first section has explored why field trips are important and has provided some context for why teachers still insist that their students gain experiences outside of the classroom. As the capstone project is designed to help build a digital resource to help teachers plan for an effective field trip, this section has also provided more information on what makes a field trip effective or successful. As this section focused mostly on the importance of the experience, the next has focused more on making the experience accessible to everyone.

The second section begins by exploring the accessibility of the digital resource being created for this capstone. Not only are the accessibility standards the capstone needs to adhere to discussed but also the standards that all technology in schools must

meet. As this resource has been targeted to a specific audience, this section also explored why it is important for websites be relevant to the audience they are targeting. In South Florida, where the project has been completed, there is a high concentration of Spanish speakers, which is true for many parts of the United States as well. Thus, this section has also explored technology accessibility concerns regarding students from Spanish speaking households. Lastly, the literature in this section has explored the equity issues present when not all schools can afford the same opportunities for their students as elsewhere. This has tied in with the final section of the literature review which sought to answer the question about what to do about the equity problem in our schools regarding field trips.

In the last section of the literature review, technology will be discussed as its use has grown throughout schools in the United States. With inequality present in the opportunities presented in schools across America, what technology has been available to bridge the gap? The literature has explored options for schools unable to afford field trips for their students and how technology has helped award those same opportunities. This section also explored the age-old argument regarding utilizing technology in the classroom: is it helpful or has it been a mere distraction? If technology is to be a useful tool in the classroom, successful teacher integration has been thought to be the key and thus the literature review concludes with information about how teachers can facilitate this successful integration as well as some of the hardships that may be present in doing so.

The Field Trip Experience

Since the recession in 2008, according to Knight (2017), school budget cuts have led to administrators being pressured to cut back on non-classroom activities, including field trips. Museums across the country have been reporting hosting fewer and fewer students, even as recently as 2016 (Reeves & Rodrique, 2016). This first section explores why field trips are an important part of the education experience. By exploring how informal learning institutions can help meet state standards, it presents clear data about how field trips can support a teacher's curriculum. This section also focuses on the importance of field trips as a whole and the educational benefits they have provided students. Concluding this section, the literature review has taken a look at what makes a field trip 'successful.'

Meeting State Standards

State standards are guidelines for teachers to ensure that they are teaching students the vital information they should be receiving in their continuing education. Standards are important because they provide a road map for teachers to follow so that their students are learning important concepts that are key to understanding future concepts and ideas. These standards are usually straightforward and can be found on the specific state's website and outlined for viewing by not only teachers but the public—most importantly parents. According to Kelly (2017), there are three main reasons why standards are important in education, they set clear and measurable goals, they help measure achievement, and they inform instruction. Thus, by having measurable goals, teachers are better able to align their curriculum to the standards set by a particular state.

Djonko-Moore and Joseph (2016) describe how field trips can help enforce state standards by connecting what students have learned in the classroom with real life

experiences. Making these connections is important because it can help aid learners in their understanding of content, ideas, and concepts (Djonko-Moore & Joseph, 2016). In addition to field trips supporting state standards The National Science Education Standards (DeFina, 2006) calls for teachers to manage learning environments and design them in a way that provides students with time, space, and resources needed for learning science. Often, Djonko-Moore and Joseph (2016) describe how field trips to informal science institutions can be key learning environments for science education because they provide new perspectives for students to explore. Informal learning institutions are even partnering up with schools across the country to help enforce state standards and support student learning.

For example, the Ohio Environmental Protection Agency (EPA) has partnered with the Stratford Ecological Center (2010) to further develop Sunship Earth, a program developed by the Institute for Earth Education for the fifth-grade classroom. To help teachers meet academic state standards, the program provides a curriculum which is focused on how the Earth functions. Likewise, in Jackson, Mississippi, the Jackson Zoo has partnered with the Jackson School District to help enhance in-school learning experiences. They have succeeded in this by helping teachers develop a curriculum that incorporates the zoo's activities and programs while still meeting the Mississippi state standards (Targeted News Service, 2010, September 23). With the help of these informal learning institutions, teachers have been able to gain help creating a curriculum the administration is happy with while being able to provide field trip experiences to help students meet educational state standards.

Importance of Field Trips

Willis, et al. (2014) point out that students, sometimes even teachers, have often celebrated field trips as a ‘break’ from their regularly scheduled in-classroom experience. However, the authors also highlight that the purpose of a field trip is to help teachers enhance their curriculum and students are expected to use them as a learning opportunity. These ‘breaks’ can actually provide students with interesting and enriching experiences to help them explore outside of their normal, direct environment (Willis et al., 2014). Given that field trips can positively engage students, it is not surprising that of the estimated 2,500 informal science institutions in the United States, about 75% of those serve schools, teachers, and students in some capacity (Holliday, Lederman, & Lederman, 2017).

Whitesell (2017) acknowledges that with the help of these informal learning institutions, students have gained experiences outside of the classroom which helped them make connections to their in-class learning. Using student surveys Whitesell (2017) has documented how field trips have improved motivation and also interest in the subject area of focus. Interest and a memorable experience are not all that students gain. Teachers may also place an emphasis on what information is to be gained from the field trip experience.

Field trips offer an experience that students often find memorable, which can lead to them more easily remembering information gained during the trip (Anderson, et al., 2006). Dohn (2013) completed a case study that provides support that by visiting the zoo, the situational interest of seeing live animals can catch students’ attention, prompting them to make connections with what they are viewing and what they have learned. Other researchers (Scott & Matthews, 2011) also note how zoos can be places of exploration

and create curiosity in students, which is important in meaningful science instruction. In addition, studies (Whitesell, 2016) have been conducted that document how exposure to field trips has had a positive effect on academic outcomes, particularly in those more disadvantaged students. Whether using a field trip as a way to introduce a unit or reinforce a concept, research supports that they have been shown to break up the monotony of everyday lessons in the classroom and provide other lenses with which students can view the world around them. However, the positive benefits associate with field trips are not automatic. Teachers need to be proactive in setting up field trips to obtain the reported benefits.

Creating an Effective Field Trip

In order for a field trip to be effective, students need to be learning something or reinforcing concepts they have already begun to learn. If teachers are to complete a field trip that maximizes learning potential, some planning is to be expected. To best plan an effective field trip, Anderson, et al. (2006) state that students should be prepared by the curriculum, participate actively during the trip, and information gained during the experience should be reinforced following the field trip. In addition to the role of teachers in creating a successful field trip, researchers have also explored this from the perspective of the student. From the perspective of the student, Bitgood (1989) has found that a successful visit is more likely when teachers know the content of the lesson, know how to assist museum staff, and are informed about the details of the agenda of the trip.

The success of a field trip is important because of the skills that can be gained by such an experience. Studies (Green, Kisida, & Bowen, 2014) have found that critical thinking skills can be impacted by effective field trips. According to Green, et al. (2014)

in a field trip to an art museum, one such study found that after the visit students demonstrated a stronger ability to think critically about a piece of art than those who had not received a tour during their visit. This study documents the importance of partnership between the informal institutions and teachers to provide a more effective experience through organizing a tour of the museum. Preparation is not only important for the content being taught but general knowledge of the facility and what is offered as well. Peterson and Melber (2001) note that if the teacher is familiar with the layout of the institution as well as the logistics, they can focus more of their energy on students' learning needs. Teachers should also spend time acquainting their students with material about the field trip prior to visits. This is another important part of planning for a field trip.

Preparing students for their field experience can happen in a variety of ways. Pre-visit activities can be used to test student's current knowledge of the subject matter such as through a quiz or activity. Teachers can also introduce students to the facility they will be visiting by giving an overview of what the class will be doing or seeing. When visiting an off-campus location, for example a zoo, the novelty of seeing live animals can lead to a lack of concentration on discussions or structured tasks. In preparing students for what they will be seeing or doing, it can decrease the novelty effect and allow them to better absorb new information (Peterson & Melber, 2001). Preparation does not only mean prepping before the trip itself, preparing for what comes after the trip is important as well.

Activities completed afterwards can strengthen the new connections students have made as well as add additional context for future experiences. Some kind of preparation

is essential, whether it includes pre-activities, post-activities, or even activities done during. A study (Anderson, et al., 2006) found that an isolated trip to the zoo without any preparation may not actually aid in student learning at all. If teachers are interested in creating an effective learning experience during a field trip, it is in their best interest to explore some of the options mentioned above.

Field trips are more than just a treat or reward for good student behavior, they are important and unique out of school experiences that teach students valuable skills that can translate back into the classroom. One study by Dohn (2013) provided support that field trip experiences can foster an interest in different subject areas which can lead to more motivation to participate and do well in the classroom. Field trips often fit in with a teacher's curriculum and can be another way for teachers to reinforce state standards.

Unfortunately, more and more field trips are being cut out of the curriculum due to budgetary issues and thus are not accessible to all students as they once were. The next section has explored how budgetary restrictions have created an equity issue in regard to opportunities available for students from high poverty areas. In order to make these experiences more accessible to these students, virtual field trips have been created so that all students can attend and appreciate these unique experiences. With virtual field trips and technology becoming a staple in the classroom, it is also important to remember that that they be accessible for all students, even those with language barriers or disabilities. The next section has gone more in depth about these accessibility issues and what has been done about them.

Accessibility

To create a website that helps teachers create a more effective field trip experience, it is important that the digital resource be available to anyone, no matter their disabilities or language they speak. When talking about accessibility, it is also important to consider that not all schools are afforded the same opportunities. Often, schools in high poverty areas have not been given the same out-of-school opportunities as those schools in more affluent areas.

This section discusses the growing equity problem among schools in high poverty areas and why schools in these areas suffered from less opportunities for field trip experiences. It also explores the idea of virtual field trips and how they have brought the field experiences directly into the classrooms of these students. The accessibility section also goes over some of the accessibility standards in place for web pages specifically related to schools, as the capstone project that has been created is geared towards teachers and their students. It has also explored the importance of the website being accessible for Spanish speaking students and their parents as, down in South Florida, Spanish is spoken almost as often as English and it is important that students and their parents in this area be able to access educational websites as much as anyone else. Lastly, this section explored the literature pertaining to how websites should be relevant to their intended audience. As the capstone project is geared towards teachers and their students, it's important that the information contained be relevant to that specific audience.

Lack of Field Trip Opportunities in High Poverty Areas: An Equity Issue

As touched on earlier in the chapter, Reeves and Rodrique (2016) state that since the recession in 2008, schools have been forced into budget cuts which have impacted the number of field trips teachers can plan for in a given year. Budget cuts happened

everywhere due to the recession. However, Knight (2017) documents that “prior to the recession, high-poverty districts received \$289 per student less state and local funding, on average, compared to otherwise similar low-poverty districts”(p. # 2). This infers that students in high-poverty areas have, historically, had less access to ‘non-essential’ experiences such as field trips.

Considering all of the benefits that field trip experiences provide to students, there have been negative impacts related to this disparity in state and local funding. According to Knight (2017), school funding cuts for students in poverty can negatively affect them in the long-term. Studies (Knight, 2017) have shown that a student would see an increase in their likelihood of living in poverty, a decrease in their adult earnings, and a 15% decline in their likelihood of graduating high school if they are exposed to this low level of funding throughout their 12 years of schooling. There are real consequences to cutting the state and local school funding in high-poverty school districts. The consequences of these budget cuts also affect the experiences that students have while in school, including less or even no field trip experiences.

The reduction in the amount of field trips taken in schools, especially those in high poverty areas, have led to teachers looking new ways to provide these experiences without having to visit an off-campus institution. Schools are beginning to look at technology to help solve this predicament. Virtual field trips are becoming more common and allowing them to bring the ‘field trip’ to the students.

The Center for Interactive Learning and Collaboration (Barack, 2005) based out of Indianapolis is a non-profit organization that offers virtual field trips from informal learning institutions across the country. This has allowed schools without the means to

provide field trips to still provide an enriching educational experience for their students. Not only are students able to ‘visit’ these locations in their virtual space but they can also communicate and interact with workers. The Aquarium of the Pacific in Long Beach, California provides “Eelmail” (Peterson & Melber, 2001) which students (and anyone else) can request information about a marine topic from the institution. The Bronx Zoo (DeFina, 2006) even offers video conferencing, a feature of their free distance learning expeditions in which students can visit and interact with staff without ever leaving their classrooms.

Though the disparity between resources of the high and low poverty schools still exists, there are resources beginning to pop up to ensure those students in high poverty areas still are afforded similar enriching experiences. Technology has become a means to provide those experiences and thus it is important that teachers and administrators are aware of accessibility issues that could possibly be present within these new technologies. The next section has looked at accessibility standards put into place to avoid this from happening in an educational setting.

Accessibility Standards

It is important to consider, when creating a website, that there are users who may have difficulty seeing or hearing. Everyone should have access to the same information but if those with disabilities are not considered, they can potentially be excluded from resources that might be of great help to them. When constructing new buildings for a school, automatically accessibility for students and staff with disabilities are taken into consideration such as the inclusion of ramps, etc. With that being said, what measures

should schools be taking to ensure that students and staff with disabilities are included when new technologies are implemented?

According to Shaheen and Lazar (2007) the digital environment can either support or impede the inclusion of those with disabilities. Schools in particular are legally mandated to adhere to technology accessibility standards for those with disabilities but in reality, this does not always happen. One reason according to Shaheen and Lazar (2017) is that administrators may not be aware of the standards for accessible technology as low levels of awareness have been reported in the field of education and computing. This has been due to the fact that the laws regarding accessible technology in K-12 education have been somewhat hard to find or even have been found to be ambiguous.

The Web Content Accessibility Guidelines are the most widely accepted consensus standard for accessible web content, but Shaheen and Lazar (2017) identify three specific laws that address accessibility standards. Those laws are the Americans with Disabilities Act, the Rehabilitation Act of 1973, and the Individuals with Disabilities Education Improvement Act. Though present in these laws, specific mandates may not be easy to find and thus can contribute to school administrators not being aware of them. As one can imagine, this puts schools in a vulnerable spot, as well as excluding individuals with disabilities.

In a study (Shaheen & Lazar, 2017) that examined K-12 websites in 120 school districts, 74.3% contained accessibility barriers. Not only did these school websites contain barriers, but other barriers were found in e-books, common core state standard assessments, math software, Google applications for education, and Google Chromebooks. To do better, standards should be more conspicuous so that more schools

are aware of what they should include when thinking about implementing new technologies.

When creating websites, one should consider including measures so that those who have trouble hearing, seeing, and making precise movements are able to use them to the same capacity as everyone else. According to the United States Department of Health and Human Services (2006), there are assistive technologies available to help those with disabilities, but when websites do not allow for compatibility, they may not be an effective tool to help. Some of the ways that schools and individuals ensure that their websites are more accessible are to provide text equivalents for non-text elements, provide titles for frames, ensure that all scripts allow for accessibility, ensure that any plug-ins or applets meet accessibility requirements, ensure all multimedia elements are synchronized, and allow users to skip repetitive navigation links (United States, 2006). Also, for those that may be unable to see certain colors, about eight percent of males and one-half of one percent of females, websites should not rely solely on colors to relay information (United States Department of Health and Human Services, 2006). With the help of these guidelines, schools and individuals should be able to ensure that their websites are accessible to everyone.

Spanish Speakers and Accessibility

Websites should be accessible to peoples of all languages, but for the purpose of this capstone project, the focus is on Spanish speaking residents. The language was a chosen topic of interest because of the geographical location specific to the capstone project website, for the time being. Although the goal is for the capstone project to

eventually reach any and all people, for now the focus is on reaching teachers in the South Florida area.

According to the United States Census Bureau (2016) of U.S. residents over five in 2016, 40 million residents spoke primarily Spanish in their homes. In Miami in particular, 39% of students enrolling in kindergarten are limited in their English skills. Miami is the only major metropolitan area in the United States where in the majority of homes, Spanish is the dominant language (Barber, 1993). Approximately 97% of Hispanic elementary kids in Miami are enrolled in Spanish for Spanish speaker courses and although only 17% enroll as middle school students, the percentage climbs back up to 35% in Spanish speaking high school students (Barber, 1993). This is reason enough for schools in Miami, and other areas where Spanish is common, to consider accessibility issues related to language barriers in technology in schools.

Aside from providing websites, in particular school websites, that are accessible for those with disabilities, schools should consider making them accessible for those that come from Spanish-speaking homes as well. Though Spanish speaking kids normally learn English while in school, many of them have come from homes in which their parents may only speak Spanish or they themselves may be more comfortable using technology in Spanish outside of the classroom.

Keeping it Relevant

In addition to ensuring that websites are accessible for all, it is also important that websites be relevant to the audience that they are targeting. According to SleepingGiant Media (2015), the main goal for anyone creating a website is to interact with the audience and to do that the content must be relevant to that intended audience. In order to get the

intended audience to visit a website, it is important to know the key features that must be included that may drive them there.

For example, if targeting a website to children, the information would not be written in the style of adults in academia and if targeting adults in academia, it would not work out well to include lots of fun pictures and interactive games (Hartstein, 2014). To create an engaging and accessible experience, Hartstein (2014) points out the importance of knowing your visitors and the content that they are looking for. Hartstein (2014) advises to design the website to appeal to the intended audience by keeping the photos, layout, colors, and font size in mind. According to Goff (2005), one way that brands are looking to connect with their audience and finding out what attracts their attention, is by working with the audience themselves. One example Goff (2005) explores is the use of a blog within the site run by a member of the age group the brand is trying to reach. The intended audience is important to create a website that is relevant, engaging, and accessible to them.

Accessibility is extremely important in educational settings because all students should be able to access the technology used in schools and should have the same opportunities when it comes to experiences. Although there are accessibility standards in place for schools, they are often buried in legislation and might not be readily available for administration and thus possibly ignored in the integration of new technologies in the classroom. In addition to making technology accessible for those with disabilities, in areas of high numbers of Spanish speaking families, schools and individuals should take into consideration adapting their technologies to be inclusive of them as well. Keeping accessibility in mind, knowing the intended audience of the created technology can make

it more appropriate and engaging to those targeted. All of these combined can lead to technology to become more accessible to all as well as allow those using it to feel like they are being given the same opportunities as everyone else.

Technology

This final section of the review has explored technology in the classroom and its impact on students and teachers. As this capstone project is a piece of technology to be used in conjunction with lessons and activities done in the classroom and on field trips, my review of the literature included identifying key ideas about technology's importance to education. There are three subtopics included in this section. The first topic has focused on why technology has notoriously been a 'feared' resource among teachers. The second, has taken a look at how technology has overcome its bad reputation and has actually become an extremely useful resource in the hands of educators by looking more closely at the skills it has helped students develop. The third and final subtopic switches the focus to the teachers that have been responsible for integrating new technologies into their curriculums.

The Fear of Technology

We have entered the technological age and the way in which children learn in the classroom and outside of it has rapidly changed. Adults are not the only ones carrying smartphones and laptops. Increasingly, children, even very young children, have access to their own smartphones, computers, and tablets. This increase can have negative outcomes. For example, the research of Joshi, Cole, and Overton (2016) has documented that an increase in screen time can lead to a decrease in physical activity which can then lead to a more sedentary lifestyle and even obesity. In the developed world, children

spend about five to seven hours on average in front of some sort of screen, which is significantly more than the recommended amount. The American Academy of Pediatrics (AAP) (Simons, 2015) advises that older children be limited to two hours a day of screen time and that children under two be kept away from screens all together.

Technology is often to blame for kids not spending as much time outside and being active, but there are other reasons why it is villainized. Technology allows kids to have a literal wealth of knowledge at their fingertips, which would seem like a fantastic feat. That being said, not all of the knowledge found on the internet is factual. With all of the misinformation found on the worldwide web, it is reasonable to expect that sometimes children can mistake fiction for fact. For example, Colhoun (2000) has written that about 75% of kids use the internet for completing their homework, writing essays, completing science projects, asking questions about math problems—the options are endless. When trying to use the internet as a resource for finding information, children are often confronted by an array of positions and voices to contend with when trying to understand an issue.

Without guidance on how to sift through all of the sources, Colhoun (2000) describes how it can be difficult to identify the right information which can lead to children submitting work with no factual basis, thus leading to problems in their classwork. In the late 90s, Wikipedia was seen as a great resource when writing essays and completing projects, but it is also a website that anyone can edit. Nowadays it would be unheard of to use Wikipedia as a resource in any sort of research paper or project as now there is more awareness about the wealth of misinformation available on the Internet.

Is technology all bad though? The literature shows that there have been concerns among parents and educators that their kids and students are more distracted by technology than anything else. Though, to ignore what Edmonson (2012) calls student's 'Facebook Mentality' is to be negligent of what students could bring to the table through this social connectedness. The next section has provided examples of the good that can come from using more technology in the classroom by highlighting skills that technology has helped develop.

Positive Classroom Outcomes of Using Technology

Times have changed since the internet became widely available to everyone. This generation of students have grown up completely immersed in the technology that has followed. Edmonson (2012) dubs these students "digital natives" who are fluent in the language of technology. The digital natives have grown up in a world in which technology is the norm and Coral (2009) indicates from a young age are computer literate, quite unlike the previous generations. Teachers have historically thought of technology as a distraction but when the new generation is fully immersed in it, it would make sense to use it to better grab their attention, or as Edmonson (2012) puts it, to "meet them where they're at"(p. 43). But how will teachers do that?

Studies have provided evidence that active learning can potentially be supported and sustained with digital technology. These technologies have been shown to support collective, creative, and connected forms of learning and study (Henderson, Finger, & Selwyn, 2016). New technologies allow people to communicate in different ways as well, most notable ways that are collaborative. The MacArthur team (Edmonson, 2012) conducted a study of over 800 American youths and found that they were using online

networks to engage in peer-based learning. This could be because of the digital forums are now very common on the internet and are popular ways for students, and others, to use each other as knowledge resources (Edmonson, 2012). Taking advantage of these digital forums, teachers can invite students to become more collaborative when utilizing digital media in the classroom.

There has always been critique about how much time kids spend in front of the screen, as has been mentioned previously, but screen time can also be beneficial. Video games often get a lot of criticism for keeping kids from their homework and also from being more active outdoors. However, for a 'digital native,' video games might be a great way to reach them on their own turf in terms of educational goals. An analysis by Coral (2009) of computer games found that within the games, there are qualities, which if channeled into education, would make a great deal of progress in motivating students. Valuable skills that students can learn from video games identified by Tallim (2004) include critical thinking, active learning, self-knowledge, and problem solving. If educators are seeking to make learning more fun and interesting to their students, video and computer games are a great way to entice them.

One of the great parts about increasing technologies in schools is that it allows different methods of reaching students of different learning styles. Coral (2009) acknowledges how this switch from the printed medium to the visual one allows students to tell their stories in a wider range of ways which then enables them to more actively participate. Willis, et al. (2014) describe how active participation gives students a way to better understand their experiences through various means such as verbal, written, special, quantitative, and graphical. The importance of active participation has been

reported by the great developmental educators, Dewey, Bruner, and Piaget (as cited in Wilson, 1991) who all agree that students learn best by doing and creating. Another benefit of multimedia environments identified by Coral (2009) is how they allow students to be creative and give them more ways in which to tell their stories which can allow them to more actively engage in learning. Providing teachers with additional means of reaching every student increases the potential for students to become successful. Teachers can do this by ensuring that they are employing a variety of methods and technologies designed to meet the needs of every student they come across.

Role of Teachers in Effective Use of Technology

Teachers play a key role in the education of their students and can support students' learning when they have been able to successfully integrate technology into the curriculum. Henderson, et al. (2016) documents that teachers can play a key role in supporting, stimulating, and sustaining 'best practice' use of technology. This infers that technology can provide a new way to teach children while keeping their interest. For teachers to successfully integrate technology in the learning environment Wilson (1991) recommends that they be competent at accessing, filtering, and managing multidimensional information to support this interest and their students' learning.

To be successful at using technology in their classroom Willis and Weiser (2005) highlight the importance of teachers feeling, at the very least, comfortable using these new technologies, especially if they are to be expected to use them to educate students. Not just being comfortable, they should also develop an understanding of how to integrate new technologies into their curriculum and be confident doing so (Willis & Weiser, 2005). Clark and Zagarell (2012) describe how the huge influx of new

technologies can seem overwhelming to both teachers who have been teaching the same way for years and new teachers, digital natives who have only superficial experiences with technology, such as word processing or social media. So then, how are teachers going to be able to keep up? The most obvious choice is to prepare teachers as best as possible in these new technologies so that they are not only capable, but confident.

Training teachers in technology seems like a no-brainer but the lack of time and funds can become an issue for some. In fact, Clark and Zagarell (2012), reported that teachers in their study have insufficient time to plan technology lessons, explore different internet sites, and examine various aspects of educational software which were the most common challenges in integrating new technology. It is possible even that teachers are also being held back by their administration.

According to Peterson and Melber (2001) rather than using funds to educate teachers on technology use, more is being allocated to the purchasing of new technologies. There is a lack of funding for teacher technology related professional development which Willis, Weiser, and Smith (2016) have noted are critical for technology training. These authors note that effective technology training needs to be relevant to what teachers are doing in the classroom and aligned with the curriculum which is more helpful than the more common training in just the basics of technology. When technology is being implemented that does not mesh well with what teachers need, it can create more work for teachers instead of streamlining information—which is often the idea. Technology is a tool but if has been creating dissonance among teachers, how can it be effective?

Starkey (2017) has also seen technology implemented with teachers being trained on it only to see the same tech thrown out as soon as the next new technology is introduced to the administration. This has become frustrating as teachers often do not have the time to brush up on the new tech after having just spent so much time and effort learning the previous educational technology. In a survey (Servino, 2002) done among 70 participants of NRECA's management internship program, the number one problem found with technology was the lack of integration. This echoes similar issues voiced by Starkey (2017) and others in the educational field.

Clark and Zagarell (2012) recommend that the administrators and teachers keep abreast of the current technology, teachers be given continuous support, and teachers given adequate, hands-on training on integrating technology into the curriculum. These recommendations can help administrators know how they can best prepare their staff and ultimately best meet the need of their students. Student learning should be top priority and as teachers are the ones helping to nurture that learning, the administration should find it in their best interest to ensure teachers are given proper training and the resources needed for them to excel.

Summary

The literature review sought to help answer the question "*How can an interactive website help teachers plan a more effective field trip to the zoo?*" The literature first examined why field trips are an important experience for students. Field trips can cultivate important skills as well as help motivate students in different subject areas, increasing their capacity for making connections with prior learning. The literature also examines what makes a field trip effective in the eyes of both teachers and students.

Demonstrating knowledge gained through post-activities is a great way for teachers to examine if their field trip was as effective educational tool. If it was not, it can give them insight into what they might be able to do better next time to increase the knowledge gained and to make the experience more memorable.

Across the country, field trips have been decreasing as budget cuts and more emphasis on testing is replaced with out of school experiences. This is especially true in schools in high poverty areas where budget cuts historically made it harder for these school districts to afford any non-essential experience. One way that schools are dealing with this lack of out of school experiences is by turning to technology to pick up the slack. Virtual field trips have allowed students to visit informal learning environments in a digital space and have even allowed them to communicate in real time with staff at museums, zoos, and aquariums. However, as technology becomes a more popular and useful tool for teachers and their students, it is important that it be an accessible tool for all students regardless of disabilities and language barriers. It is also important that technology being targeted for these purposes remain relevant to their audience in order to reach the right people and remain an effective learning tool.

Technology itself has historically been given a bad reputation as a distraction and even an unhealthy addiction. That being said, there are studies out there that have looked into the helpful and effective ways in which technology can actually help students, even serving to increase certain skills such as critical thinking and problem-solving skills. However, to ensure that technology is being used to its greatest potential, it is important that teachers are kept abreast of the latest technologies while also receiving training to be able to guarantee that it's being used correctly and as effectively as possible. This often

requires support from administration as lack of time and resources can cause teachers to lack the necessary training and skills to best use these technological resources.

In the following chapter, a detailed project description has been given as well as an overview of the website that has been created and the content it has included. There is also be a guided literature section which has been used to show how the website content was chosen and why. Methods, setting, and a timeline are also present and have given more information about the project and how it was completed.

CHAPTER THREE

Project Description and Implementation Plan

Chapter Three Overview

This chapter will provide a thorough and complete project description of the capstone project which serves to answer the question, *how can an interactive website help teachers plan a more effective field trip to the zoo?* The description will first describe the capstone by providing an overview of what is included in the website. The chapter will also provide a closer look at the specific literature that helped guide this project. Not only is the ‘why’ of this project explored more closely but also details such as the audience and rationale as well as the setting. A timeline for the project will be provided at the chapter’s conclusion.

Website Project Overview

The project, at its completion, will be an [interactive website](#) designed to help teachers prepare for a field trip to the zoo. As stated in Chapter Two, Bitgood (1989) describes how the planning stage of the field trip is the most important one for teachers. The planning stage is so important because it can make a difference in the outcome of the field trip from the student’s perspective. If the student has not been prepared for what they will see and do during their field trip, Peterson and Melber (2001) state that this can increase the novelty of the experience which can detract from the experience itself as a learning goal. The website is designed to provide teachers with access to information about the field trip site beforehand, so that teachers can better prepare themselves and their students can have a better idea of what to expect.

The website will include a section on the most common animals visitors will see while at a zoo. Teachers visiting a zoo may wish for their students to focus on the live animals they encounter during their visit, thus background information on the animals is important. This information will include facts about the animals such as where they are from, what they eat, and threats to them. This website will also share fun information about the animals that might catch the attention of teachers and students.

Another section included will be for pre- and post- activities that teachers can use to prepare their students or make connections with what their students have already learned. This section will also include suggested activities that teachers and their students can complete while on site at the zoo. One last section of the website will include more resources for teachers who wish for even more information about the zoo, including a link for them to find locations in their own area.

Experiential learning was coined by David Kolb (as cited in Healy & Jenkins, 2000) and it has since been influencing teachers and informal educators in their teaching practice. Experiential learning centers on student experiences as a way of learning material as opposed to the previous lecture and test method. Field trips fall under the umbrella of experiential education and thus it is important to explore the theory of experiential learning and how it influenced this capstone project and its implications. The next section will review this theory and how explore how it pertains to the capstone project.

Experiential Learning: Influencing the Design and Content

Kolb states that “Learning is the process whereby knowledge is created through the transformation of experience” (as cited in Healy & Jenkins, 2000, p. 185). As

discussed in Chapter Two, the field trip experience is an important educational tool to not only get students interested in a field of study, but also a way in which to reach students of different learning styles. Experiential learning is being used in many different fields of study which use methods such as place-based learning to help students gain experiences outside of formal school learning. Place-based learning is defined by as “an immersive learning experience that places students in local heritage, cultures, landscapes, opportunities and experiences, and uses these as a foundation for the study of language arts, mathematics, social studies, science, and other subjects across the curriculum” (Getting Smart, 2017, p. 5).

Field trips can bring students to locations they have never been before and allow them to gain experiences in which they may have never previously enjoyed. For students of varied learning styles, field trips can be a breath of fresh air, benefiting those who may not excel in the normal ‘lecture and test’ method. A field trip to the zoo can offer a variety of different learning methods by providing guided tours, written signs, learning games, and even live animal interactions. Experiences such as these are vital for a student’s learning goals and it is what this capstone has sought to bring attention to.

Origin of the Capstone Project

The idea for this project came from a classmate during an initial discussion about the desire to create a supplemental website for the zoo. From multiple discussions with my peers, they were able to shed some insight on what they would like to see in a website such as this. One of the suggestions was the need for information to help teachers prepare for their field trips. Educators are constantly working to ensure that their students are prepared for the future and it is a huge responsibility. With all of the other curriculum

planning that teachers already put work into, having a website dedicated to pre- and post-field trip preparation seemed important.

An effective website would mean that teachers preparing for a field trip would not have to search all over the web to find information about the zoo from reviews or what little information might be found on the homepage. A website to help with the planning could allow the process to be quicker and seamless, allowing teachers to spend more time figuring out the logistics of their trip and ensuring that students have all of the information they need for their field trip.

The idea of creating a website came from the idea that this information should be a resource for everyone. Technology is being integrated into the school systems regularly and sometimes students themselves have access to tablets or laptops at school. The resource being a website allows not only teachers access but also their students, even parents could visit at home to help with pre- or post- activities. As field trips are being cut from budgets, the website now allows for a ‘virtual field trip’ for those unable to actually spend the day at the zoo. To ensure the website is clean, easy to use, and simple the website creator Weebly was chosen to make this happen.

Though the website will be designed in a way that allows teachers from all over to adapt it to their needs, it is important to note the setting for which it was designed. The next section will explore the setting in which the website is being designed and how this will influence what information will be included. It will also explore the audience the website is designed to attract and the rationale for why.

Website Setting/Context

The website is intended to prepare teachers for a field trip to the zoo in South Florida, as this is where the capstone is being completed. Knowing this, the website will contain information pertinent specifically to South Florida. As South Florida has a high population of Spanish speaking residents, particularly in the Miami area, where both Jungle Island and Zoo Miami are located, the website will be made to be accessible for those who speak primarily Spanish.

At both Jungle Island and Zoo Miami, a lot of the signs on site were created with Spanish speaking visitors in mind. Jungle Island's new signage included the Spanish names for the animals as well as the descriptions in Spanish as well. This is something that will be incorporated into the website because although most computers include access to translation software (Google Translate), it's important to show that the website caters to the needs of those in this area. As the teacher may assign students pre-activities using the website in question, the information being available in Spanish means that those coming from Spanish-speaking homes are able to work at home and complete assignments as well as their peers. The website will include a Bing translate button to translate the information on each webpage to suit the user's needs.

The South Florida setting is also important to consider because there is information that can be included in the website that will prepare teachers for what they will experience should they visit a zoo in this area. All of the animals belonging to a zoo usually have signs to go along with their exhibits to give visitors more information about them. However, zoos often have a great deal of animal visitors that are not actually a part of the exhibits.

For example, South Florida is home to the green iguana, a species native to Central and South America and the Caribbean. It has made its home in South Florida and you would be hard-pressed to visit the zoo in this area without seeing at least ten iguanas crossing your path. Despite the lizard not being a part of the zoo itself, students are still interested in learning about them because they see them during their visit. Including information about the green iguanas has prompted thoughts about adding a section to the website about invasive species as Florida, Prothero and Henry (2013) acknowledge, has one of the largest problems with invasive species in the world.

As one can guess, the setting is important when considering a project such as this. Teachers who are taking students to the zoo in South Florida can find information pertinent to their location and thus make an effort to include topics such as invasive species into their activities and lectures. The intended audience for the project is also important. As stated in Chapter Two, knowing the audience allows a website to reach those it is intended for instead of allowing it to fall by the wayside into dismissal. The following section will explore the intended audience for the capstone project and why this particular audience was chosen.

Intended Audience and Rationale

Though all age groups visit the zoo with their parents, on their own, or with their school the original intended audience was the age group which visited Jungle Island most commonly through field trips. Speaking with the education staff, it was determined that most of the field trips were booked with 3rd through 5th grade classes. With this age group, teachers may be more likely to book a trip to the zoo as it can easily entertain their students and it provides an experience that students that age may not have been exposed

to before—animal encounters in particular. Although the scope of the project has changed from being designed specifically for Jungle Island to being targeted at a more ‘general’ zoo, it was decided to still stick to a website geared towards the same age group.

The website is targeted more towards the teachers than the students, however, 3rd-5th grade teachers still require information relevant to their particular students. If the website were intended for high school teachers, the content would vary as would the activities. High school teachers might assign an essay on an animal or a research project to complete before their field trip and thus if they were to ask students to use the website it would need to be more information heavy and less laden with photos. It would also include different types of activities that would be geared towards higher learning goals.

A high school teacher may also want to go more in depth about an animal’s biology while elementary students are still just getting started and are understanding basic characteristics or organisms. Younger students are more likely to spend time observing live animals than reading the signage provided. Scott and Matthews (2011) recommend that a website with more images and less written information may be better received for that age group. It is also important that the content and the way the content is presented is appropriate for the audience and so this will be taken into consideration when building the website and shaping the suggested activities.

Measuring the Effectiveness of the Website

In order to know if the website is genuinely meeting the needs of teachers and their students, there needs to be a way to measure its effectiveness. As this website is intended to help prepare 3rd-5th grade teachers for their field trip to the zoo, they would be

the ones whose opinion would be needed. There are a few ways to allow this to happen and the intention is to make each option available. The first option would be to have a survey available on the website that teachers can use to provide feedback. The idea is to have a form in which teachers can fill out what grade they teach and how the website worked for them. They would be encouraged to give feedback on what needs to be improved, what they would like to see more of, and what they found helpful. It would also be helpful to provide a counter on the site to be able to see how many 'hits' it would be getting in a certain number of times. As more people visit the website, it could be implied that more teachers are finding it useful.

Knowing what needs to be added, what did not work, and what worked well is a great way to know how to improve the site. It would not make sense to keep using a method that does not work or to leave out information or activities that could prove helpful. Allowing visitors to provide feedback is always a great way to keep a website relevant and effective.

Timeline

The capstone project was completed in 2019 Spring semester. Information has been compiled for all of the animals found at the zoo so that profiles of each are available for teachers and their students. Resources have been linked as well as activities created and laid out in a formal and easy way for teachers to follow should they like to utilize them during their time before, during, or after their trip to the zoo. The website and all it's available content will go live on May 1st.

Summary

Chapter Three provides a description of the website being designed for 3rd-5th grade teachers to help them prepare for an effective field trip to the zoo. The project overview, research paradigm, setting, intended audience, effectiveness, and timeline all provide context for the project development. As planning a field trip is more important than the field trip itself, the focus on this project was to ensure that teachers have the tools to plan a successful and enriching trip to the zoo in which students are able to meet learning goals as well as have a great time.

Chapter Four will explore what knowledge has been gained throughout the process of researching and writing the capstone, as well as building a comprehensive website. It will also revisit the literature to identify which sources were the most important and pertinent to the goals of the project. Also explored in the fourth chapter will be possible implications for the project as well as any limitations that were present during and after its completion. Also, the fourth chapter will explore any future projects that could stem from this one as well as take a look at the how the results of this project could be used in this context. Finally, the fourth chapter will look at how this project is a benefit to the teaching profession and how it will continue to be used in an effective way.

CHAPTER FOUR

Conclusion

Chapter Four Introduction

My project answers the question, *how can an interactive website help teachers plan a more effective field trip to the zoo?* I chose to create a website to answer this question because a peer had mentioned how useful tools such as this were when they were planning pre- and post- activities for field trips. Through my work as an environmental educator, I am often on the other side of things and often do not think about the preparation needed or already done by the teacher to ensure their students are prepared and learning during their field trip. I also chose this question as in the future my career objectives is to begin formal teaching, and this was a great learning experience in getting to know what it is like for teachers on their end of field trip preparation.

This chapter discusses what I have earned not only from my research but from my time completing this capstone project and building the website. The chapter will also revisit the literature review to discuss the most important information gained and what was most helpful for completing this capstone. As this project comes to a close, it is also important to explore the possible implications for the project aside from the goal in mind and to discuss the limitations of the project. By knowing the limitations, the writer can discuss what could have had an effect on the conclusion they draw. The chapter will also explore options for future projects of similar research. This can tie in with the limitations discussed because knowing the limitations of one project might further the ideas of a

future one. Lastly, the chapter will explore how the results will be used and how they can become a benefit to the teaching profession.

What I Learned

Through the process of completing this capstone, I came to learn that there is a lot of work that goes into planning a field trip. Students often see a field trip as a break from school and it is easy to see how that can be when you consider how field trips have changed over the years. There are still teachers out there who see field trips as a supplemental learning activity for their students but more often than not, the field trip is now more of a 'reward' for students. The idea of the field trip being a reward takes away from the educational value of the field trip as students understand that they are just supposed to enjoy themselves and not learn anything. This is the opposite of what the teacher often expects from their kids so it is important to see how effective planning can put everything more into perspective for both students and their teachers.

Through creating this website, I have also learned a lot about how much work goes into preparing materials to help with learning. When resources such as websites like mine are not available, teachers are the ones responsible for ensuring that they have the material they need to provide students with an educational and interesting lesson. While researching websites of zoos and aquariums for this capstone to obtain ideas for my website design, I was struck by the lack of educational information for teachers on a lot of the websites. My review of many informal science institutions websites highlighted for me, that at least in Florida, many do not contain a great deal of educational material. It was common to find websites with a few blurbs here or there about conservation tips or information about the exhibits, but most did not offer anything in the way of suggested

activities or much else for teachers looking to visit with their students. It struck me that there is a real need for a website like mine not only to help teachers who are visiting prepare, but also provide a virtual space in which students unable to visit can still do so, in a sense.

Working in informal education, I have also spoken to teachers many times about the impending stress of budget cuts and their unease at knowing if the same trips would be available to future students because of the diminished focus on field trips. My professional work and research for this capstone has made me aware that field trips are becoming rare as the focus on test scores becomes more of a priority to the administration. The project also increased my understanding of the inequality surrounding these budgetary issues among schools, even before the 2008 recession. Technology is no longer useful as just a tool to help teachers in the classroom but their students as well. Virtual field trips are a thing of the future and are sure to become more widely available as more schools are turning to them as a way to allow their students to enjoy an ‘out of school’ experience.

Reflecting on the Literature

Looking back on the literature in Chapter Two, I am able to see what information stood out to me the most in regard to this capstone project. First, I had to understand how the education world has changed since technology became a huge part of student’s lives. Students have access to tablets, laptops, learning programs, and other technology that was never used when I was in school. Learning about how technology has permeated even the education system was an important part of this capstone.

A key learning for me is how Edmonson (2012) chooses to call the students of this generation, digital natives. They are immersed in technology and have been their entire lives and so for them, technology in the classroom makes sense—it is what they know (Edmonson, 2012). Instead of working against this new way of learning, Edmonson (2012) implores teachers to use it to their advantage or to “meet them where they are, i.e. on their own turf” (p. 43). Students feel comfortable immersed in technology and so allowing them to be immersed in it can actually benefit both the teacher and the student because one is in their element and the other knows the lessons are getting across.

The literature also pointed out the reasons why a project like this is important and advantageous for students and teachers. Willis, Weiser & Kirkwood (2014) note how field trips are tools teachers use to facilitate interest among students that may be hard to cultivate with the general lecture and test method. These authors explain that field trips are an opportunity, “educators can enhance a children’s explorations by providing them with interesting and enriching experiences that help them to explore outside of their direct environment” (p. 141). These explorations can then turn into an interest in a topic which can then lead to an increased motivation to learn it. As I moved through the literature, it became apparent that not all students have access to these same opportunities for exploring outside of the classroom and this is a problem.

Through my research, I found that virtual field trips are great tool to bridge the gap in equity across schools in high-poverty areas. No educator wants a student to suffer in school, especially because of the economic circumstances of their family. Instead of suffering less experiences, technology has been able to bring the experiences to them.

This is another way in which the use of technology in the classroom has been ushering in a new way of teaching.

For example, Peterson and Melber (2001) notes that the Monterey Bay Aquarium features live video footage of a kelp forest for students to enjoy. Another example provided by these authors is the Getty Center Art Exhibit in Los Angeles which features images of art from their current exhibits on their website. Not only do these websites often share images and information about their exhibits, but some also provide information specifically for teachers to use with their students. A third example of a virtual field trip is provided by The Tennessee Aquarium which provides online exhibits in addition to downloadable curriculums for understanding how an aquarium works.

In conjunction, technology and field trips provide an arena in which students feel comfortable while still being able to get them outside of their direct environment to experience new things. This is why a resource such as this capstone can be of use to educators and have an impact on the students they teach.

Project Considerations

The initial idea for this project was for it to be a supplemental website for the zoo I had worked at, Jungle Island. It changed when I switched jobs and became more of a resource for teachers all across the country to use instead. My goal was to create a website with information and activities that could be used to fit the goals of teachers in different settings, not just the one in which it was created. I wanted a teacher from South Florida to find as much use for this website as a teacher across the country in Portland, Oregon. Though the website has provided a great deal of information and has a wide

variety of activities and resources available, there were some limitations when it came to the content that could be provided.

Creating a website for a specific location can be a lot more specific. As there would be one location to consider, the information could be much more tailored to showcase the animals at the specific zoo or the activities that would work for that specific zoo, that may not work anywhere else. When working with this new idea of a website for a general trip to the zoo, I could not get very specific. When looking for animals to add information about, I had to think about the most common animals seen at most zoos to ensure that this resource was adaptable for many different locations. The activities also had to be ones that could fit almost anywhere.

Due to these constraints there may be some teachers who visit the website who may find that it is lacking in activities or information relevant to their location and they might not get as much use out of it. To combat this, I have added a feedback feature with which teachers can provide feedback of what they would like to see in the future. If there is a specific group of animals found at their zoo which they would like more information on or if they would like to see an activity geared towards a specific topic, they can provide the feedback and the website can then be updated. This project was not intended to be a static website that never changes but an ever-changing resource that only becomes more useful with time.

Next Steps for the Project

Creating a website like this one as a resource for teachers has opened up the possibilities for future projects of this kind. There are a variety of different informal science education locations available to teachers for field trips across the country and not

all of them have a resource for teachers and their students. Not only is there a need for a help preparing for a trip to the zoo or planning a virtual trip to the zoo but also science museums, aquariums, and other similar institutions. Aside from a general resource website, there is also a possibility for future projects to create websites for specific locations, like Jungle Island, which was the original idea for this project. A project like that would be able to provide more specific information for teachers who are interested in activities and information tailored to their specific field trip.

The results of this capstone and future possible, similar, projects, can be used to show what kind of information teachers want to see. By having a method for teachers to leave their feedback on what worked for them and what they would like to see more of, it allows for improvement of the resource. Teachers put so much effort into creating meaningful experiences and crafting enriching lessons for their students. Allowing them to use their extra time instead for researching information and instead crafting the perfect field trip is not only better for them but better for their students as well. A resource such as this one could be a time saver for teachers and allow them to focus on catching the interest of their students.

Summary

During my time as an environmental educator I have learned just how much work goes into being teacher. Fostering interest, motivation, and the will to learn can often seem like a daunting task but every day teachers are helping to create future doctors, scientists, engineers, and so on. Teachers have a huge responsibility and often spend hours of time off the clock ensuring that they are prepared for each and every school day. From talking with my peers, many of whom teach in a formal setting, I found there was a

need for an easier way to prepare for field trips. My two goals for this project are one, that this resource will reduce a teacher's preparation time for a field trip and increasing the time they spend connecting with their students. My second goal is that websites like mind will allow students in high poverty areas to still have a chance to still enjoy similar experiences of those students in more affluent areas. It is important that all students be given the same opportunities to grow and learn and this is what my capstone is all about.

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