Spring 5-2014

A Look into Informal Science Education and Students with Individual Education Plans

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by

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A Thesis
Submitted to the Honors College of
The University of Southern Mississippi
in Partial Fulfillment
of the Requirements for the Degree of
Bachelor of Science
in the Department of Psychology

May 2014

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Abstract

Informal science education is a field of study that is becoming increasingly popular and important in the world of science, especially regarding elementary students. It is important to understand how students with learning disabilities and individual education plans react to informal learning experiences. This case study seeks to reveal the experiences of two students with an individual educational plan due to Attention Deficit and Hyperactivity Disorder (ADHD) when participating in an informal nature hike associated with the Over, Under, and Through: Students Informally Discover the Environment (OUTSIDE) program. The two students demonstrated increased attention and interest in science during and after their participation in the nature hike. While this is a small scale study, findings suggest that more informal experiential learning opportunities should be integrated into science classes as they help improve student attention, content recall, and attitude toward science.

Key Words: ADHD, Environmental Science Education, Informal Science Education, Nature Hike

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Chapter I: Introduction

Learning in informal settings allows students to engage in learning in ways that are not possible in a traditional classroom environment (Falk & Dierking, 2010). Informal science education is a way to broaden the definition of learning beyond that usually used in a classroom (Ucko, 2010). For example, learning about environmental science naturally lends itself to learning outdoors at places such as environmental centers, outside of a classroom. However, most students do not spend enough time studying, exploring and engaging in the natural history of the environment (Louv, 2005). We know that by the time students reach middle school years, their time actually spent outdoors experiencing nature has diminished from earlier years of childhood and they experience what we refer to as a nature deficit disorder (Louv, 2005). By middle school, students would rather sit inside and play video games or watch TV than venture outside and explore nature (Roberts & Foehr, 2004). Still, throughout elementary school, students are given standardized curriculum that aims to teach them about various aspects of science and nature.

In addition to the problem of nature deficit disorder experienced by middle school students, the educational challenge is compounded by the upsurgence of learning disabilities due to physical, mental, or social handicaps within student populations (Goepel, 2009). Often, students have diagnosed learning disabilities (e.g., ADHD, Autism, Dyslexia) that prevent them from fully grasping certain curriculum concepts or understanding certain aspects of learning (Shillingford, Lambie, & Walter, 2007). Thus, these students are given Individual Education Plans (IEP) to customize their learning experiences through personalized curricula. It is important that we find ways for students, particularly those with learning disabilities, to learn environmental science. We know that the hands-on interaction, particularly through informal

science education, encourages student learning and the development of positive attitudes about science (National Research Council, 2009). However, little research has been conducted that explores how middle school students with IEPs perform in informal environmental education settings.

The University of Southern Mississippi developed the *Over, Under, and Through: Students Informally Discover the Environment* (OUTSIDE) informal environmental science program to encourage underrepresented middle school students to interact with nature. This program provides students with opportunities to experience nature through a technology facilitated nature hike series led by trained naturalists. The initial hike, *Walk the Trail*, trained students to act like naturalists and focused on developing observational skills (Futuyma, 1998). In traditional classrooms, it can be problematic for students with IEPs to develop these types of skills (Goepel, 2009). The purpose of my study is to investigate experiences of students with an IEP participating in the OUTSIDE program.

Chapter II: Literature Review

Children at the elementary school age have been shown to learn most effectively through proximal processes, an idea that combines both nature (an individual's innate potential to learn) and nurture (the context in which they are given the opportunity to learn) to explain how actual learning occurs (Bronfenbrenner & Ceci, 1994). These proximal processes drive the development of associations between the child and the objects, people, and activities with which they interact, which assists with and increases learning (Bronfenbrenner, 2001). The manifestation of these proximal processes can be referred to as "play." Acts of play afford children a better opportunity for learning to occur due to the interaction with an object or person (Henderson & Atencio, 2007). The ability to touch and manipulate objects allows students to explore and further investigate the topic at hand, leading to quality learning experiences (Speaker, 2001). Informal learning environments typically use experiential learning (Kolb, 1984), discovery learning (Bruner, 1960), self-directed learning (Deci & Ryan, 1982), and play-based inquiry to direct learning experiences (Henderson & Atencio, 2007). The OUTSIDE Program seeks to implement informal education in the realm of environmental science learning, with nature as the object of investigation in regards to proximal processes of learning amongst elementary students.

Informal science education brings about benefits of experiencing science in a natural setting, allowing students to interact and learn in a natural way (National Research Council, 2009). Many states and school districts across America have teamed up to help increase educational outreach programs in the science field for the benefit of their students. Informal science learning programs have been used to intervene and attempt to rebuild and educate our students about the positive outcomes of learning through these opportunities of

hands-on experience. It's not just museums and learning centers, but universities are also employing informal learning experiences, such as nature hikes, to help build student interest in science (e.g., Mayhew & Finkelstein, 2009; Nadelson & Jordan, 2012). These university-sponsored informal programs found that student participants developed a great knowledge of science content (Bartley, Mayhew, & Finkelstein, 2009), and showed positive attitudes in regards to learning science (Wulf, Mayhew, & Finkelstein, 2010). Additionally, one month after participation in such programs, students still held positive attitudes about the trip and recalled the hands-on interactions (Nadelson & Jordan, 2012).

If we look at the K-12 classroom, there are specific strategies employed by teachers to best engage their students, present them with the information they need, and show them how to apply that information. Throughout development, students need time to understand what it is they are experiencing and learn how to apply it in a hands-on interaction, by the enhancement of cognitive, social, and physical development (Cohen, 2002).

In addition to the lack of encouragement or opportunities students have to interact with nature, there are other factors that hinder students from being able to develop a greater knowledge of and interest in science. One of these factors has been the high increase of IEPs among students in public schools due to learning disabilities (Grumbine & Alden, 2006). Between 5-10% of students K-12 have specific learning disabilities (Kavale & Forness, 1995). An IEP allows the student, parents, and teachers to agree upon "ascertainable goals" based on individual abilities of the student. It also records what is "additional to and different from the teacher's regular differentiated planning" for students who have specific learning needs (Goepel, 2009). Students with learning disabilities have a need for distinct teaching strategies in the classroom (Lam, Doverspike, Zhao, Zhe, & Menzemer, 2008). For example, naturalistic teaching

strategies have been applied in dealing with cases of autism and have shown to be successful methods of teaching social skills (Cowan & Allen, 2007). Instructional methods have been used with varying cases of students with disabilities, and have shown that hands-on, realistic examples and the use of materials increases performance and learning in these students (Wolery, 1997). For example, students with ADHD learn best when allowed to participate in experiential learning experiences (Ames, 2013).

We have seen how students with IEPs interact and learn while in a classroom setting and when different teaching techniques are applied (e.g., Minskoff & Allsopp, 2003). Through the OUTSIDE program, I hope to gain an understanding about how students with IEPs (particularly regarding ADHD) react to science learning when in nature. The OUTSIDE program has been designed to provide middle school students experiences to interact with nature and learn environmental science through first-hand activities through a series of nature hikes. Each hike was designed to enhance students' interest in, knowledge of, and attitude toward science. I will be focusing on the select experiences of students with a documented ADHD learning disability that take part in one of these hikes. The results from this case study will serve as evidence to better explain the experiences of the students with IEPs that participate in the OUTSIDE program nature hike.

My research questions include: 1. How do students with an IEP interact with nature, naturalists, and other students when participating in OUTSIDE programs? 2. What learning gains do students demonstrate after participating in OUTSIDE programs?

Chapter III: Methodology

Target Population

For this case study, I gathered data from two male students with IEPs due to ADHD that participated in an OUTSIDE program nature hike as part of a class field trip. To maintain confidentiality, I have use pseudonyms for all participants in this study. Both students, Allen and Taylor, were enrolled in a southern elementary school that is part of a high needs school district with 84% poverty and 95% underrepresented in STEM. When the 26, 5th grade students from this class arrived at LTEC for the nature hike, they were placed into small groups of six students and assigned a naturalist leader. Allen and Taylor were placed in the same group with Anne serving as their group naturalist. Each boy partners with a different student within their group and was provided with an iPad with the OUTSIDE Program app used to facilitate the nature hike (Boyce, Mishra, Halverson & Thomas, 2014). During this nature hike, students participated in activities that focused on practicing skills necessary for becoming a naturalist: observations, following directions, being quiet, proper nature handling, etc.

Data Collection

I will collect data from field notes and video recordings taken during the nature hike, pre/mid/post content exam (Appendix A), and student responses during individual, semi-structured follow-up interviews (Patton, 2002; Appendix B).

Targeted Student Observations and Video Recordings. During the entirety of the 10 station nature hike, I gathered data about Taylor's and Allen's actions and remarks. I observed detailed field notes about on Taylor's experiences during the nature hike including documentation of: what the student looked at, the student's actions, and student communications for the entirety of the hike. A second trained researcher was assigned to take field notes of

Allen's experiences. Each of the targeted students wore a lapel microphone attached to an audio recorded during the hike to allow me to double check my filed notes for accuracy. Additionally, we video recorded the entire group interactions at two of the ten stations during the nature hike. The first recording was at a station at the beginning of the hike and the second recording was at a station at the end of the hike. These stations were chosen due to similarities in content related to dams. The naturalist was trained to draw parallels between the two stations and also emphasize differences between the dams. These video recordings allowed me to check for consistency among field notes and compared reliability between observers.

Pre/Mid/Post Content Exam. Students completed the nine question content exam before the hike (pre), immediately following the hike (mid), and one month following the hike (post). The content assessed was based on content provided during the OUTSIDE Program and aligned with national standards for 5^{th} grade science.

Follow-up Interviews. Upon completion of the hike, I transcribed my field notes and conducted a follow-up interview with each student to better understand their experiences. I asked students to describe their experience, willingness to return to LTEC or participate in a similar nature hike experience, and any previous experiences or encounters with nature. I was particularly interested in using these interviews to gather data regarding three types of interactions: 1) Interactions with nature, 2) Interactions with each other and with the naturalist, and 3) Interactions with technology.

Analysis

To address my first research question, I used data from my field notes and the student interviews to create individual profiles of each student's experience during the nature hike. First, I transcribed all my data and double checked the transcriptions for accuracy against the audio

and video recordings. Then, to create these profiles, I initially employed an inductive approach to code students' responses in search of themes. Once I identified themes of student experiences, I used a deductive approach to code students' experiences within the three types of interactions I was focusing on. I use both coding approaches to ensure that I did not miss any emergent theme and to help avoid any potential confirmation bias. I used the video recordings of the two stations along the hike to triangulate my findings and ensure the credibility of the created profiles.

To address my second research question, I scored student responses on the content exam. I used a Kruskal-Wallis test to compare averages among students who participated in the nature hike and identify if there was a significant difference in student learning gains.

Chapter IV: Results

Finding 1

The following findings are organized into case study profiles of two individual students with IEPs due to ADHD that participated in the OUTSIDE project. These profiles document the experiences of each student while participating in a nature hike and how they felt about the experience once back in the classroom. My findings are reported from the perspective of a non-participant observer and interviewer, and seek to describe the experience that each student had during each nature hike through rich description.

Case 1: Taylor. Taylor is a fifth grade, black, male student from a low-income family and is on the free lunch program at his school. Taylor had limited experiences with tablet technology and being in nature prior to his participation in the OUTSIDE program. He stated that he enjoyed going outside, but, "It's just that I have to go to the park or somewhere because it's crowded over where I live." Thus, Taylor's prior experiences outdoor in nature focused on playing in the city park with cousins where there was playground equipment available.

When Taylor first began the OUTSIDE nature hike, he was very reserved and had little communication with other students. However, once the hike began and the naturalist, Anne, began encouraging the students to interact with nature, Taylor showed interest in the activities at each station and paid attention to questions that were asked. He was polite about answering questions and raised his hand before providing a response and was careful not to interrupt other students when they were speaking. When he was asked a yes or no question, his would nod or shake his head in reply. Taylor stayed at the front of the group at each station and observed flora and fauna highlighted by the naturalist, but he was still hesitant to fully interact with nature. For example, at the first station, Taylor observed the water closely and asked questions about

bladderworts when Anne held the plant up. He stated, “When plants are green, it means they are healthy.” He took pictures of bladderwort and made notes on the iPad while Anne talked about it to the group. He made no attempt to touch any organisms or water. He backed away and asked not to have to touch the bladderwort when Anne offered this option to the group.

When the opportunity would present itself and Taylor had control of the iPad, he followed along when reading the introduction and even read the introduction at a few stations when prompted by the naturalist. He used the camera application and took pictures of plants and animals at each station and also browsed the photo gallery in the GO app. Taylor was very intent on taking notes on the iPad about what was discussed and new things he learned. When other group members had possession of the iPad, he would help them spell words and encourage them to take notes about the station.

As the hike proceeded, Taylor often made comments about observations that he found relevant to the nature hike. Taylor was observed making several comments about the actions of beavers. In reference to the loud sound beavers can make with their tail, he stated, “It’s a predator alert.” When discussing dams, he stated, “[beavers] do it to stop the water,” and lodges were, “a place where [beavers] hide.” At another station, Taylor observed pine forests that had been burnt in a controlled burn meant to reestablish the natural Pine Savannah habitat in the area and questioned, “They burned the bark on that pine tree. Why would they do that?” He made comments on his own without being prompted, and responded to questions from the naturalist and other students when they were directed at him. These types of actions indicated that Taylor was actively engaged in the hike content.

Towards the end of the hike, Taylor showed signs of being more comfortable interacting with nature, though he still did not touch things. For example, he cupped his hands around his

ears to listen for birds and imitating a tree swaying back and forth when discussing how trees use buttressing to be able to stand in aquatic environments. When Anne challenged the students in Taylor's group to find as many magnolia trees as possible, he actively participated and pointed out numerous magnolia trees that he spotted.

After the hike, Taylor recalled his experiences with excitement. He eagerly recalled information he learned about birds, venomous snakes and spiders, how and why a pine tree gets burned, and that he was able to see, "lots of stuff, like fishes in the lake, crayfish, and frogs." He stated that his favorite part of the nature hike was, "getting outdoors and seeing all the stuff you can't ordinarily see," recalling the photos he took of the bladderwort, dragonflies, and geese as well as taking notes about magnolia trees on the iPad. Taylor expressed great interest in returning to LTEC, even if he didn't have access to the iPad because he, "can still enjoy nature without technology." However, he was thankful for the iPad because he liked being able to take notes on what was discussed to remember what he learned later, such the crayfish, turtles, fireflies, and beetles that he saw.

During the interview, Taylor was very outgoing and interactive, unlike before he participated in the OUTSIDE program. Taylor asked several questions about magnolia trees and when they bloom, why bladderworts have to eat insects, why you have to set fire to pine trees, and if cottonmouths were ever spotted on the trail. As each question was answered, he was attentive and expressed interest. He demonstrated the same interest and excitement observed at the end of the nature hike.

Case 2: Allen. Allen is a fifth grade, Hispanic, male student from a low-income family and is on the free lunch program at his school as well as lives in Section 8 housing. Like Taylor, Allen has had limited experiences with tablet technology and being in nature prior to his

participation in the OUTSIDE program. While there was a park area within his apartment complex, he stated, “I get bullied by big kids, that’s why I don’t like to go outside that much.” His outdoor experiences were limited to playing kickball, soccer, football, going to the park, and jumping ditches.

Allen’s behavior did not alter much during the OUTSIDE nature hike. He was energetic, and consistently active in his participation throughout the experience. Allen was willing to answer all questions asked of him during the hike. He was also very eager to touch plants, and quick to pick up leaves, pinecones, and other organisms that he found along the trail, sometimes when it was an inappropriate action. At the first station when the Anne mentioned crawfish chimneys and their purpose, Allen raised his hand and stated, “They are for protection from predators.” As the conversation moved to bladderworts, Allen was fascinated by the organism and immediately picked some up from the water, asking, “is it prey, or like a predator?” After getting a sufficient answer for this question and then asking how to spell it, he proceeded to take notes on the iPad notepad about how the “bladder” of the plant is used to feed while also assisting classmates in spelling and taking notes. Allen also participated during periods when students were asked to be still and listening for sounds such as wind blowing, fish bubbling, or frogs and birds calling to one another. While not all of his actions were congruent with the idea of paying attention, he always responded to questions and comments made the naturalist. Allen was enthusiastic with responding after the naturalist began speaking about mockingbirds. After stating that he has seen one before, he explained that mockingbirds are grey and white and mimic other sounds that they hear. This enthusiasm continued as the group moved along to other stations throughout the hike.

Allen was determined to have control of the iPad that was given to the students as a guide for the trail. At the beginning of each station, he raised his hand to read the introduction from the iPad app, which he willingly completed when called upon. When another student was chosen to read the introduction, he followed along attentively with the paragraphs on the iPad. Allen took notes about flora and fauna he found, such as a water plant called a *Xyris*, and helped classmates spell the plant's name. Allen also spent time reading information provided in the program app and shared his newfound knowledge with the group. For example, when asked what to do when seeing a snake on the trail, he stated that he read you should, "Take 2 steps back and walk away," which was the correct response. His observant and attentive attitude continued station to station as the group learned about the flora and fauna of LTEC.

During a moment of downtime in the group, Allen became visibly distracted, playing in a moist patch of ground with his foot; there was a lack of response from him verbally and physically. At this point, when Anne was asking questions or talking to the group, Allen's head was down and his focus was directed at his feet. However, once Anne began a new activity and showed the group a dragonfly that had been caught, Allen refocused his attention on the group and observed the dragonfly along with the other students. His attention remained focused as long as he was a part of whatever activity was taking place. For example, at a bird watch station, Allen was alert and involved with searching for nests and listening for the sounds of birds calling. As a classmate began to raise his voice, Allen quickly turned and asked him not to yell because it will scare away the birds. When Anne asked students to stop and cup their hands around their ears to try and hear the sounds happening in nature, Allen would stop and listen for animals, running water, or wind blowing the leaves. He was observed doing such observations even when not prompted to the point that Allen's interest in nature at times became a distraction

from the conversation happening amongst the group. Allen would walk around and observe trees, leaves, moss, pine cones, tadpoles in the water, etc. However, as soon as Anne or a student in the group asked him a question, he responded with an appropriate answer, reflecting his attentiveness despite his seemingly distracted actions.

During the interview, Allen was visibly distracted and stated that he had not taken his ADHD medication. Still, Allen was able to recall and talk about the things he saw on the nature hike, including a Canada goose, a turtle, a beaver dam, and some poison ivy. He stated that he, "heard a goose calling, cricket frogs calling for mating, and we used iPads, that was cool." He also remembered, "we got to take pictures, I took pictures like paparazzi, work it." He expressed an interest in returning to LTEC and going on more hikes because he liked being able to participate in activities and be immersed in the experience of what he was learning.

Finding 2

I found that there was an increasing pattern of content learning gains by all students that participated in the OUTSIDE Program. The mean value of the pretest was 58.55% with a standard deviation of 19.61%. The mean value of the midtest was 58.75% with a standard deviation of 21.90%. The mean value of the posttest was 64.75% with a standard deviation of 25.09%. However, while the mean values steadily increased between pre/mid/posttests, there was no statistical difference among pre-, mid- and posttests (H= 2.9410, dF= 2, P= 0.2298). As the content test only had nine questions, a single incorrect answer would result in an 11.11% decrease in average. Thus, the results of this analysis could be due to large standard deviations within each test.

Chapter V: Discussion

Informal science learning, such as the nature hike at LTEC, provides students with a hands-on experience of nature and science that is often not available in the classroom (Falk & Dierking, 2010; Henderson & Atencio, 2007). We also know that students with an IEP due to ADHD benefit from experiential learning (Ames, 2013). Even when a teacher incorporates active learning in the classroom, immersion within the content is not always possible. However, through their participation in the OUTSIDE nature hike, students were able to interact with nature through touch, sight, taste and hearing in an immersive way that isn't possible in a classroom. Through this experience, findings showed that two students, who tended to struggle with focusing in a traditional classroom, demonstrated constant engagement and attention while on a nature hike, much like as suggested previously (Ames, 2013; Worley, 1997). Both students actively participated in the hike and offered positive feedback about the nature hike. They were both able to recall names of plants and animals they had seen during the hike, even after a month had passed. And, both students expressed interest in returning to LTEC and participating in a second nature hike. Much like other students have experiences, these students with IEPs due to ADHD held positive attitudes about the trip and recalled the hands-on interactions even a month after the experience (Nadelson & Jordan, 2012).

The novel use of tablet technology provided IEP students with a means of capturing ideas about their experiences in real time. OUTSIDE participants were able to capture photo evidence, written descriptions, and recordings of their experiences beyond just relying upon memories. This multimodal approach likely aided in students' long-term recall ability.

The reactions documents through this case study suggest that we include more hands-on, experiential learning opportunities for students. The idea being informal experiences like a

nature hike are similar to a controlled play experience. Such play experiences afford better opportunities for quality learning gains due to the firsthand interactions with nature (Henderson & Atencio, 2007; Speaker, 2001).

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APPENDIX A: PRE/POST-TEST

1. Which of the following can cause bird populations to decline?
    a. Capture of select species for pets*
    b. Overabundance of food resources
    c. Habitat restoration
    d. Working with other bird species
    e. Birds singing all day

2. Which venomous snakes have been identified in Mississippi?
    a. Water Snake
    b. Western Diamondback Rattlesnake
    c. Cottonmouth*
    d. Black Snake
    e. Milk Snake

3. Should people touch a snake's head?
    a. No, the snake will be harmed, but will not bite
    b. No, people should never handle a snake without a trained professional*
    c. Yes, because most snakes do not bite
    d. Yes, there is no risk associated with touching a captured snake's head
    e. Yes, this is the only real way to get a true hands on experience with a snake

4. What are important things to remember when you are at Lake Thoreau?
    a. Do not look around
    b. Leave the trail whenever you see anything cool
    c. Do not touch anything unless a naturalist has told you it is safe*
    d. Pick flowers to take home to mom
    e. Catch a turtle to take home as a pet

5. When you are looking for mammals, what are key things to look for?
    a. Animal foot prints called tracks and scat*
    b. Listen for bird songs
    c. Make noises to attract them
    d. Find spider webs to see what insects are caught
    e. Taste tree bark

6. What is the best way to find birds in the wild?
    a. Walk the trail and hope a bird moves in front of you
    b. Find a place that is quiet, and wait while using all your senses*
    c. Close your eyes and listen for any potential bird noises
    d. Move branches and leaves on the ground to see any birds that may be hiding
    e. Wait near swamps, because birds will only be found near water in the day

7. How do you identify poison ivy?
    a. Look for a plant with shiny leaves in sets of three*
    b. In the summer it is bright orange, in fall it is blue
    c. It is only found winding around trees
    d. It is not very common in Mississippi so you do not have to worry about looking for it
    e. It never grows on trails so people do not have to worry about taking precautions

8. What should you do if you accidentally touch Poison Ivy?
    a. Rub the area around the rest of your body to spread the toxin, making it weaker
    b. Rinse off with cool water and gently wash your hands with soap*
    c. Use very hot water to spread the oil around your skin
    d. Use hand sanitizer to keep your skin from itching
    e. Nothing can be done, as the toxin is already on your skin

9. Water, land, and plants are limited resources. What are some things you can do at home to help them last longer?
    a. Replant trees and other vegetation
    b. Reuse bottles
    c. Recycle plastics, paper, and cardboard
    d. Reduce the amount of paper used
    e. All of the above*

APPENDIX B: INTERVIEW PROTOCOL

What do you want to be when you grow up?

How do you feel about science?

What types of science things do you do in your class?

Tell me about your experiences when you went on the Nature Hike at Lake Thoreau.

What did you learn while you were on this hike?

What did you like best/worst about this trip?

Have you ever had any similar experiences? If so, describe them.

Talk me through your answers that you picked [review the EAQ].

APPENDIX C: IRB APPROVAL

THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.6820 | Fax: 601.266.4377 | www.usm.edu/irb

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
  Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **13101502**
PROJECT TITLE: **Precious Lord, Take My Brand: Consumer Analysis of Branding Effectiveness of First Hattiesburg**
PROJECT TYPE: **Thesis**
RESEARCHER(S): **Kelsey Walsh**
COLLEGE/DIVISION: **College of Arts and Letters**
DEPARTMENT: **Mass Communication and Journalism**
FUNDING AGENCY/SPONSOR: **N/A**
IRB COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF APPROVAL: **10/31/2013 to 10/30/2014**

Lawrence A. Hosman, Ph.D.
Institutional Review Board

APPENDIX D: RESEARCH CONSENT FORMS

THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

DEPARTMENT OF BIOLOGICAL SCIENCES

118 College Drive #5018 | Hattiesburg, MS 39406-0001
Phone: 601.266.5841 | Fax: 601.266.5797 | Kristy.Halverson@usm.edu | www.usm.edu

Science educators have focused upon what to teach and how to teach it. However, we know very little about the role of informal environmental education programs on students achievements in STEM classrooms. Teachers can do a better job if they know how to help students learn science, but we need your assistance in helping us determine what is effective for students. I hope you will be interested in allowing your child to contribute to this project. I'm asking for volunteers to participate in three class field trips and talk with me afterwards about their experiences. Participation is totally optional, and if it is your choice not to participate, your child will have a normal day at school instead of going on the field trips. If you allow your child to participate, you will be allowing my researchers from the University of Southern Mississippi to obverse your child while participating in the activities and potentially ask them some follow-up questions about their experience. The three field trips will all take about 2-3 hours and will be a part of the normal school day. The follow-up questions would take about 30 minutes, only if your child is selected.

If you agree to have your child participate, they may choose not to answer any question or withdraw from the study at any time without consequences. Confidentiality will be strictly protected. Names will be replaced with a code. All associated files will be securely stored in a locked file cabinet or password protected file. Eventually we would like to publish findings. NO results will be reported in a manner that would allow a reader to associate any responses to you. No participant will be purposely deceived, and this project does not pose physical danger. Participating in the study will subject children to no risks greater than those normally encountered in everyday life.

Please feel free to ask any question during or after your participation in this study. If you have questions or concerns about this study, you may contact me via phone (601-266-5841) or email Kristy.Halverson@usm.edu. This project and this consent form have been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820.

Your signature on the attached consent form and your child's signature of assent indicates that you have received a copy, read, and understand this letter that describes the study. The informed written consent is required by IRB for your participation.

Thank you!
Sincerely,

Kristy Halverson, Assistant Professor
Department of Biological Sciences

THE UNIVERSITY OF SOUTHERN MISSISSIPPI
AUTHORIZATION TO PARTICIPATE IN RESEARCH PROJECT

Consent is hereby given to participate in the study titled:

OUTSIDE: Over, Under and Through: Students Informally Discover the Environment

1. **Purpose:** In education, we strive to better understand how to help students become more involved in science opportunities and learn about the natural environment. The University of Southern Mississippi (USM) has created a unique informal science program at one of their properties in Hattiesburg, The Lake Thoreau Environmental Center. As a science educator at USM, and one of the program developers, I would like to invite middle school students to participate in our educational program and talk with us about their experiences. We are hoping that these experiences can help us provide better learning experiences for students that are engaging and promote critical thinking.
2. **Description of Study:** We will invite students to take three field trips to Lake Thoreau and participate in a naturalist guided Nature Hike and two Nature Scavenger Hunts over the next three school semesters. We intend for these programs to be both fun and educational. Each program will last about 1-2 hours and we will provide lunches on site for all student and teachers that attend. During the programs, we will guide small groups of ten students around our property and teach them about environmental education. An investigator may join a group and take notes on what activities take place. After each field trip we will be asking to speak to 20 students individually about their thoughts on their experiences for about 30 minutes.
3. **Benefits:** If students participate in these OUTSIDE programs: 1) they will be provided with a free lunch during each outing, 2) they will have the opportunity to interact with the environment in a safe, hands-on, interactive manner, and 3) their school will be provided with a small compensation to help improve science education opportunities in the classroom.
4. **Risks:** Because we provide guides for the duration of our project, participating in this study will subject students to no risks greater than those you encounter in everyday life. In the unlikely event of an accident while at Lake Thoreau, "The University of Southern Mississippi has no mechanism to provide compensation for participants who may incur injuries as a result of participating in research projects. However, efforts will be made to make available the facilities and professional skills at the University." We do have a first aid station available on site for minor scrapes and injuries.
5. **Confidentiality:** We will maintain confidentiality of all participants by removing any identifying information received during data collection. Additionally, all data will be stored securely at USM campus with only the research team having access to blinded copies of the data as related to our research goals.
6. **Alternative Procedures:** If students choose not to participate in this project, they will be provided with alternative coursework at their school aligned with a normal school day.
7. **Participant's Assurance:** Whereas no assurance can be made concerning results that may be obtained (since results from investigational studies cannot be predicted) we, the researchers, will take every precaution consistent with the best scientific practice. Participation in this project is completely voluntary, and participants may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Questions concerning the research should be directed to Dr. Kristy Halverson at 601-266-5841. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be

directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820. A copy of this form will be given to the participant

8. **Signatures:** In conformance with the federal guidelines, the signature of the participant and parent/guardian must appear on all written consent documents. The University also requires that the date and the signature of the person explaining the study to the subject appear on the consent form

Because student participants are minors (under the age of eighteen years), we have included a signature line for the minor's assent and a signature line for the parents/guardians' consent:

Signature of the Minor Research Participant	Date
Signature of Parent/Guardian	Date
Signature of Researcher Explaining the Study	Date

ORI | Office of Research Integrity

INSTITUTIONAL REVIEW BOARD

HUMAN SUBJECTS ADVERSE EVENT FORM

HUMAN SUBJECTS ADVERSE EVENT PROCEDURES

Adverse events are unexpected or unfavorable occurrences that affect research participants.

- Fill out a separate Adverse Event Form for each adverse event.
- If the adverse event has resulted in or requires a change in protocol, please use a change in protocol application in addition to the completion of this form
- Submit a completed copy of this form to irb@usm.edu

Last Edited: October 28th, 2013

Today's date:		Date of the Event:
PROJECT INFORMATION		
Project Title:		Protocol #:
Principal Investigator:	Phone:	Email:
College:	Department:	Campus Address:
EVENT DESCRIPTION		
Reporting Individual:	Phone:	Email:
Location of the Adverse Event:		Date & Time Event Was Discovered:

How severe was the event? ☐Mild ☐Life Threatening ☐Moderate ☐Death ☐Severe	What was this event's relationship to the research? ☐Directly related to the research ☐Indirectly related to research ☐Not related to research	Is this research funded by an agency? ☐Yes ☐No Name of funding agency (if applicable): Has the funding agency been notified? ☐Yes ☐No ☐Not applicable
Is the event adequately described in the protocol consent form? ☐Yes ☐ No	Briefly describe the event:	
If not, are changes in the protocol consent form needed? ☐Yes ☐ No		
Has the same event occurred previously? ☐Yes ☐No	Briefly describe any corrective actions taken to prevent similar future events:	
Is this type of event likely to occur again? ☐Yes ☐No		