

The Influence of Personal Interpretation on Nature Walk Participant Knowledge,  
Perceived Importance of Interpretation, and Perceived Ability to Communicate  
Conservation Messages

By

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Honors Thesis

Appalachian State University

Submitted to The Honors College

In partial fulfillment of the requirements for the degree of

Bachelor of Science

December 2016

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**Abstract**

Interpretation in Recreation has been shown to increase participant's view of parks as a special place, attachment to parks, enjoyment of surroundings, and awareness of park policies. Interpretation in recreation can come in one of two forms, personal interpretation or media interpretation. This study seeks to further investigate the roles of these two different types of interpretation and how they affect an individual's perceived importance of interpretation, perceived knowledge of the local ecology, history, and geology, and perceived ability to convey conservation messages. Participants in the study were chosen based on convenience, and then randomly divided into two groups (treatment and comparison). The treatment group went on an interpretive hike guided by an interpreter (personal interpretation), while the comparison group went on an interpretive hike, but had no interpreter only interpretive signs (media interpretation). The individuals in the study were given paper surveys that were designed to evaluate their perceived importance of interpretation, perceived knowledge of the local ecology, history, and geology, and perceived ability to convey conservation messages. Statistical analyses of the participant's responses showed mixed results. Taking into account the various limitations of this study no broad statements about interpretation can be made. However, many of the trends found in this study could have positive implications for the field of interpretation if verified by future studies.

## **Introduction**

Nature based tourism is often seen as an activity that can promote the public to conserve natural resources (Jacobs & Harms, 2014; Ballantyne et al., 2011; Ballantyne et al. 2009; Hughes, 2013). There are various methods of encouraging this conservation of resources. One such method is the utilization of interpretation. A 2005 study in Taiwan's national parks found that there is a positive correlation between interpretation satisfaction and place attachment (Hwang, Lee, & Chen, 2005). Another study suggests that interpretation is an effective means of extending visitors view of parks as special places (Stewart, Hayward, & Delvin, 1998). Using these, and other studies as background, the purpose of this study is to specifically look at the effects of personal interpretation versus media interpretation on participant's enjoyment, knowledge, and perceived ability to convey conservation messages.

### *Hypotheses*

$H_0^1$ : How interpretive content is conveyed (media vs. personal) has no effect on a nature hike participant's perceived importance of interpretation, perceived knowledge of the local ecology, history, and geology, or perceived ability to convey conservation messages.

$H_0^2$ : An interpretive hike has no effect on a nature hike participant's perceived importance of interpretation, perceived knowledge of the local ecology, history, and geology, or perceived ability to convey conservation messages.

## **Literature Review**

### *What is Interpretation?*

Interpretation as a broad concept can be defined in many ways. The Merriam-Webster online dictionary defines it as: “1) the act or result of interpreting, 2) a particular adaptation or version of a work, method, or style, and/or 3) a teaching technique that combines factual with stimulating explanatory information;” Vocabulary.com defines it as “the act of explaining, reframing, or otherwise sharing your own understanding of something.” In this sense interpretation can relate to, and be applied to, almost any field; from art, philosophy, and literature, to math and science, interpretation plays a role in some way or another. So how then does Interpretation relate to Recreation?

### *Early History of Interpretation in Recreation*

Like many things in the field of Recreation, interpretation can be traced back to John Muir (1838-1914). Muir was one of the earliest advocates of the preservation and conservation of America’s wild spaces. In fact, he played a key role in the formation of many national parks, including Yosemite, Sequoia, Mount Rainier, Petrified Forest, and Grand Canyon (Wood, 2016). John Muir was also the founder of the Sierra Club, and an accomplished author (Wood, 2016). Muir’s legacy of viewing nature for its own sake rather than its practical benefits to us lays an important foundation for the history of interpretation in recreation.

Around the same time that John Muir was vying for the development of National Parks, and creating the Sierra Club, Enos A. Mills (1870-1922) began guiding trips into the Colorado Rockies (Regnier, Gross, & Zimmerman, 1994). Mills’ innate curiosity and

enthusiasm for the outdoors helped make him an ideal nature guide; however, this was taken to a whole new level when a young Mills happened to meet none other than John Muir. Muir, who was an elderly statesman at the time, encouraged and inspired Mills to join the conservation movement and become an author and lecturer. With the guidance of John Muir, Enos Mills went on to become the father of Rocky Mountain National Park as well as the founder of the Trail School, an early environmental education program.

However, even more importantly to the history of interpretation, Mills also became known as the founder of interpretation as a profession (Regnier, Gross, & Zimmerman, 1994). Mills developed principles, guidelines, and techniques that became the foundation of interpretation today, all of which revolved around guiding others to “the secrets of nature” (Mills, 1920) and inspiring visitors to want to learn more about the environment and protect it. With Mills’ early death in 1922 the profession of interpretation began to suffer. Often times visitors would be lectured at by professors and just told facts rather than be inspired (Regnier, Gross, & Zimmerman, 1994).

The industry continued to decline for the next twenty some years, until an unlikely person stepped in and helped to guide the profession of interpretation back to what it is now known for. This person was Freeman Tilden, a newspaper reporter, playwright, and nonfiction writer from Massachusetts. Tilden was not known as a naturalist, conservationist, or nature guide, but the National Park service invited him to tour national parks and analyze and report on the state of interpretation in the Park Service (Regnier, Gross, & Zimmerman, 1994). Through this work Tilden began to compile notes on the public’s reactions to various interpretive techniques. These notes turned into one of the most influential books on interpretation to date, *Interpreting our*

*Heritage* (1957). In this book Freeman Tilden defines what interpretation as a profession is. He goes on to answer broad questions about interpretation, such as why do we interpret, and what are the goals of interpretation (Tilden, 1977). In this book Tilden also outlines six principles of interpretation; these are:

- “1) Any interpretation that does not somehow relate what is being displayed or being described to something within the personality or experience of the visitor will be sterile.
- 2) Information, as such, is not interpretation. Interpretation is revelation based upon information. But they are entirely different things. However, all interpretation includes information.
- 3) Interpretation is an art which combines many arts whether the materials presented are scientific, historical or architectural. Any art is in some degree teachable.
- 4) The chief aim of interpretation is not instruction, but provocation.
- 5) Interpretation should aim to present a whole rather than a part and must address itself to the whole man rather than any phase.
- 6) Interpretation addressed to children should not be a dilution of the presentation to adults, but should follow a fundamentally different approach. To be at its best it will require a separate program” (Tilden, 1977; pg. 34-35).

Over the next twenty years, Tilden spent much time teaching others the art of interpretation, so much so that to this day his teachings and philosophies are held as basic standards in the industry (Regnier, Gross, & Zimmerman, 1994).

The history of interpretation is rich and ongoing; however, these three gentlemen provide a basic understanding of where the profession came from that is effectively enough for the purposes of this study.

### *Types of Interpretation*

Today interpretation can be broken down into two categories: personal services and media services (Foundations of Interpretation, NPS). Personal services encompass the historical types of interpretation (guided hikes, tours, etc.), but also encompass more modern techniques such as contact tables, interpretive programs, community outreach, school outreach, and much more. These personal interpretation techniques all have some type of human-to-human contact and communication. Media services encompass all forms of interpretation where there is not an interpreter present to relay information; these include: signs, exhibits, audio tours, brochures, films, etc.

### *Effectiveness of Interpretation*

The effects of interpretation have been found to vary based on a large number of factors (Kim, Airey, & Szivas, 2010; Poudel & Nyaupane, 2013). However, there is evidence that interpretation that utilizes guides or interpreters is more successful at increasing visitor enjoyment of the surroundings, and extending visitors view of the park as a special place (Kuo, 2002; Jacobs & Harms, 2014; Hwang, Lee, & Chen, 2005;

Stewart, Hayward, & Delvin, 1998). It has also been shown that interpretation has a positive effect on visitor's awareness of and support of park management policies (Kim, Airey, & Szivas, 2010). However, in contrast it has been shown that interpreters, or guides, do significantly increase visitor awareness of and support of management policies (Poudel & Nyaupane, 2013).

### *Self-Efficacy*

Perceived self-efficacy as defined by Albert Bandura (1994) is “people’s beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives” (pg. 2). An individual’s self-efficacy judgments are drawn from four major sources mastery experience, vicarious experience, social persuasion, and affective states (Bandura, 1994). The first, and most powerful source is a mastery experience. Mastery experiences are experiences where an individual overcomes obstacles through sustained effort (Bandura, 1994). These types of experiences allow individuals to see that they are in fact capable of completing the task, but are not so easy that they do not contribute to the individual’s awareness of adversity in challenges and their ability to persevere through it. If this type of experience cannot be achieved, Bandura outlines several methods of “guided mastery” that can help to increase a person’s self-efficacy to a point that they can complete the task on their own.

The first step in guided mastery is mentoring/modeling, also known as vicarious experience. Vicarious experiences can raise an individual’s belief that they possess the capabilities to complete similar tasks if the model succeeds, or it can harm efforts to increase the individual’s self-belief of efficacy if the model fails despite high efforts



(Bandura, 1994). Within a vicarious experience the individual's perceived similarity to the model highly impacts the persuasiveness of the model (Bandura, 1994).

The next step in guided mastery involves breaking the task into smaller more manageable steps and limiting the time spent on the challenge. Once the smaller pieces of the task can be completed, Bandura suggests gradually increasing the challenge level until the individual can once again successfully complete it. Finally, Bandura states that one should remove all performance aids and allow the individual to succeed on their own, thus allowing the individual the opportunity to confirm that their success was indeed their own and not because of the performance aids. Until this last step is completed the individual's self-efficacy will most likely not permanently increase.

Throughout these steps, Bandura suggests the use of the remaining two sources of self-efficacy information to help encourage the individual. These are: social persuasion and managing affective states (Bandura 1994). Social persuasion as described by Bandura is a type of specific verbal persuasion that can be utilized to persuade an individual that they are capable of completing an activity. This type of persuasion, when utilized correctly, can assist in motivating the individual to put forth greater efforts and sustain those efforts longer. It can also lead to boosts in self-belief of efficacy; however, these boosts are not permanent and are easily suspect to being disconfirmed if the individual attains disappointing results of their efforts (Bandura, 1994). When used incorrectly social persuasion has the potential to cause an individual to avoid challenges and give up quickly, as well as undermine the individual's motivation and self-beliefs of efficacy (Bandura, 1994).

Managing affective states is a way of helping an individual increase their self-belief of efficacy. This is done by attempting to reduce their natural stress reaction to an unnatural/uncomfortable situation, and altering their “negative emotional proclivities and misinterpretations of their physical states” (Bandura, 1994; pg. 3). Managing affective states does not aim to necessarily dull the intensity of the individual’s emotional and physical reactions, but rather to help the individual perceive and interpret these reactions in a more positive manner (Bandura, 1994).

Self-efficacy has effects on many aspects of individual’s lives; these include their cognitive processes, motivational processes, affective processes, and selection processes (Bandura 1994). For the purposes of this study, we will specifically be looking at the second source of self-efficacy, vicarious experience, and how it influences an individual’s cognitive and motivational processes, and thereby influences an individual’s efficacy judgments.

## **Methods**

### *Study Area*

The study was conducted utilizing the Flat Rock Parking Area trail. This trail is located at mile marker 308.3 on the Blue Ridge Parkway, where it hugs the edge of Pisgah National Forest. The trails placement on the western slopes of Grandfather Mountain gives it a peak elevation of approximately 4,100 feet above sea level. While much closer to the elevation of the surrounding land, rather than that of the peak of Grandfather Mountain (6,945 ft.), the Flat Rock Parking Area trail still plays an important

role in the varied ecological communities of Grandfather Mountain, and boasts a large diversity of plants, animals and fungi.

The Flat Rock Parking Area trail is a “self navigated” loop trail of approximately 0.63 miles in length. Self-navigated as it is referred to in this since means that the trail itself has a wide variety of interpretive signs posted throughout the length of the trail that guide visitors and give them information about local flora, fauna, and history. For the purposes of this study these signs will be considered a type of “media” interpretation.

### *Surveys and Sample*

Data was collected utilizing self-administered questionnaires. Each questionnaire was composed of identical pre- and post-tests. Each test was composed of three sub-sections of questions, the first served to gauge the individual’s perceived importance of interpretation, the second to gauge their knowledge of the local ecology, history, and geology, the final section served to gauge their perceived ability to convey conservation messages; for the purposes of this study these are referred to as “importance,” “knowledge,” and “ability.” Examples of questions include: “How important is it for recreation professionals to be familiar with interpretation skills?,” “How confident are you in your knowledge of the trees of this area?,” and “How confident are you in your ability to promote environmental education.”

Participants in the study were all students in the Recreation Management Environmental Education Skills class. The students received no additional incentives for participating in the study, although the trip itself was a part of the class. The students were randomly assigned to one of two groups as a part of the class. These two groups

were then randomly assigned to either be the treatment (n=12) or comparison group (n=7) for the purposes of this study. The size of the groups was a limitation of this study, and will be addressed later in this report.

No demographic data was collected, as the pool of students was so small that any information might make the survey identifiable; however the student's concentration within the Recreation Management program and if they were planning to pursue the North Carolina Environmental Educators Certification were collected.

### *Data Analysis*

Initially each individual's pre-test and post-test was scored by sub-section and as a whole, with total possible sub section scores of importance: 36, knowledge: 72, and ability: 54, for a total possible score of 162. The differences between each individual's pre-test and post-test scores were then recorded. Independent samples t-tests and paired samples t-tests were then conducted utilizing SPSS software.

### **Results**

To investigate  $H_0^1$  (How interpretive content is conveyed (media vs. personal) has no effect on a nature hike participant's perceived importance of interpretation, perceived knowledge of the local ecology, history, and geology, or perceived ability to convey conservation messages) an independent samples t-test was run. This test showed no significant difference between the changes in scores for the two groups (Treatment:  $M=14.92$ ,  $SD=16.20$ ; Comparison  $M=7.43$ ,  $SD=6.78$ ;  $p=0.264$ ;  $t=1.15$ ;  $d=0.65$ ). Upon further investigation of the sub groups of the questionnaire it was found that there was a

significant difference between groups in the Ability sub-section (Treatment:  $M=4.42$ ,  $SD=5.14$ ; Comparison:  $M= -0.29$ ,  $SD=3.20$ ;  $p=0.044$ ;  $t=2.17$ ;  $d=1.10$ ).

Paired samples t-tests were run to investigate  $H_0^2$  (An interpretive hike has no effect on a nature hike participant's perceived importance of interpretation, perceived knowledge of the local ecology, history, and geology, or perceived ability to convey conservation messages). The first of these tests revealed that there is a significant difference between pre-test and post-test scores, regardless of group (pre-test:  $M=109.95$ ,  $SD=14.35$ ; post-test:  $M=122.21$ ,  $SD=17.68$ ;  $p=0.001$ ;  $t=-3.90$ ;  $d=0.76$ ). Further investigation showed that there was also a significant difference between pre-test scores and post-test scores within each separate group, with the treatment group being slightly more significant than the control group (Treatment: pre-test:  $M=113.00$ ,  $SD= 16.42$ ; post-test:  $M=127.92$ ,  $SD=18.87$ ;  $p=0.009$ ;  $t=-3.19$ ;  $d=0.84$ ; Comparison: pre-test:  $M=104.71$ ,  $SD=8.54$ ; post-test:  $M=112.43$ ,  $SD=10.41$ ;  $p=0.021$ ;  $t=-3.12$ ;  $d=0.81$ ) and that there was a significant difference between the pre-test and post-test of each of the three sub-categories (Importance: pre-test:  $M=29.32$ ,  $SD=4.19$ ; post-test:  $M=31.05$ ,  $SD=4.11$ ;  $p=0.002$ ;  $t=-3.69$ ;  $d=0.42$ ; Knowledge: pre-test:  $M=41.79$ ,  $SD=9.26$ ; post-test:  $M=48.21$ ,  $SD=11.77$ ;  $p=0.01$ ;  $t=-2.80$ ;  $d=0.61$ ; Ability: pre-test:  $M=38.84$ ,  $SD= 5.50$ ; post-test:  $M=42.68$ ,  $SD=6.01$ ;  $p=0.003$ ;  $t=-3.37$ ;  $d=0.67$ ) therefore the null hypothesis was rejected.

No significant difference was found in change in scores when considered by Recreation Management concentrations or between those planning on pursuing the North Carolina Environmental Education Certification and those who are not sure if they will or not.

## **Limitations**

Before discussing the implications of the results of this study it is important to know its limitations. First and foremost, the sample size utilized in this study was extremely small (n=19). In addition, the sizes of the groups were not similar (treatment n= 12, comparison n=7). These alone act as large constraints to the study, however in addition to these the study also had four participants who participated in both the treatment and comparison groups. This poses possible significant implications to the results because the treatment group was tested before the comparison group; therefore, these individual's cumulative scores could have increased the comparison group score. In addition, the individuals utilized have some inherent bias as they had already self selected as caring more about environmental education, as the class is not required and centered around environmental education. Lastly, the trail utilized is no longer in the best of condition. The interpretive signage has not been kept up to date, and some signs are missing entirely.

## **Discussion**

Given the results discussed previously, two main conclusions can be drawn. First, the data shows that going on an interpretive hike increases participant's total scores regardless of the type of interpretation (personal or media). This suggests that regardless of how participants receive interpretive information getting out and going for a hike increases how important interpretation is to them, their perceived knowledge of local ecology, geology, and history, and their perceived ability to communicate conservation messages. This has implications within the recreation field. Not only does it show the

importance of interpretation, both personal and media, but it also has the potential to show the importance of getting out and connecting with the outside world.

The results of this study also show that participant's perceived ability to communicate conservation messages may be significantly impacted by the presence of an interpreter. This may be attributed to Bandura's second source of self-efficacy judgments, vicarious experience. This source was addressed because the interpreter for the hikes was an upperclassman recreation management student, similar to many of the students in the class. Seeing one of their peers lead an interpretive hike and communicate conservation messages the participants in the treatment group may have been the variable through which perceived self-efficacy was increased.

### **Conclusions and Recommendations**

The purpose of this study was to determine if personal interpretation, specifically the presence of an interpreter on a guided hike, had a greater effect on nature hike participant's enjoyment, knowledge, and perceived ability to convey conservation messages than media interpretation methods. The results indicated that while there was a significant effect of interpretation in general, there was not a significant overall difference between the two methods. However, there was a significant difference in the participant's perceived ability to convey conservation messages. While the results of this study do have implications for the effectiveness of interpretation it is important to note that this study had many limitations. Further research is needed to verify the results of this study and to determine the effects of hiking as an activity without interpretive

content. Nevertheless, it can be concluded that interpretation is an effective means to increase participant enjoyment, knowledge, and ability to convey conservation messages.

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