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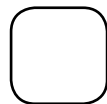
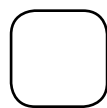
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A Note from the Editor

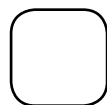
This issue of *JIR* includes three research articles and one “In Short” submission. Topics include goal conveyance, visitor response to programming, and examinations of visitor motives. All submissions provide information, guidance and insight into how to capture that *measurable* difference and how to begin to communicate that information to each other through the science of interpretation. As you read through the *Journal*, traveling from Great Smoky Mountains National Park to the Historic Kingsley Plantation, remember that our discipline is as varied and diverse as our locations, mediums and messages, but what unites us as a field is our desire to make a measurable difference.

Remember to ask tough questions, imagine the impossible, and think beyond that which is now. In this economic climate, we have to be able to demonstrate our impact to the visitors, the resources, and the managers who we serve. If we cannot, we make those tough economic decisions too easy.

I look forward to the future developments of our field through your quality submissions to *JIR*.



RESEARCH



Multiple Goal Conveyance in a State Park Interpretive Boat Cruise

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Keywords

management goals, mission, conservation, environmental literacy, tourism

Abstract

The qualitative case study examined interpretive programs for four sets of management goals. A proposed model, Four Conceptions of Interpretation, previously tested in national parks, was retested in a state park. The four conceptions are (a) connecting visitors to resources, (b) conveying agency mission and influencing behavior, (c) encouraging environmental literacy, and (d) promoting tourism. The hypothesis was that evidence of all four conceptions would be found in visitor recall of interpretive programs. Analysis found conceptions one and two strongly recalled by visitors. Conception three, environmental literacy, was conveyed by staff and moderately recalled by visitors. Conception four, tourism, identified in the Arkansas State Parks mission and opening dedication speeches, did not find its way into programs. Findings suggest that all four conceptions identified in foundational literature, mission, overall park vision, and staff interview did not trickle down into interpretive practice; it was not recalled by visitors in programs.

Introduction

The practice of heritage interpretation has advanced along a sometimes bumpy and hilly path. Research and scholarship have been challenged to follow along to understand and describe the evolution of the practice of interpretation. During its 90 years of published discourse dating from Enos Mill's *Adventures of a Nature Guide* (1920) to the present,

interpretation has been influenced by many disciplines, the environmental movement, the outdoor recreation movement, and most recently by the tourist industry (Beck & Cable, 2002; Knapp, 2007; Larsen, 2002; Merriman & Brochu, 2005; Randall & Rollins, 2009; Ward & Wilkinson, 2006). The National Association for Interpretation (NAI) continues to play an influential role in the growth and direction of the profession as it shares its standards for training and practice around the world.

Interpretation is a mission-based communication process that forges emotional and intellectual connections between the interests of the audience and the meanings inherent in the resource (NAI, accessed July 9, 2010, <http://www.interpnet.com>).

As the profession of interpretation has assimilated new management goals for itself, applied research has diversified by following the practice of interpretation along multiple trajectories of growth. One area of particular interest is the ability of a single interpretive program to convey more than one management goal to its audience.

What evidence is there of additional management goals in interpretive programs beyond merely connecting visitors to resources? This is the research question examined by this study. Given the course of the profession during the past century, perhaps the most pervasive but subtle change in the practice of interpretation is the expectation that interpreters convey management goals *in addition to* connecting visitors with resources. According to Morgan (2009), many interpretive programs contain the underlying purpose of solving management problems (p. 48). If managers view interpretive programs as vehicles to accomplish different goals, then evidence of these goals should be detectable in the programs themselves. This study examines evidence of multiple management goals being conveyed by an interpretive program using the proposed model titled, *Four Conceptions of Interpretation* (Benton, 2009). The evidence of additional goals is determined by the presence of terms associated with each of the four conceptions of interpretation (model) in visitor recall of programs. Specifically, an interpretive program would be deemed *effective* in conveying one or more management goals if there were ample evidence of these terms in visitor recall.

Morgan, Absher, Loudon, and Sutherland (1996) examined the effectiveness of interpretation to improve knowledge and attitude change from two different types of programs: a campfire talk and a trail walk. Roggenbuck, Loomis, and Dagastino (1990) found that many interpretive programs address management problems. In the United States, federal land management agencies have historically viewed interpretation as an indirect strategy for managing visitor behavior by reducing impact of use through influence of decision factors (Manning, 1999). According to communication theory, the effectiveness of interpretation to positively influence visitor behavior depends upon variables associated with the content and delivery of programs. Interpretation influences people by virtue of its ability to forge connections with the intellect and more importantly the emotion.

“Emotion” and “motivation” both come from a root word that means “to move.” “Value” comes from a root that means “to be strong.” So, to say that something has value is to say that it has the strength to move us, that is to arouse our emotions and motivate or push us into action (Schroeder, 1996, p. 18–19).

Thus, effectiveness translates into the ability of the program (content) or message and the interpreter (technique) to convey value emotionally and intellectually. The prominence of resource management goals has added the objective of influencing behavior to its seminal goal of connecting visitors to those same resources. According to Ward and Wilkerson (2006), “all of the messages we provide are aimed at influencing visitors in some manner, whether that influence is aimed at what they know (cognitive), think (attitudes), feel (emotions), or do (behaviors)” (p. 41). Merriman and Brochu assert that benchmarks containing measurable objectives are required for interpretive programs to be meaningfully evaluated (2005).

What is needed in order to examine the effectiveness of interpretation to convey management goals is a means to describe and thereby “measure” emotional and intellectual connections by categorizing terms associated with each different goal set. To help meet this challenge the author proposed a theoretical model titled Four Conceptions of Interpretation (Benton, 2009) based on foundational literature and empirical research studies published in journals associated with interpretation. The model is a typology of multiple sets of goals and objectives for interpretation.

Four Conceptions of Interpretation

The model reflects the historical progression of four strands of goals within the field. A conception of interpretation is defined as a group of outcomes intended for interpretive programming. Conception one, connecting visitors to resources, is based on the seminal goal of interpretation developed from the practice of nature guiding. The primary objective is for interpreters to use their special knowledge of nature, culture, and history and their communication and artistic skill to reveal what is not readily apparent to peoples’ emotion, intellect, and spirit (Beck & Cable, 2002; Mills, 1920; Tilden, 1957). Terms associated with conception one include: understand, appreciate, knowledge, information, imagination, visualize, and picture.

Conception two, conveying mission and influencing behavior, is based on sociological and psychological contributions to recreation resource management. The objectives are for interpretation to carry a positive image of the agency to the public and to influence visitors’ resource behavior (Knudson, Cable, & Beck, 1999; Machlis & Field, 1992; Manfredo, 1992; Manning, 1999; Ward & Wilkinson, 2006). Terms associated with conception two include: conserve, protect, preserve, keep, change, stop, do not, and public. Conception three, encouraging environmental literacy, seeks to introduce people to ecological relationships and move them through levels of awareness, appreciation, understanding, ownership, and motivation to take responsible action to reduce human impacts on the environment (Knapp, 1997). Disciplinary sources for the environmental movement include the National Park Service (Brown, 1971; Larsen, 2003; Mackintosh, 1986), interpretation (Ham, 1992; Sharpe, 1982), special interest groups, formal and non-formal education, local and federal government, and mass media. Terms associated with conception three include: awareness, knowledge, depletion, drought, famine, natural resource, and relationships. The differences between conception two and three deserves further explanation. Agencies seeking to express their mission and goals including influencing visitor behavior using an interpretive program are seeking attitude, knowledge, and behavior changes *on site*. Environmental literacy seeks to instill changes in the visitor that take place back at the visitor’s home and out in the *community* and world. For these reasons, conception two contains two parts and is focused on the

protected site, whereas conception three posits its goals more universally and at more distant sites. The historical influences represented by these conceptions were instigated by different disciplines as well.

Conception four, promoting tourism outcomes, is based upon the expansion in interest in tourism from the public and private sector. The main objectives for interpretation are to use travel ideas and the promotion of spending to improve the economic benefits enjoyed as a result of heritage and cultural tourism (Brochu & Merriman, 2002; Brochu & Merriman, 2006; McKercher & DuCros, 2002; Merriman & Brochu, 2005; Pine & Gilmore, 1999; Uzzell, 1989). Terms associated with conception four include: visit, destination, travel, time, spend, rent, and purchase.

Four Conceptions of Interpretation:

1. Connecting visitors to resources.
2. Conveying agency mission and influencing behavior.
3. Encouraging environmental literacy.
4. Promoting tourism.

For the purposes of this study, each conception represents a distinctive set of objectives used to accomplish outcomes specific to the agency and site providing the service. The model implies that the four sets of goals are not mutually exclusive. Therefore, a single interpretive program may convey from one to four sets of goals successfully. The research question remains: Is there evidence that interpretive programs convey multiple conceptions (goals) of interpretation? After initial testing in cultural programs at selected National Park Service sites, the model has been applied to natural resource programs at a state park.

Method

Site

Lake Fort Smith (LFS) State Park, Arkansas reopened in May 2008 after a six-year hiatus (2002–2008) in which its two lakes were joined into one. An opening day dedication and free public picnic were celebrated on Saturday, June 19, 2008. All recreation facilities are accessed from State Highway 71 on the west side of the lake. A brand-new visitor center greets visitors as they enter the new park. An outdoor swimming pool, campground, and hiking trails are located directly north of the visitor center. A road leading to the day use area, marina, staff houses, and lodges are located to the south of the visitor center parking lot. Visitors may sign up for the boat tours by telephone or in person at the marina. The park is located in northwest Arkansas approximately one hour's drive from the population centers of Rogers, Springdale, Fayetteville, and Fort Smith in western Arkansas.

Procedure

The single case study (Creswell, 1998; Yin, 2003) featured qualitative data from five sources: state park *mission*, officials' *speeches*, park *staff interviews*, the boat tour *programs*, and post-program *visitor interviews*. Multiple sources of data were collected and analyzed to provide a more detailed description of the case (Creswell, 1998), "to

encourage convergent lines of inquiry,” for content validity (Yin, 2003, p. 36), and to assist validation through triangulation (Miles & Huberman, 1994). All speeches and interviews were tape-recorded, transcribed, and analyzed using NVivo 7.0 qualitative coding software (QSR International, 2006).

The study examined evidence of goals within the park’s overall interpretive plan, including the mission, opening day speeches, staff interview, program narrative, and visitor recall of programs. Effectiveness of an interpretive program to convey the different goals would require evidence of these goals in visitor recall. Officials from the Arkansas State Park system suggested the author conduct a study of the LFS State Park reopening highlighted by a pontoon boat tour that would be used to inform visitors of the reasons for the park closing and subsequent reopening and improved facilities. It was implied that the interpretive program would be the primary vehicle for telling the story of the closure and for reacquainting visitors to the park’s extensive natural and cultural resources.

During the opening day dedication, nine local politicians and park system administrators spoke. This was the first set of data collected: an articulation of goals for the park and for interpretive programming overall. The fall 2008 interpretive program schedule featured a sunset pontoon boat tour around the lake crafted to interpret park resources, explain the closure and subsequent reopening, and to inspire visitors. A few other interpretive programs were featured during the weekly visitor center schedule. The boat tour was chosen for primary data collection as it was highly publicized, the format was more novel than traditional interpretive walks and demonstrations, and promised to be well attended. Tours were scheduled on Friday, Saturday, and Sunday evenings from August through November, and lasted approximately two hours.

A maximum of 24 visitors boarded the pontoon boat at the marina for each program. They were issued life jackets and received a short introduction. The researcher made a brief announcement and notified visitors that they would be asked to furnish contact information at the conclusion of the program and were assured that their decision whether or not to participate was completely voluntary. The boat traveled around the lake counterclockwise making roughly four stops along the way, during which the motor was turned off to allow the interpreter and guests to interact. The interpreter’s program dialog was tape recorded three times and transcribed to corroborate topics presented. On the way back to the marina the researcher provided informed consent forms and gathered visitor telephone numbers on slips of paper from participating guests. Visitors were told they would be contacted approximately one week later to schedule a telephone interview at a time that was convenient for them. Visitor contact information was gathered on alternating weekends from August through October and all interviews were conducted by the end of 2008. A total of seven boat tours were attended and during which permission for participant data collection was established. The majority of the visitors contacted on the boat during all of the programs agreed to furnish contact information. However, when the author called to set up interview times, some participants were unavailable or decided to opt out of the study. Several more visitors were unavailable at the time of the arranged interview. Therefore, the data collected included 52 interviews with visitors who attended the sunset boat tours in fall 2008.

Instrument

Five sources of data provided narrative statements that could be processed through the “filter” of the Four Conception Model. The park mission and officials’ speeches

were collected verbatim. The single staff interview and program audio transcript provided documentation for goals for the interpretive program. Finally, visitors were interviewed by telephone approximately two weeks after the experience. A total of 52 visitors participated in post-program interviews. Interviews were open-ended and semi-structured and proceeded much like a conversation. Visitors were asked a series of questions that allowed them to elaborate on any part of the program they wanted in order to obtain a rich description of the dialog on the boat tour and discussion that ensued during the interpretive experience around the lake. The following is a sample interview format used with all visitors.

- What do you recall from the boat tour?
- Our first stop was down by the dam; what do you recall the ranger talking about?
- Our second stop was across the lake; what do you recall hearing or seeing?
- The third stop was at the north end of the lake; what do you recall from there?
- How did you feel about the program emotionally? What was your impression?
- Was there a particular theme or main idea that ran through the whole program?
- Did you stay overnight or did you travel to the park for the boat tour specifically?
- What other state parks or other natural areas do you visit frequently within the state?
- What did you think about the cost of the boat tour; did you think it was reasonable?

The interview instrument gathered visitor recall data that reflects the phenomena of their experience during the interpretive program. The interviews generally examined the program in the same chronological order as the stops around the lake. This instrument was designed to capture emotions, knowledge, opinion, and impressions of the complex phenomena of a recreational boat trip combined with an interpretive program. By asking visitors for simple program recall and then analyzing those recollections for presence of the four conceptions, visitors would be less likely to experience a learning bias directed towards answering questions to please the interviewer. Data were analyzed for evidence of terms categorized as being representative of conception one, two, three, or four.

Findings

When the five sources of data were processed through the filter of the Four Conception Model, not all four conceptions were equally represented in all data sources. Opening day speeches, the park mission, staff interview, and program narration contained evidence of all four conceptions. However, visitor recall of the interpretive programs did not contain strong evidence of conceptions three or four. A summary of the findings for the five data sources is found below.

The vision articulated by officials for LFS State Park's grand reopening and the state park mission contained terms associated with four different sets of management goals. The Arkansas State Parks Mission appears below.

To provide optimum quality recreational and educational opportunities in sufficient quantities and conveniently located to meet the experience needs of state citizens and visitors;

To safeguard the natural, historical and cultural resources by providing adequate facilities and skilled leadership in state parks;

To enhance the economy of the state by providing recreation destinations and leisure services closely attuned to the natural, historical and cultural appeal of Arkansas, and;

To provide responsible leadership statewide for the conservation of valuable state resources. (<http://www.adptfoi.com/Parks/ARKANSAS%20STATE%20PARKS%20MISSION.htm> accessed November 16, 2011).

This mission statement encompasses the four conceptions: as a form of recreation and education interpretation connects visitors to resources (conception one), programs serve to promote the park mission to conserve resources (conception two), programs encourage leadership action far from the site (conception three), and programs may be used to promote economic benefits associated with tourism (conception four). However, the extent to which these goals trickled down into the interpretive boat tours was found to be incomplete. Several local politicians and state park officials spoke at the opening day ceremonies, which included a picnic with free food for all of those in attendance. By the time the delegates had told personal stories, provided compliments, and marketed the resources and virtues of the park, all four conceptions were found to be addressed. The single staff interview conducted with park interpreter Jay Schneider revealed evidence of all four conceptions as well. The theme of the program according to Schneider was: "The search of good water has brought faith, hope, and sacrifice to this valley" (personal communication, July 19, 2008). Schneider mentioned diverse goals, including telling the story of the draw of water from 2,000 years ago to the present (conception one), "to give them that conservation attitude at the end" (conception two), "...wise use of our planet's resources" (conception three), and a statement explaining that LFS is not in competition with other state or national parks but people will travel to LFS for the resources they have to offer and for the clean bathrooms (conception four). Schneider conducted all of the boat programs. Three tape recordings were made of the program narrative for evidence of the four conceptions. Schneider engaged visitors with wildlife sightings and related props (conception one), provided facts and stories emphasizing the importance of water for drinking (conception two), told a story that compared American families with Middle Eastern families in terms of weekly water usage (conception three), and promoted other forms of recreation using the parks' facilities and rented gear such as kayaks and motorboats (conception four). Therefore, the management-oriented data sources were found to contain evidence of each of the four conceptions of interpretation.

According to visitor recall, the interpretive pontoon boat tours at LFS State Park in fall 2008 were found most strongly to contain terms associated with conceptions one and two based on the Four Conception Model. Therefore, the author concludes that programs were most effective in conveying the goals associated with conceptions one and two.

Conception One: Connecting Visitors to Resources

The seminal goal of interpretation aims to provide visitors with inspiration and enjoyment of the site's specific resources. According to the Four Conception Model, terms and concepts associated with conception one include understanding, appreciation, knowledge, visualize, and emotional and intellectual experiences (Benton, 2009, p.13). Evidence of visitors connecting to resources includes the recollection of knowledge and emotion regarding the resource with sufficient vigor to establish a reasonable connection. The study found interpretive programs to be effective in connecting visitors emotionally and intellectually in three categories of visitor recall: content, techniques, and ranger style of presentation. Effectiveness was established by detecting a strong presence of visitor recall of programs for terms associated with conception one.

Visitor recall of program content during four stops around the perimeter of the lake included specific mention of the construction of the new dam, the joining of the two lakes, the change in water level, the variety of people sharing the valley throughout history, and the Native American village discovered between the two original lakes. The following are examples from the data category *program content*:

- I was most impressed with how they took the dam on the old Shepherd Spring Lake and they raised that dam so high that it's all one level now. That's amazing they can do that in that whole valley. It makes a big water reservoir. (2)
- We went by the dam and he told us the history of the whole dam behind that. And then we had to guess how much it cost, outrageous. I think he said it was like 180 million. (10)
- He gave us the history of the lake and where the dam and how it had moved a couple of times. I remember at one point a graveyard had to be dug up and several old homes were covered up by the water when they moved it. (21)

Evidence of the program connecting visitors to resources has been represented by visitor recall of program content. There are numerous statements related to nature and history associated with the park. More evidence of the program achieving conception one is represented by visitor recall of interpretive *techniques* indicating that visitors had increased opportunities for questions, hands-on involvement, and engagement with the interpreter and resources. Visitors recalled the use of props (n=36) especially during the third stop around the lake at the beaver lodge. The interpreter passed around the jawbone of a beaver, a stick that the beaver had chewed upon, animal pelts, two different rocks demonstrating weathering and erosion, and animal guidebooks. The following are examples of visitor recall of props:

- He passed around the otter. He didn't pass it around until we got over close to that other area. Right there where the beavers were at, he passed around a little twig, stick whatever you want to call it. And showed us that that's what the beaver chewed on and he also passed around a jaw of the beaver; that tooth in it. (5)
- We was using the seat cushions and basically he was showing the size of Lake Shepherd Springs and Lake Fort Smith before the dam and how much it increased the volume of Lake Fort Smith when they combined the two lakes. And he was kind of using the seat cushions, pushing them together to show the increase in size. And it was nice that he got the children involved. That is always good. (46)

Visitors also recalled a listening activity (n=23) on the lake when the interpreter turned off the motor and requested visitors be silent for 60 seconds. Two sample quotations appear below.

- And then I remember that he wanted us to be real quiet and just listen to the sounds of the night and of course you could hear the crickets, the katydids or whatever you want to call them. And at one point it sound like maybe an owl in the background. I don't know that it was but you could kind of get the feel that there was. (6)
- It was nice just to be quiet and listen. Think I heard an owl. You could obviously hear the crickets and katydids and I don't know if I heard any frogs or not but typical night sounds. Someone made the point was that you did not hear traffic. That was the thing that we forget in a modern society. (14)

One more source of evidence of connecting visitors to resources is represented by the category *style of presentation*. Below is one sample quotation from this data category.

- And so it's just interesting to me when they tell stories and make it more personal. He told the story of how that works and how you tell a story and make a connection and then it means more to somebody and they remember it better. And so we just enjoyed it 'cause it seemed like he did the same kind of thing. He brought things out that really made you connect with it, I guess. (8)

The visitor statements presented above are consistent with the definition of interpretation as a communication process that depends upon engaging the audience with interactive and multi-sensory techniques. The study found that visitors demonstrated connection with resources represented by the data categories: program content, techniques, and style of presentation. In the latter example, the respondent communicated overwhelming approval of the relaxed, informative, engaging, and interactive manner in which the interpreter facilitated the program for infants to retirees.

Conception Two: Conveying Agency Mission and Influencing Visitor Behavior

Evidence of visitors receiving conception two goals during the program include the recollection of messages related to the park mission and to influencing visitor behavior. According to the model, terms, and concepts associated with conception two include conserve, protect, local resources, rules, respect, and agency mission (Benton, 2009, p. 13). Among the topics recalled by visitors from the program was the term *eminent domain* that describes the taking of private property for the public good, water conservation as a primary goal, limits on other forms of recreation to protect the water resource, and the population of the city of Fort Smith being responsible for the enlargement of the lake to increase water capacity. The following are visitor responses identified with the goal of *conveying agency mission*:

- Probably water conservation and conservation in general was probably his main theme. Which I think is a lot more complicated than any of us would care to think about. (18)
- About houses being lost for widening the lake. I remember him telling us about no swimming, no skiing. (23)

- I think they were built in the '30s that were a works project. Of course I have been to those so that was something I was familiar with. Also I am glad he explained why they couldn't save those cabins the way they were constructed and the way the floor was constructed. It didn't work to try to remove them. Because that was something I was curious about, why they didn't relocate some of those buildings. (32)
- Eminent domain is a lot of it. Some of those are under water. When the government has to come in for what they feel is kind of one of those, "better for the whole than the individual," and take land and they use present market value for your land and they kind of grab your property and use it for federal or state purposes. (49)

Conception two has two parts to encompass the dual goals of informing the public of the mission of the park and encouraging positive behavior toward resources at the site. The following are visitor responses identified with the management goal of *influencing visitor behavior*:

- I understand why they had to do it. We love to swim along with boating so we had kind of thought maybe that was going to be another place that we could go swimming that would be near. (7)
- Like why we can't swim and stuff like that. And everybody wants to know why you can't swim and it makes perfect sense but it stinks. (10)
- I liked the way he got other people acting in the conversation. He interacted with everybody. He has a nice way of presenting things. He firmly believes in what he is doing, that's what I like about him. He believes everything he is telling you and he has strong convictions towards leaving no trace and making sure we keep the waters clean as possible. (11)
- He just told that water was one of the most important things in our lives and that we should try to keep it clean and the reason we weren't going to have water skis and jet boats and things like that was to preserve it the best we could as the way for a natural place to be. (22)
- I remember him talking about how the dam had to be expanded for the water, for the City of Fort Smith. I was surprised to learn that it was owned by the city, it wasn't owned by the state or anything. And that we were there on sufferance of the city. Don't swim in it. I was kind of surprised by that. (37)

The presence of resource management goals have been identified in the parks' grand opening celebration, state park system mission, staff interview, and visitor recall. Program transcripts also contain ample evidence of goals associated with the park mission and a desire to influence visitor behavior in the specific form of water conservation, during the boat tour. Conception two focuses on local resources and visitor behavior at the site's various facilities.

Conception Three: Encouraging Environmental Literacy

According to the model, terms, and concepts associated with conception three include appreciate, awareness, knowledge, natural resources, ecosystem, scarcity, change, human impact, and stewardship (Benton, 2009, p. 13). Effectiveness of interpretation

to encourage environmental awareness and behavior was examined in three categories of visitor recall: first stop—dam, main theme—water, and overall perspective. An example of a visitor response that was identified as a goal of environmental literacy is the following statement about population increase in general.

- He filled us in, information on how the dam was built. Why it was enlarged and everything because of the population increase and he questioned us on how much we thought the whole procedure costs. And he also questioned how long can we live without water because that was the whole purpose of why they thought, with the increase in population that they needed to increase the water supply. (5)

Another visitor identified the City of Fort Smith, Arkansas, as the source of increased demand for water and added, “population is growing” (26). The following are examples of visitor recall of environmental topics from the data category *main theme—water* (n=36).

- I think the thing that impressed me the most is he wants, how important water is and importance of preserving and taking care of our earth. The water is life. If we don't take care of it, there is just so much of it he said. We need, and everything he really talked about had to do with, everything depends on water. We do, the animals do, the trees do, the vegetation, our whole environment. (13)
- He had talked about how we had so much water and certain countries didn't have water. He did talk about how abundant our water is and how we are very lucky to have the water. (19)
- Well yes, to me the theme is the balance between development and the ecosystem. I do remember something that Jay said. One percent of the water in the world is potable water and that we were lucky to sit on such a big source. (44)
- I would say the main underlying thing he is trying to say that the resource that everybody takes for granted around here is water and most places don't have that. And that is kind of his main thing. This stuff just looks like water but this is really stuff we need to keep track of. (47)

Differentiating between an interpretive program conveying conservation goals versus environmental literacy goals has been accomplished using terms and concepts established in the Four Conception Model. The context within which these terms are used by the visitor during recall must be considered. Several data categories provide evidence of the use of terms by visitors that describe broad human impacts, attitudes, and potential behavior that may be assumed to be practiced away from the park and out in the community at large; hence being extended to an environmental scale.

Conception Four: Promoting Tourism

According to the model, terms and concepts associated with conception four include: visit, destination, travel, time, spending money, buy, economic benefit, local businesses, souvenir, and hospitality (Benton, 2009, p. 13). As previously mentioned, the location of tourism-related goals in the overall park plan were articulated by officials at the opening day dedication, presented in marketing the boat tour through various media, and indirectly during the interpretive program in references to recreation and travel patterns. The researcher assumed there was a link between the park plan and the interpretive

plan for the inaugural opening season. Based solely on visitor recall of programs, few of the tourism-related goals articulated in the other data sources by management were conveyed during the program and recalled by visitors. From the category *overall perspective*, one visitor mentioned the bait shop at the marina, implying the potential for spending money related to recreational fishing. Another visitor gave the following overview of the reopened park facilities.

- To tell you the truth I really like the way the park system had come in there and made it family-oriented. They've got the boat ramps, boats to ride to rent, they've got the bathroom facilities, they've got the large areas for people to come and stay, the picnic areas. Everything was beautiful, clean. There was a whole lot of things I liked and I like hearing about. (40)

There were two questions in the interview instrument more directly related to tourism than the general questions probing visitor recall. Visitors were asked for their reasons for attending the program and whether they felt that the price for the boat tour was reasonable. Respondents provided reasons including hosting guests in the area, attending the program with other couples from church, and several respondents came to the park just for the boat tour. Finally, visitors (n=9) were asked if they the boat tour was worth the money. Adults were charged \$8.50 and children were charged \$3.50. The majority of responses indicated visitors were satisfied with the price for the two-hour tour. Visitors also indicated that time more than money was the factor that limited their in-state travel to natural areas. Although this is not a direct measure of tourism ideas embedded in the program, this finding serves as an examination into one of the means by which interpretive programs may be used to gauge the potential impact of recreation-based tourism at the park.

Conclusion

This study began with the hypothesis that different sets of management goals would find their way into visitor recall of interpretive programs. Although scholars agree that there are distinct management goals for interpretation, little research has been conducted to understand whether visitors perceive, remember, and are likely to abide by natural and cultural resource management goals embedded in programs. The interpreter stands at the pivot point of society and the environment where numerous visitor demands and management goals intersect in places of natural, historical and cultural significance. The author assumed that a pervasive influence from several sources identified in the field of heritage interpretation would manifest itself in the integration of management messages in the pontoon boat interpretive program. These messages, if detected in visitor recall with sufficient vigor, would indicate that programs were effective in conveying management goals.

The Four Conceptions of Interpretation model was used as a filter to process five data sources in search of proving or disproving the hypothesis stated above. Four data sources most closely aligned with the agency provided evidence of all four conceptions in varying degrees. However, the question still remained; does visitor recall data from the LFS interpretive boat tour suggest that the program was crafted as multi-use message for local and regional visitors? The answer is yes and no. As an interpretive offering it contained the elements of conception one, the seminal goal of interpretation to connect visitors to resources. Visitor responses indicating intellectual and emotional connection

to resources was amply demonstrated. As a novel recreation offering it was used to convey conception two, to reinforce the state park mission and explain to visitors why certain forms of recreation behavior (activities) are prohibited or limited in order to prioritize drinking water quality. Evidence of conception two was also detected in relative abundance in visitor recall. With water being the primary resource, a strong conservation message lent itself to interpretive opportunities for conception three, the articulation of desirable environmental attitudes and behavior *away from the site* towards the community and the world beyond. Conception three was not recalled by visitors as strongly as conceptions one and two. Evidence of visitor recall from the boat tour was the least supportive of conception four, promoting tourism. While officials and park managers may have viewed the boat tour as vehicle to improve visitation leading to economic benefits to the park and neighboring region, the interpretive program itself remained largely devoid of travel, lodging, or spending messages. This finding was similar to the Four Conception Model research study conducted in 2007 at three national park sites. Interpreters at those sites did not believe it was part of their job to promote spending to visitors unless the visitor requested additional information regarding items in the museum, library, or gift shop (Benton, 2009).

This study examined the effectiveness of a boat tour to convey up to four different conceptions or bundles of management goals. Continued research into the trickle-down effect of management goals into interpretive programs will improve our understanding of interpretation as a communication tool and the various sources of management goals that may find their way to becoming manifested in program messages to visitors. A variety of forces influence the field of interpretation and how interpretation is used to further influence visitors' attitude and behavior change from in-park water conservation to environmental stewardship back home to economic stimulus from recreation-based tourism regionally. Furthermore, differences between national park and state park goals trickling down into interpretive programs deserves further investigation. The following visitor quotation illustrates the power of the skilled interpreter to successfully convey management goals with the result being continued use of the park.

- Well we were really sad when they first closed it down and they were going to build a new dam and we went, "Oh no! We don't want this dam because we've had so many good memories there." But once we saw what they had actually done with it, we got real excited and starting next summer we are going to have our family reunions there at the pavilion again. We are just going to have another family reunion and we're going to have it at Lake Fort Smith just like we did when Mom and Dad were living. So the tradition is going to pick up where it left off. And it's beautiful and we are really proud of it now. (51)

References

- Arkansas Department of Parks and Tourism. *The state parks of Arkansas: The natural state*. <http://www.arkansasstateparks.com/2009>.
- Arkansas Department of Parks and Tourism. *Arkansas State Parks Mission Statement*. <http://www.adptfoi.com/Parks/ARKANSAS%20STATE%20PARKS%20MISSION.htm>. accessed November 16, 2011).

- Beck, L. & Cable, T. (Eds.). (2002). *Interpretation for the 21st Century*. Champaign, IL: Sagamore.
- Benton, G. M. (2009). From principle to practice: Four conceptions of interpretation. *Journal of Interpretation Research*, 14, 1, 7-31.
- Brochu, L. & Merriman, T. (2006). *Certified interpretive guide: Training workbook* (2nd ed.). Fort Collins, CO: National Association for Interpretation.
- Brochu, L. & Merriman, T. (2002). *Personal interpretation: Connecting your audience to heritage resources*. Fort Collins, CO: InterpPress.
- Brown, W. (1971). *Islands of hope: Parks and recreation in environmental crisis*. Washington, D.C.: National Recreation and Park Association.
- Creswell, John. *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage. 1998.
- Ham, S. H. (1992). *Environmental interpretation: A practical guide for people with big ideas and small budgets*. Golden, CO: Fulcrum.
- Knapp, D. (2007). *Applied interpretation: Putting research into practice*. Fort Collins, CO: InterpPress.
- Knapp, D., & Volk, T. (1997). The identification of empirically derived goals for program development in environmental interpretation. *Journal of Environmental Education*, 28(3), 24-35. Retrieved September 4, 2006 from <http://web.ebscohost.com/ehost/detail?vid=6&hid=119&sid=44d95bbf-c700-4334-9c27-4d264435b9b2%40sessionmgr101>
- Knudson, D. M., Cable, T. T., & Beck, L. (2003). *Interpretation for the 21st Century* (2nd ed.). State College, PA: Venture.
- Larsen, D. (2002). *Meaningful interpretation*. Fort Washington, PA: Eastern National.
- Machlis, G. E. & Field, D. R. (1992). *On interpretation: Sociology for interpreters of natural and cultural history* (Rev. ed.). Corvallis: Oregon State University Press.
- Manfredo, M. J. (Ed.). (1992). *Influencing human behavior: Theory and application in recreation, tourism, and natural resources management*. Chicago: Sagamore.
- Manning, R. E. (1999). *Studies in outdoor recreation: Search and research for satisfaction*. Corvallis, OR: Oregon State University Press.
- Mackintosh, B. (1986). *Interpretation in the National Park Service: A historical perspective*. Washington, D.C.: National Park Service.
- McKercher, B. & Du Cros, H. (2002). *Cultural tourism: The partnership between tourism and cultural heritage management*. New York: The Haworth Hospitality Press.
- Merriman, T. & Brochu, L. (2005). *Management of interpretive sites: Developing sustainable operations through effective leadership*. Fort Collins, CO: InterpPress.
- Miles, M. & Huberman, A. M.. *Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: Sage. 1994.

- Mills, E. A. (1920). *Adventures of a nature guide*. Longs Peak, CO: Temporal Mechanical Press.
- Morgan, M. (2009). Interpretation and place attachment: Implications for cognitive map theory. *Journal of Interpretation Research*, 14, 1, 47-59.
- Morgan, J. M., Absher, J., Loudon, B., & Sutherland, D. (1996). The relative effectiveness of interpretive programs directed by youth and adult naturalists in a national forest. *Journal of Interpretive Research*, 2, 1, 13-26.
- National Association for Interpretation (2010). *Mission statement from homepage*. <http://www.interpnet.com>, accessed July 9, 2010).
- Pine, B. J., II & Gilmore, J. H. (1999). *The experience economy: Work is theatre & every business a stage*. Boston: Harvard Business School Press.
- QSR International (2006). *NVivo 7: Getting started*. Melbourne, Australia: QSR International.
- Randall, C. & Rollins, R. B. (2009). Visitor perceptions of the role of tour guides in natural areas. *Journal of Sustainable Tourism*, 17, 3, 357-374.
- Roggenbuck, J., Loomis, R., Dagastino, J. (1990). The learning benefits of leisure. *Journal of Leisure Research*, 22, 2, 112-124.
- Schneider, J. (2008). *A staff interview with Jay Schneider/Interviewer: Gregory M. Benton*. Lake Fort Smith State Park report, University of Arkansas, Fayetteville.
- Schroeder, H. W. (1996). Ecology of the Heart: Understanding how people experience natural environments. [In A.W. Ewert, Ed. *Natural Resource Management: The human dimension*]. Boulder, CO: Westview Press.
- Sharpe, G. W. (1976). *Interpreting the environment*. New York: John Wiley & Sons, Inc.
- Tilden, F. (1957). *Interpreting our heritage*. Chapel Hill, NC: University of North Carolina Press.
- Uzzell, D. L. (Ed.). (1989). *Heritage interpretation volume 1: The natural and built environment*. London: Belhaven Press.
- Ward, C. W. & Wilkinson, A. E. (2006). *Conducting meaningful interpretation: A field guide for success*. Golden, CO: Fulcrum.
- Yin, R. K. (2003). *Case study research: Design and methods*. 3rd ed. Thousand Oaks, CA: Sage.

Visitor Responses to Interpretation at Historic Kingsley Plantation

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Abstract

A visitor survey was conducted at Kingsley Plantation to establish a baseline on visitor response to interpretation pertaining to slavery, the facilities available, and to determine the demographics of the visitors. A response rate of 71 percent indicated that walking about the site was the most preferred activity, and life stories of the people of the plantation were of most interest. Approximately 70 percent of respondents experienced intellectual and emotional responses to the park and its resources, and 90 percent found relevance in the topics presented at the park. Differences in results were most commonly based on race or age. White/Caucasian and Black/African-American visitors came to the park in different group types, and had different goals and responses than other racial groups to the site and its resources. The study and results provide opportunities for managers of similar sites dealing with uncomfortable issues to apply what was learned here.

Keywords

resource interpretation, Kingsley Plantation, visitor responses, visitor expectations, slavery, controversial issues

Introduction

Site Description

Kingsley Plantation is a National Park Service (NPS) site within the Timucuan Ecological and Historic Preserve (TEHP). It is considered an urban park because it is within the boundaries of Jacksonville, Florida, yet the site is 15 miles from modern amenities. The site is on Fort George Island, the southernmost of the Sea Islands. The largely intact plantation site includes a barn, kitchen, plantation house, and the ruins of 25 slave cabins. The plantation faces the Fort George River, and across the water is undeveloped state park property. The area that once was fields is now a young forest along a two-mile dirt road, historically used to travel to the day's tasks in the fields. The road now serves as the access route to the site, so visitors essentially enter the historic plantation through the back door.

The focus of the interpretive programs at Kingsley Plantation is the daily lives of the enslaved men, women, and children that labored at the plantation and the Kingsley family—Zephaniah Kingsley, his Senegalese wife Anna, and their children—as they negotiated political and social change in Florida. Zephaniah Kingsley, former merchant and slave trader, came to Florida in 1803 to become a planter and eventually acquired 32,000 acres of land in northeast Florida in five plantation complexes. He purchased his wife (Anna) in 1806 in Cuba, and freed her in 1811 along with their three children. In 1814, the Kingsley family moved the site currently known as Kingsley Plantation.

The Fort George plantation was also home to approximately 70 enslaved men, women, and children during the period (1814–1839) Kingsley controlled the property. Zephaniah Kingsley encouraged the formation of slave families who lived in family units in the slave cabins (Schafer, 2003). He wanted slave families to remain together, according to his last will and testament (Kingsley, 1843). The task system was implemented to manage labor at the plantation, and the results were efficient and profitable. Sea Island cotton, a long staple tree variety, was the cash crop, and the plantation was self-sufficient with provisions and livestock.

Today the park site is an outdoor museum; the buildings themselves are exhibits, complemented by temporary signs and panels. Visitors can view the slave quarters, plantation house, kitchen house, barn, waterfront, and an interpretive garden where plantation-era crops are cultivated seasonally. The visitor contact station, bookstore, and restrooms are located in a 1920s country club building adjacent to the main house. The main house and kitchen house were closed for structural work prior to this study, although the kitchen house was partially reopened during the last few weeks of the survey period.

Purpose of the study

The purpose of this study was to provide the park with baseline information and meet objectives to identify the demographics and characteristics of the park visitors, what they expected to see or do at the park, activities in which they participated, their interest in what they learned, and whether they experienced intellectual or emotional connections with the park's resources. In addition, the study was used to explore the possible impact of racial identity on visitor preferences at Kingsley Plantation and to focus specifically on ways to present the history through a mixed-media approach. The process of discovering these needs incorporated the tenets of interpretation, education, museum

studies, history, audience needs, race and ethnicity studies, and leisure studies. The survey analysis provided knowledge of the audience that can be used to enhance their opportunity to connect to park stories.

Related Literature

Diversity

Research concerning interpreting slavery as a part of the African-American visitors' experience at historic sites is limited, and generally does not focus on visitors' attitudes towards the subject of slavery or perceptions of the site where slavery is discussed. Research that evaluates methodologies for interpreting slavery is also limited. As indicated below, research often addresses how sites treat slavery as a topic and are accounts of the process of creating new exhibits that include slavery as a theme or interpreting the archaeology of slavery.

Eichstedt and Small (2002) traveled to plantation museums throughout the South, identifying representational strategies for the plantation period, themes and theme variance in different states, and tourism's impacts on representations of slavery. The goal of the study was to highlight ways to include multiple perspectives through inclusive education using participant observation, interpretive methodology (such as tours, brochures, videos, and exhibits), and content analysis of various texts. They found two main windows through which to study the plantation museum industry: brochures and videos. These mediums focused more on the grandeur, romance, and architecture than did programs. In their view, what was compelling was that more sites had not gone further into addressing enslavement. Public sites were more likely than private ones to incorporate greater amounts of substantive information about slavery. Of note was that very few sites had existing slave quarters, and even fewer actually interpreted them as homes for the slaves (Eichstedt & Small, 2002).

Horton and Crew (1989) surveyed 104 museums selected from lists provided by the American Association of Museums and the African American Museums Association finding that museums are still bound by "traditional collection and exhibition practices." However, more than 75 percent responded their exhibits had been affected by recent scholarship in social history and African-American history, including regional and local studies. Incorporation of African-American history included displays during Black History Month, small permanent exhibits and major efforts to incorporate Black history.

Handler and Gable (1997) used ethnographic methods to study Colonial Williamsburg. Their research revealed that internal audiences, such as staff members, were as important as the museum's external audience. The museum's producers of messages claimed that each new program and materials came from needs of visitors or their desires. Yet presentation of slave history was a concern to some at Colonial Williamsburg on the administrative side who wondered if visitors were willing to be exposed to the harsh conditions of slavery, or if only more pleasant history would draw increased visitation.

In Philipp's study of perceptions of "welcomeness" among African-American and European-American adults in leisure areas, both groups shared a similar understanding of where African Americans currently would find acceptance during leisure time, suggesting that some recreation activities carry embedded racial "information" (Philipp, 2000). Gomez (2002) introduced the ethnicity and public recreation participation model to help guide efforts to "invite, include, and involve" different racial and ethnic groups in leisure.

To encourage visitation, parks can begin the practice and design of new education programs for diverse cultural groups (Roberts & Rodriguez, 1999). Programs and curriculum that are compatible with the lived experiences of the desired audience gives voice to multiple perspectives, a welcoming sign that opens a dialogue and can be paired with content or themes (Sheared, 1999).

Visitor Centered

Currently, the field of interpretation is staged to utilize a visitor-centered approach that provides paths to meaning and relevance for the visitor (Gross & Zimmerman, 2002). Thematic interpretation, as a method to encourage meaningful interpretation emphasized by William Lewis and Sam Ham to stress the importance of choosing, planning, and writing interpretation by theme demonstrated the value of thematic thinking. Richard Kohen and Kim Sikoryak applied a flow model to the process of thematically creating interpretive products. The NPS Interpretive Development Program (IDP) utilized previous interpretive theory and added the Process Model to help create effective thematic interpretation, and incorporated the cohesively developed idea to teach interpreters effective usage of thematic interpretation (Gross & Zimmerman, 2002; Ham, 1992; Larsen, 2003; Lewis, 1980).

Community approaches to exhibit planning are essential to discovering visitor needs. The study of visitor meanings at three national capital memorials by Goldman et al. (2001) demonstrated why the spiritual experience of visiting park sites is an important aspect of visitation. Study results revealed that visitors ascribe meanings at a variety of degrees and levels; they interacted with the memorial landscape to cultivate a sense of place.

In recent years, planning for museums has evolved to include not only historians, scientists, and educators, but also the visitors themselves. Museums, as informal and foundational learning places, have a role in the lifelong process of learning. Soren (2001) highly suggested a comprehensive visitor survey plan for museums to help make planning determinations and find out what “baggage” the museum may carry, as well as the expectations of visitors. Understanding visitor priorities is a necessary part of museum planning.

Methodology

Data were acquired through an on-site visitor survey containing 31 close-ended and open-ended questions. The instrument addressed: visitor expectations for the site; basic site knowledge including identity, themes and goals, story lines, and physical resources; visitor attitudes towards the park themes of slavery and freedom; visitor comfort while touring the site; reactions to the site; and statements of personal relevancy.

Close-ended questions focused on determining the visitor's awareness of the site in the context of its institutional framework and historical themes, including visitation patterns, preferred interpretive media, and what aspects of the experience were most important. Open-ended questions were designed so visitors could express views in their own words. They focused on affective responses to the site and its content. The demographic section included close-ended questions on gender, age, race/ethnicity, locality, and education level.

Surveys were conducted at various locations within Kingsley Plantation that provided access to visitors, such as entry and exit points, near the parking lot and at the visitor contact station. For each group or individual that was approached, the researcher

Demographic Variables		Frequency	Percent
Age	16-30	75	24.7
	31-45	65	21.4
	46-60	105	34.5
	61+	59	19.4
Sex	Male	117	38.5
	Female	187	61.5
Ethnicity/Hispanic	No	265	95.3
	Yes	14	4.7
Race	Black/African American	62	21.0
	White/Caucasian	218	73.9
	Other	15	5.1
Education	Less than College	126	41.6
	College	85	28.1
	More than College	92	30.4
Place of Residence	Regionally Local (within 100 miles)	125	41.8
	More than 100 Miles	174	58.2

Table 1. Visitor demographics (selected) for Kingsley Plantation in Jacksonville, Florida.

			Why Visit			
			Education	Read about Kingsley Plantation	Family and Friends	History and Heritage
Age	16-30	%	39.4%	6.1%	6.1%	48.5%
		Count	26	4	4	32
	31-45	%	8.3%	1.7%	11.7%	78.3%
		Count	5	1	7	47
	46-60	%	3.5%	14.1%	18.8%	63.5%
		Count	3	12	16	54
61-98	%	17.3%	5.8%	36.5%	40.4%	
	Count	9	3	19	21	
Race	Black/African American	%	33.9%	1.8%	14.3%	50.0%
		Count	19	1	8	28
	White/Caucasian	%	10.8%	9.7%	20.4%	59.1%
		Count	20	18	38	110
Place of residence	Regionally Local area	%	25.9%	2.8%	22.2%	49.1%
		Count	25	3	24	49
	More than 100 miles	%	8.6%	11.2%	14.5%	65.8%
		Count	13	16	22	88

Table 2. Visitors' top four reasons for visiting Kingsley Plantation compared by demographic variables.

asked for voluntary participation by all members age 16 or older. After selection, the respondents were given a clipboard, survey, and pencil. The surveyor went over the directions for the survey, pointing out that there were several sections and styles of questions, and a comfortable seating location was indicated. An activity for children was set up so that parents could complete the survey. The participant received a “thank you” postcard and bookmark of the site.

Results

Between June 15 and September 4, 2006, 313 surveys were completed by visitors to Kingsley Plantation. Table 1 provides selected basic demographic information collected. Respondents were 61.5 percent female and 38.5 percent male. The respondents’ mean age was 45 years. The majority of survey respondents (70 percent) were visiting the site for the first time, and for most (70 percent), Kingsley Plantation was their primary destination. The most common visiting group type was family (61.2 percent), followed by friends (23.1 percent), educational tours (10.6 percent), group tours (6.7 percent), and individuals (4.2 percent).

Open-ended responses indicated that appreciating history and heritage (58.6 percent) was the primary reason for visiting the site, being with family and friends (17.5 percent), education (16.4 percent), and having read about the park (7.5 percent) were the next common reasons (Table 2). Most visitors expected to see or do activities related to the historical landscape (36.4 percent), historical buildings (31.4 percent), daily life (12.8 percent), history or education (9.3 percent). Ten percent gave no prior expectations for their visit.

Visitor Preferences

Participants were provided a list of activities and asked to indicate all they had participated in on that day. The 18 activities listed included walking around the specific buildings, reading specific types of nonpersonal interpretive products, talking with or listening to a ranger or ranger program, and/or participating in a recreational activity such as picnicking, nature watching, fishing, photography, or sitting on a bench. Visitors’ top five favorite activities included walking around the plantation house (14 percent) and slave quarters (14 percent), followed by talking with a ranger (13 percent), walking along the waterfront (10 percent), and photography (10 percent). When examined by activity type, recreational activities (69 percent) were most preferred, followed by interpersonal activities (20 percent), such as ranger talks or informal visitor contacts, and self-guiding interpretive activities (11 percent). Thirty-one percent of the visitors stated that personal and nonpersonal services, traditionally the focus of interpretation at the site, were their favorite activities.

Visitors were most interested in discovering the stories of people who lived at the plantation (36.7 percent), seeing the buildings (32.3 percent), and viewing exhibits (28.3 percent). They were least interested in scheduled ranger programs (2.6 percent), even though over 20 percent reported attending a program. Factor analysis of visitor interpretive preferences indicated two primary interpretive audiences for Kingsley Plantation. The first audience preferred self-guided leisure experiences and the second preferred ranger services to enhance their experiences.

The historical buildings were the most highly rated facility and self-guided tours were the most highly rated service. Personal services were not as highly rated as

Demographic Variables and Categories			Topics relevant to you?		If relevant to you, which category best explains why?		
			No	Yes	It is American history	Explain Society Struggles	Personal Story Relevance
Age	16-30	%	22.9%	77.1%*	66.0%	30.0%	4.0%
		Count	16	54	33	15	2
	31-45	%	5.1%	94.9%*	70.6%	25.5%	3.9%
		Count	3	56	36	13	2
	46-60	%	6.2%	89.3%*	72.9%	25.5%	3.9%
		Count	6	91	60	22	5
	61+	%	10.7%	89.3%*	72.9%	25.0%	2.1%
	Count	6	50	35	12	1	
Race	Black/African American	%	14.8%	85.2%	51.2%	43.9%*	4.9%
		Count	8	46	21	18	2
	White/Caucasian	%	8.7%	91.3%	74.0%	22.1%*	3.9%
		Count	18	188	134	40	7
Education	Less than College	%	19.1%	80.9%*	67.8%	28.9%	3.3%
		Count	22	93	61	26	3
	College	%	6.3%	93.8%*	82.6%	15.5%	2.9%
		Count	5	75	57	10	2
	More than College	%	4.5%	95.5%*	60.3%	33.3%	6.4%
		Count	4	84	47	26	5

*Findings significant at $\alpha = .05$

Table 3. Relevance found in the topics presented at Kingsley Plantation and why the topics were relevant compared by demographic variables.

nonpersonal services, and when participated in and according to findings did not affect thoughts about the site’s history or resources as much as did the exhibits, self-guided materials, and landscape. Results indicated that there was a positive relationship between physically walking around the slave quarters and thinking or feeling differently about the site and its resources.

After exploring the site, 75 percent of visitors stated that they had learned something new, understood something better, or thought about something differently. Open-ended responses described visitor thoughts as being mostly about slave life reality (30 percent), daily life (20 percent), the Kingsley story (19 percent), or agriculture or labor (13 percent). When asked if they had felt an emotional response to the site, 69 percent

responded in the affirmative. They described their feelings as better able to envision the life of slaves (31 percent), empathy, sympathy, sadness (24 percent), admiration, respect, wonder (14 percent), and unity with the past (10 percent). Visitors (90 percent) found relevance in the topics presented and when provided with three options, responded that the relevance was found because “it is American history” (70 percent), “the stories help explain struggles in society today” (26 percent), and “aspects of stories related to my life experience” (4 percent) (Table 3).

Visitor Characteristics

Respondents self-identified their race and if applicable, ethnicity. The majority (74 percent) of respondents were White/Caucasian. Non-white respondents included 0.7 percent American Indian or Alaskan Native, 21 percent Black/African American, 0.3 percent Native Hawaiian or other Pacific Islander, 0.7 percent Asian, and 3 percent who claimed multiple race. Regardless of race, only 5 percent of respondents reported being of Hispanic or Latino ethnicity. Nearly 60 percent of respondents reported having at least a college degree. Visitors from outside the United States accounted for 4 percent of responses. Visitors from the Jacksonville area (considered regionally local within 100 miles) accounted for 42 percent of respondents. The significant relationships arose most often from race and age, and less from gender, education or distance traveled to the park.

Twenty-one percent of the survey sample was Black/African American, and approximately 87 percent of this category came on group or educational tours to the park. The remaining 13 percent came as individuals or with family or friends. Approximately half (52 percent) of the respondents age 16 to 30 were Black/African American. This large percentage is due to specific visits by university groups. Black/African Americans were more interested in programs, exhibits, and the story of the people who lived at the plantation, and were most likely to feel sadness while at the site. They were also least likely to find it easy to imagine the site as a working plantation. Black/African Americans were more likely to have more interaction with park staff (89 percent), rank the slave quarters as most important of the historic buildings, and visit for educational reasons. Once again, this may be due to the large percentage that was a part of the educational/university group.

For Black/African Americans (90 percent), Kingsley Plantation was a primary destination, but they had fewer repeat visits (.0 percent) than White/Caucasians (64 percent). White/Caucasians on average had more repeat visits, came more often with family and friends, were interested in the buildings at the site, walked more of the site, including the slave quarters, and were more likely to visit the site for recreation or natural beauty. Black/African Americans learned most about daily life on a plantation (40 percent versus 28 percent); White/Caucasians learned more about slavery (24 percent versus 18 percent). This may indicate how daily life on a plantation was perceived by the respondents.

By age, the greatest difference was between ages 16 to 30 and ages 31 and older. For ages 16 to 30 (88 percent), Kingsley Plantation was a primary destination. Only 15 percent of the White/Caucasian visitors were in this age group. The 16 to 30 year olds came mostly in educational or group tours, while older visitors primarily came with family. Younger visitors spent the most time in the park, and labeled the significance of the site as mostly for history or heritage. Education was an important reason for their visit. People ages 16 to 30 (61 percent) usually had not visited another plantation, found

less personal relevance at the site than older ages (77 percent versus 89 percent), and found it hardest to imagine the site as a working plantation. They were least likely to read exhibits (73 percent ages 16 to 30 versus 93 percent ages 31 or older), yet felt more sadness at the site than did older visitors. Ages 16 to 30 were nearly twice as likely to expect to see or do things related to the slave quarters (14 percent) and more than three times as likely to expect activities related to nineteenth century life (30 percent); ages 31 or older were twice as likely to expect activities related to the plantation house complex (26 percent versus 14 percent) or to have no expectations (12 percent versus 5 percent). Younger visitors often had their first plantation experience at Kingsley Plantation and were there for more formal reasons, such as education, with an organized group. Younger audiences also had experienced the history or legacy of slavery, race relations, and civil rights in a different way than older audiences. This takes into consideration a younger audience being born after the peak of the Civil Rights movement, which ended approximately in the mid-1970s.

Women and men had similar reactions to the site overall. Women were more likely to visit the site with friends than were men, and rated exhibits, self-guided tours, brochures, and accessibility as more important than did men. Women (75 percent) reported feeling an emotional response to the park and its resources more often than men (62 percent). Men wanted more information about renovations and buildings at the site, while women were more interested in the daily life stories of plantation residents and their related artifacts.

Visitors whose place of residence was more than 100 miles from the park had different interests than those regionally local (within 100 miles). Regionally local visitors had a greater frequency of previous visits than visitors from more than 100 miles away. Distance travelers tended to visit with family members, while local visitors often visited in groups of friends. Regionally local visitors also formed more of the educational and group tour visits. They also reported higher visit quality and spent more time in the park. Regionally local residents visited more for education and nature or scenery than did distance visitors, who came more for history or heritage. Overall, regionally local visitors used the site for a wider variety of activities, such as fishing and walking for pleasure, and repeated their visits at a much higher rate than non-locals.

Conclusion

This study provided a baseline of information on visitor demographics and characteristics, including visitor preferences for the opportunities to engage with the resource through personal and nonpersonal interpretive services and self-determined experiences. Some of the key components to be considered by the park to implement may be to provide opportunities for visitor participation to encourage them to spend more than one hour at the park and to be able to walk the site comfortably and with direction. This includes the need for open vantage points and directional tools so people can discover what there is to see and do, but in a way that does not impact the enjoyment of the scenery (natural and cultural). The activities should include the daily life stories of the people who lived at the plantation with a variety of ways to access those stories. Interpretive signage and self-guided interpretive trails would be appropriate to include the historical context of the park and provide opportunities for visitor connections to the resource.

Roving contacts and informal personal contact with park staff should be emphasized. Informal contacts allow visitors with self-guiding preferences to utilize interpretive staff as needed while also serving the visitors who prefer personal services.

In addition, Kingsley Plantation (and other parks of similar significance) may utilize the following:

1. New exhibits, audio tour, booklet, brochures, and curriculum have been scheduled for installation and implementation since this study and it is recommended that this study (with some modification) be replicated to evaluate those services and visitor responses to them.
2. Self-guiding materials and brochures were rated the two most important services. It is recommended that the self-guided aspects of the site be enhanced and frequently updated to reflect what the site has to offer. The audio tour could function as a bridge between self-guided media and personal services, conveying park messages in a way that allows the visitor to control the pace and flow of the experience.
3. Interpretive planning and design for the site should provide a variety of ways for visitors to easily see what there is to do in the historic landscape and how to access the park. The more activities respondents participated in, the more likely they were to think or feel differently about the site. Participation in more activities also increased relevance for respondents.
4. Informal, or roving, contacts were rated as an important staff service and allow for individual selection of interaction with personal interpretive services. Formal training for staff members in this area (including interpretive principles and issue sensitivity) and emphasis on roving in the daily schedule may be beneficial. All park staff members need the tools to be able to talk with park visitors about the history of the site that is inviting, stimulating, and relevant to a diverse visiting audience.
5. Connection with the local community may enhance visitor connection to the site through a sense of place, provide an opportunity for the community to envision the park as a part of the community resources, as well as provide a community volunteer support system for the park. This study indicated that regionally local residents came to the park more frequently and for different reasons than out-of-town visitors. Interest in park stories was different for locals, who were more interested in the Kingsley family story and preservation projects than non-locals.
6. White/Caucasians far surpassed all other racial groups in visitation at the park, although Black/African American visitors made up over 20 percent of the sample. Outreach into underserved audiences may be beneficial to increase visitation, understanding the significance, and connection to the resource. Recognition of the park significance as, perhaps, uncomfortable for some visitors is important in future planning for outreach and onsite services. As one respondent wrote in answer to her favorite activity while at the site, "If you are Black, this is not fun."
7. Continued efforts through research and community interaction are important to find out more about the specific audience/visitor to the site and the effectiveness of the services and interpretive products provided for them. Recognize there are many audience segments and, as indicated in this study, different expectations by race, age, and place of residence, as well as interpretive preferences.

References

- Eichstedt, J. L. & Small, S. (2002). *Representations of slavery: Race and ideology in southern plantation museums*. Washington, D.C.: Smithsonian Institution Press.
- Goldman, T. L., Chen, W. J., & Larsen, D. L. (2001, Summer). Clicking the icon: Exploring the meanings visitors attach to three national capital memorials. *Journal of Interpretation Research* [Electronic version], 6(1), 3-30.
- Gomez, E. (2002). The ethnicity and public recreation participation model [Electronic version]. *Leisure Sciences*, 24, 123-142.
- Gross, M. P. & Zimmerman, R. (2002). Park and museum interpretation: Helping visitors find meaning [Electronic version]. *Curator*, 45(4), 265-276.
- Ham, S. H. (1992). *Environmental interpretation: A practical guide for people with big ideas and small budgets*. Golden, CO: Fulcrum Publishing.
- Handler, R. & Gable, E. (1997). *The new history in an old museum: Creating the past at Colonial Williamsburg*. Durham, NC: Duke University Press.
- Horton, J. O. & Crew, S. R. (1989). Afro-Americans and museums: Towards a policy of inclusion. In W. Leon & R. Rosenweig (Eds.), *History museums in the United States: A critical assessment* (pp. 215-236). Chicago, IL: University of Illinois Press.
- Howard, T. C. (2001, June). Telling their side of the story: African American students' perceptions of culturally relevant teaching [Electronic version]. *Urban Review*, 33(2), 131-49.
- Hudson, J. B. & Hines-Hudson, B. M. (1996). Improving race relations in a public service agency: A model workshop series [Electronic version]. *Public Personnel Management*, 25, 1-12.
- Larsen, D. L. (Ed.). (2003). *Meaningful interpretation: How to connect hearts and minds to places, objects, and other resources*. Fort Washington, PA: Eastern National.
- Lewis, W. J. (1980). *Interpreting for park visitors*. Fort Washington, PA: Eastern National.
- Philipp, S. (2000). Race and the pursuit of happiness [Electronic version]. *Journal of Leisure Research*, 32(1), 121-124.
- Roberts, N. S. & Rodriguez, D. A. (1999, December). Multicultural issues in outdoor recreation. ERIC clearinghouse on rural education and small schools, Charleston, WV, accessed online November 17, 2003 at <http://www.ericfacility.net/ericdigests/ed438151.html>
- Sheared, V. (1999, Summer). Giving voice: Inclusion of African American students' polyrhythmic realities in adult basic education [Electronic version]. *New Directions for Adult and Continuing Education*, 82, 33-48.
- Soren, B. (2001). Meeting the needs of museum visitors. In G. D. Lord & B. Lord (Eds.), *The manual of museum planning* (pp. 55-68). New York, NY: Rowman & Littlefield Publishers, Inc.
- Strom, R. D. (1997, June). Learning needs of African-American, Caucasian, and Hispanic grandparents [Electronic version]. *Journal of Instructional Psychology*, 24, 119-34.

Why Do They Come? Understanding Attendance at Ranger- Led Programs in Great Smoky Mountains National Park

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Abstract

This study examines the perceptions of interpretive rangers and of the visiting public regarding explanations for attendance of ranger-led interpretive programs at Great Smoky Mountains National Park. Interpretive rangers' perceptions about the most important barriers to program attendance were corroborated by park visitors and included a lack of awareness of the programs, insufficient time or inconvenient timing, and a preference for a more solitary park experience. While interpreters suggested that interest in a specific topic or place, the offering of a tangible reward or souvenir, and chance/serendipity would be the most consistently important predictors of attendance, surveys with park visitors suggested that desires to be entertained, a better chance to actually see the park's unique attractions, and a good group experience were more consistent motivators. This paper discusses recommendations for increasing interpretive program attendance and compares the value of collecting information about motivations for program attendance directly from visitors versus relying on ranger perceptions.

Keywords

adaptive management, barriers, cultural heritage interpretation, environmental interpretation, Great Smoky Mountains National Park, information sources, motivations, ranger-led program attendance

Introduction

Live interpretive programs at national parks may serve multiple functions. They help to reveal to park visitors the deeper meanings associated with parks' cultural and natural resources (Tilden, 1957; Ham, 1992; Ward & Wilkinson, 2006). They can enhance visitors' experiences through better orientation to available sights, resources, and activities or through providing quality entertainment (Moscardo, 1999). They can effect emotional connections to the landscape, to the animal or plant life, and to the history being interpreted (Tilden, 1957). They can influence visitors' attitudes toward the park they're visiting, toward the National Park Service, or toward an ecosystem, a historical event, a social movement, or toward nature in general (e.g., Powell, Kellert, & Ham, 2009). They can be instrumental in the development of positive relationships with neighboring residents (Stern, 2010). Research and theory also suggest that interpretation can influence visitors' behavior both during their visits and after they have left the park, contributing to resource protection on-site and enhanced environmental stewardship in general (Ham, 2009).

None of these benefits can be achieved, however, if visitors don't attend the programs. Recent visitor surveys from multiple parks suggest that attendance is highly variable. In national parks that focus primarily on the preservation and interpretation of natural resources, an average of about 12 percent of visitors may attend a live interpretive program on a given visit. In national parks focused primarily on cultural resource preservation, not including living history sites, an average of roughly 30 percent of visitors typically attend (Park Studies Unit, 2010).

This study is primarily concerned with understanding why people choose to attend or not attend these programs at one national park, Great Smoky Mountains National Park (GRSM) in Tennessee and North Carolina, United States. It is also concerned with determining the most efficient way(s) to gain this understanding. What do park rangers already know? Is a general visitor survey necessary? How can other parks address this issue without having to reinvent the wheel or expend valuable resources?

This research addresses three critical research questions:

1. What do rangers think are the primary barriers and motivations associated with visitors' attendance at live interpretive programs at GRSM?
2. Why do visitors actually attend (or not attend) live interpretive programs at GRSM?
3. What can we learn from the answers to the first two questions that can contribute to increasing program attendance and future monitoring for the adaptive management of marketing interpretive programs?

Motivations and Barriers to Program Attendance in the Literature

The literature suggests that elements of convenience, pre-existing interests, novelty, values, fears, rewards, and marketing may each play a role in determining program attendance (Ham, 1992; Moscardo, 1999; Ward & Wilkinson, 2006). Prior empirical research suggests that visitors' motivations for attending live interpretive programs at

national parks include overall motivations for attending the park (Absher & Graefe, 1997); program characteristics associated with program length, location, and subject matter (Knudson & Vanderford, 1980); advertising efforts and information sources (Reyburn, 1974; Knudson & Vanderford, 1980; Ng, 1986); prior park visitation (Morse, 1977; Mullins, 1979); pro-environmental attitudes (Irving, 1986); demographic characteristics (age, gender, education – Irving, 1986); and a long list of more specific wants of visitors, including the desire to interact with others (Irving, 1986; Srisomyoung, 2000; Packer, 2004); to be entertained (Veverka, 1978; Srisomyoung, 2000; Galloway, 2002); to develop an appreciation for nature (Irving, 1986; Srisomyoung, 2000); to learn more about a subject or develop specific skills (Veverka, 1978; Irving, 1986; Packer, 2004; Srisomyoung, 2000; Galloway, 2002), to escape or be restored from everyday life (Srisomyoung, 2000; Galloway, 2002; Packer, 2004); to enhance personal fitness (Srisomyoung, 2000; Galloway, 2002); to ensure a safe visit (Veverka, 1978); to build self-esteem (Veverka, 1978; Packer, 2004); to increase chances of “seeing the real thing” (Veverka, 1978); to gain better orientation to place (Irving, 1986); and to seek new stimulating sensations (Galloway, 2002). The primary barriers noted in the literature included a lack of awareness of programs’ existence (Morse, 1977; Srisomyoung, 2000); inconvenient timing (Srisomyoung, 2000); lack of interest (Srisomyoung, 2000); poor location (Knudson & Vanderford, 1980; Srisomyoung, 2000); not having a companion (Srisomyoung, 2000); and personal doubts about the capability (physical or linguistic) to participate (Srisomyoung, 2000; Packer 2004). We were unable to locate more recent literature explicitly focused on understanding interpretive program attendance in parks.

Interpretation at Great Smoky Mountains National Park

With over nine million visitors per year, GRSM is the most visited national park in the United States (National Park Service Public Use Statistics Office, 2010). The 522,419-acre park, which straddles the border of North Carolina and Tennessee, charges no entry fee and serves not only as a destination for tourists from far and wide, but also as a common recreational area and transportation route for local residents. For management purposes, the park is divided into three districts geographically (Cades Cove, Oconaluftee, and Sugarlands), each home to a wide array of both cultural and natural resources upon which interpretive programs focus. Programs range from extended nature hikes focusing on the natural history of the park to cultural history tours and demonstrations. While many programs aim to serve a wide array of types of visitor groups, some programs specifically aim to attract family groups, in particular the park’s well-attended Junior Ranger programs. This study aimed to understand attendance across the broadest array of these programs possible.

Methods

We conducted three surveys: one with interpretive rangers at GRSM and two with visitors. The two visitor surveys included a “general visitor survey” and a survey of attendees of interpretive programs. The surveys were developed through a review of the literature, a focus group with 14 park staff and members of educational and interpretive partner organizations at GRSM in December 2007, and phone interviews with the park’s chief of resource education and each of the three district supervisory interpretive rangers. The focus groups and interviews explored participants’ perceptions of the primary motivations and barriers associated with attendance of interpretive programs

at GRSM. These perceptions, in conjunction with the literature, helped to form survey items for surveys with rangers and the public.

Ranger Surveys

In the fall of 2008, we conducted an online survey with interpretive rangers ($n = 13$) from each of the park's three districts. Nine of the 10 permanent interpretive ranger staff (one was on leave) and four of the park's nine seasonal interpretive rangers responded to the survey (the interpretive season had just ended, so some seasonal staff were no longer available). The survey elicited opinions and observations of interpretive rangers regarding attendance at park interpretive programs. The primary goal of the survey was to generate clear hypotheses regarding the barriers and motivations of different audiences to attend both cultural and environmental interpretation programs within GRSM.

General Visitor Survey

The first visitor survey, which we refer to as the "general visitor survey," contacted a representative sample of visitors to the park. It collected data on both the motivations and barriers associated with program attendance and explored attendance patterns and likely future attendance among the general population of visitors. It also asked about group characteristics, prior experiences, motivations for visiting the park in general, quality assessments of programs for those who had attended, and information sources for finding out about programs. For the general visitor survey, contacts with visitors were made from July 25, 2009, through August 2, 2009. The sampling locations were chosen to include visitors to the three park districts. Sampling times were equally distributed between mornings and evenings at each site. Visitor contacts lasted approximately one to two minutes. The research team contacted the first group that entered their vicinity after arriving on-site, inviting one visitor per group to accept an invitation to the survey. Upon completion of each contact, they were instructed to contact the next group and to target, whenever possible, a member of the opposite sex of their prior contact. We aimed to avoid school groups and other large tour groups, as program attendance was likely not dictated by the individual in these groups. Potential respondents were briefly told about the purpose of the survey and were invited to participate. If they agreed to participate, they were handed a postcard with instructions on how to access the survey online, along with a personal identification number (PIN). The PINs were used primarily to associate responses with data collected on-site. Respondents were asked to provide their zip code and their email address so that we could send them one reminder. We chose to provide only one reminder to enhance the likelihood of obtaining emails and to reduce the burden on visitors. Researchers recorded observable group characteristics (e.g., family, couple) to test for any patterns in non-response bias. We also distributed 200 mail-back surveys with envelopes and postage for those without internet access or who stated a preference for the paper survey.

Of the 2,064 visitors approached, a total of 1,830 visitors accepted either the postcard or one of the 200 mail-back paper surveys. Ten days after the distribution of postcards at the park, a reminder email was sent to those who provided an email address and had not yet completed the internet survey (57.7 percent of potential participants provided an email address, $n = 938$). We received 617 completed surveys. The combined response rate for the surveys (mail and internet) was 33.7 percent. The response rate for the mail survey (42.0 percent) was significantly higher than the response rate for the

Motivations	Cultural heritage programs		Environmental programs	
	Mean scores ¹	% selecting as top 5	Mean scores ¹	% selecting as top 5
Interest in specific topic or place	4.31	77%	4.54	85%
Tangible reward offered (Junior Ranger badge or other take-home item)	4.00	46%	4.23	46%
Serendipity (just caught the person at the right time and place with nothing else to do)	4.00	69%	4.08	38%
Desire to learn	3.92	77%	3.92	69%
Convenient location	4.00	38%	3.92	31%
Direct invitation from ranger	3.77	46%	3.77	31%
Entertainment	3.46	38%	3.69	23%
Values of visitor(s) are oriented toward preservation (in line with values of Park Service)	3.23	15%	3.69	38%
Heard positive things from others about the program	3.46	15%	3.46	8%
Positive social experience	3.31	8%	2.92	8%
Dragged along by friends or family	3.15	8%	3.00	8%
Thought it would be good for others in group	2.85	0%	2.92	0%
Desire to tell friends about it	2.54	0%	2.46	8%
Desire to be able to teach others	2.23	0%	2.46	0%
Nice way to get exercise	2.08	0%	2.69	0%

¹ Scale: 1 = very rarely; 3 = somewhat common; 5 = extremely common.

Table 1. Interpretive rangers' perceptions of visitors' motivations to attend park interpretive programs (n= 13).

Attendance Barriers	Cultural heritage programs		Environmental programs	
	Mean scores ²	% selecting as top 5	Mean scores ¹	% selecting as top 5
Don't know about it	4.25	67%	4.42	67%
Inconvenient time	3.83	50%	4.00	58%
Inconvenient location	3.50	50%	3.83	58%
Preference for more solitary/self-guided visit	3.42	42%	3.67	50%
Duration (too long)	3.33	33%	3.42	33%
Already done it before	3.00	25%	2.75	17%
Disinterested in learning	3.00	33%	3.17	17%
Worried about others in group (kids, seniors)	3.00	25%	2.75	17%
Worried about exertion	2.67	8%	3.17	33%
Assumptions about costs or reservations	2.50	17%	2.67	17%
Values in conflict with ideals of the Park Service	2.58	8%	2.50	0%
Doubtful about the quality of the program	2.50	17%	2.55	17%
Discouraged by other group members (not cool)	2.50	17%	2.83	8%
Don't trust park rangers	2.00	0%	1.92	0%

¹ One ranger did not respond to this question.

² Scale: 1 = not important; 3 = somewhat important; 5 = very important

Table 2. Interpretive rangers' perceptions of visitors' barriers to attend park interpretive programs (n= 12).¹

internet version (32.9 percent; Pearson $\chi^2=6.609$, $p=0.010$). The internet response can be considered high for internet surveys, particularly those with only one reminder email sent to only a fraction of those originally invited (Sheehan, 2001).

We conducted non-response analyses to determine if different types of visitors may have responded at different rates. Visitors were categorized as “locals” if they were estimated to have traveled 60 minutes or less to any park entrance, as calculated using the Network Analyst tool in ESRI ArcMap®. Locals ($n = 200$, 33.0 percent) did not have a significantly different response rate than non-locals ($n = 1610$, 32.3 percent). Response rates of those visiting the park as couples were significantly higher than other group types (35.2 percent vs. 27.9 percent). We were unable to conduct reliable non-response tests of different racial or ethnic groups due to an inability to make determinations about race in the field.

Program Attendees Survey

The second survey targeted program attendees. We conducted this survey to ensure a large enough sample of program attendees to be able to make statistical inferences. We also aimed to obtain motivation information prior to program attendance to be able to compare to recalled motivations obtained in the general visitor survey. From August 3, 2009, through August 9, 2009, interpretive rangers handed out brief visitor surveys (one side of one page) to one adult member of each group attending their interpretive programs immediately prior to (up to five minutes before) the start of the program. School groups were excluded. Rangers were instructed to read a script to solicit the participation of one adult member of each group in attendance prior to the start of the program. They passed out the one-sided survey on card stock, along with a pencil to all attendees who volunteered to take the survey. Completed surveys were collected prior to the programs' start. A total of 276 surveys were completed by visitors at 46 different interpretive programs. Based on rangers' reports of non-response frequencies at each program, the overall response rate for these surveys was 93.3 percent.

Results

Ranger Perceptions

We asked interpretive rangers to rate their perceptions of the importance of a range of visitors' potential motivations for attending interpretive programs in the park (Table 1). The question used a five-point scale with three anchor points: 1 = very rarely; 3 = somewhat common; 5 = extremely common. We asked about cultural and environmental programs separately. For each type of program, rangers reported the top motivating factors to be: *interest in a specific topic or place*, *the promise of a tangible reward*, and *serendipity (or just happening to catch visitors in the right place at the right time)*. Few differences were reported between the two program types.

We also asked interpretive rangers to rate the importance of a list of potential barriers to visitors' attendance of interpretive programs on a five-point scale (Table 2; 1 = not important; 3 = somewhat important; 5 = very important). Rangers reported the most important barriers to program attendance to be a *lack of awareness of programs*, *inconvenient locations or times*, and *visitor preference for a more solitary experience*.

Rangers were also asked to identify their perceptions of up to five of the most consistently important barriers and motivations for different types of visitors (Tables

Information Pathways	Individuals	Families	Locals	Non-locals	Overall mean	Rank
Personal invitation from park ranger at campground, visitor center, or while roving	2.83	2.92	2.50	2.75	2.75	1
Personal invitation from ranger at program meeting place just prior to program	2.67	2.67	2.25	2.67	2.57	2
Info boards at visitor centers	2.33	2.42	1.82	2.58	2.28	3
<i>Smokies Guide</i> (Park newspaper)	2.25	2.33	1.82	2.00	2.10	4
Bulletin boards	2.24	2.33	1.64	2.17	2.10	5
Word-of-mouth	1.92	2.17	2.18	2.00	2.06	6
Park website	1.92	2.08	2.00	2.25	2.06	7
Newspaper (press releases)	2.17	1.92	2.45	1.58	2.03	8

Scale: low(1), medium(2), and high(3) effectiveness

Table 3. Interpretive rangers' perceptions of the effectiveness of different sources of information in influencing attendance at interpretive programs within the park (n= 13).

1 and 2). Rangers on average felt that the most frequently important motivations for family groups and for all non-local visitors to attend their programs were entertainment, serendipity, and tangible rewards. Meanwhile, most rangers felt people coming to the park alone and visitors from the local area would be motivated by interest in a specific topic or place, a direct invitation from a ranger, or a desire to learn. A lack of knowledge of programs and inconvenient time and location were among rangers' top-selected barriers for individuals, families, locals, and non-locals. Rangers commonly felt that individuals would more commonly prefer a more solitary or self-guided visit, that families might be worried about the appropriateness of programs for everyone in their group, and that locals may not be interested because they may have already participated in a program before.

We also asked interpretive rangers to indicate their perceptions of the level of effectiveness of a number of information sources in influencing visitor participation in park interpretive programs (Table 3). A three-point scale was employed, representing low (1), medium (2), and high (3) effectiveness. Rangers rated personal invitations as the most effective means of generating attendance at interpretive programs. Newspapers were also rated as particularly important for locals. Rangers felt the least effective pathways for local residents included bulletin boards, the park bulletin, and information boards at visitor centers.

Visitor sample characteristics

General Visitor Survey: Three-hundred and fifty-two of the respondents to the general visitor survey were female; 251 were male (14 did not specify). Most were White (94.7 percent). Group sizes ranged from one to 70, with a median group size of four. Most visited with family (63.7 percent); 27.6 percent visited as a couple; 12.3 percent visited with friends; 1.3 percent visited the park alone; and 0.8 percent visited with a tour group.

Length of stay	Respondents staying for designated time period	Percent who attended a live interpretive program
Part of one day only	31.8%	14.0%
One full day only	17.2%	17.9%
Separate visits on 2 days	18.6%	9.1%
Separate visits on 3 days	14.3%	14.8%
Separate visits on 4 days	5.2%	47.8%
Separate visits on 5 or more days	5.0%	33.3%
Stayed in park one night	1.0%	20.0%
Stayed in park 2 nights	2.1%	70.0%
Stayed in park 3 nights	1.6%	66.7%
Stayed in park 4 nights	0.3%	100.0%
Stayed in park 5 nights	2.4%	41.7%

Table 4. Durations of stay for general visitor survey respondents and program attendance (n =617).

Reasons for attending interpretive program(s)	General visitor survey (n=79)	On-site survey (n = 276)
I thought it would be entertaining	51.9%	59.4%
I thought attending would provide a better chance to actually see the park's unique attractions (wildlife, plants, etc.)	43.0%	56.5%
I thought it would be good for others in my group	41.8%	50.0%
I was interested in learning more about a specific topic or place	50.6%	40.3%
I thought it would be a safe way to experience the park	24.1%	22.7%
Chance: I just happened upon it	38.0%	20.5%
A park ranger invited me personally	17.7%	13.3%
I thought it would help me develop new skills	8.9%	13.3%
I heard from others it was a good program	7.6%	10.1%
I thought it would provide inspiration*	26.6%	N/A
Someone else in my group made the decision for us to attend*	1.3%	N/A
Other write-in (to teach children was most common write-in)	3.8%	7.2%

* The two items marked with an asterisk were not included in the on-site survey due to length constraints.

Table 5. Percent of respondents selecting each as one of the main reasons for attending a live interpretive program within Great Smoky Mountains National Park.

Reasons for attending interpretive program(s)	Mixed focus (n=61)	Cultural focus (n=93)	Natural focus (n=122)	Tangible reward (n=75)
I thought it would be entertaining	65.6%	63.4%	54.1%	58.7%
I thought attending would provide a better chance to actually see the park's unique attractions (wildlife, plants, etc.)	73.8%	47.3%	55.7%	42.7%
I thought it would be good for others in my group	39.3%	53.8%	53.3%	66.7%
I was interested in learning more about a specific topic or place	39.3%	41.9%	40.2%	36.0%
I thought it would be a safe way to experience the park	24.6%	20.4%	23.8%	17.3%
Chance: I just happened upon it	9.8%	26.9%	21.3%	24.0%
I thought it would help me develop new skills	6.6%	12.9%	17.2%	14.7%
A park ranger invited me personally	9.8%	8.6%	18.9%	14.7%
I heard from others it was a good program	9.8%	8.6%	11.5%	9.3%

Table 6. Percent of respondents of on-site survey selecting each reason as one of the main reasons they attended the program (n = 276).

Reason (1 to 5 scale)	Mean	SD
To enjoy the scenery	4.72	0.54
To spend quality time with friends or family	4.52	0.71
To escape from the everyday	4.34	0.86
To be immersed in nature	4.19	0.90
Interest in learning about nature	3.90	0.92
For inspiration	3.81	1.10
Interest in learning about cultural heritage	3.74	0.97
To get some exercise	3.74	1.03
To have some quiet time to reflect on my life	3.47	1.13
To have a challenging outdoor experience	3.03	1.14
To teach others	3.00	1.20
To build my skills in the outdoors	2.89	1.09
Someone else in my group made the decision to come to the park	2.01	1.22

Table 7. General visitor survey respondents' motivations for visiting Great Smoky Mountains National Park (n= 617).

Barrier to attendance	Selected as a MAIN reason (n = 287)
We/I just didn't have the time	35.5%
I prefer to explore the park on my own	30.3%
The timing was inconvenient	16.0%
I didn't know when they were offered	8.0%
I didn't know where they were offered	0.3%
I wasn't sure the kids in my group would like it	1.7%
I wanted to spend more time outside the park	0.7%
I wasn't sure others in my group would like it	1.7%
I wasn't interested in the specific topic(s)	0.3%
The location was inconvenient	0.3%
I didn't want to pay a fee*	0.3%
I thought I had to make a reservation	0.0%
I was worried about it being too difficult	0.3%
I didn't have anyone to go with	0.3%
I was doubtful of the quality of the program(s)	0.3%
The programs are too long	0.0%

* The survey noted the following at the bottom of the battery of items: "NOTE: Almost all ranger-led programs are actually free of charge."

Table 8. Reasons for not attending a live interpretive program for general visitor survey respondents who expressed awareness of programs.

Nearly half were visiting GRSM for only part of one day or one full day; the other half visited the park for more than one day (Table 4). Our results roughly mirror those found in the most recent GRSM general visitor survey, which found about 78 percent of visitor groups to be made up of families; 9 percent friends; and an additional 8 percent made up of family and friends (Papadogiannaki et al., 2009). The earlier visitor survey also found 97 percent of visitors were White. These figures suggest that we achieved close to a representative sample of park visitors. Sixty-seven (10.9 percent) of the general visitor survey respondents were characterized as “local” based on their zip codes lying within one-hour’s drive from any park entrance.

On-site Program Attendee Survey: Of the 276 respondents surveyed on-site just prior to interpretive programs, 117 were male, 156 were female, and three did not specify their gender. Most respondents (90.6 percent) were White. Only 1.1 percent reported that they were alone on their visit to the park; 5.1 percent visited with friends; 2.2 percent were with tour groups; 10.1 percent visited as a couple; and 85.1 percent visited with family. More than half (52.6 percent) had been to an interpretive program prior to this visit; 37.6 percent had been to more than one such program. Twenty-six respondents (9.5 percent) lived within a one-hour’s drive of a park entrance and were thus categorized as “local.”

Awareness and Attendance

While a recent visitor survey suggested that only about 9 percent of visitors attend interpretive programs on a given visit to GRSM during the summer (Papadogiannaki & Hollenhorst, 2008), our results suggest that more than a quarter of visitors have attended at least one ranger-led program at GRSM on either this or a prior visit. Sixty-three percent of the general visitor survey respondents were aware that the park offered ranger-led programs, and 42.0 percent of those who were aware that these programs existed reported having attended at least one on either this or a previous visit. This accounts for 26.4 percent of the entire sample. Of those who were aware of programs, 21.1 percent attended one on this particular visit, reflecting 13.3 percent of the entire sample.

A greater percentage of local respondents (73.1 percent) were aware of ranger-led programs than non-locals (61.6 percent). Over one-third of local respondents (35.8 percent) had attended a ranger-led program either on this trip or before, compared to 25.7 percent of non-local respondents. Nearly half (49.0 percent) of local respondents who were aware of the existence of ranger-led programs had attended one compared to 41.8 percent of non-local respondents who were aware. Forty-two percent indicated they would be “extremely likely” to attend a future program if they were to return to the park.

We also examined the relationship between program attendance and the duration of visits to the park (see Table 4). More than half of the survey respondents (54.3 percent) who stayed overnight in the park for one night or more (25 out of 46 respondents) attended an interpretive program; 31.7 percent who visited on four separate days or more attended a program (20 out of 63 respondents). Meanwhile, only 8.2 percent of those who visited the park on three or fewer separate days attended a program (42 out of 515).

The most frequent attendees at live interpretive programs were family groups; 16 percent of general visitor survey respondents who visited the park with their families reported attending a live interpretive program compared to 11 percent of those who visited with friends and 8 percent of those who visited as a couple. Only one out of the eight respondents who visited alone reported attending a program, and none of the five respondents who visited with a tour group reported program attendance.

The on-site survey of program attendees reflected a similar trend. Most of the on-site sample (85.1 percent) was made up of family groups; 10.1 percent visited as a couple; 5.1 percent were with friends; 2.2 percent were with tour groups; and 1.1 percent visited the park alone. No specific trends were observed in the types of programs attended by specific groups except that, not surprisingly, families were more likely to participate in Junior Ranger programs (Pearson χ^2 statistic: 6.145; $p = 0.013$). Length of stay was not recorded in the on-site program attendee surveys.

We coded the programs attended by respondents to the on-site survey in terms of their primary focus: 47.8 percent attended primarily nature-focused programs; 34.5 percent attended primarily culturally-based programs, and 18.0 percent attended programs that balanced both. Attendees at Junior Ranger programs made up 23.7 percent of the sample.

Motivations for Attendance

We gauged respondents' motivations for attending park programs in multiple ways. First, we asked all respondents (to either survey) who attended a program to select their main reasons for attending from a list comprised of the items in Table 5. The most common motivations included entertainment, a chance to see attractions that they might otherwise miss, accommodating other group members, and interest in learning about a specific topic or place.

We examined the data to determine whether different types of visitors professed different motivations for program attendance. Differences were observed for family groups and visitors from the local area. Family groups more commonly noted that the program would be good for their group (Pearson χ^2 statistic = 6.3; $p = 0.012$) and less commonly noted chance (Pearson χ^2 statistic = 4.5; $p = 0.035$) as primary motivations for program attendance. Local visitors also less commonly noted chance (Pearson χ^2 statistic = 4.2; $p = 0.041$) as a primary motivation and more commonly noted the opportunity to develop new skills (Pearson χ^2 statistic = 5.1; $p = 0.024$).

Table 6 shows the frequency with which each motivation was selected as "main reason for attending" different types of programs. Programs that combined cultural heritage and environmental interpretation, such as the popular Hayride around Cades Cove, were more commonly associated with beliefs about revelation of the park's unique attractions and less commonly attended by mere chance. Programs offering tangible rewards, primarily Junior Ranger programs, were particularly well attended by families with concerns for the enjoyment of their entire group.

We also hypothesized, based on prior research (Absher & Graefe, 1997), that respondents' motivations for visiting the national park might also influence their motivations to attend interpretive programs. We asked respondents to the general visitor survey to indicate the importance of each item listed in Table 7 in making their decision to visit Great Smoky Mountains National Park on a scale of one to five with three anchor points (1 = not important; 3 = somewhat important; 5 = very important). We then performed independent samples t-tests to determine whether any of these motivations were linked to program attendance. We found no statistically significant relationships between any of these motivations and program attendance. An additional 17 percent of respondents wrote in "to see wildlife" as an important motivation for visiting the park. These respondents showed no significant trend in program attendance either.

Barriers to Attendance

Information source	General visitor survey (n = 79)	On-site survey (n = 276)	Total (n = 355)
The <i>Smokies Guide</i> (the Park newspaper)	35.4%	39.6%	38.9%
Information board at the visitor center	27.8%	20.9%	22.5%
I just happened to see one going on	51.8%	12.2%	21.1%
The Park's official website	16.5%	18.3%	18.0%
A ranger invited me while I was in the park	27.8%	14.0%	17.2%
Other visitors told me about it	11.4%	7.9%	8.7%
A bulletin board somewhere else in the park	11.4%	7.6%	8.5%
From hotel or information center outside the park	2.5%	1.4%	1.7%
Other website	1.3%	1.4%	1.4%
Television	2.5%	0.0%	0.6%
The local (non-Park) newspaper	1.3%	0.4%	0.6%
Radio	0.0%	0.0%	0.0%
Other write-in (book, family who lives here, have seen programs in other parks, participated as a child, volunteer in campground)	6.4%	11.2%	11.0%

Table 9. Information sources for those who attended programs

Respondent	Top motivations	Main barriers	Information sources
Interpreters	<ol style="list-style-type: none"> 1. Interest in topic 2. Tangible reward 3. Serendipity 	<ol style="list-style-type: none"> 1. Ignorance 2. Inconvenient time or location 3. Preference for Solitude 	<ol style="list-style-type: none"> 1. Personal Invitation 2. Information boards 3. <i>Smokies Guide</i>/ Bulletin Boards
Visitors	<ol style="list-style-type: none"> 1. Entertainment 2. See unique attractions/ interest in learning about topic 3. Good for others in my group 	<ol style="list-style-type: none"> 1. Ignorance 2. Lack of time 3. Preference for solitude 	<ol style="list-style-type: none"> 1. <i>Smokies Guide</i> 2. Information boards 3. Serendipity 4. Website

Table 10. Summary comparisons of top motivations, barriers, and information sources cited by park interpreters and park visitors.

The most likely barrier to attendance of live interpretive programs in the park is a lack of awareness; 37 percent of respondents to the general visitor survey reported that they were unaware that these programs were offered. We asked those who were aware but did not attend a program on this visit to select from a list of reasons why they did not attend. We then asked them to select one reason that represented their main reason for not attending (Table 8). We also provided an open-ended write-in box. The most commonly reported reasons included timing issues (either the respondent didn't feel they had enough time or the timing was inconvenient), a preference to explore the park on their own, and a lack of awareness of when or where the programs were being held. Write-in responses included that respondents came to the park with a specific purpose other than interpretation (e.g., riding bikes, celebrating a family event), that respondents didn't know the programs existed until too late in their visits, and that respondents already knew enough about the likely topics of ranger-led programs and therefore didn't need to attend them. The last reason was reported by two local respondents.

Local respondents less commonly reported inconvenient timing as a barrier than other respondents (Pearson $\chi^2=4.55$; $p = 0.033$). Families were more concerned about whether the program would be good for kids (Pearson $\chi^2=9.61$; $p = 0.002$). No other statistically significant trends were observed regarding barriers to attendance for different types of visitor groups.

Information Sources

All respondents (to both surveys) who attended a program were asked to select from a list how they learned about it (Table 9). The most common information sources were: The *Smokies Guide* (the park newspaper available at the visitor centers), information boards at the visitor centers, serendipity (just happened to see one going on), the park's official website, and personal invitations from rangers. No significant differences existed in information sources between local visitors and non-locals. Thirteen out of 14 program attendees who visited for only part of one day learned about the program they attended by chance. Program attendees who visited the park on three or fewer separate days were significantly more likely to find out about the program by chance than those staying overnight or visiting for four or more days (Pearson χ^2 statistic = 7.9; $p = 0.005$).

Comparing Ranger Perceptions to Visitor Responses

Table 10 summarizes the most common motivations, barriers, and information sources reported by park rangers and visitors. Park rangers predicted that interest in a specific topic or place, the offering of a tangible reward or souvenir, and being in the right place at the right time would be the strongest drivers of program attendance. The visitor surveys suggest a wider range of important motivators for program attendance, including entertainment, the chance to see something they might have otherwise missed, and accommodating others in their group, in addition to those most commonly suggested by interpretive rangers. The surveys also revealed that local visitors to the park might be more commonly interested in skills development programs than non-local visitors.

Rangers predicted the most common barriers to attending live programs would include a lack of awareness, inconvenient timing and location, and preferences for a more solitary experience. These perceptions are consistent with visitor responses.

Interpretive rangers thought the most effective information sources about interpretive programs would be personal invitations from rangers, followed by

information boards at visitor centers. Program attendees indicated that the *Smokies Guide* was by far the most common information source, followed by information boards at a visitor center, chance discovery, and the park's official website. Interpretive rangers, meanwhile, ranked the website last in effectiveness. While rangers predicted information boards at visitor centers would be less useful for local visitors, this was not supported by the data. Local visitors were just as likely to use this source as non-locals.

Discussion

The results provide some insights into potential techniques for motivating interpretive program attendance. They also provide lessons regarding the assumptions of interpretive rangers and different techniques for soliciting data from visitors that could contribute to ongoing adaptive management of interpretive program marketing.

Understanding and Motivating Program Attendance

The results suggest that more visitors are interested in programs than actually attend. While 26.4 percent of the general visitor survey respondents had attended a program at the time of the surveys, 42 percent indicated they would be "extremely likely" to attend a future program if they were to return to the park. Moreover, only a few of the most commonly noted barriers to program attendance reflect a general lack of interest or likely persistent barrier: (1) a lack of time; (2) a preference for solitary exploration of the park; and (3) a desire to spend more time outside the park. These barriers account for about two-thirds of those who didn't attend a program on this visit. For other listed barriers, one could reasonably assume that better marketing or timing could have stimulated attendance. As such, we might assume that up to one-third of those not attending interpretive programs might actually have been interested in doing so given better marketing, locations, or timing of programs.

While increasing attendance at ranger-led programs might not be appropriate in all cases (questions of resource impact and capacity should be considered first), a number of lessons emerged that could help the park increase program attendance. The most common motivations for program attendance included entertainment, the chance to see things visitors might otherwise miss, and opportunities to provide a good experience for the whole group (particularly for families). While visitors' interests vary tremendously with regard to subject matter, interests in entertainment and seeing something special appear to be more universal. This supports theories posited by Tilden, Ham, and others regarding the importance of revelation and entertainment (Tilden, 1957; Ham, 1992). The park could take advantage of the belief that ranger-led programs might expose the visitor to something he or she might otherwise not get to see and build off interests in scenery enjoyment, social experiences (particular for family groups), and wildlife by using words and phrases like "reveal," "glimpse," "behind the scenes," "secrets," "best views," "chance to see wildlife," "fun," "great for kids," and similar themes.

A number of information sources for marketing programs appear to be working well. The *Smokies Guide*, in particular, stands out as a particularly effective tool amongst traditional information sources. As predicted by interpretive rangers, chance (just being in the right place at the right time) also plays a tremendous role in program attendance. Thus, starting programs in conspicuous places and inviting visitors on-site is likely to remain a highly effective strategy. The park might also consider permanent signs with recognizable icons that could contain updatable program scheduling information at

some of the higher traffic starting points. This could better address those visitors who don't specifically seek out the experiences. The park website also serves as an important source of information. Papadogiannaki and others (2009) found that 89 percent of visitors sought some information prior to visiting GRSM. Forty-one percent used maps or brochures and 30 percent used the park website. The tendency to use maps/brochures and websites is not unique to GRSM. A review of recent national park visitor surveys conducted between 2003 and 2010 reveals significant percentages of visitors to other parks also report using park websites (29 percent on average) and maps/brochures (32 percent on average) to gather information prior to visitation. When asked the preferred source of information for future visits, the park's website ranked first in preference at 31 of 32 parks (Park Studies Unit, 2010).

An examination of visitation patterns suggests that those in the park for the shortest periods of time are least likely to attend a program. Explicitly targeting these visitors with specific messaging could increase program attendance. For example, "If you only have a few hours (or one day) in the park, don't miss..." These particular audiences may be less likely to use the *Smokies Guide* or other formal sources for learning about programs. Those who attended programs most commonly learned about them by chance. GRSM might consider targeting programs for these groups at the most common stopping points for these visitors. This finding likely applies to other parks as well, especially those that, like GRSM, have no official staffed entrance at which information can be distributed. No other major differences were noted in these visitors' motivations, so targeting entertainment, the chance to see things they might otherwise miss, and family-friendliness in program marketing seems appropriate.

The surveys also revealed a few ways in which local visitors may differ from non-local visitors. Visitors to GRSM from the local area expressed greater interest in participating in skills-based programs. Surprisingly, no significant differences were observed in information sources, though three local respondents specifically indicated personal communication with a park employee as their source of information. Prior research confirms that many local residents rely on park staff as sources of information about GRSM and other parks as well (Stern, 2010). Targeted internal communications with local staff about the availability of programs could prove fruitful.

Lessons for Future Monitoring for Adaptive Management

Active adaptive management emphasizes the adjustments of techniques based on systematic monitoring of ongoing results (McCarthy & Possingham, 2007). This involves setting up effective systems for monitoring to enable learning relevant to management. We examined three possible pathways for conducting such monitoring relevant to interpretive program attendance at GRSM: (1) relying on rangers' perceptions; (2) a general visitor survey; (3) an on-site survey of attendees of interpretive programs. We compare these techniques in terms of their relative efficiency and the data they have produced in this study.

Clearly, the depth and breadth of data one can collect from the more intensive general visitor surveys (conducted online or at home on paper) go far beyond what one could reasonably collect on-site from program attendees. The costs of these more intensive surveys, however, are considerable, requiring an outside contractor to design the surveys, solicit participation, manage data collection, and analyze the data. The on-site surveys were far more limited in scope. While less costly from a monetary

perspective, the hidden costs of this technique might include altering the mood of the audience just prior to an interpretive program, distracting the interpretive ranger from interaction, and/or preparation for the program, and slight delays in the program's start as people finish the survey (we received no complaints from rangers associated with this particular effort). Surveying attendees of interpretive programs also requires the ranger to carry the survey materials to the site and the completed materials after the survey. However, the simplicity of the surveys gives us confidence that data collection and analysis could take place without having to hire external researchers or consultants every time the surveys are implemented. An initial training in data collection and analysis, however, would be necessary.

The biggest difference in responses to the two visitor surveys is that chance appeared to play a greater role for the general visitor survey respondents than for on-site respondents. A probable explanation for this finding is that respondents completing an internet or mail survey received no on-site prompt to carefully consider why they had attended a program. Meanwhile, on-site program attendees were prompted by the survey to consider why they were there. This likely promoted short discussions with their group, making a more specific reason likely to emerge. While chance may have been the primary driver in these cases, the survey cued additional consideration in respondents, potentially over-inflating their significance. When considered in terms of management implications, the on-site attendee survey still suggests the importance of beginning programs in conspicuous areas where visitors can join in serendipitously, though it may provide a wider suite of motivations provided by the larger group. For the purposes of adaptive management, we posit that this broader array of ideas collected on-site is preferable, reflecting a wider array of variables influencing different group members.

In the specific case of GRSM, the shorter on-site attendee surveys proved sufficient for understanding motivations for program attendance, the importance of different information sources, and general attendance patterns. Rangers already appeared to have sufficient working understandings of the barriers to program attendance. The barriers reported in this study also mirrored those found in prior studies at other parks (Morse, 1977; Knudson & Vanderford, 1980; Srisomyoung, 2000; Packer 2004), suggesting that motivations may be more elusive for rangers to apprehend than barriers. Thus, GRSM and other parks might achieve greatest efficiency through a periodic implementation of shorter on-site surveys of attendees to interpretation programs at specified time intervals or more targeted implementation when conditions, in particular attendance patterns, seem to change.

Conclusions

The most commonly important motivations for interpretive program attendance at GRSM included a desire to be entertained, a better chance to actually see the park's unique attractions, and hopes for a good group experience. The primary barriers included a lack of awareness, visitors' perceptions of insufficient or inconvenient timing, and a preference for a more solitary experience. In addition to providing some ideas for increasing program attendance among different groups, the study sheds some light on the value of visitor surveys. While interpretive rangers appeared to have accurate perceptions regarding the barriers to program attendance, the research uncovered a broader array of motivations. In particular, rangers appear to have overestimated

the importance of specific topical interests and underestimated the importance of entertainment and general revelation, or the chance to be shown something they might otherwise miss.

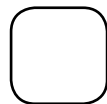
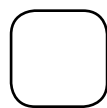
References

- Absher, J. D. & Graefe, A.R. (1997). Trip motives of interpretive program attendees and nonattendees. *Journal of Interpretation Research*, 2(1), 55-56.
- Galloway, G. (2002). Psychographic segmentation of park visitor markets: evidence for the utility of sensation seeking. *Tourism Management*, 23, 581-596.
- Ham, S. (1992). *Environmental Interpretation: A Practical Guide for People with Big Ideas and Small Budgets*. Golden, CO: Fulcrum Publishing.
- Ham, S. (2009). From interpretation to protection: is there a theoretical basis? *Journal of Interpretation Research*, 14(2), 49-57.
- Irving, R.L. (1986). *Preferences of state and national park visitors for interpretive methods: implications for program attendance*. Masters Thesis. Humboldt State University.
- Knudson, D. M., & Vanderford, M. E. (1980). Participation in interpretive programs by state park visitors. *Journal of Interpretation*, 5(2), 20-23.
- McCarthy, M.A. & Possingham, H.P. (2007). Active adaptive management for conservation. *Conservation Biology*, 21(4), 956-963.
- Morse, P.J. (1977). *A pilot study of attitudes of state park visitor toward interpretive programs*. M.A. Thesis. California State University, Chico, CA. 125 pp.
- Moscardo, G. (1999). *Making Visitors Mindful: Principles for Creating Sustainable Visitor Experiences through Effective Communication*. Champaign, Illinois: Sagamore Publishing.
- Mullins, G.W. (1979). *Participation and nonparticipation in interpretation: A study of people, places, and activities*. Ph.D. Dissertation. Texas A & M University, College Station, TX.
- National Park Service Public Use Statistics Office (2010). National Park Service Public Use Statistics Office webpage. URL: <http://www.nature.nps.gov/stats/index.cfm>. Accessed November 1, 2010.
- Ng, D. (1986). *Determining the effects of information sources on attendance at interpretive programs*. Masters Thesis. University of Idaho.
- Packer, J.M. (2004). *Motivational factors and the experience of learning in educational leisure settings*. PhD Dissertation. Centre for Innovation and Learning. Queensland University of Technology.
- Papadogiannaki, E. & Hollenhorst, S.J. (2008). *Great Smoky Mountains National Park Visitor Study, Draft Study, Summer 2008*. Park Studies Unit, Visitor Services Project, University of Idaho.

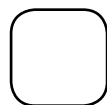
- Papadogiannaki, E., Braak, A., Holmes, N., Eury, D., & Hollenhorst, S.J. (2009). Great Smoky Mountains National Park Visitor Study. Park Studies Unit, Visitor Services Project, University of Idaho, Report 205. URL: http://www.psu.uidaho.edu/files/vsp/reports/205.2%20GRSM_report.pdf. Accessed November 1, 2010.
- Park Studies Unit (2010). Visitor Survey Project Webpage. University of Idaho. URL: <http://www.psu.uidaho.edu/vsp.reports.htm>
- Powell, R. B., Kellert, S. R., & Ham, S. H. (2009). Interactional theory and the sustainable nature-based tourism experience. *Society and Natural Resources*, 28(8), 761-776.
- Reyburn, J.H. (1974). *Factors influencing attendance at interpretive programs at five Indiana state parks*. Masters Thesis. Purdue University.
- Sheehan, K. 2001. Email survey response rates: a review. *Journal of Computer-Mediated Communication*, 6 (2). URL: <http://jcmc.indiana.edu/vol6/issue2/sheehan.html>. Accessed September 1, 2009.
- Srisomyoung, N. (2000). *A study of park visitors; use of interpretive programs at Lake Wissota State Park, WI*. Masters Thesis. University of Wisconsin—Stout.
- Stern, M.J. (2010). Payoffs vs. process: Expanding the paradigm for park/people studies beyond economic rationality. *Journal of Sustainable Forestry*, 29(2-4), 174-201.
- Tilden, F. (1957). *Interpreting Our Heritage*. Chapel Hill, NC: University of North Carolina Press.
- Veverka, J. (1978). *A survey and analysis of selected park visitor's motivations for attending environmental interpretation programs*. Masters Thesis. The Ohio State University.
- Ward, C.W. & Wilkinson, A.E. (2006). *Conducting Meaningful Interpretation: A Field Guide for Success*. Golden, CO: Fulcrum Publishing.

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IN SHORT



Investigating the Impact of Interpretive Signs at Neighborhood Natural Areas

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Abstract

Designing interpretive signs for community natural areas is often an expensive endeavor, sometimes requiring the largest portion of an already small budget, but what do we know about the impact of these signs? How do visitors to neighborhood natural areas interact with and use the signs? This multiple-method study investigated how visitors interacted with interpretive signs in two neighborhood natural areas in a mid-sized urban area. Results of this study indicate that a majority of natural area visitors were repeat visitors; however, when tested, first-time visitors scored higher on a knowledge assessment of information presented on the interpretive signs than repeat. Similarly, visitors' appreciation for the signs varied whether they were running, biking, or walking. This insight may be helpful as natural areas invest in interpretive signage during a time of tight budgets.

Keywords

evaluation, informal education, interpretive signs, natural areas, visitor attention, learning

Introduction

The City of Fort Collins, Colorado, is home to more than 40 natural areas, which receive an estimated 3.7 million visitors, 95 percent of whom are repeat visitors (Corona Research, 2006). Several interpretive signs are posted throughout the natural areas in hopes of educating visitors about the local environment (e.g., a sign that explains

prairie ecology). Visitors learn through their own motivation and interest, which is often self-paced, voluntary, and nonsequential (Falk, 2005). It is the learning common to museums, arboretums, aquariums, and national parks. Learning from interpretive signs is visitor driven and inquiry based; however, little is known about the effectiveness of interpretive signs in neighborhood natural areas. Similarly, a majority of Fort Collins natural area visitors are repeat visitors who may no longer read the signs due to a perception of knowledge that has been gained from previous interaction with the signs.

The purpose of this research is to better understand how visitors interact with interpretive signs. The findings presented here are the result of 475 qualitative observations, 46 interviews and 46 tests of knowledge gained from interpretive signage at two neighborhood natural areas.

This “In Short” research report begins with a brief discussion of interpretive signs and their potential to impact visitor learning. Then we introduce the study area and our multiple methods approach to understanding how visitors interact with interpretive signage at natural areas. In the results section, we present descriptive data that characterize our sample population and then discuss the differences in visitors’ interactions with interpretive signs. We conclude by providing some suggestions for practitioners designing interpretive signs for community natural areas.

Interpretive signs have been shown to be important tools in increasing visitor knowledge at natural areas (Cole et. al., 1997; Hughes & Morrison-Saunders, 2002). Certain features of interpretive signs are linked to the amount of time visitors attend to signs (Wells & Smith, 2000). Studies show the time spent attending to a sign or exhibit is positively related to the amount of learning and interest that occurs (Barnard, 1981; Birney, 1988; Cole et. al., 1997; Cone & Kendall, 1978; DeMouthe, 1989; Saunders et. al., 1999).

Studies show increased attention time by the use of interactive, hands-on exhibits and signs (e.g., Arndt et. al., 1993; Ayres & Melear, 1998; Borun & Adams, 1992; Borun et. al., 1993; Derwin & Piper, 1988; Eason & Linn, 1976; Hayward & Brydon-Miller, 1984; Koran et. al., 1986; Liu & Wheat, 1995; Ottinger, 1993; Wright, 1980). Signs that contain multi-sensory features and engage the senses of hearing, smell, and touch may increase attention (Bitgood, 2000). Larger type size increased the amount of reading by visitors (Thompson & Bitgood, 1988). Serrell (1996) suggests shorter labels and chunking information into short paragraphs of 25 to 75 words increased reading by visitors. She also suggests a combination of words and images, rather than all text, makes signs more meaningful and memorable (Serrell, 1996). Signs that include questions also seem to encourage learning (Arndt et. al., 1993; Greenglass, 1986; Hirshi & Screven, 1988; Litwak, 1996). (For more comprehensive interpretive sign features see Wandersee & Clary, 2007).

In prior survey research, studies conducted at Fort Collins Natural Areas revealed that an overwhelming majority of participants had visited the natural areas more than 10 times in the past year (Corona Research, 2006). This study builds on the Corona Research group’s findings by using multiple methods for an in-depth investigation how visitors interact with interpretive signs at two sites in the Fort Collins Natural Areas complex. Specifically, we posed the following research questions:

- RQ 1: How much time do visitors spend reading and looking at interpretive signs?
- RQ 2: What motivates visitors to stop and read interpretive signs?
- RQ 3: What do visitors learn from interpretive signs?

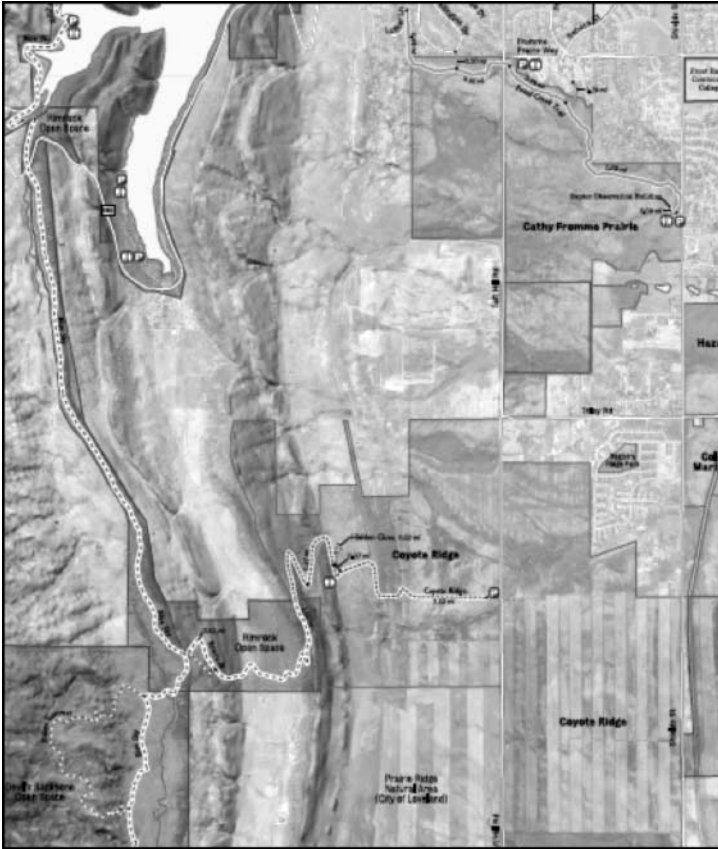


Figure 1. Comparative map of Cathy Fromme Prairie and Coyote Ridge (map from <http://www.fcgov.com/naturalareas/pdf/natural-areas-map3-11.pdf>)

RQ 4: What types of visitor activities, such as running, biking, or walking, influence a visitor's interaction with interpretive signs?

RQ 5: What features of the interpretive signs do visitors find favorable?

Study Area

The study sites were two City of Fort Collins Natural Areas: Cathy Fromme Prairie and Coyote Ridge. These areas were chosen for many reasons. First, the City of Fort Collins Natural Areas Program had spent several thousands of dollars on signage at these two areas and they wanted to assess the effectiveness of current signs at these two sites. Second, signs at both areas were created by the same designer and had similar features. Third, these areas are located adjacent to each other, having close proximity, and similar user groups and visitor populations engaging in similar types of activities (both areas are popular for walking and biking). Finally, the trails' length, physical environment, and ecological knowledge featured on the signs are very similar in these two areas.

Cathy Fromme Prairie contains over 1,000 acres of native short grass prairie. Walking along the flat, paved trail, views of rolling prairie to the south, foothills to the

west, and housing developments to the north are always present. The trail, which is over two miles in length, connects directly to many of the housing developments as well as a raptor observatory via side trails. The raptor observatory, which is reminiscent of a concrete World War II bunker, contains many colorful signs depicting the lives of prairie dogs, coyotes, and raptors and gives open views of the prairie and sky. A total of 12 interpretive signs are placed along the trail, many within rest stops or next to benches. Of particular interest and the subject of many signs are the prairie dogs that inhabit the areas adjacent to the trail. Cathy Fromme Prairie offers unique opportunities to view and learn about these small, curious mammals.

Coyote Ridge contains over 2,000 acres of transition zone, the majority of which is short grass prairie giving way to foothills shrubland to the west. The unpaved two-mile trail encompasses almost 600 feet of elevation gain, lending it to more rugged hiking and mountain biking. The trail climbs over ridges, or hogbacks, which give views of the Front Range and plains to the east and the Rocky Mountains to the west. A quarter-mile interpretive loop side trail is accessible after hiking over the first ridge. The interpretive signs featured on this loop are colorful, interactive, and geared toward a younger audience. The remaining interpretive signs (making a total of 23) are found along the main trail, frequently at the top of ridges. Some of these signs feature three-dimensional objects. Mule deer, coyotes, and rattlesnakes are commonly seen while hiking this trail and are the subject of many interpretive signs.

Methods

Data Collection & Analysis

Observations

To answer our first research question, how much time do visitors spend reading and looking at interpretive signs, we observed 475 different visitors interacting with interpretive signs at the two natural areas between the months of August and December. We trained volunteers from the City of Fort Collins Natural Areas Program to observe visitors and record how much time they spent interacting with the interpretive signs. The volunteers conducted two-hour observations at various times throughout the five-month period. Times and dates of the observations were kept flexible for the benefit of the volunteers. Volunteers used a general tally sheet to record visitors' activity (running, biking, or walking), approximate age group (child, teen, adult), and the time visitors attended to interpretive signs. Specifically, they recorded what appeared to be the time spent reading, and any other type of interactions with the signs (touching, pointing, sharing with their group).

Interviews

To address research questions 2, 3, 4, and 5 (visitor motivations to stop at signs, what do visitors learn from signs, what activities influence a visitor's awareness of the sign, and what features do visitors prefer), we conducted semi-structured interviews during the months of October and November 2008. The first author interviewed 46 adult visitors at the main trailhead for both areas (20 at Cathy Fromme Prairie; 26 at Coyote Ridge). Using a convenience sampling approach, all visitors exiting the site's main trail were asked to participate in a short, informal interview. Seventy-nine percent of invited visitors agreed

to participate in the interview, those who refused explained that they did not have time to participate, had already participated, or were not interested. Interviews ranged from five to 22 minutes. Interviews were conducted during weekend afternoons; a previous study (i.e., Corona Research, 2006) reported that the highest diversity and frequency of visitor use at Fort Collins Natural Areas was during weekend afternoons. The semi-structured interviews were audio recorded and later transcribed. Interview topics included frequency of visits, use of interpretive signs, and favorable signs and features. The interview concluded with a short knowledge test of information presented on the interpretive signs.

Interview Data Analysis

Interview data was open-coded and compared using a contrastive matrix. Data was analyzed using Yin's (2003) analytical technique of explanation building. The explanation building analysis began with the initial premise proposed by our collaborators at the Fort Collins Natural Areas Program: Repeat visitor's prior knowledge is the primary cause of decreased readership. That premise was first compared to data from Cathy Fromme Prairie and then to data from Coyote Ridge to construct patterns and develop explanations for successive comparison. This iterative process led to a more complete understanding of interpretive sign use among all visitors to the two areas.

This analysis process involved searching for salient codes within the interview transcripts related to visitors' interpretive sign use and favorable sign features. Examples of codes include: Viewing Motivation, Non-viewing Reasons, Favorable Features, and Repeat Visitors. This coding helped clarify the personal context by addressing motivation and interest. It also led to a better understanding of the physical context involved through reported favorable sign features.

Interpretive Signs Knowledge Tests

The final component of the interview was a knowledge test. Visitors answered structured questions about the interpretive signs they saw while visiting the natural area. Small color pictures of the interpretive signs were used to aid visitors' recall of the signs. Test questions asked the visitor to recall or explain information presented on interpretive signs throughout the area; questions were multiple choice, true or false, and short answer. We compared the visitors' self-reported learning score (based on the Learning From Signs code in the interview data) with their cognitive test scores to create a learning score. We also compared the averaged learning score among different user groups, including repeat visitors.

Results

Descriptive Data

In total, the interview data indicate that a large percentage (78 percent) of visitors are repeat visitors, as expected from previous surveys at these locations (75 percent for Cathy Fromme Prairie; 81 percent for Coyote Ridge). As a coincidence, the male-to-female ratio showed a perfect split. All interviewees were over the age of 18 and ranged from young adults to senior citizens. The majority of visitors were walking (50 percent), though there were a high percentage of bikers (42 percent).

The observation data contained a much larger visitor set (475). Overall, walkers made up the majority of the population (55 percent) followed by bikers (35 percent).

Table 1. Observed and Interviewed Participant Demographics

Visitors	Observations		Interviews	
	Total (n)	%	Total (n)	%
Total Visitors	475	100	46	100
Repeat Visitors	Not recorded	Not recorded	36	78
Gender				
Female	Not recorded	Not recorded	18	50
Male	Not recorded	Not recorded	18	50
Activity Type				
Walking	261	55	18	50
Biking	164	35	15	42
Running	30	6	3	8
Equestrian	10	2	0	0
Other	10	2	0	0
Age Group				
Adult	427	90	46	100
Child	34	7	0	0
Teenager	14	3	0	0

Coyote Ridge shows a slightly higher percentage of bikers (37 percent) than Cathy Fromme Prairie (33 percent). In total, adults were the overwhelming majority age group (90 percent) from the observation data. Table 1 lists the results of the descriptive data from both interviews and observations.

How much time do visitors spend at interpretive signs?

The majority of visitors observed (74 percent) did not attend to any interpretive signs along the natural areas' trails. Twenty-six percent of the visitors observed, stopped, and attended to at least one of the interpretive signs. Visitors observed at Cathy Fromme spent an average of 31 seconds at each sign, while visitors at Coyote Ridge spent an average of 37 seconds attending to (reading and interacting with) the interpretive trail signs. During the interviews, visitors explained why they stop and attend to the signs or not. A person walking at Cathy Fromme explained, "I've probably looked at [the signs] once or twice years ago when I started coming here and I haven't looked at [them] since." A walker at Coyote Ridge, spends more time interacting with the signs:

The signs are definitely something we stop and look at repeatedly. I mean, maybe not the same one, and we're not out here to study, so even if you do look at the same one, you maybe see something different, you know, the second, third, fourth time around.

The frequency of visits to a natural area may influence interaction with and learning from interpretive signs. Of 20 repeat visitors interviewed, most indicated that they had read the interpretive signs on a previous visit (10); others had read the signs before and continue to re-read the signs (8), and only two said that had never read the signs. The majority of first-time visitors interviewed (80 percent) read the interpretive signs, and

Table 2. Visitor Frequency Compared with Knowledge Scores

Frequency Type	(n)	Average number of statements per person coded as 'learning from signs'	Average test scores (%)
First time visitor	10	1.80	77
Repeat visitor	36	.89	65

at both natural areas, they scored higher on the knowledge test and self-reported more learning than repeat visitors.

What motivates visitors to stop and read signs?

Motivation varies greatly for reading interpretive signs. Of 27 reasons given for reading interpretive signs, location was noted most frequently (8). Signs positioned at the top of ridges, near turns, or by benches were seen as inviting to a learning experience. A mountain biker at Coyote Ridge explained:

We stop up there. Most people are going to stop at the top of any ridge to catch their breath, so those are good places because we're waiting for each other and you can play with everything up there or if there's [a] sign you can read it and get some information.

Other frequent motivators included an interest in the subject of the interpretive sign (6) and a desire to seek particular information from the signs to answer questions about the surrounding environment (6).

What do visitors learn from interpretive signs?

During the interviews, visitors self-reported learning about prairie dogs (11) and general ecology (10). Learning about rare plants (6), birds (6), and geologic history (5) were also mentioned. The results of the knowledge tests varied at each site. At Cathy Fromme Prairie, 95 percent of visitors interviewed correctly identified the environment as a short grass prairie. Ninety percent of the interviewees correctly identified the prairie dog as the keystone species, loss of habitat as the greatest impact to prairie dogs, and that raptors mainly visit the prairie for food, 95 percent were also able to recall how prairie dogs communicate. The test results at Coyote Ridge were lower on average. Trends in learning were still identified albeit at lower percentages. Eighty-nine percent of visitors correctly identified that Coyote Ridge used to be a sea. A smaller percentage of visitors (78 percent) knew that Coyote Ridge was supported by resident tax dollars. Seventy percent of visitors knew what animals lived underground in this ecosystem and that mule deer was a native species here.

As seen in Table 2, first-time visitors achieved higher average test scores (77 percent) than repeat visitors (65 percent). First-time visitors also gave twice as many statements of learning from signs in interviews on average (1.80) than repeat visitors (0.89). This data suggests that first-time visitors may have learned more than repeat visitors.

What types of visitor activities influence visitors' interactions with interpretive signs?

Activity type may influence attentiveness to the interpretive signs. Of 24 coded reasons why repeat visitors did not read the interpretive signs, most related to being engaged in exercise. Other reasons for not reading the interpretive signs included simply being outside and not having time. Only two interviewees said that they already knew what was on the signs, so they didn't attend to the signs on this visit. An interviewee walking at Cathy Fromme explained, "I just usually come out here for exercise and I'll just glance at the signs and that's really about it."

Interviewees who were biking or running on the trails reported that it was impossible to read the signs during their visit. One mountain biker joked with his companion during the interview, "The last time you looked at [a sign] you crashed. When you were pointing at it; if you remember correctly."

While less than the majority of walkers attended to the signs, even fewer runners and bikers stopped to interact with the sign. This discrepancy in attentiveness helps to explain the difference in knowledge scores seen between walkers, bikers, and runners. Walkers achieved slightly higher average test scores (67 percent) than bikers (61 percent) and runners (59 percent). Walkers also gave more statements of learning on average (1.1) than bikers (0.6) and runners (0.7).

What features of the interpretive signs do visitors find favorable?

Interviewees were asked if there were any features of the interpretive signs along the trail that they did not like. In responding to this question, most of the visitors focused on aspects of the signage that they did find favorable. For example two signs, "A House in a Town," which shows an underground view of prairie dog tunnels and "Prairie Survival – Go Underground" were mentioned numerous times in interviews (Figures 2 & 3). The observation data shows that 21 percent of the 83 visitors who stopped to read signs stopped to read these signs as well. One sign, featuring large text, was referenced more than any other sign—this was the "Rare Plant Sanctuary" sign.

Interviewees were asked if they tried any of the interactive displays (such as flip signs, scent cans, or audio buttons) and if any of those features specifically attracted them to the sign. Of 77 references to favorable features, the largest percentage was for three-dimensional objects on the signs (14 times). Other objects referenced pertained to a specific three dimensional snake found on "Prairie Survival – Go Underground" (5). Pictures were referenced abundantly. Eight referenced wildlife in general. Seven coded statements referred to the picture depicting prairie dog tunnels in "A House in a Town." Birds were coded high on the list with six references. Pictures in general, coyotes, prairie dogs, and sign titles all received five references.

When triangulating favorable sign features from the interview data with the favorable sign content, certain patterns emerge. Three-dimensional objects seem to be favorable sign features. Local wildlife, in picture or text, is a popular feature. Also, a large print size is a positive feature.

Discussion

Based on our interviews, repeat visitors attend differently to signs than first-time visitors. The findings that first-time visitors read signs more often than repeat visitors give pause to the strategy of using interpretive signs to educate a primarily repeat visitor population. This study aided in the recognition of certain features of interpretive signs

that repeat visitors found favorable. In addition to the recommendations of Wandersee and Clary (2007), this study suggests that an ideal interpretive sign would include a three-dimensional object, have a picture of local wildlife, have a large title, be located at a natural rest stop, and show something that otherwise cannot be seen (such as something dwelling underground). The addition of any or all of these features may facilitate greater attention and learning from repeat visitors.

Prior knowledge of interpretive sign content was assumed at the start of this study to be the main reason that repeat visitors stop reading signs; however, attending to interpretive signs does not seem to rely much on prior knowledge. Exercise, including running and biking, appear to be the main reason that repeat and first-time visitors did not view, and therefore learn or (re)learn from interpretive signs. The implications of these findings to natural area managers could mean creating runner- or biker-specific signs and/or their placement (e.g., larger text signs, centrally located sign kiosks at trailheads, signs at natural resting stops).

In addition to this study, other research has taken into consideration physical location. The physical context of a natural area may influence learning directly by the number and variety of interpretive signs. The introduction of new interpretive signs to a natural area was shown to significantly increase the knowledge of repeat visitors (Hughes & Morrison-Saunders, 2002). A greater number and variety of sign topics could attract a greater diversity of visitors' interests. However, caution must be used as too many signs may lead to distraction and visual pollution of the landscape (Bramwell & Lane, 1993).

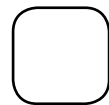
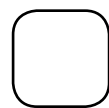
More studies are needed to evaluate the effectiveness of interpretive signs and assess the learning that results from interactions with interpretive signs. Future studies should also consider using the contextual learning framework for such analyses because it is important to consider that the focus on interpretive signs in no way encompasses the entirety of learning that occurs in natural areas. Interpretive signs account for a small portion of what was learned through the larger context of free-choice learning. Unaccounted learning that may have occurred includes: systems thinking, animal behavior, ecology, kinesthetic coordination, personal development, family values, and many others. The list is truly limitless as learning is driven by the interest of each idiosyncratic individual (Falk, 2005). Through proper design and use of interpretive signs, managers of natural areas may contribute a piece to this learning, instilling environmental knowledge to their communities and society as a whole.

References

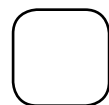
- Ayres, R. & Melear, C. T. (1998, April). *Increased learning of physical science concepts via multimedia exhibit compared to hands-on exhibit in a science museum*. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, San Diego, CA.
- Barnard, W.A. (1981). *Labeling and modality effects in visual learning of museum stimuli*. Unpublished doctoral dissertation, Colorado State University–Fort Collins.
- Birney, B. A. (1988). Brookfield Zoo's "Flying Walk" exhibit: Formative evaluation aids in the development of an interactive exhibit in an informal learning setting. *Environment and Behavior*, 20, 416-434.

- Bitgood, S. (2000). The role of attention in designing effective interpretive labels. *Journal of Interpretation Research*, 5, 31-45.
- Borun, M., & Adams, K. (1992). From hands on to minds on: Labeling interactive exhibits. In A. Benefield, S. Bitgood, & H. Shettel (Eds.), *Visitor studies*: Vol. 4. Theory, research, and practice (pp. 115-120). Jacksonville, AL: Visitor Studies Association.
- Borun, M., Massey, C., & Lutter, T. (1993). Naive knowledge and the design of science exhibits. *Curator*, 36, 201-219.
- Bramwell, B., & Lane, B. (1993). Interpretation and sustainable tourism: The potential and the pitfalls. *Journal of Sustainable Tourism*, 1, 71-80.
- Cole, D. N., Hammond, T. P., & McCool, S. F. (1997). Information quantity and communication effectiveness: Low-impact messages on wilderness trailside bulletin boards. *Leisure Sciences*, 19, 59-72.
- Cone, C., & Kendall, K. (1978). Space, time, and family interaction: Visitor behavior at the Science Museum of Minnesota. *Curator*, 21, 245-258.
- Corona Research, Inc. (2006). *Natural areas observational and intercept surveys: The city of Fort Collins, Colorado*. Denver, CO.
- DeMouthe, J. F. (1989). *Visitor behavior as a measure of the educational effectiveness of museum exhibits*. Unpublished master's thesis, University of California, Berkeley.
- Derwin, C. W., & Piper, J. B. (1988). The African Rock Kopje exhibit: Evaluation and interpretive elements. *Environment & Behavior*, 20, 435-451.
- Eason, E. P., & Linn, M. C. (1976). Evaluation of the effectiveness of participatory exhibits. *Curator*, 19, 45-62.
- Falk, J. H. (2005). Free-choice environmental learning: Framing the discussion. *Environmental Education Research*, 11, 265-280.
- Greenglass, D. I. (1986). Learning from objects in a museum. *Curator*, 29, 53-66.
- Hayward, D. G., & Brydon-Miller, M. L. (1984). Spatial and conceptual aspects of orientation: Visitor experience at an outdoor history museum. *Journal of Environmental Education*, 13, 317-332.
- Hirshi, K. D., & Screven, C. G. (1988). Effects of questions on visitor reading behavior. *ILVS Review: A Journal of Visitor Behavior*, 1, 50-61.
- Hughes, M., & Morrison-Saunders, A. (2002). Impact of trail-side interpretive signs on visitor knowledge. *Journal of Ecotourism*, 1, 122-132.
- Koran, J. J. Jr., Koran, M. L., & Longino, S. J. (1986). The relationship of age, sex, attention, and holding power with two types of science exhibits. *Curator*, 29, 227-244.
- Litwak, J. M. (1996, April). *Label length and title type as determinants in visitor learning*. Paper presented at the Annual Meeting of the American Educational Research Association, New York, NY.

- Liu, M. & Wheat, J. (1995, June). *Designing effective multimedia kiosks*. Paper presented at the annual World Conference of Educational Multimedia and Hypermedia, Graz, Austria.
- Ottinger, L. L. (1993). *Understanding the effectiveness of multimedia technology as a persuasive tool: An experimental investigation*. Unpublished doctoral dissertation, Texas A & M University–College Station.
- Saunders, C. D., Birjulin, A. A., Bacon, L., & Gieseke, T. J. (1999, August). Can an exhibit affect visitor conservation behaviors? *Visitor Studies Association Conference Abstracts*. 12th annual conference, Chicago, IL.
- Serrell, B. (1996). *Exhibit labels: An interpretive approach*. Walnut Creek, CA: Alta Mira Press.
- Thompson, D. & Bitgood, S. (1988). The effects of sign length, letter size, and proximity on reading. In S. Bitgood, J. T. Roper, Jr., & A. Benefield. (Eds.), *Visitor Studies: Theory, Research, and Practice* (pp. 101-112). Jacksonville, AL: Visitor Studies Association.
- Wandersee, J. H., & Clary, R. M. (2007). Learning on the trail: A content analysis of a university arboretum's exemplary interpretive science signage system. *The American Biology Teacher*, 69, 16-23.
- Wells, M., & Smith, L. (2000). *The effectiveness of non-personal media used in interpretation and informal education : An annotated bibliography*. Fort Collins: National Association for Interpretation.
- Wright, E. (1980). Analysis of the effect of a museum experience on the biology achievement of sixth graders. *Journal of Research in Science Teaching*, 17, 99-104.
- Yin, R. K. (2003). *Case study research: Design and methods*. (3rd ed.). Thousand Oaks, CA: Sage Publications.



APPENDIX



Manuscript Submission

Instructions to Authors

Purpose

The purposes of the *Journal of Interpretation Research* are to communicate original empirical research dealing with heritage interpretation and to provide a forum for scholarly discourse about issues facing the profession of interpretation. The *Journal* strives to link research with practice. The *Journal of Interpretation Research* is published by the National Association for Interpretation, the preeminent professional association representing the heritage interpretation profession.

General Information

The primary function of the *Journal* is to disseminate original empirical research regarding interpretation. However, the *Journal of Interpretation Research* takes a broad view of the field of interpretation and publishes manuscripts from a wide-range of academic disciplines. The primary criteria for deeming a manuscript appropriate for the *Journal* are whether it adds to the current state of knowledge for practitioners, researchers, academics, or administrators who work in the field of interpretation.

In recognition of how diverse the relevant literature is, the *Journal* will also publish reviews of recent books, government publications, original literature reviews, and bibliographies dealing with interpretation. Abstracts from dissertations, private consultant materials, and reports from public agencies will be published in the *Journal* in a section called “In Short: Reports and Reviews.” This section will also provide an outlet for summaries of research studies with limited scope. Interpretation research often consists of small, “in-house” program evaluations and basic visitor studies. The purpose of this section is to communicate current research activities, allow readers to identify colleagues with similar interests, and provide practitioners and administrators with useful information and direction for conducting their own mini-research projects. Submissions for the “In Short: Reports and Reviews” section should be limited to 800 to 1,000 words and will be reviewed by the editor and two associate editors.

Additionally, the *Journal* will publish thought pieces that exhibit excellence and offer original or relevant philosophical discourse on the state of heritage interpretation. The “In My Opinion” section of the *Journal* encourages the development of the profession and the practice of interpretation by fostering

discussion and debate. Submissions for the “In My Opinion” section should be limited to 1,000 to 1,200 words and will be reviewed by the editor and two associate editors.

Research Manuscript Submission Guidelines

All research manuscripts will be reviewed anonymously by an associate editor and by at least two other reviewers. Based on the nature of the manuscript, special efforts will be made to identify well-qualified associate editors and reviewers to evaluate the manuscripts. From the recommendations of the associate editor, the editor will make the final decision of the manuscript’s disposition and communicate this information to the author.

Manuscripts

Manuscripts will be accepted with the understanding that their content is unpublished and not being submitted elsewhere for publication.

- All parts of the manuscript, including title page, abstract, tables, and legends, should be typed in 12-point font, and double-spaced on one side of 8.5" x 11" or A4 white paper.
- Margins should be 1" on all sides.
- Manuscript pages should be numbered consecutively in the top right corner.
- All papers must be submitted in English. Translations of papers previously published in other languages will be considered for publication, but the author must supply this information when the manuscript is submitted.
- Maximum length of manuscripts shall be 30 double-spaced pages (including all text, figures, tables, and citations). The editor will consider longer manuscripts on an individual basis.

Titles

Must be as brief as possible (six to 12 words). Authors should also supply a shortened version of the title, suitable for the running head, not exceeding 50 character spaces.

Affiliation

On the title page include full names of authors, academic, and/or other professional affiliations, and the complete mailing address of the author to whom proofs and correspondence should be sent. An e-mail address and phone and fax numbers should also be included. As all manuscripts will be reviewed anonymously; the name(s) of the author(s) should only appear on the title page.

Abstract

Each paper should be summarized in an abstract of no more than 150 words. The abstract will preface the paper and should be a comprehensive summary of the paper’s content, including the purpose or problem, methods, findings, and implications or applications. It should enable the reader to determine exactly what the paper is about and make an informed decision about whether to read the entire paper. Abbreviations and references to the text should be avoided. All abstracts shall be listed on the *Journal of Interpretation Research* Web site (www.interpnet.com/JIR).

Keywords

Authors must supply five to 10 key words or phrases that identify the most important subjects covered by the paper.

References and Citations

Include only references to books, articles, and bulletins actually cited in the text. All references must follow the *Publication Manual of the American Psychological Association* (APA), version 6.2. References in the text should cite the author's last name, year of publication, and page (if appropriate). All references used in the text should appear at the end of the typed script in alphabetical order using APA version 6.2 style.

Examples of references:

McCool, S. & Braithwaite, A. (1992). Persuasive Messages and Safety Hazards in Dispersed and Natural Recreation Settings. In M. Manfredo (Ed.), *Influencing Human Behavior*. Champaign, IL: Sagamore Publishing.

Ryan, C. & Dewar, K. (1995). Evaluating the Communication Process Between Interpreter and Visitor. *Tourism Management*, 16(4): 295-303.

Tilden, F. (1977). *Interpreting Our Heritage* (2nd ed.). Chapel Hill: University of North Carolina Press.

Figures

All figures must be discussed in the text and numbered in order of mention. *Each figure must be submitted as a print-ready digital file.* Label each figure with article title, author's name, and figure number by attaching a separate sheet of white paper to the back of each figure. Each figure should be provided with a brief, descriptive legend. All legends should be typed on a separate page at the end of the manuscript.

Tables

All tables must be discussed in the text and numbered in order of mention. Each table should have a brief descriptive title. Do not include explanatory material in the title: use footnotes keyed to the table with superscript lowercase letters. Place all footnotes to a table at the end of the table. Define all data in the column heads. Every table should be fully understandable without reference to the text. Type all tables on separate sheets; do not include them within the text.

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