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A Note from the Editor

Do Facts Matter?

I have found myself wondering about this more and more lately. In these last months since the previous *Journal's* publishing, we have seen a changed landscape in so many ways. Terms like *alternative facts* and *fake news* have become part of our vernacular. Regardless of your political persuasion, trust in information and agreement about a set of facts is critical to the advancement of ideas and dialogue. It is and should be the cornerstone of all our interpretive efforts.

Agreement about a set of facts is not to say that we all have to agree or should agree on their implications. Perspective on facts and opinions about facts is the individual's sovereign right. Sam Ham has talked for years about "meaning-making" and the interpreter's role in helping facilitate that meaning. David Larsen talked about the visitor's right to form his or her own opinion from our interpretive programs. As David said in 1998, "All visitors have a right to their own values and perspectives." Allowing visitors to hold their own belief structures and create their own meanings, does not espouse that facts do not matter—only that one's perspective on the facts is the inherent right of the individual and is key for their own meaning-making.

Perhaps this is not a new conversation. James Loewen's *Lies Across America* (1999) was one of the most revealing books about what our historical sites were getting wrong. From the removal of historical exhibits and monuments to the renaming national monuments, perspectives on facts change. The renaming of Custer Battlefield National Monument in Montana in 1991 to the Little Bighorn Battlefield National Monument is one example of how perspectives on facts and history can change. Many of the underlying tenants of Loewen's position are in the news today, as we watch the removal of several confederate monuments across the south. These developments of the recent months remind us that over time, the most accepted and held perspectives on facts can change.

I have had many conversations over the last several months about how interpreters should deal with topics such as climate change, science in general, and issues of controversy amidst this political climate. They fear job security and retribution and groups like "Alt National Parks" have emerged. And I must admit, I have had a hard time answering those questions.

In our field, facts are supposed to be the starting point, the basis of the program, and the essential element from which to build the narrative, the story, or the perspective.

Perhaps there is no greater need for talented, skilled interpreters who seek and rely on facts than right now.

Facts *do* matter.

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

—*C*

RESEARCH

Interpretive Accommodations for National Park Service Visitors Who Are d/Deaf or Hard of Hearing

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Abstract
Interpretation plays a critical role in fulfilling the mission of the National Park Service (NPS). This study used survey research to describe the interpretive accommodations currently provided to NPS visitors who are d/Deaf or hard of hearing (HoH). Results show that most park units have completed accessibility assessments and provide some form of interpretive accommodations for visitors who are d/Deaf or HoH. However, many park units perceived their unit was not sufficiently meeting the needs of visitors who are d/Deaf or HoH, and felt that their unit should be doing more. Perceived barriers to providing interpretive accommodations included budget and staffing constraints, lack of familiarity with possible services used by visitors who are d/Deaf or HoH, and limited knowledge of legal responsibilities or guidelines pertaining to visitors who are d/Deaf or HoH. Recommendations stemming from this study include the following: staff training; incorporation of the Principles of Universal Design; inclusion of individuals who are d/Deaf or HoH in planning and evaluation of interpretive services; regular assessments for accessibility; personal and agency-level commitment toward equitable service; use of

websites as source of information regarding interpretive accommodations; development of Standard Operating Procedures (SOPs) for accommodative services; creation of a collateral duty for general accessibility; and additional research regarding what services visitors who are d/Deaf or HoH would find most useful to prioritize limited time and budget.

Keywords
interpretive accommodations, disabilities, accessibility, Deaf or hard of hearing, National Park Service, survey research

Introduction

Since 1916, the National Park Service (NPS) has worked to preserve "unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations" (National Park Service, n.d. a, para. 1). As stated in the National Park Service Director's Order #6: Interpretation and Education (2005–2011), "Interpretation and education is the key to preserving both the idea of national parks and the park resources themselves" (section I, para. 1). Also stated in the Director's Order #6 is that the "NPS will ensure, to the greatest extent possible, that persons with disabilities receive the same interpretive opportunities as non-disabled persons, in the most integrated setting possible" (section VIII.I, para. 1). Section 504 of the Rehabilitation Act of 1973, as amended, requires program accessibility for all services provided with Federal dollars. It requires that the NPS does everything feasible to ensure that people with disabilities "receive as close to the same benefits as those received by other visitors" (National Park Service Director's Order #42, 2000–2004, section V.A.2).

About 7.6 million people in the United States (3.1%) experience a hearing difficulty, defined as "experiencing deafness or having difficulty hearing a normal conversation, even when wearing a hearing aid" (Brault, 2012, p. 8). This number includes 1.1 million people who have a severe difficulty hearing, defined as those who are deaf or unable to hear a normal conversation (Brault, 2012). Burns, Paterson, and Watson (2009) discuss that access to the outdoors for persons with disabilities, driven by legislative laws and guidelines, has narrowed itself to thinking more along technical solutions, such as free entry and closed captioning. They argue that it is important to understand not only the physical barriers present for persons with disabilities to recreate outdoors, but also to understand the social context and needs for persons with disabilities while recreating.

Yosemite National Park is one example where a park has gone beyond providing basic accommodations for visitors who are d/Deaf or HoH. As of 2010, Yosemite National Park is the only park to establish a position to facilitate a deaf services program. The Deaf Services Coordinator position was created in 1979, and has since improved accessibility for Yosemite visitors who are d/Deaf or HoH (Cayton, 2010). Yosemite now offers a public videophone in the main lodge, accessibility kits in park hotels, volume control telephones, Assistive Listening Devices (ALDs), and a full-time sign language interpreter during the summer season (National Park Service, Yosemite National Park, n.d.).

With high visitation and close proximity to major cities, Yosemite is a prime location for a deaf services program. Units with lower visitation levels and/or units in more remote areas likely have visitors who are d/Deaf or HoH, even if they do not realize it. Yet more limited accommodations are often provided, such as closed captioning of park films, park pamphlets, and telecommunications devices for the deaf

(TDD), in disregard of the accessibility guidelines provided by the Harpers Ferry Center Accessibility Committee (2012). Consequently, the purpose of this study was to provide an overview of the interpretive accommodations currently provided to NPS visitors who are d/Deaf or HoH.

Literature Review

Accessibility

The Disability Rights Movement empowered persons with disabilities to take control of their own lives, and major legislative advancements occurred that influenced social policy and practice. For example, the Architectural Barriers Act of 1968 required physical access to buildings and facilities built or renovated with Federal funds (National Park Service, 2000–2004). The Rehabilitation Act of 1973 prohibited discrimination on the basis of disability in programs conducted by Federal agencies or receiving Federal financial assistance, in Federal employment, and in the employment practices of Federal contractors (U.S. Department of Justice, 2009). Section 504 of the Rehabilitation Act of 1973 specifies requirements for programmatic accessibility in addition to physical accessibility in all facilities and programs assisted or conducted by the Federal government (Project Play and Learning in Adaptable Environments, 1993). Section 508 of the Rehabilitation Act, which, as amended, applies to web-based media, audiovisual programs, and other media incorporating these electronic elements and requires comparable access to and use of information for members of the public who do and do not have disabilities (29 U.S.C. § 794d). The Architectural Barriers Act of 1968 and the Rehabilitation Act of 1973 together require that the National Park Service "not only has to be concerned with enabling people with disabilities to have access to parks and facilities but, once there, the NPS also needs to do everything feasible to enable them to receive as close to the same benefits as those received by other visitors" (National Park Service, 2000–2004, section V.A.2, para. 3).

Despite these advancements in legislation, individuals with disabilities still faced a great number of inequities, and in 1978 the National Council on Disabilities was created to study those inequities (First & Curcio, 1993). Their study concluded with the passing of the Americans with Disabilities Act (ADA), written into law in 1990. The ADA was designed to protect the rights of all individuals with disabilities in the context of employment, public services and accommodations, and telecommunications (First & Curcio, 1993).

In addition to legislation, several organizations including the Smithsonian and the National Recreation and Park Association, support inclusion and accessibility with internal guidelines and position statements regarding accessibility. For example, the Smithsonian Institute's internal Accessibility Program includes reviewing facility and exhibition design, outreach to the disability community, staff education on disability topics, and the provision of direct visitor services (Smithsonian Accessibility Program, n.d.).

The Harpers Ferry Center (HFC) is responsible for the overall management and direction of interpretive media for the NPS, ensuring that accessibility is incorporated to the highest extent possible (HFC Accessibility Committee, 2012). The Programmatic Accessibility Guidelines for National Park Service Interpretive Media (2012) prepared by the HFC Accessibility Committee, combines laws, policies, and best practices for interpretive design and presentation solutions for all types of interpretive media.

For audiovisual programs, the Department of the Interior requires that programs created after January 2009 are produced with open captions or subtitles that are displayed on screen at all times (Harpers Ferry Center Accessibility Committee, 2012, p. 14, para. 2). From the U.S. Department of the Interior Civil Rights Directive No. 2008-05, reasons for mandated open captioning include staff time and effort involved with turning captioning on/off in a timely manner for people with disabilities, along with switches becoming easily broken or tampered with, causing a possible period of non-compliance. The importance of open captions is described within the Programmatic Accessibility Guidelines (Harpers Ferry Center Accessibility Committee, 2012), as they allow viewers with hearing loss to participate fully when watching an audiovisual program without the need to self-identify. The Programmatic Accessibility Guidelines further state that the use of printed scripts is not an acceptable alternative to the required open captioning, however copies of scripts should be available upon request and on park website. Assistive listening systems and audio amplification shall be provided for any audiovisual programs or tours, and transcripts for ranger-led programs are to be available, in addition to qualified sign language interpreters with reasonable advanced notice (Harpers Ferry Center Accessibility Committee, 2012). Each park's accessibility site bulletin and newspaper shall note the availability of programs that provide these accommodations, as well as information as on how to obtain these services (Harpers Ferry Center Accessibility Committee, 2012).

Regarding interpretive exhibits, Section 508 of the Rehabilitation Act of 1973, as amended, requires audio description of video programs used in exhibits (Harpers Ferry Center Accessibility Committee, 2012). For any exhibits with audio components, the guidelines recommend assistive listening systems and either open captions or a printed text alternative. Video programs with no audio shall be identified as such. Regarding training, accessibility issues should be a part of training for NPS staff, volunteers, and park partners. A training guide should be developed for "management, maintenance, repair, and distribution of accessibility programs and equipment for visitor use" (Harpers Ferry Center Accessibility Committee, 2012, p. 80, para. 1). Sensitivity training should also occur in regards to accessibility issues, including basic courtesy and correct terminology.

In 1999, the National Park Service began a "NPS National Accessibility Achievement Awards" program that consists of national and regional awards for several categories of achievement (National Park Service, n.d. b). These awards were created "to stimulate and reward creative thinking and original program/project activity…that result in greater opportunity for persons with disabilities throughout the NPS" (National Park Service, n.d. b, p. 1). Natchez National Historical Park won the 2005 NPS Accessibility Achievement Award for its incorporation of tactile models of buildings, available interpretive audio tracks with displayed narration, a narrated touch screen program that cues to hand-held MP3 players, and three large etched-glass panels with diary and sketch entries, allowing visitors to feel the contours of the lines drawn (Shteir, 2007). In 2008, Yosemite's deaf services program won the National Park Service Programmatic Accessibility Achievement Award, in response to the 2006 additions of ALDs throughout the park and continued community outreach by deaf services program staff. Park programs are announced to local, state, and national deaf organizations, specifically the California School for the Deaf, which comprises a high number of visitors with hearing limitations (National Park Service, Yosemite National Park, 2008).

Although the National Park Service is improving its interpretive accessibility, in

2006 a panel of park visitors with disabilities testified about their experiences in an Oversight Hearing before the Subcommittee on National Parks of the Committee on Resources (Shteir, 2007). A statement by Janice Schacter, the Chair of the Hearing Access Program of the Hearing Loss Association of America, on behalf of her daughter who is hard of hearing, indicated varied levels of access in national park units and that anticipating the level of access ahead of time was difficult as park websites did not always reflect what was actually available (Disability Access in the National Park System, 2006a). She spoke of encountering park units where there were no ALDs or captioning for the park film and of captioning systems that were broken or with text too small to read. In her testimony, Schacter stated that the parks appear to be stretched financially and have endured personnel cutbacks, but that "lack of finances is not an excuse for inappropriate access" (Disability Access in the National Park System, 2006a, Statement of Janice Schacter, para. 12). Another statement provided by James McCarthy, Director of Governmental Affairs of the National Federation of the Blind, said that people who are blind tend not to want specific changes to the built or natural environment as they generally are done by "individuals who do not actually know the capacities of blind people, and they don't ultimately therefore meet our needs" (Disability Access in the National Park System, 2006b, Statement of James McCarthy, para. 3).

In response to this hearing, the National Park Service issued a memorandum acknowledging a failure to meet the minimum level of access required by Federal Law, and outlined four areas of critical need: compliance with appropriate standards or guidelines for newly designed and constructed assets; incorporation of accessibility corrections into all rehabilitation and renovation projects; provision of accessible interpretive programs, services and opportunities; and education for staff regarding the legal requirements for accessibility along with methods to more effectively meet the needs of citizens with disabilities (National Park Service, 2006a, p. 2).

An additional 2006 memorandum focusing specifically on audio-visual accessibility articulates the NPS initiative to use fee revenue dollars in the fiscal year 2007 to improve accessibility of audio-visual programs (National Park Service, 2006b, October). Stated within this memorandum is the goal that all national park units will show films that are captioned and audio-described, and have Assistive Listening Devices available in assembly areas by January 2008 (National Park Service, 2006b, October).

Universal Design

While accessibility is legally mandated, the concept of universal design is not. Universal design is "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (Connell et al., 1997, para. 1). Universal design takes into consideration "the wide spectrum of human abilities. It aims to exceed minimum standards to meet the needs of the greatest number of people" (Skulski, 2007, Accessible Design vs. Universal Design section, para. 3). This concept is different from accessible design, which describes a site or facility that complies with the minimum accessibility standards to satisfy specific legal mandates or code requirements (Skulski, 2007).

The seven Principles of Universal Design were developed to guide the usability of products, environments and communications (Connell et al., 1997) and are as follows:

- *Equitable use:* The design is useful and marketable to people with diverse abilities;
- *Flexibility in use:* The design accommodates a wide range of individual preferences and abilities;
- *Simple and intuitive use:* Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level;
- *Perceptible information:* The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities;
- *Tolerance for error:* The design minimizes hazards and the adverse consequences of accidental or unintended actions;
- *Low physical effort:* The design can be used efficiently and comfortably and with a minimum of fatigue; and
- *Size and space for approach and use:* Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility (para. 4–10).

It is suggested that these principles "may be applied to evaluate existing designs, guide the design process, and educate both designers and consumers about the characteristics of more usable products and environments" (Connell et al., 1997, para. 2).

The Programmatic Accessibility Guidelines for NPS Interpretive Media (HFC Accessibility Committee, 2012) references the NPS 2006 Management Policies, which guides park facilities toward the incorporation of universal design principles in order to provide accessibility for all. The guidelines further state that all planning should be guided by universal design principles, particularly the first principle of equitable use. For this principle, it is expected that "the same experience can be provided for all users, without segregating or stigmatizing others with special accommodations or the need to ask for the special accommodations" (HFC Accessibility Committee, 2012, p. 7, para. 1).

Barriers to Inclusive Recreation and Strategies for Overcoming Barriers

Germ and Schleien (1997) interviewed Minnesota's key community leisure service agencies to identify the inclusive practices employed and barriers encountered in serving people with disabilities. Administrators and supervisors reported financial constraints more so than any other barrier (Germ & Schleien, 1997). Difficulties were encountered in securing additional funding for hiring and training personnel, budgeting for new programs, identifying new funding sources, and persuading city councils on proposed allocations of resources for inclusive programming. Administrators, supervisors, and program instructors also believed staff attitudes to be an issue (Germ & Schleien, 1997). Germ and Schleien (1997) stress the need for increased attention to staff training, including any program instructors or volunteers that may have minimal duties or present only a few programs, as well as the importance of administrator involvement with inclusive programming, as it is difficult to facilitate programs without any actual experience with the program itself. From a National Park Service perspective, Chief Interpretive Ranger Karl Pierce of Cabrillo National Monument listed similar barriers to making parks more accessible including adequate funding, staffing, time, and technological limitations (Shteir, 2007).

Coco-Ripp (2005) looked at the importance of inclusive recreation and barriers to providing such recreation. Inclusive recreation was defined as providing services that offer everyone involved a full range of choice, social connections, and support, as well as the opportunity to reach their potential. As part of her literature review, she cited a national survey by Devine and Kotowski (1999) which found that financial restraints, lack of training, and the role of qualified staff were limiting factors to implementing inclusive recreation. Overall, Coco-Ripp (2005) identified three areas that are problematic when providing recreation for people who are deaf: communication, deaf identity, and social skills.

The concept of access is often narrowed to a discussion of technical or structural solutions, as opposed to a recognition of the broader social context that it entails. Burns, Paterson, and Watson (2009) studied motivations for outdoor recreation and found that for some people who are deaf, the outdoors provided an escape from the frustrations of communication, as the outdoors provided a means to manage such emotions. They concluded that it is important to understand not only the physical barriers present for disabled people to recreate outdoors, but also the reasons of how and why people wish to access the outdoors. Burns, Paterson, and Watson (2009) stress that there are more than structural changes that need to happen at a facility (ramps, captions), such as understanding the social context and needs of people with disabilities while recreating.

The National Center on Accessibility, established at Indiana University through a cooperative agreement with the National Park Service, sponsored a study to identify the perceptions of people with disabilities relative to program and physical accessibility in the NPS (Chen, 2001). Visitors to five national park units were surveyed including Great Smoky Mountains National Park, Blue Ridge Parkway, Shenandoah National Park, Mammoth Cave National Park, and Hot Spring National Park. This survey was a first of its kind, as it focused on the perceptions and expectations of visitors regarding individual park accessibility (Chen, 2001).

The results showed that visitors indicated deciding to visit parks less than a month in advance, yet park units typically require a month's notice for providing a sign language interpreter. Additionally, the majority of all visitor respondents for each park indicated that they did not know if the park had a TTY. The majority also indicated that information on park accessibility was readily available and that they obtained information on park accessibility using the Internet, as well as the visitor center or ranger station, or a call to the park. Visitor respondents offered suggestions for accessibility improvement, including hiring individuals with disabilities as consultants of park management teams, understanding the needs of individuals with disabilities, and additional funding to make improvements (Chen, 2001).

The accessibility of park units from the visitor's perspective is important not just for park planners, but park visitors as well. Two online blogs share personal experiences and photos about recreating in nature with a disability. *Explorabilities: A Blog for the Physically Disabled Nature Enthusiast* provides reviews along with recommendations of travels to various national parks, written by an individual with Multiple Sclerosis (Schuknecht, 2015). Wheelchairtraveling.com allows for public contribution of accessibility reviews and hosts an *Access 2 Parks Project* that provides a listing of park guides to assist people with limited mobility to plan a park visit (Wheelchairtraveling.com, 2016).

Type of NPS unit	Number of respondents[a]
National Historical Park/Site	58 (37%)
National Park	40 (26%)
National Memorial/Monument	22 (14%)
National Battlefield/Military Park/Site	10 (6%)
National Recreation Area	9 (6%)
National Lakeshore/Seashore	5 (3%)
International Historic Site	3 (2%)
National Preserve/Reserve	3 (2%)
National River/Wild and Scenic River and Riverway	3 (2%)
Other Designation	2 (1%)
National Parkway	1 (1%)
National Scenic Trail	0 (0%)

[a]n = 156

Table 1. Respondents' type of NPS unit

Distance from population center	Number of respondents[a]
Site located within a population center	65 (31%)
60 miles or less (1 hour or less)	62 (29%)
61-180 miles (1-3 hours)	60 (29%)
Over 180 miles (over 3 hours)	23 (11%)

[a]n = 210

Table 2. Distance of responding NPS units from population center

Distance from major population center	Number of respondents[a]
Site located in city with a major community of people who are d/Deaf or HoH	42 (20%)
60 miles or less (1 hour or less)	33 (16%)
61-180 miles (1-3 hours)	43 (21%)
Over 180 miles (over 3 hours)	28 (13%)
Not sure	64 (30%)

[a]n = 210

Table 3. Distance of responding NPS units from major community of people who are d/Deaf or HoH

Visitation levels to visitor center	Number of respondents[a]
Less than 20,000	31 (15%)
20-45,000	43 (21%)
45-100,000	51 (24%)
100-250,000	34 (16%)
250-500,000	27 (13%)
500,001(+)	24 (11%)

[a]n = 210

Table 4. Annual number of people entering park's visitor center

Research Questions

The literature review suggests that interpretive services may not be sufficiently meeting the needs of visitors with disabilities. Dissatisfaction may actually be higher, as visitors with disabilities may choose to not visit a park unit (and thus not participate in these research studies) due to anticipating a lack of accommodations or having had prior experience where needs were not met. Investigating the interpretive accommodations currently provided to National Park Service (NPS) visitors who are d/Deaf or hard of hearing (HoH) can provide guidance as to where additional resources and services are needed. The following research questions guided this study:

1) How do NPS units accommodate for visitors who are d/Deaf or HoH within their provided frontcountry interpretive services?

2) What guides NPS units' provision of interpretive accommodations for visitors who are d/Deaf or HoH?

3) Do NPS units perceive they are sufficiently providing interpretive accommodations for visitors who are d/Deaf or HoH?

4) What barriers do NPS units face relating to interpretive accommodations for visitors who are d/Deaf or HoH?

Methods

This quantitative study utilized a cross-sectional design in the form of a self-administered survey, composed primarily of close-ended questions. The survey was administered online, as it allowed for data collection from a greater number of National Park Service (NPS) units in comparison to what would reasonably have been attained by gathering data via telephone or personal interviews. Additionally, the online survey allowed respondents to take the survey at a time most convenient for them and helped to maintain respondent anonymity.

The population of interest for this study was the Chiefs of Interpretation from all 401 (as of March 2014) NPS units, as these are the NPS employees with likely the most familiarity with interpretive accommodations at their respective park units. However, if the Chiefs of Interpretation felt another employee could better answer the survey, they were given the option for passing the survey on to an employee with more in-depth knowledge of interpretive accommodations. Sampling was not needed as the original population of interest (N=401) was feasible for this survey.

A total of 226 responses were collected for the survey (from 401 NPS units), for a 56.4% response rate. Table 1 displays the NPS units represented among the respondents. Tables 2 and 3 display the approximate distance of responding NPS units from a population center (50,000–70,000 or more people) and from a major community of people who are d/Deaf or HoH, such as a city or an area that have schools which serve students who are d/Deaf or HoH. Annual visitation to the responding NPS units' visitor centers (combining numbers of visitors to all park visitor centers if more than one in park) is seen in Table 4 (n=210). The majority of respondents indicated that their NPS unit offers non-personal interpretive services and that their NPS unit also offers personal interpretive services (99% and 98% respectively).

The survey instrument was developed specifically for this study. The self-administered survey contained 37 close-ended and six open-ended questions. Six of the

close-ended questions contained a response option, "other," that allowed respondents to provide their own additional information. These questions were used to gather information regarding interpretive accommodative services provided, guidance for interpretive accommodations, perceptions as to the quality of services provided, and barriers to the provision of interpretive accommodations for each NPS unit. The survey also included general questions about the NPS units' proximity to population centers, visitation levels, budget, and overall interpretive services. Survey questions were chosen based on the review of literature and the researchers' experience working in the NPS. A panel of three experts reviewed the survey for content validity. This panel included one with expertise in survey design, one with expertise in accommodations for persons who are d/Deaf or HoH, and one NPS Chief of Interpretation. Based on their feedback, survey questions were revised before being administered to the population of interest. Feedback from the Chief of Interpretation included the suggestion to contact the Washington D.C. Office, Division of Interpretation and Education to make them aware of this study. Consequently, contact was made with the current NPS Associate Director for Interpretation, Education, and Volunteers who viewed the study as relevant and useful. Permission was granted to refer to this NPS Associate Director's positive sentiments in the recruitment emails sent to NPS units; however it would remain clear in the invitation that this study was an independent study conducted by a university graduate student and that the study was not being conducted on behalf of or for the NPS. Contact was also made with the Director of Education and Technical Assistance at the National Center on Accessibility who provided survey feedback prior to survey administration.

After university Institutional Review Board approval, the survey was administered via the online platform Qualtrics, following an administration approach similar to that used by Kwak and Radler (2002). An introductory email was sent out, informing participants about the study and asking for their voluntary compliance in participating in the survey. To increase the response rate, a follow-up email was sent out seven days after the initial survey. A final email was sent out to thank the park service staff for participating in the survey and to provide a final opportunity to complete the survey. All emails were sent out with a link to the survey, along with a consent form. Participants had 18 days to complete the survey. Two hundred and twenty-six responses were received, for a response rate of 56.4%.

The following are several areas discussed by Babbie (2011), where validity may have been threatened in this study. Standardization of questions may have resulted in missing site-specific information. However, open-ended questions were used in attempts to potentially alleviate this threat. In addition, artificiality of results may have occurred as respondents may not have been aware of whether their park unit offers a specific accommodation or not, though they still may have answered the question. Respondents may also have felt that their park unit was being looked at critically, and may have provided a more favorable response. The purpose of this study was made clear in the sent emails, so as to avoid any threat to park units that may only provide minimal accommodations. Allowing the Chiefs of Interpretation to pass the survey on to a fellow staff member who was more knowledgeable about interpretive accommodations for visitors who are d/Deaf or HoH may also have reduced the artificiality of results.

Accommodation	Frequency of respondents indicating their park unit provides the accommodation[a]
Open/Closed Captions	183
ALDs for visitor center use (exhibits, films)	133
Sign language Interpreter (on request)	56
Printed scripts of programs	35
Portable ALDs for walks, talks, tours	31
Volume Controlled Phones	29
Visitor Center TDD, TTY	24
Sign language Interpreter (on-site)	12
Public use TTYs	6
Printed scripts of films/audio components	5
Videophones	3
Mobile device tour/apps	3
Acoustiguide	1
UbiDuo	1
Sound system for special programs	1
Provide a ranger	1
Website	1
Self-guided walking tour brochures	1
Vision Impaired exhibits/accommodations	5

[a]Respondents could check all that apply; n = 224.

Table 5. Accommodations provided for visitors who are d/Deaf or HoH

Method of communication	Frequency of respondents indicating their park unit uses method of communication for availability of accommodative services[a]
Park website	155
Signage posted in visitor center	141
Park brochure	111
Social media	85
Park newspaper	54
Public outreach	49
Other	26

[a]Respondents could check all that apply; n = 212.

Table 6. Methods of communication used for available interpretive accommodations

Results

The results will be discussed in context of the study's over-arching research questions.

1) *How do NPS units accommodate for visitors who are d/Deaf or HoH within their provided frontcountry interpretive services?*

Survey participants were asked whether their park had offered programs specifically for visitors with disabilities within the last year. Of 224 respondents to this question, 59 respondents (26%) indicated they had, and 165 respondents (74%) had not. When asked if their park had offered programs specifically for visitors who are deaf or hard of hearing within the past year, most had not (179 of the 223 respondents, 80%, had not).

While 16 of the 224 respondents indicated their park units provide no interpretive accommodations, most respondents indicated at least one accommodation for visitors who are d/Deaf or HoH. The most frequently provided accommodation was open/closed captions (see Table 5). As noted in Table 5, 183 park units had open/closed captioning; of those, the majority (158 respondents, 71%) used on-screen captioning, and the remaining used captioning on a separate reader board. For those using on-screen captioning, the majority used open rather than closed captioning (128 respondents, 81%). Of the 37 respondents indicating their park units did not have open/closed captioning, 26 indicated not having a park film and thus not needing open/closed captioning.

The second most frequently provided interpretive accommodation was Assistive Listening Devices (ALDs) (see Table 5). Of the 147 respondents (66%) whose park units have exhibits with audio components, 128 respondents (88%) indicated that accommodations are available. However, many respondents indicated they were unsure if they had (44 respondents, 21%) or did not have (117 respondents, 55%) standard

Table 7. Guidance for planning for the provision of interpretive accommodations for visitors who are d/Deaf or HoH

Means of Guidance	Frequency of use for guidance in provision of interpretive accommodative services[a]
Organizations	
Harpers Ferry Center	18
Accessibility organizations/service centers	3
National Center on Accessibility	2
NPS staff Regional office	2
Local University	1
Partnership with School for Deaf and Blind	1
Universal Design group	1
Best practices shared from other museums and parks	1
Guidelines	
NPS policy/guidelines	18
ADA guidelines	15
General laws, policies, directives	7
Long Range Interpretive Plan	3
Park Accessibility Plan	2
Smithsonian Guidelines for Accessibility	1
Assessment	
Visitor needs/requests	16
Accessibility assessment	11
Level of demand	3
Annual visitor use survey	1
Ease of use by visitors/staff	1
Training/experience	
Accessibility training and experience	4
Awareness of requirement for accommodations	1
Staff members dedicated to accessibility services	1
Staff with hearing disabilities	1
Funding	
Funding	5
Ability to maintain service into future	1
Other	
Case by case basis	6
N/A	3

[a]Responses compiled from open-ended question; n = 104; Respondents could indicate multiple forms of guidance

operating procedures for maintaining their ALDs or other accommodation equipment.

A sign language interpreter upon request was the third most frequently provided interpretive accommodation for visitors who are d/Deaf or HoH (see Table 5). Of the 56 respondents who indicated providing a sign language interpreter upon request, 27 (12%) required less than a week's notice; 33 (15%) required two weeks; and 15 (7%) indicated their site required three weeks or more. In addition, most park units indicated being able to meet requests for a sign language interpreter (180 of 213 respondents, 85%). For the 33 respondents (15%) unable to meet requests for sign language interpreters, the most frequent reason was the request for an interpreter was made with too short of notice. In addition, the following reasons were also stated: sign language interpreter was not available; park unit in remote location/no interpreters in area; no one qualified on staff; never had received a request in the past; and no funding available.

Respondents who indicated providing some level of interpretive accommodative services for visitors who are d/Deaf or HoH were asked how they communicate the availability of these services. Of the 212 respondents to this question, most indicated using their park website (155 respondents) or signage posted in the visitor center (141 respondents); see Table 6. Other responses for communication of available services included Trip Advisor narrative, news releases, handouts, and a partnership with their State School of the Deaf and State School of the Blind.

One form of interpretive accommodations for visitors who are d/Deaf or HoH includes having trained staff on duty. While most respondents (161 of 224 respondents, 72%) indicated having general accessibility training at their park units, only 63 (28%) indicated having training specifically regarding visitors who are d/Deaf or HoH. For those who indicated having training specific to visitors who are d/Deaf or HoH, most indicated their training included what resources/services were available in the park to visitors who are d/Deaf or HoH and how to communicate with people who are d/Deaf or HoH.

The majority of respondents indicated that they have reviewed their interpretive accommodative services for visitors with general disabilities (146 of 212 respondents, 69%) as well as for visitors who are d/Deaf or HoH (114 of 146 respondents, 78%). Of the 114 respondents that indicated they reviewed their interpretive accommodative services for visitors who are d/Deaf or HoH, 64 (56%) indicated that they regularly review those services (once every year or at least once every several years).

2) *What guides NPS units' provision of interpretive accommodations for visitors who are d/Deaf or HoH?*

Respondents were asked, through an open-ended question, what guides their planning for the provisions of interpretive accommodations for visitors who are d/Deaf or HoH. Their responses are summarized in Table 7. The most frequent responses were Harper's Ferry Center guidance, NPS policies/guidelines, and requests from visitors. Respondents also were asked the degree to which specific guidelines or regulations influence their parks' provision of interpretive accommodations for visitors who are d/Deaf or HoH. The most influential guidance for respondents was the Americans with Disabilities Act (M = 3.37, SD = .88) and the Harpers Ferry Center Accessibility Guidelines (M = 3.06, SD = 1.02), which corresponded to a rating of somewhat influential on a four-point rating scale (1 not at all influential/not familiar with to 4 = very influential). Less influential were the principles of Universal Design (M = 2.90, SD = 1.03), their park Long Range Interpretive Plan (M = 2.72, SD = 1.01), and the Rehabilitation Act (M = 2.42, SD = 1.18). In addition, respondents

were asked if their park unit's provision of interpretive accommodations was guided by persons with disabilities. Of 213 responses, 85 respondents (40%) indicated they were, while 88 respondents (41%) indicated they were not, and 40 respondents (19%) indicated they were unsure.

Beyond polices, guidelines, and guidance from persons with disabilities, results suggest provision of interpretive accommodations for visitors who are d/Deaf or HoH seem to be influenced by the frequency of requests for services. Respondents were asked about the frequency of requests for services made by visitors who are d/Deaf or HoH, regardless of if the park unit has access to the requested service or not. The majority of respondents (96 respondents, 44%) indicated receiving one request per year, and 89 respondents (41%) indicated receiving requests either less than one a year or no requests. There were respondents who indicated receiving requests more frequently, with 30 respondents (14%) indicating receiving monthly requests, 3 respondents (1%) receiving weekly requests, and 2 respondents (1%) receiving daily requests. There was a significant correlation between frequency of requests and offering programs specifically for visitors who are d/Deaf or HoH ($r = .31$, $p = < .01$). Further, there were significant correlations between offering programs specifically for visitors who are d/Deaf or HoH and perceived need to provide accommodative services ($r = .16$, $p = .02$), distance from major community of people who are d/Deaf or HoH ($r = .14$, $p = .05$), and visitor center visitation ($r = .21$, $p < .01$).

3) *Do NPS units perceive they are sufficiently providing interpretive accommodations for visitors who are d/Deaf or HoH?*

Respondents were asked if they have had visitors to their park who are d/Deaf or HoH (n=225). One hundred, ninety-nine (88%) responded that they had, 2 (1%) responded that they had not, and 24 (11%) responded that they were unsure. Respondents were asked how great of need there was to provide interpretive accommodative services for visitors who are d/Deaf or HoH at their park unit. Most respondents indicated somewhat of a need to provide interpretive accommodations (135 respondents, 60%), while 69 respondents (31%) indicated a strong or very strong need. Some respondents indicated that interpretive accommodations were not needed at their park unit (20 respondents, 9%; there was not an opportunity for respondents to expand upon this response). Perceived need was significantly related to distance from population center ($r = .16$, $p = .02$), distance from major community of people who are d/Deaf or HoH ($r = .25$, $p = < .01$), and visitor center annual visitation ($r = .26$, $p = < .01$). This suggests park units that were closer to population centers or communities of people who are d/Deaf or HoH and units with higher visitor center visitation perceived a greater need to provide interpretive accommodations.

Respondents were asked if they felt their park unit is sufficiently meeting the needs of visitors who are d/Deaf or HoH and if they are providing similar interpretive experiences for both non-hearing and hearing visitors. About a third of respondents felt their NPS units were sufficiently meeting the needs of visitors and providing similar experiences for hearing and non-hearing visitors (65 respondents, 31% and 59 respondents, 28% respectively; there was not an opportunity for respondents to expand upon their response). Some units indicated they felt they were neither meeting the needs of visitors who are d/Deaf or HoH (90 respondents, 42%) nor providing similar experiences (89 respondents, 42%), and others were unsure (57 respondents, 27% and 64 respondents, 30% respectively).

HoH is needed or not needed at NPS unit

Reasons why needed	Frequency of respondents indicating reason[a]
Every visitor deserves access to information/interpretation	30
Frequent visitation/requests for accommodative services	16
Interpretive media in need of improved accessibility (ALDs, captions)	10
Legal obligations	5
A Deaf Services Coordinator might better asses actual needs of park	3

Reasons why not needed	Frequency of respondents indicating reason[a]
Limited requests/low visitation	69
Already have sufficient level of accommodative services	24
Other park priorities	6
Need for general accessibility first	6
Few/no interpretive media with sound	5
Visitors typically arrive with own way of dealing with needs (friends who can interpret)	2
Use of park website, social media, smart phones sufficient	2
Limited storage space for any additional services	2

[a]Responses compiled from open-ended question; n = 163; Respondents could indicate multiple reasons.

Table 8. Respondents' reasons why a high level of accommodative services for visitors who are d/Deaf or HoH is needed or not needed at NPS unit

Reasons why feasible	Frequency of respondents indicating reason[a]
Current opportunities for facility improvements	14
ALDs feasible equipment to purchase	6
Available expertise (local school for Deaf, staff member with hearing impairment)	4
Funding could be secured	2

Reasons why not feasible	Frequency of respondents indicating reason[a]
Limited budget	34
Limited requests/low visitation	32
Limited staffing	19
Remote location	5
Need for training/awareness of options	4
Limited formal interpretive programming	3
Visitor contact stations located over large area	3
Need for general accessibility first	2
Deaf Services Coordinator better as a collateral duty	2
Other park priorities	2
Minimal pressure from management	1

[a]Responses compiled from open-ended question; n = 145; Respondents could indicate multiple reasons.

Table 9. Respondents' reasons why a high level of accommodative services for visitors who are d/Deaf or HoH is feasible or not feasible at NPS unit

Service most important accommodation to add	Frequency[a]
Staff training for interpretive accommodations	73 (35%)
ALDs	49 (24%)
Sign Language Interpreter (upon request)	19 (9%)
Printed transcripts of ranger programs	19 (9%)
Open captions	15 (8%)
Sign Language Interpreter (on-site)	12 (6%)
TDD, TTY	5 (3%)
Videophones	4 (2%)
Public use TTYs	3 (2%)
Accessibility assessment of NPS unit	2 (1%)
Advertised sign language interpreted programs	1 (0.5%)
More Universal Design in exhibits, both tangible and online	1 (0.5%)
Volume controlled phones	0

[a]n = 206

Table 10. Accommodative service most important to add to interpretive operations for visitors who are d/Deaf or HoH

Respondents were also asked if they felt the following level of interpretive accommodations for visitors who are d/Deaf or HoH was needed and would be feasible at their park unit: Assistive Listening Devices (ALDs) available for park programs, public videophones, accessibility kits in park hotels, and a staffed Deaf Services Coordinator position. About half of respondents indicated they felt this level of service (these expanded accommodative services) was needed (103 respondents, 50%) and about one half of respondents indicated they felt it was feasible (113 respondents, 55%). Table 8 provides reasons as to why and why not respondents felt a high/expanded level of services would be needed at their park unit. Table 9 provides reasons why respondents perceived this expanded level of services to be feasible or not feasible. Respondents were asked to select from a list of possible services what one accommodative service that they feel would be most important to add to their interpretive operations for visitors who are d/Deaf or HoH. The most frequent responses were staff training for interpretive accommodations and ALDs; see Table 10.

Barrier	Mean[a] (SD)
Limited budget for Division of Interpretation (n = 210)	3.90 (1.24)
Limited park budget (n = 209)	3.84 (1.23)
Infrequent number of requests for services (n = 212)	3.57 (1.46)
Priorities for interpretation budget other than accessibility (n = 208)	3.46 (1.28)
Other (n = 30)	3.20 (1.80)
Staff with limited experience with accommodations (n = 211)	3.17 (1.30)
Limited time for staff accessibility training (n = 212)	3.15 (1.31)
Lack of personal familiarity with services used by visitors who are d/Deaf or HoH (n = 211)	2.58 (1.15)
Limited personal interpretive services/programs (n = 210)	2.50 (1.47)
Low number of park visitors (n = 211)	2.46 (1.54)
Lack of or limited knowledge of legal responsibilities (n = 207)	2.43 (1.20)
Low attendance to interpretive programs (n = 208)	2.28 (1.44)
Low number of visitors entering visitor center (n = 209)	2.25 (1.50)
Little support from Superintendent on accessible issues (n = 210)	1.40 (0.89)

[a]1 = *not a barrier* to 5 = *strong barrier*

Table 11. Level of influence of barriers to provision of interpretive accommodations for visitors who are d/Deaf or HoH

4) What barriers do NPS units face relating to interpretive accommodations for visitors who are d/Deaf or HoH?

Respondents were asked to rate the strength of each potential barrier to providing interpretive accommodations for visitors who are d/Deaf or HoH (1 = not a barrier to 5 = strong barrier). The strongest barriers were limited Division of Interpretation budget and limited park budget; the strength of these barriers corresponded with a rating of somewhat to moderate barrier (see Table 11). Respondents had the opportunities to list additional barriers, which included the following: low demand for interpretive accommodation; limited staff time; minimal staff to cover all interpretive operations; budget; changing technology; and lack of on-demand training (online).

In anticipation of the role of budget in influencing the provision of interpretive

accommodations (Germ & Schleien, 1997, Devine & Kotowski, 1999, Shteir, 2007), respondents were asked to indicate sources of funding for general interpretive accommodative services, indicating all that applied. Most indicated their Division of Interpretation budget (139 respondents) or general park budget (82 respondents), while other sources included special grant funding (79 respondents), natural history association (21 respondents), and some indicated not knowing (3 respondents). Other sources for funding indicated through open response included park donations, fee program funds, and volunteers, with one response of "none." Additionally, 84 respondents (40%) indicated having received funding specifically for accessibility improvement projects for interpretive accommodations for visitors who are d/Deaf or HoH.

Discussion and Recommendations

The purpose of this study was to describe the provided interpretive accommodations for National Park Service (NPS) visitors who are d/Deaf or hard of hearing (HoH). Based on the high response rate to this voluntary survey (respondents from 226 of the 401 NPS units), it seems there is an openness to and interest in ensuring that visitors are appropriately accommodated. Perhaps this is reflective of, or at least consistent with, *A Call to Action: Preparing for a Second Century of Stewardship and Engagement*, which, in preparation for the 100th anniversary of the National Park Service in 2016, identifies specific actions to advance its mission (National Park Service, 2011). Within this *A Call to Action* is the goal of strengthening the educational and interpretive mission by engaging NPS visitors with interpretive media that is accessible to the broadest range of the public.

Achieving Relevance in Our Second Century (National Park Service, National Council for Interpretation, Volunteers, and Education, 2014), which aligns with *A Call to Action*, helps identify ways for the NPS to prioritize and expand limited resources, while adapting to recent budget cuts and staff reductions. This strategic plan mentions the need to strengthen the capacity for organizational learning, increase flexibility in response to new opportunities and challenges, and ensure the presence of forward-thinking leaders. The desired outcome, *Relevance and Inclusion*, is particularly relevant to this study, as it includes the strategies of improving the accessibility of interpretive programs and products, using social media and other emerging technologies to promote free-choice learning and reach new audiences, and using social science research to better understand audiences and stay current on best practices. The desired outcome, *Business Acumen*, includes the strategies of creating a flexible and adaptive organizational culture by regularly seeking input from stakeholders and encouraging a culture of evaluation. Strategies also include using long-range interpretive planning processes to incorporate trends, operational realities and audience research, as well as supporting and training staff, volunteers, and partners involved with interpretation, education, and volunteer services (National Park Service, National Council for Interpretation, Volunteers, and Education, 2014). Similarly, the Accessibility Task Force of the National Park Service's plan for improving accessibility, *All In! Accessibility in the National Park Service, 2015–2020*, focuses on three main goals: "Create a welcoming environment for visitors with disabilities; ensure that new facilities and programs are accessible; upgrade existing facilities to improve accessibility" (National Park Service, n.d. c).

Based on the respondents to this survey, most NPS units have not provided programs specifically for visitors with disabilities, nor have they provided programs specifically for visitors who are d/Deaf or HoH. And several park units indicated

not even offering the basic accommodations of captioning for their park film, nor accommodations for audio components of exhibits. However, most units do provide some form of interpretive accommodations for visitors who are d/Deaf or HoH, such as open or closed captioning, Assistive Listening Devices, and sign language interpreters upon request. Another encouraging finding is that many respondents indicated having completed accessibility assessments at their park units, which they have then used to guide the provision of accommodations for visitors with disabilities, including visitors who are d/Deaf or HoH. Many also are guided by relevant legislation and policies, as well as by the Harpers Ferry Center Accessibility Guidelines. Some respondents also indicated their provision of accommodations was guided by people with disabilities.

In addition, the results of this study suggest the provision of programs specifically for visitors who are d/Deaf or HoH was related to the degree to which park units perceived a need for interpretive accommodative services, frequency of requests for services, distance from a major community of people who are d/Deaf or HoH, and annual visitor center visitation. In some cases, lack of requests for interpretive accommodations or even perceived lack of need may be a true reflection of lack of need. Perhaps the unit's overall visitation level is low and consequently the number of visitors who are d/Deaf or HoH is also low. Or perhaps visitors are enjoying NPS units in ways that do not require accommodations or special programs. On the other hand, lack of requests or a perceived lack of need may mask a true need, as this disability often isn't as apparent as other disabilities, such as visual or mobility impairments. For example, about 10% of respondents weren't sure whether or not they have had visitors to their parks who were d/Deaf or HoH.

In spite of this uncertainty regarding actual need, many respondents offered this reason for why they felt their park unit should be doing more in terms of accommodations for visitors who are d/Deaf or HoH: Every visitor deserves access to interpretation. Further, about two-thirds of the respondents to this study indicated they perceived their park unit was not sufficiently meeting the needs of visitors who are d/Deaf or HoH, and most perceived either a need or a strong need to better accommodate visitors who are d/Deaf or HoH. This, coupled with a high overall response rate, suggests something other than an attitudinal barrier to ensuring non-hearing visitors and hearing visitors have similar interpretive experiences. Instead, a variety of other barriers seem to be standing in the way of providing needed services and accommodations, including budget and staffing constraints, lack of knowledge or familiarity with possible services used by visitors who are d/Deaf or HoH, and limited knowledge of legal responsibilities or guidelines pertaining to visitors who are d/Deaf or HOH. These barriers identified through this current study are consistent with some of the barriers previously identified, such as in Germ and Schleien (1997) and Coco-Ripp (2005).

With many respondents indicating a need to better accommodate visitors who are d/Deaf or HoH, the question is how to do so. Survey results prompted the following recommendations, which are further described in the paragraphs that follow:

- Staff training regarding interpretive accommodations;
- Incorporate the Principles of Universal Design into the planning and provision of interpretive services;
- Include individuals who are d/Deaf or HoH when planning, updating, or evaluating interpretive services;

- Regular park unit assessments for accessibility;
- Personal and agency-level commitment toward equitable service;
- Use websites as a source of information regarding interpretive accommodations;
- Develop Standard Operating Procedures (SOPs) for accommodative services such as ALDs; and
- Create a collateral duty for general accessibility

Most respondents, when asked if they could do one thing to better accommodate visitors who are d/Deaf or HoH, identified *staff training regarding interpretive accommodations*. Staff training would be useful toward decreasing two barriers identified in this study: lack of knowledge or familiarity with possible services used by visitors who are d/Deaf or HoH and limited knowledge of legal responsibilities or guidelines pertaining to visitors who are d/Deaf or HoH. The need for staff training is consistent with the literature. For example, Devine and Kotowski (1999, as cited in Coco-Ripp, 2005) found that lack of training and lack of qualified staff were limiting factors to implementing inclusive recreation, along with staff attitudes that were negative toward accommodations. Germ and Schleien (1997) stressed the need for increased attention to staff training, including even program instructors or volunteers who have minimal duties or present only a few programs. Bedini and Stone (2000, as cited by Coco-Ripp, 2005) suggested teaching awareness of deaf identity in recreation, as well as teaching how to provide opportunities for social skill development through recreation.

The majority of NPS units responded that interpretive staff received training regarding accessibility in general, however only 28% responded that this training includes topics specifically related to visitors who are d/Deaf or HoH. Staff with limited experience with accommodations and limited time for staff accessibility training were both rated by respondents as acting as somewhat of to moderate barriers to the provision of interpretive accommodative services. In regards to an open-ended question as to whether or not a higher level of accommodations for visitors who are d/Deaf or HoH is needed or feasible, several respondents indicated a need for training to become familiar with services in regards to visitors who are d/Deaf or HoH. One respondent stated, "I'm actually not sure…. Perhaps if I knew more about this area of accessibility, I would better understand where/how the services would be helpful."

Another respondent indicated being unsure how to find relevant training, suggesting the usefulness of an online course offered "on demand." In light of respondents indicating limited time available for staff accessibility training, and in some cases not enough staff to cover all the demands of the interpretive division, an online training course that could be accessed at any time is a good suggestion. Currently, the National Center on Accessibility, along with the Eppley Institute for Parks and Public Lands, has two courses relating to accessibility (one on Universal Design Principles, and one on access). Raising awareness of these training options among NPS interpretive staff may be helpful. In addition, The Eppley Institute and the National Center on Accessibility, potentially in conjunction with the NPS, might consider the development of additional modules focusing on fostering understanding of specific disabilities in an interpretive context, such as one on visitors who are d/Deaf or HoH. Another training option for consideration would be within the Interpretive Development Program, which

provides NPS interpreters with professional growth and development opportunities. While the interpretive competencies currently available include the topic of accessibility as a small component within them, the addition of a separate competency regarding accessibility (or interpretation for visitors with disabilities) may be beneficial.

In addition to staff training, another recommendation for better accommodating visitors who are d/Deaf or HoH is to *incorporate the Principles of Universal Design into the planning and provision of interpretive services*. These principles could also be used for evaluating existing interpretive services. While some respondents indicated their units' provision of interpretive accommodations were influenced by these principles or were influenced by the Harpers Ferry Center Programmatic Accessibility Guidelines (which incorporate the Principles of Universal Design), the Principles of Universal Design were not as influential as legislation aimed toward eliminating discriminatory policies and practices. The Americans with Disabilities Act, which was, on average, the most influential guidance on the provision of interpretive accommodations at respondents' units, reflects accessible design or the compliance with minimum accessibility standards to satisfy specific legal mandates (Skulski, 2007).

In contrast, universal design aims for use by people of all abilities, to the greatest extent possible, without the need for adaptation; rather than meeting the minimum accessibility standards, the aim is to exceed the minimum standards (Connell et al., 1997). With interpretive services grounded in the Principles of Universal Design, visitors who may not have otherwise requested assistance would benefit. For example, open captions may be beneficial to people who don't wish to identify themselves as being d/Deaf or HoH, those learning English, or for media situated in a noisy room. Thus, by grounding interpretive services in the Principles of Universal Design, visitors can benefit from the interpretive services provided without being segregated with special accommodations or stigmatized by having to ask for special accommodations (Harpers Ferry Center Accessibility Committee, 2012). In addition, the Principles of Universal Design can help address the problem noted in the literature regarding access to the outdoors for people with disabilities being narrowed to thinking more along technical solutions, such as free entry and closed captioning, rather than along a broader social context (Burns, Paterson, & Watson, 2009). The Principles of Universal Design provide a more holistic approach to planning interpretive services that are usable by people of all abilities. With universal design, issues of accessibility can be addressed not as isolated problems or projects, but through initiatives that reach the greatest number of people.

An additional recommendation stemming from this study and the literature review is to *include individuals who are d/Deaf or HoH when planning, updating, or evaluating interpretive services*. While 40% of respondents have included individuals with disabilities to provide guidance regarding accommodative interpretive services at their respective park units, the majority has not. Including individuals with disabilities when planning or evaluating interpretive services is consistent with recommendations by Chen (2001) and would help address the barrier of lack of knowledge or familiarity with possible services used by visitors who are d/Deaf or HoH. As several respondents noted, requests, feedback, or suggestions from visitors who are d/Deaf or HoH can guide provision of interpretive accommodations. They know best what they need and may have had experiences at other parks or museums where they experienced something that worked well that might be transferable to another park unit. Another resource to consider is the State Residential School for the Deaf, as each state in the United States has a residential school. In addition,

the National Association of the Deaf, which is a civil rights organization of, by, and for individuals who are deaf and hard of hearing, may be another resource for consideration.

In addition, *regular park unit assessments for accessibility* are recommended. While the majority of survey respondents indicated they had reviewed interpretive accommodations for visitors with general disabilities and also for visitors who are d/Deaf or HoH, only about half indicated they review these services at least once every year or once every several years. With budget constraints being a barrier for many respondents, facility or program assessments conducted by the National Center on Accessibility, while perhaps ideal, would likely not be feasible. However, one respondent indicated that this survey encouraged them to check on their Assistive Listening Devices (ALDs). This respondent sent a brief online questionnaire to each of the operating visitor centers asking for the number of ALDs available, location of ALDs, if staff had been trained on their use, how often they are tested, if Standard Operating Procedures (SOPs) are available, and where signage is posted to advertise availability of the ALDs. This is an example of how a review of interpretive accommodative services could be done relatively easily and by doing so, raise awareness of accessibility to a park unit's staff and help ensure that services are available and functioning. And as mentioned in prior recommendations, including visitors with disabilities and reviewing services in light of the Principles of Universal Design would also be helpful.

Another recommendation pertains to *personal and agency-level commitment toward equitable service*. Limited time and budget, along with competing priorities for time and budget, were barriers faced by many respondents. In addition, one respondent expressed this concern, "The real question will come with the park's ability to maintain and/or improve the systems and program now in place into the future." In *Achieving Relevance in Our Second Century* (National Park Service, National Council for Interpretation, Volunteers, and Education, 2014), managers are encouraged to identify several actions from within the document and focus on those so that collectively the agency can take small steps towards common outcomes. Perhaps if some of these small steps are in the equitable service context, capacity for organizational learning regarding accessibility may be increased, as well as flexibility in response to rapidly changing technologies, even in light of competing priorities for time and budget.

With limited time and budget and competing priorities to address, the following recommendations can be accomplished with minimal budget or time. Park units that are not already *using their websites as a source of information regarding interpretive accommodations* could begin to do so. While updating the website requires technical knowledge and time, it is a resource that can be updated frequently for less cost than updating printed materials. Park units should assess the ease of access to this information on their website and verify that the information is most current. It would also be helpful for park units to include the amount of time needed for requesting a sign language interpreter, as most units indicated they require at least two weeks notice, in contrast with Chen (2001) who found many visitors decide to visit a park site less than two weeks in advance. Another low-cost recommendation is to develop *Standard Operating Procedures* (SOPs) for accommodative services such as ALDs, as most respondents indicated they did not have these in place. This is particularly useful when services are not requested frequently, as one respondent expressed, "It is a challenge for staff to remember how to use them when so rarely requested." SOPs may include location of provided services, operating instructions, troubleshooting guide, procedures to lend

equipment to visitors if applicable, and instructions for upkeep and maintenance. A final, easy-to-implement recommendation would be to *create a collateral duty for general accessibility*. For example, one respondent indicated they already had an Accessibility Coordinator as a collateral duty.

Conclusion

The NPS recognizes the need for change, acknowledges the challenges of growth, and outlines a strategy to achieve greater accessibility for park visitors. Future research is necessary to assess the needs and preferences of NPS visitors (past, current, and potential) to prioritize limited time and money. Further, perceptions NPS units have regarding how well they are meeting the needs of visitors may change as NPS units or other research entities explore the social context and broader needs of visitors who are d/Deaf or HoH beyond the physical changes to programs and structures.

The results of this study indicate areas where park units are doing well, as well as opportunities for doing more. These findings can guide the NPS as they seek to understand their audiences and improve the accessibility of interpretive programs and products.

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Predicting Intentions to Return to a Nature Center after an Interpretive Special Event

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Abstract
With the continued rise in screen media use and growing disconnect between youth and nature, the importance of community nature centers in providing natural experiences is increasingly recognized. Even so, many nature centers struggle to maintain public support and funds necessary for continued operations. One way for nature centers to engender public support and further their fundraising potential is through interpretive special events. This study seeks to understand whether (and how) interpretive outcomes of an interpretive special event relate to visitors' intentions to return to a nature center in the future. The relationship between place attachment and intentions to return was also tested. Results show that affective interpretive outcomes, more than the program-specific outcomes or place attachment, had the strongest effects on intentions to return to the center. This finding was particularly true among new visitors to the nature center. Based on our findings, in addition to providing interpretive messages focused on specific resources, interpretive managers who are interested in increasing repeat visitation to their nature centers should consider placing an even higher priority on programs that create enjoyable and meaningful experiences for visitors.

Keywords
community nature centers, interpretive outcomes, place attachment, special events, festivals, intentions to return

Introduction

Much has been written about the need for humans to maintain a bond and connection with the natural world (Leopold, 1949; Wilson, 1986). However, recently there has been a pronounced shift away from or disconnect with nature, particularly among youth (Louv, 2005; Pergams & Zaradic, 2006, 2008). Environmental literacy, defined as a basic understanding of environmental concepts, has been shown to be poor among the American population (Coyle, 2005). Studies suggest that this shift away from the outdoors has been associated with an increase in time spent engaged with screen media, such as video games, watching TV, and surfing the Internet (Pergams & Zaradic, 2006, 2008). In our technological society, it is increasingly more important for people, especially youth, to have experiences in the natural world (Louv, 2005). One such place these connections can readily and frequently occur is at local or community nature centers.

According to the Association of Nature Center Administrators (ANCA), a nature center "serves its community and fosters sustainable connections between people and their environment" (ANCA, 2005). Due to their proximity to population centers and their general accessibility to the public, nature centers have the potential to provide a number of critical personal and societal benefits. Some of these benefits include increasing environmental literacy through educational/interpretive programming, fostering a connection to nature, and providing opportunities for family bonding (Price, 2010; Simmons, 1991).

Browning (2015) identified four types of values community members believe their nature centers provide. These include: environmental connection, leisure provision, community resilience, and civic consciousness. "Environmental connection," which included providing access to nature, encouraging pro-environmental behavior, and increasing environmental awareness, was considered the most important service nature centers provide. "Leisure provision" (e.g. providing a place to exercise, relax, and participate in outdoor recreation) and "community resilience" (e.g. contributing to the local economy, making the community more beautiful, developing a sense of community pride) were also identified as important services provided by nature centers. In regards to how well respondents believed their nature centers provided these types of services, "environmental connection" rose to the top, followed closely by "leisure provision" (Browning, 2015).

For local nature centers to deliver on these personal, community, and environmental services, they need to remain relevant to and supported by their local communities. In addition, many nature centers are reliant on fundraising through private donations. Repeat visitation can be a way to develop a more committed donor base and expand fundraising efforts. To do this, they rely on frequent and repeat visitation as a means to grow their membership by attracting new members/users and continuously engaging with existing ones. Nature centers, however, not only strive to connect people to nature, they also try to connect people to the physical location (both natural and man-made). Previous research has shown that the more exposure people have to a nature-based setting, the higher their attachment with that place becomes (Moore & Graefe, 1994). Developing this type of place attachment to a community nature center might in turn

inspire visitors to care more about the center, visit it more frequently, and financially support the center.

One way that nature center staff have the potential to enhance the public's attachment to these centers as well as encourage repeat visitation is through regular interpretive programming. These programs take the form of personal interpretation such as talks, illustrated programs, and guided hikes, as well as non-personal interpretation such as written materials, museum exhibits, and technological media content. Another way that nature centers provide interpretive services to the public is through periodic interpretive special events and festivals. These events attract a large number of attendees during a short amount of time and are a way to engage with new and frequent visitors alike. The majority of these special events or festivals combine elements of interpretation and entertainment to create an enjoyable educational experience.

The festival literature has shown that satisfactory experiences at festivals positively relate to loyalty and revisit intentions (Baker & Crompton, 2000; Lee, Lee, Lee, & Babin, 2008). Yoon, Lee, and Lee (2010) found satisfaction at a festival event predicted 77% percent of the variance in respondents' festival loyalty. Cole and Chancellor (2009) likewise found satisfaction with the festival event to relate to revisit intentions. Interestingly, they also found the entertainment qualities of the festival event was a direct and significant predictor of intentions to revisit (Cole & Chancellor, 2009). Perceptions of overall festival quality (Lee & Beller, 2009) and positive emotions (Lee et al., 2008) were also found to be related to future visit intentions. Considering this literature, hosting high-quality festival events could encourage future visitation at nature centers.

Even though many nature centers across the United States provide these types of interpretive special events with the intention of fostering repeat visitation, little is known about the outcomes associated with these events and what types of visitor outcomes inspire or encourage interpretive festival attendees to return to the nature center in the future. Within the interpretive literature, outcomes related to the content of specific interpretive programs have been widely studied (Madin & Fenton, 2004; Orams, 1997; Powell & Ham, 2008), but have not been related to visitors' intentions to return. Further, some scholars have claimed that general affective outcomes, or *how a person feels* after a program ends, contributes to their satisfaction with an interpretive experience (de Rojas & Camarero, 2008) and what they remember the longest after the program is completed (Knapp, 2007). More research, however, is needed to understand if these feelings or affective outcomes are, like place attachment, similarly related to intentions to return to an interpretive site, such as a community nature center. Previous research has shown that place attachment predicts intentions to return to various recreational settings (Alexandris, Kouthouris, & Meligdis, 2006; Lee, Graefe, & Burns, 2007; Lee & Shen, 2013; Yoon & Kyle, 2009), but we do not know if this relationship is consistent within the context of a nature center.

To address these issues, the purpose of this study is to understand the factors that influence visitors' self-reported intentions to return to a nature center after their participation in an interpretive special event. *Program-content interpretive outcomes* (i.e., outcomes specifically related to content of the interpretive program) are considered. *Affective interpretive outcomes* (i.e., general affective outcomes of how the interpretive program made visitors feel about their visit) are also considered. Finally, a visitor's level of *place attachment* (their emotional and functional connection to the community nature center) is considered. Also of interest is if there were differences in the

relationships between the study variables based on whether a respondent was a new or repeat visitor. The following research questions are addressed:

R1: Are program-content interpretive outcomes related to intentions to return to a nature center?

R2: Are affective interpretive outcomes related to intentions to return to a nature center?

R3: Is a visitor's level of place attachment to a nature center related to intentions to return to that center?

R4: Which of the three domains has the strongest relationship with intentions to return to a nature center?

R5: Are there differences in the relationships tested in R4 based on visitor type (repeat vs. new visitor)?

By understanding the relationship between these experiential interpretive outcomes and subsequent behavioral intentions (e.g., to return to the nature center), this study could inform the design of interpretive special events to increase the likelihood that a visitor will return to their nature center in the future. This study will identify which event outcomes are more effective in inspiring repeat community nature center visits. Additionally, this study will show if there are differences in the relationship between event outcomes and intentions to return based on visitor type. With this knowledge, practitioners can tailor interpretive programs to intentionally emphasize certain types of interpretive outcomes among special event attendees. Ideally, inspiring repeat visitation among both new and returning visitors through targeted interpretive programs might have the potential to yield a higher level of community and financial support for the nature center.

Literature Review

The Outcomes of Interpretation

Understanding the outcomes of interpretation has long been of interest to researchers, practitioners, and educators (Brochu & Merriman, 2008; Ham, 1992, 2013; Ham & Weiler, 2006; Knudson, Cable, & Beck, 2003; Stern & Powell, 2013; Tilden, 1977; Wagar, 1976; Ward & Wilkinson, 2006). Typical outcome measures used to evaluate interpretive programs include: changes in visitors' satisfaction, awareness, knowledge, attitudes, intentions, and behaviors (Skibins, Powell, & Stern, 2012). In a meta-analysis of interpretation evaluation studies, Skibins and colleagues (2012) found interpretive programs generally yielded positive outcomes. Programs were particularly successful in providing outcomes such as satisfaction (91% of studies evaluated), awareness (90%), and knowledge (89%; Skibins, Powell, & Stern, 2012). Interpretive programs studied in these evaluations were less consistent in providing outcomes related to intentions (73%), behaviors (69%), and attitudes (68%; Skibins, Powell, & Stern, 2012).

Other research on interpretive outcomes has shown that interpretive programming is particularly effective at increasing short-term knowledge gain (Beaumont, 2001; Knapp & Barrie, 2001; Powell & Ham, 2008; Sharp, Larson, Green, & Tomek, 2012). Additional studies indicate interpretation has the potential to positively influence visitors' attitudes (Cable, Knudson, Udd, & Stewart, 1987), behaviors (Orams, 1997), and level of

nature connection (Burbach, Pennisi, West, & Ziegler-Chong, 2012). Powell and Ham (2008) studied interpretation's ability to influence behavioral intentions to participate in conservation behaviors and philanthropically support conservation initiatives. Based on a pre/post comparison, they found interpretive programming positively influenced participants' behavioral intentions (Powell & Ham, 2008). Despite this literature on interpretation evaluation, Munro, Morrison-Saunders, and Hughes (2008) conclude outside of short-term knowledge gain, there is less evidence about the ability of interpretation to consistently provide all of these types of outcomes.

Though many scholars have shown interpretive programming can be effective in helping people learn about content covered in a program and potentially influence their attitudes towards those resources, some research indicates that how visitors feel after attendance to an interpretive program stays with them the longest (Knapp & Benton, 2006). Knapp (2007) describes a number of interpretive studies about the long-range (episodic) memories visitors have from their participation in an interpretive program. Knapp's (2007) qualitative studies frequently indicate the emotional or affective components of interpretive programs are what visitors retain months and even years after their interpretive program experience. However, none of these interpretive research studies have explored how interpretive outcomes (both content specific and general affective outcomes) relate to intentions to return to an interpretive site in the future.

Place Attachment: Applications to Interpretation and Behavioral Intentions

Place attachment has received a considerable amount of research interest over the past 30 years within the fields of environmental psychology and leisure studies. Place attachment is generally referred to as the emotional and functional connections people have to a specific location (Altman & Low, 1992). Place attachment recognizes that places are special and have inherent value beyond tangible resources (Tuan, 1977). The place identity and place dependence sub-dimensions are most frequently operationalized within leisure studies (Kyle, Graefe, Manning, & Bacon, 2003) and environmental education research (Vaske & Korbin, 2001). Place identity represents the emotional importance of a place and its power to give purpose and meaning to one's life (Williams & Vaske, 2003). Place dependence is a functional attachment a person feels towards a place because of the place's ability to provide conditions that support specific activity goals or desires (Williams & Vaske, 2003).

Despite its popularity in natural resource recreation literature, studies of place attachment within interpretation have been more limited. When it has been considered, there has been conflicting evidence concerning the ability of interpretation to increase visitors' place attachment. Morgan (2009) found visitors' place attachment levels were not significantly different before or after an interpretive cave tour. Kudryavtsev et al. (2012) also found a similar lack of increase in place attachment levels after participation in a five-week urban environmental education camp.

Other studies, however, indicate interpretation can increase place satisfaction amongst visitors (Ramkissoon, Smith, & Weiler, 2013). Research by Wolf, Stricker, and Hagenloh (2014) indicated that visitors to national parks in Australia who participated in an interpretive tour experienced increases in place attachment to these parks. Additionally, Hwang, Lee, and Chen (2005) found that place attachment and tourists' level of involvement were significant predictors of overall satisfaction with an interpretive program. While Stewart et al. (1998) did not find participation in

interpretive programs increased sense of place, they did conclude visitors to Mt. Cook National Park in New Zealand developed an appreciation of place. This appreciation of place related to caring about and valuing the park's resources.

Though these findings are intriguing, there continues to be limited research that applies the place attachment constructs to evaluating the outcomes of interpretive services, particularly special events at a community nature center. As such, Morgan (2009) calls for more studies that measure the relationship between interpretation and place attachment (p. 56). No interpretation study, to our knowledge, has attempted to understand the relationship between place attachment and intentions to return to the setting where the interpretive program took place.

Related research has shown place attachment to be an important predictor of intentions to revisit tourism destinations (Alshemeili, 2014; Prayag & Ryan, 2012) and outdoor recreation areas (Alexandris, Kouthouris, & Meligdis, 2006; Lee & Shen, 2013; Yoon & Kyle, 2009). Yoon and Kyle (2009) found that place satisfaction was the most significant predictor of recreationists' intentions to return to a recreation area. Lee and Shen (2013) found that both place identity and place dependence were significant predictors of attitudinal loyalty (i.e., attitude and behavior intentions) towards revisiting urban parks. Finally, Prayag and Ryan (2012) also show that place attachment was a strong predictor of visitor intentions to revisit a tourism resort.

Summary of the Literature Reviewed

Collectively, the literature indicates that interpretation has the potential to deliver a number of positive outcomes for program participants. Most of the outcomes detailed in the literature focus on knowledge, attitudes, and behavioral intentions related to the content of interpretive programs. Less is known about the overall affective outcomes of participating in an interpretive experience. Neither of these outcomes (program specific and affective outcomes) have been related to intentions to return to an interpretive site. Additionally, the positive relationship between place attachment and intentions to revisit tourism and recreation sites has been previously established. This relationship, however, has not been tested in a nature center setting.

Methods

Study Setting

This study took place at Shaver's Creek Environmental Center (SCEC) in central Pennsylvania, USA. SCEC is a unit of The Pennsylvania State University housed within the Division of Outreach and Online Education. SCEC serves more than 46,000 Penn State University Park students (Penn State University Budget Office, 2015), the 150,000 residents of Centre County, PA and the 46,000 residents of Huntingdon County, PA (U.S. Census Bureau, 2015). SCEC is financially supported by The Pennsylvania State University through enrollment in credit-bearing courses. Shaver's Creek offers "fun and educational environmental programs and events for the whole community" (SCEC, 2012). One such educational community event that SCEC hosts annually is the Maple Harvest Festival. The Maple Harvest Festival is held in late March and has been a staple program of the Center since 1984. The festival is an interpretive special event that educates attendees about the history and process of creating maple syrup from the tree to the table.

Interpretive Program Description

Five Maple Trail interpretive stations are one of the main features of the Maple Harvest Festival. The first station focuses on the cultural history associated with maple sugaring. This station includes first-person costumed interpreters re-enacting traditional ways of tapping trees and boiling sap. The second station centers on identifying sugar maple trees. Interpreters first present the characteristics of sugar maple trees (size, leaves, and bark) and then lead visitors on a brief interpretive walk along the trail to identify nearby sugar maples. The third station describes the sugar maple tapping process. This station uses demonstration tree trunks and props to convey when to tap a tree (based on season and temperature changes), deciding where on the tree to insert the spile, and how to insert the spile into the tree. The various methods of collecting sap from sugar maples are covered in station four. Visitors learn about small-scale sap collection techniques (such as using metal buckets) and large-scale/industrial sap collection methods (utilizing a system of tubes and vats). Both sap collection methodologies are exhibited onsite. The fifth and final station includes a live demonstration of how to boil sap down into syrup utilizing a large outdoor wood stove. This station also includes a taste-test component where visitors can taste and smell the difference between pure maple syrup and syrup made from processed ingredients such as high fructose corn syrup.

The Maple Trail interpretive stations are designed and presented by Penn State undergraduate students enrolled in a credit-bearing interpretation methods course. These students are trained in interpretive methods as well as content knowledge related to the history and process of maple sugaring. The instructor of the course is an NAI Certified Interpretive Trainer and evaluated the Maple Trail to meet the standards of an effective interpretive program (including the use of tangible resources, intangible concepts, and universal messages to convey a coherent interpretive theme). Not only did the stations provide information about the maple sugaring process, there was an overarching interpretive theme that tied the stations together: "Maple sugaring is a process that sustains people and protects forests."

Data Collection Procedures

This study utilized a convenience sample of Maple Harvest Festival attendees to gather feedback on their festival experience. Visitors were approached as they were leaving the 2014 Maple Harvest Festival on both Saturday, March 22, and Sunday, March 23. Any and all adult visitors (18 years or older) were considered potential study subjects. The first author and a research associate attempted to intercept as many visitors as possible during the two-day festival. Once initial contact was made, potential respondents were asked if they would like to provide feedback on their Maple Harvest Festival experience. Those who were willing to participate supplied their email address. A total of 264 email addresses were collected. On the following Monday morning (March 24th) invitations to participate in an online survey were sent to the 264 potential respondents utilizing the Qualtrics online survey software platform. Two follow-up reminders were sent three and four days apart to encourage participation in the online survey. The survey was closed to new participants on April 3 and a total of 188 responses recorded, yielding a response rate of 71%.

Table 1. Exploratory Factor Analysis Results – Interpretive Outcomes

Factors	Component 1	Component 2	α	N of items	Mean	SD
Program Content Outcomes			**.911**	**9**	**3.51**	**0.90**
Changed the way that I will buy food at the grocery store	**.821**	.088			2.59	1.39
Made me more likely to avoid harming natural resources	**.797**	.242			3.32	1.22
Made me care more about protecting local forests	**.763**	.330			3.71	1.24
Made me more likely to pursue further information about the process of making maple sugar	**.735**	.171			2.74	1.30
Made me reflect on where my food comes from	**.720**	.341			3.51	1.13
Enhanced my appreciation for the natural processes that produce my food	**.662**	.492			3.92	1.08
Made me think deeply about the maple sugaring process	**.627**	.317			3.63	1.07
Made me want to tell others about what I learned	**.616**	.441			3.81	1.14
Increased my knowledge about the process of making maple sugar	**.569**	.358			4.24	1.01
Affective Outcomes			**.846**	**3**	**4.29**	**0.77**
Made my visit to SCEC more enjoyable	.238	**.878**			4.36	0.82
Made my visit to SCEC more meaningful	.354	**.808**			4.20	0.97
Enhanced my appreciation for SCEC	.194	**.800**			4.32	0.83

Table 2. Exploratory Factor Analysis Results – Place Attachment

	Component 1	α	N of items	Mean	SD
Place Attachment		**.922**	**6**	**3.35**	**0.82**
I identify strongly with SCEC	**.892**			3.38	1.02
I am very attached to SCEC	**.889**			3.19	0.98
I get more satisfaction out of visiting SCEC than from visiting most places	**.856**			3.37	0.97
I feel like SCEC is a part of me	**.832**			2.78	1.10
SCEC means a lot to me	**.827**			3.82	0.86
I enjoy visiting SCEC more than other places that I could visit	**.802**			3.63	0.84

Survey Instrument Measurement

The online survey instrument utilized in this study included a number of questions used to evaluate the visitor experience at the Maple Harvest Festival. For the purposes of this analysis, three main constructs will be utilized. These constructs included interpretive outcome measures, place attachment measures, and intentions to return measures. The survey also collected respondent characteristics (e.g. age, sex, visitor type, and affiliation with Penn State).

Interpretive Outcome Measures

Twelve items were used to document the interpretive outcomes. These items were adopted and modified from Stern, Powell, Martin, and McLean's (2012) study of live interpretive programs at 24 National Park Service units across the United States. According to Stern et al. (2012), these outcomes were intended to explore attitudinal, behavioral, and knowledge-change that occurred because of their attendance to an interpretive program. With input from Shaver's Creek Environmental Staff, these items were modified (see further detail below) and expanded to reflect the interpretive outcomes associated with the content and theme of the Maple Harvest Festival. As such, visitors were asked to gauge the degree that the Maple Harvest Festival influenced any of the following items on a five-point scale where 1 – "Not at all" and 5 – "A great deal." Nine of these variables were interpretive outcomes specifically related to the content of Maple Trail interpretive stations. The three other interpretive response variables referred to the affective impact of the festival. Given the different setting, context, and type of program studied by Stern et al. (2012), a principal components analysis (PCA) was conducted on the 12 interpretive response items to reduce the data into major conceptual components.

The results from this factor analysis (Varimax rotation, eigenvalue = 1, listwise deletion) are shown in Table 1. Where cross-loading occurred, face validity of the domain and individual items were considered to determine item classification. Based on Hair and associates' criteria (1998), a factor loading above the threshold of .45 for a sample size of 150 or more is considered acceptable. From the PCA, two primary factors arose. These two factors were labeled "Program Content Outcomes" and "Affective Outcomes." The items that factored into "Program Content Outcomes" contained the outcomes of learning about and appreciating the content of the interpretive program. The second factor, "Affective Outcomes," contained affective outcomes about how their experience at the festival made them feel about SCEC. The unstandardized Cronbach's alphas for both factors were acceptable (Program Content Outcomes = .911 and Affective Outcomes = .846) based on Vaske's (2008) guidelines. Two new composite scales were created using the individual items identified as part of each factor.

Place Attachment Measures

The six place attachment items used in this study were adopted from Moore & Graefe (1994) to represent the sub-dimensions of place identity and place dependence. Four of these items corresponded with place identity. The remaining two items corresponded with place dependence. When responding to these items, visitors were asked to state their level of agreement on a five-point scale where 1 – "Strongly disagree" and 5 – "Strongly agree."

Factor analysis (Varimax rotation, eigenvalue = 1, listwise deletion) was conducted on these six items to identify the latent sub-dimensions of place identity and place

dependence. In this principal components analysis, the two subdomains were not expressed as separate factors (Table 2). Instead, all six items loaded on to a single domain. Place attachment has been previously conceptualized as a single domain in the context of community festivals (Wickham & Kerstetter, 2000) as well as recreational settings (Moore & Scott, 2003). Based on the factor analysis and the precedent set by these other studies, place attachment in this study was operationalized as a single composite scale. The scale reliability for this "Place Attachment" domain was also acceptable (unstandardized Cronbach's Alpha = .922).

Intentions to Return Measures

Finally, two items were developed that assessed visitors' intentions to return to Shaver's Creek Environmental Center in the future. These items were "Made me more likely to visit Shaver's Creek Environmental Center in the future" (Mean = 4.13, SD = 1.03) and "Made me more likely to attend other Shaver's Creek Environmental Center outdoor education programs in the future" (Mean = 4.08, SD = 1.09). These two items were summated into a single index. This new domain was labeled "Intentions to Return to SCEC" and had a mean of 4.11 (SD = 0.99). The scale reliability of this two-item scale was also acceptable (unstandardized Cronbach's alpha = .846).

Data Analysis

Frequencies and measures of central tendency were computed to develop a descriptive understanding of the sample and the scale-level data. Correlation analysis was used to address research questions 1 through 3 while multiple regression and standardized Beta weights were used to address research questions 4 and 5.

Results

Of the 188 online surveys that were returned, 172 were deemed useable (those that completed the entire survey). The median response time to complete the online survey was 8 minutes. The majority of respondents were female (67%). The average age was 33 years. Two-fifths (40%) of the study population were new visitors to Shaver's Creek Environmental Center. Fifty-nine percent of the sample were affiliated with Penn State (34% were students, 25% were faculty or staff members). The Affective Outcomes domain had a higher mean score (Mean = 4.29, SD = .77) than the Program Content Outcomes domain (Mean = 3.51, SD = .90), and the Place Attachment domain (Mean = 3.35, SD = .82).

Research questions 1 through 3 asked if intentions to return to Shaver's Creek in the future was related to program content outcomes (R1), affective outcomes (R2), and a visitor's level of place attachment (R3). Intentions to return was significantly correlated with program content outcomes ($r = .595$, $p < .001$), affective outcomes ($r = .651$, $p < .001$), and visitors' place attachment to Shaver's Creek ($r = .486$, $p < .001$).

Results from the multiple regression analyses (testing R4 & R5) are presented in Table 3. In the regression using the total sample (new and repeat visitors combined), the three independent variables accounted for 51% of the variance for intentions to return to Shaver's Creek Environmental Center. When simultaneously regressed, all three independent variables were directly, positively, and significantly ($\alpha = .05$) related to intentions to return to Shaver's Creek Environmental Center. Affective interpretive outcomes emerged as the strongest and most significant predictor of intentions to return to the Center ($\beta = .432$, $p < .001$), while program content outcomes ($\beta = .214$, $p < .01$)

Table 3. Summary of the Multiple Regression Analyses for Variables Predicting Intentions to Return to a Nature Center

	Total Sample			New Visitors			Repeat Visitors		
Variable	*B*	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
Program Content Outcomes	.234	.083	.214**	-.073	.131	-.076	.330	.106	.281**
Affective Outcomes	.554	.091	.432***	.719	.155	.576***	.489	.112	.381***
Place Attachment	.252	.075	.212**	.388	.124	.348**	.308	.099	.244**
R^2	.511			.597			.516		
F	57.218***			31.617***			33.716***		

*p < .05, **p < .01, ***p < .001

and place attachment (β = .212, p < .01) were also significant predictors of intentions to return to SCEC.

The multiple regression analysis using responses from only new visitors (N=69) accounted for 60% of the variance (Table 3). Affective interpretive outcomes were an even stronger predictor of intentions to return to the Center (β = .576, p < .001), while place attachment (β = .348, p < .01) remained a significant predictor of intentions to return to SCEC. Program content outcomes (β = -.076, p = .579), however, was not significantly related. The multiple regression analysis using responses from only repeat visitors (N=102) accounted for 52% of the variance. Affective interpretive outcomes emerged as the strongest and most significant predictor of intentions to return to the Center (β = .381, p < .001), while program content outcomes (β = .281, p < .01) and place attachment (β = .244, p < .01) were also significant predictors (Table 3).

Discussion

Our analyses of visitors to an interpretive special event found that program-related interpretive outcomes, affective interpretive outcomes, and a visitor's level of place attachment were positively and significantly related to intentions to return to a community nature center. The more positively a respondent rated the program-specific outcomes, as well as the affective outcomes, the more likely they were to say that they intended to return to Shaver's Creek in the future. A visitor's existing level of place attachment was also positively related to intentions to return to a nature center. The higher the respondent's level of place attachment (e.g., to the center), the more likely they were to say that they intend to return to the environmental center. This study echoes previous research (Lee, Graefe, & Burns, 2007; Lee & Shen, 2013; Prayag & Ryan, 2012) that found a positive relationship between place attachment and intentions to return, but in this case, within a nature center context.

The fourth research question, and main focus of this study, asked which outcome was most predictive of intentions to return to Shaver's Creek. While outdoor recreation and tourism studies have found place attachment to be a significant predictor of intentions to revisit (Alexandris, Kouthouris, & Meligdis, 2006; Lee, Graefe, & Burns, 2007), we found that the interpretive program outcomes, particularly affective outcomes, were most strongly related to intent to re-visit a nature center. In particular, the results

of the regression analysis demonstrated that affective interpretive outcomes emerged as the strongest predictor or correlate of visitors' intentions to return to the Center. This finding supports previous research on festivals that found emotional (hedonic) values were the strongest predictor of intentions to return (Grappi & Montanari, 2011; Gursoy, Spangenberg, & Rutherford, 2006; Lee, Lee, & Choi, 2010). Also, de Rojas and Camarero (2008) found that quality visitor satisfaction at an interpretive center was directly determined by the visitor's emotional state in addition to the perceived quality of the services, and this is consistent with our findings.

Though the program-content interpretive outcome domain was a significant correlate of intentions to return to SCEC, it was not as robust as the affective outcomes domain. Learning about and appreciating specific interpretive topics/content was not as powerful at inspiring future involvement at a nature center (as measured by intentions to return) as was affective outcomes of the event. In fact, making programs enjoyable is an overt goal of interpretive programming and has been identified as one of the inherent differences between interpretation, a free-choice leisure activity, and environmental education, programming structured around learning outcomes (Cable & Cadden, 2006). The interpretive literature, however, is replete with studies that assess outcomes such as knowledge gain, attitude and behavioral changes, and increased awareness of topics related to program content (Beaumont, 2001; Knapp & Barrie, 2001; Orams, 1997; Powell & Ham, 2008; Sharp, Larson, Green, & Tomek, 2012; Cable, Knudson, Udd, & Stewart, 1988). Our study suggests that these types of program-content outcomes might not be the most powerful outcomes that inspire visitors to return to a nature center after attending an interpretive special event.

Results from the fifth research question reinforce these conclusions, particularly for new visitors. Unlike the analysis using the entire sample, new visitors' intentions to return to a nature center were not significantly influenced by program content outcomes. Instead, affective outcomes as well as place attachment were highly predictive of their stated intentions to come back to the nature center. Given our results, nature center managers and interpretive staff interested in attracting repeat visitation, especially from new visitors, might consider prioritizing interpretive programs that provide visitors a positive and enjoyable experience while visiting their nature center. While these programs should still be informative and have educational value, they should also be intentionally designed to contribute to an enjoyable and meaningful visit to the local audiences who come to these events. To prioritize enjoyment, interpretive managers could ensure that programs presented at their sites utilize techniques that are engaging and stimulating. Some of these techniques include using storytelling, role-playing, music, demonstrations, handling specimens/objects, jokes, and extraordinary facts (Scherbaum, 2006). Ham (2013) recommends smiling, using active verbs, showing cause and effect, exaggerating size and timescale, using analogies, questioning strategies, and personification (p. 47–48). Brochu and Merriman (2008) caution, however, interpretation should not become "interpretainment" (p. 18), as interpretainment lacks depth and disregards a visitors' interest in learning something new.

Interpretive scholar Sam Ham wrote about this need for interpretive programs to be enjoyable when he introduced his EROT (1992) and later TORE (2013) model for interpretive program development. According to Ham (2013), programs need to be Thematic, Organized, Relevant, and Enjoyable. Being that attendance to interpretive programs is voluntary, and takes place during un-obligated leisure time (Cable &

Cadden, 2006), programs must be enjoyable to capture and maintain an audience's attention. Ham (2013) writes that interpretation doesn't always have to be fun or funny, instead it should match "the audience's idea of having a good time, even if it means being sad or angry, or scared or contemplative" (p. 45). In other words, interpretation is enjoyable when it is pleasurable to process or experience. This study lends support to the notion that enjoyable programs can lead to a higher level of stated intention to return to a nature center in the future.

A visitor's level of place attachment was also significantly and positively predictive of intentions to return to a nature center. These results are similar to the findings of Hwang, Lee, and Chen (2005), who found that place attachment was a significant predictor of satisfaction with an interpretive program. Previous research has also found a relationship between place attachment and intentions to return to ski resorts (Alexandris, Kouthouris, & Meligdis, 2006), urban parks (Lee & Shen, 2013), recreational lakes (Yoon & Kyle, 2009), national forests (Lee, Graefe, & Burns, 2007), heritage sites (Alshemeili, 2014), and resorts (Prayag & Ryan, 2012). This study builds upon previous research by providing evidence that the relationship between place attachment and intentions to return also exists within a nature center setting.

Results from this study also contribute to the growing interpretive literature that has integrated place attachment as a construct. While our study cannot claim interpretation increases place attachment levels, some studies (Morgan, 2009; Kudryavtsev et al., 2012) have utilized a pre/post methodology or a comparison of new/repeat users (Wolf, Stricker, & Hagenloh, 2014) to explore this question. Our study was more similar to other research in its attempt to link place attachment to other outcomes/variables such as place satisfaction (Ramkissoon, Smith, & Weiler, 2013) or interpretive satisfaction (Hwang, Lee, & Chen, 2005). The outcome variable for our study, however, was intentions to return to a nature center. By demonstrating a positive and significant relationship between place attachment and intentions to return, this study provides empirical support for nature centers to continue carrying out the long held mission of interpretation to connect people to places by provoking visitors to think about how these resources and places personally relate to themselves and their greater community. By doing so, nature centers could also increase the likelihood that visitors return to their centers in the future.

Many nature centers operate as non-profit corporations and rely heavily on financial support from private donors and local businesses. These fundraising efforts complement traditional revenues generated from grants and membership and program fees. Repeat engagement with nature centers could help to keep a nature center relevant to their local communities and bolster a nature center's fundraising potential. Higher levels of engagement have the potential to yield a broader and more committed donor pool to support nature centers' operational and capital expenses. More research is required to link return visitation to public support of, and funding for, community nature centers. As such, future research should include specific variables that measure public support and support for increased funding of nature centers.

It must be noted that the nature center in this study (SCEC) is slightly different than the majority of nature centers around the country. SCEC is a unit of The Pennsylvania State University and receives the vast majority of its funding from the University system. Although it maintains a broad membership base, SCEC is less reliant on philanthropic donations, fundraising, and grant-writing than most other environmental centers.

Future research exploring the relationship between return visitation and funding support for nature centers should utilize as their study setting a non-profit nature center that has a more typical funding structure.

This study was not without limitations. Some of the limitations include a non-randomly selected sample, the lack of a non-response bias check, the unbalanced number of identity and dependence items to represent place attachment, the unbalanced number of program content outcome and affective outcome variables, and the lack of a pre-test/post test design to better determine the causal nature of interpretive outcomes and place attachment on repeat visitation. For example, it is plausible that the behavioral element of return intentions (actually visiting the center again) would serve as a mechanism to build upon attachment levels; hence the relationship could be the converse of what we illustrated in our model. With much of the sample being composed of first-time visitors, their place attachment responses should be interpreted with caution. Endogeneity might also be an issue because all of the constructs presented could also be influenced by the affective outcomes from the program. Finally, this study did not assess actual return behaviors. As McKercher and Tse (2012) point out in a tourism context, intentions to revisit do not always lead to actual revisit behaviors. Despite these limitations, this study represents a step forward in better articulating the affective outcomes of interpretive programs (in this case interpretive special events/festivals) and how this outcome translates to behavioral intentions related to community nature centers.

Conclusion

With the continued rise in screen media use and the growing disconnect between youth and natural experiences, the role of local nature centers is more critical now than ever before. Local nature centers are often located close to large population areas and provide important environmental and educational services to their communities. Despite offering these important services, many nature centers struggle to maintain public support and funds necessary for their continued operation. One way nature centers have the potential to engender public support, grow their membership base, and bolster their fundraising efforts is to host interpretive special events that attract both new and repeat visitors. This study aimed to understand which outcomes of an interpretive festival experience led to visitors' stated intentions to return to the nature center in the future. While all three independent variables were individually correlated to intentions to return, this study showed that it was the affective outcomes, more than the program-specific outcomes or place attachment level, that had the most potential to inspire future involvement at the nature center. The influence of affective outcomes on intentions to return was particularly salient among new visitors. In addition to interpreting specific resources, interpretive programs should prioritize creating an enjoyable and meaningful experience for visitors. By providing these types of positive affective experiences, visitors may be more likely to return to a nature center in the future.

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Understanding and Influencing State Park Visitors' Leave No Trace Behavioral Intent

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Abstract
Impact to protected area resources due to uninformed or depreciative visitor behavior continues to be a principal concern for managers. Leave No Trace (LNT) is a prevalent educational strategy for mitigating such impacts. Through on-site surveys, this study

examined frontcountry visitor attitudes toward Leave No Trace (LNT) practices, and self-reported knowledge concerning LNT in three Wyoming state parks to determine factors that influenced their behavioral intent to practice LNT. Results suggest that attitudes toward perceived effectiveness of LNT practices and appropriateness of LNT practices are significant predictors of behavioral intent. If education-based communication efforts focus on why LNT practices are appropriate and effective, there is an increased likelihood of meaningfully influencing behavioral intent.

Keywords
Leave No Trace, minimum-impact behaviors, parks, communication, visitor management

Introduction
A particularly complicated challenge for park and protected area managers is influencing visitor behavior to minimize the environmental and social impacts of recreation. Land managers attempt to strike a balance between protecting resources and providing diverse recreational opportunities, yet degradation of resources and values due to inappropriate behavior continues to be a significant issue. Park and protected area visitor behaviors can impact wildlife, vegetation, water quality, and other visitors. Many of these impacts are cumulative over time, and have been shown to occur at relatively low levels of use (Hammitt, Cole, & Monz, 2015; Leung & Marion, 2000; Marion, Leung, Eagleston, & Burroughs, 2016).

Land managers often use one of two primary strategies for dealing with visitor impacts: indirect management actions such as visitor education and interpretation, or direct management actions such as rules, or restrictions on use or access (Hendee & Dawson, 2002; Martin, Marsolais, & Rolloff, 2009). Indirect management approaches are viewed as "light-handed" and are favored by both the public and land managers. As a result, indirect strategies have become a primary tool to minimize recreation-related impacts (Bullock & Lawson, 2007; Manning, 1999; 2003; Marion & Reid, 2001; Marion & Reid, 2007). Yet, despite the preference for an educational approach, the job of effectively educating the recreating public about appropriate outdoor behavior is challenging. Managers must contend with limited timeframes, non-captive audiences, and frequent distractions (Orams, 1997). To better meet these challenges, protected area managers have developed a wide variety of educational campaigns. Of these educational approaches, LNT is the most frequently used approach to inform visitors about minimizing recreation-related impacts (Marion, 2014). The original focus of LNT was on minimizing recreation-related impacts in large, remote, and often fragile wilderness areas. At the time of its inception, little thought was given to the application of LNT in other areas such as state parks, which differ substantially from wilderness in many cases (Swain, 1996).

Contemporary social science research has advanced understanding of wilderness-based visitors' knowledge, attitudes, and behaviors related to LNT (Vagias & Powell, 2010; Vagias, Powell, Moore, & Wright, 2012; 2014). However, there is limited information about visitors to other types of protected areas, such as state parks, in the context of LNT (Lawhon et al., 2013; Taff, Newman, Bright, & Vagias, 2011; Taff, Newman, Vagias, & Lawhon, 2014). Furthermore, the vast majority of outdoor recreationists commonly visit non-wilderness destinations, creating a knowledge gap regarding this type of visitor and their perceptions of LNT (Marion, 2014). The purpose

of this study was to explore state park visitor attitudes and knowledge concerning LNT practices in three Wyoming state parks to determine factors that significantly influenced their behavioral intent to practice LNT. The findings provide a unique contribution to the literature regarding frontcountry visitor attitudes and perceptions. This understanding can inform the development of effective education-based communication strategies aimed at mitigating depreciative frontcountry visitor behaviors.

Study Context

Nearly 90 percent of outdoor recreation in the U.S. occurs in frontcountry settings (Marion, 2014). Frontcountry is defined as areas that are easy to access by vehicle and predominantly visited by day users (Leave No Trace Center for Outdoor Ethics, 2016a). These areas include designated sites used for vehicle-accessible overnight camping, which often include amenities such as picnic tables, fire rings, and toilet facilities. The vast network of over 6,600 state parks in the U.S. provides extensive recreational opportunities in such frontcountry settings. According to the National Association of State Park Directors (NASPD), annual visitation to state parks is approximately 730 million, and is projected to significantly increase over time (NASPD, 2015). In comparison, U.S. National Park units received approximately 307 million visits in 2015 (National Park Service, n.d.). Though LNT has been fully adopted by federally managed parks and protected areas, it is not as common in state parks (Marion, 2014). While there have been recent advances, to date there have been no studies specifically focused on state park visitors' attitudes and perceptions related to LNT.

Seven Principles of Leave No Trace

1. Plan Ahead and Prepare
2. Travel and Camp on Durable Surfaces
3. Dispose of Waste Properly
4. Leave What You Find
5. Minimize Campfire Impacts*
6. Respect Wildlife
7. Be Considerate of Other Visitors

Figure 1. The Leave No Trace Principles (Leave No Trace Center for Outdoor Ethics, 2016c).
*The fifth LNT principle Minimize Campfire Impacts was not under investigation in this study. See Methods section.

Leave No Trace

Leave No Trace is the most prevalent minimum-impact educational communication program currently used in U.S. parks and protected areas (Marion, 2014). The overarching purpose of the program is to educate outdoor enthusiasts about the nature of their recreation-related impact as well as teach them techniques for minimizing the impact (Harmon, 1997; Leave No Trace Center for Outdoor Ethics, 2016b; Marion & Reid, 2007). LNT is particularly appealing to land managers because it offers a more light-handed approach to visitor management as opposed to more heavy-handed management strategies (Vagias, 2009). The foundation of the program includes the seven principles (Figure 1), which are used on signage, maps, websites, and other interpretive information.

Leave No Trace concepts date back to the 1960s when the USDA Forest Service began encouraging visitors to "pack it in, pack it out." These early efforts were modeled

on the successful Smokey the Bear anti-forest fire campaign. Eventually, it morphed into what are now considered the initial minimum impact camping messages. As outdoor recreation continued to increase throughout the 1970s and 1980s, it became clear that a comprehensive educational approach to managing visitor impacts in the backcountry was necessary. As such, the USDA Forest Service created numerous partnerships in the 1990s to cooperatively promote a science-based approach to minimum-impact recreation. This effort resulted in the development of several publications focused on responsible outdoor recreation practices, and ultimately led to the creation of the 501(c)(3) Leave No Trace Center for Outdoor Ethics (the Center). The initial focus of LNT was on impacts in wilderness areas but has expanded to include other types of parks and protected areas (Marion, 2014; Marion & Reid, 2001).

For over two decades the Center has been under a Memorandum of Understanding (MOU) with the primary U.S. land management agencies, including the National Park Service, USDA Forest Service, Bureau of Land Management, and the US Fish and Wildlife Service, to promote LNT on federal lands. In 2007 the Center entered into an MOU with the NASPD to create a stronger link between state parks and national LNT efforts. Currently, the Center has a primary focus on frontcountry area visitors, and has created numerous LNT educational resources addressing common recreational pursuits such as day hiking, picnicking, camping in developed campsites, and dog walking (Leave No Trace Center for Outdoor Ethics, 2015; Marion, 2014).

Previous Leave No Trace Research

Existing LNT literature largely aligns with the disciplines of recreation ecology and human dimensions of natural resources (HDNR). Recreation ecology is a field of study that examines the impact of visitors to protected areas. Since it focuses on recreation-related impacts, recreation ecology has provided the underpinning for LNT messaging (Cole, 2004; Hampton & Cole, 2003; Leung & Marion, 2000; Marion, Leung, Eagleston, & Burroughs, 2016). However, one of the most important causes of visitor-created impacts is improper visitor behavior (Leung & Marion, 2000; Marion, Leung, Eagleston, & Burroughs, 2016; Marion & Reid, 2007), which more closely aligns with human dimensions. HDNR research seeks to interpret humans' attitudes toward, perceptions of, and interactions with natural ecosystems (Bright, Cordell, Hoover, & Tarrant, 2003; Ewert, 1996; Manfredo, Teel, & Bright, 2004). LNT-focused research of this kind is limited but increasing (Taff et al., 2014).

The preponderance of LNT related HDNR research has evaluated educational efficacy by examining communication strategies aimed at increasing knowledge to influence the behavior of recreationists (Marion & Reid, 2007). Such studies have evaluated strategies to diminish litter (Cialdini, 1996), minimize human and wildlife conflict (Hockett & Hall, 2007), discourage off-trail hiking (Winter, 2006), and curtail removal of natural objects (Widner-Ward & Roggenbuck, 2003). However, few studies have explicitly addressed LNT and have otherwise focused on generic minimum impact behaviors. An even smaller subset of HDNR studies has explored LNT in the context of visitors to frontcountry areas (see Jones & Bruyere, 2004; Jones & Lowry, 2004; Leung & Attarian, 2003; Mertz, 2002).

Some previous investigations have utilized knowledge of minimum-impact practices as a measure of LNT efficacy. While some relationship does exist, a primary shortcoming of focusing on knowledge is that the assumption of a linear relationship

between environmental knowledge and pro-environmental behavior is questionable (Hungerford & Volk, 1990; Hwang, 2000; Manning, 2003; Petty, McMichael, & Brannon, 1992). In other words, increasing knowledge about environmental impact does not necessarily equate to a change in an individual's behavior.

Recently, social scientists have begun exploring the influence that values, beliefs, attitudes, and other factors play in determining the behavior of outdoor enthusiasts within the context of LNT. These studies have been based largely upon behavioral theory such as Theory of Planned Behavior (Vagias et al., 2012; 2014). Recent research has also examined the perceptions of frontcountry visitors with respect to behavioral theory and LNT (Taff et al., 2011; Taff et al., 2014). This is an important consideration in LNT-related research given the theoretical foundations that suggest attitudes are one of the important influences on behavior (Ajzen, 1991).

Theoretical Foundation

The Theory of Planned Behavior (TPB) is a general theory of social psychology that strives to explain human behavior. The overarching assertions of the TPB are that individuals make behavioral decisions based on beliefs, and the most accurate predictor of their behavior is the intention to engage in a particular behavior. According to the TPB, intention (how much effort an individual is willing to put toward performing a behavior) is a function of attitude toward a behavior and subjective norms (how others feel about the behavior). Additionally, behavioral intentions are based on behavioral beliefs (an attitude about the consequences of a particular behavior), normative beliefs (social pressure to engage in a particular behavior) and control beliefs (the belief that one has the knowledge, skill, resources, etc. to engage in a particular behavior). The TPB posits that attitudes, subjective norms, and perceived behavioral control can accurately predict the behavioral intentions of an individual and his or her eventual behavior (Ajzen, 1991; Fishbein & Ajzen, 1975). Though the TPB was used to orient this research it is worth noting that the theory has continued to undergo modifications. Continued evolution of TPB has led to the Reasoned Action Approach, which posits a more integrated framework for understanding social behavior by including potential determinants of behavior such as actual control (Fishbein & Ajzen, 2010), which may prove useful for future studies of LNT.

The TPB has been generally useful to human dimensions of natural resources research (Fishbein & Manfredo, 1992; Manfredo, Teel, & Bright, 2004; Vagias & Powell, 2010), and has been applied to inform LNT studies specifically (Lawhon et al., 2013; Taff et al., 2014; Vagias & Powell, 2010; Vagias et al., 2012; 2014). Furthermore, the TPB has the specific function to "predict and explain human behavior in specific context" (Ajzen, 1991, p. 181). This is perhaps the primary reason that the TPB is so useful for orienting evaluations of the efficacy of visitor education programs such as LNT (Vagias, 2009).

Previous research has established that attitudes often have a significant influence on a specific behavior (Ajzen, 2001; Fishbein & Manfredo, 1992; Ham & Krumpe, 1996). Attitudes are generally described as an individual's evaluation of and dispositional response to a particular object such as behavior. Once an evaluation of an object has occurred, an associative attitude about that object can be retained in memory and influence future behavior (Ajzen & Fishbein, 2000). LNT behavior is therefore theoretically influenced in part by attitudes toward specific LNT guidelines and recommended practices. If attitudes directly influence behavioral intention, and attitudes can be changed, then

park managers may alter visitor behavior by specifically targeting the salient attitude that is determining human behavior (Ham, 2007; Ham & Krumpe, 1996). Understanding visitor attitudes related to LNT is critical to craft effective educational messages that can potentially reduce depreciative behavior in park and protected areas.

Based on TPB and previous research, we hypothesized the behavioral intent of frontcountry state park visitors to practice LNT would be influenced by: 1) attitudes toward LNT; 2) attitudes regarding the perceived effectiveness of LNT practices 3) attitudes regarding the perceived difficulty of LNT practices; and 4) self-reported knowledge of LNT practices. Though self-reported knowledge has some linkage with the TPB construct of perceived behavioral control, this variable was not operationalized in this study to measure the construct in terms of the TPB. This item was selected because knowledge, to a degree, has been found to influence behavior regarding minimum impact practices (Manning, 2003; Marion & Reid, 2007), and aids in extending and improving the predicitve capabilities of TPB (Vagias et al., 2014).

Methods

The Wyoming State Parks, Historic Sites and Trails Agency manages 30 state parks and historic sites, which are primarily frontcountry areas. As such, these parks and historic sites do not offer wilderness-type experiences for visitors. Annual visitation to these areas is nearly 3.1 million, which represents a 68% increase over the past 25 years (Wyoming State Parks, 2014). To provide a representative sample of parks and historic sites, three units were selected for inclusion in this research: Glendo State Park (Glendo), Glendo, WY; Curt Gowdy State Park (Gowdy), Laramie, WY; and Wyoming Territorial Prison Historic Site (Prison), Laramie, WY. The three study locations were selected because a) they represent varying frontcountry state park visitor experiences, b) all receive significant annual visitation based on their size, location, and amenities, c) all locations receive both resident and non-resident visitors, and d) all three locations have existing visitor education programs. Glendo State Park offers motor boating, car camping, and angling. Curt Gowdy State Park offers motor boating, angling, car camping, horseback riding, hiking, and mountain biking. Wyoming Territorial Prison offers historic sites and displays, interpretive programs, living history exhibits, and limited hiking and cycling opportunities; camping is not allowed at the Prison.

Data were collected via an on-site researcher-administered survey over a five-week period during June–July 2012. A stratified random sampling procedure was used to ensure representativeness (Babbie, 2015; Vaske, 2008). Sampling was stratified between weekday/weekend, A.M./P.M., and location. Respondents were randomly targeted at a variety of park sites (campground, boat ramp, visitor center, trailhead, etc.) within each unit based on consultation with each unit manager. The majority of respondents (54%) were surveyed in campgrounds, while 30% of respondents were surveyed at a visitor center. The remaining respondents were surveyed at trailheads (9%), boat ramps (5%), and along a greenway trail (1%). Trained surveyors asked visitors if they would be willing to participate in a "visitor opinion study." If a potential respondent declined, researchers recorded the time at which they encountered the individual and asked a single non-response question, "What is the primary purpose of your visit today?" All surveys were completed by a single individual regardless of group size, and were completed on site. Survey respondents were randomly selected using an nth sampling strategy. To reduce survey instrument-induced bias, the phrase "Leave No Trace" was not mentioned nor

Table 1. Attitudes toward frontcountry Leave No Trace practices

	N	Mean	S.D.	Percentage[a]						
How APPROPRIATE or INAPPROPRIATE do you think the following activities are for a visitor to do in Wyoming State Parks and Historic Sites?				Very Inappropriate			Neutral			Very Appropriate
				1	2	3	4	5	6	7
Experiencing parks by not preparing for weather/hazards	342	2.20	1.84	59	14	7	7	5	3	6
Traveling off trail to experience the natural environment	345	3.21	2.09	34	13	9	16	9	10	9
Carrying out all litter, leaving only food scraps	344	4.35	2.67	30	9	4	5	3	8	42
Keeping a single item like a rock, plant, stick or feather as a souvenir	345	2.94	1.84	35	15	8	24	8	6	5
Dropping food on the ground to provide wildlife a food source	345	1.68	1.32	68	17	5	6	1	1	2
Taking a break along the edge of a trail	345	5.34	1.63	4	4	4	19	13	25	31

a. Percentages may not equal exactly 100% due to rounding.

Table 2. Perceived level of effectiveness of Leave No Trace practices

	N	Mean	S.D.	Percentage[a]						
Participating in the following activities in Wyoming State Parks and Historic Sites would reduce impact…				Never			Sometimes			Every time
				1	2	3	4	5	6	7
Preparing for all types of weather, hazards and emergencies before getting on trail	346	6.17	1.14	0	0	1	11	11	21	56
Staying on designated or established trails	329	6.26	1.04	0	0	2	8	9	24	57
Carrying out all litter, even crumbs, peels or cores	340	6.53	1.00	0	1	2	4	5	12	76
Never removing objects from the area, not even a small item like a rock, plant or stick	344	5.26	1.79	6	3	6	21	11	16	37
Never approaching, feeding or following wildlife	343	5.60	2.02	9	3	4	9	4	14	55
Taking breaks away from the trail and other visitors	342	4.25	1.90	15	6	6	29	16	12	16

a. Percentages may not equal exactly 100% due to rounding.

Table 3. Perceived difficulty of practicing Leave No Trace

	N	Mean	S.D.	Percentage[a]						
Please indicate how DIFFICULT you think each of the following would be for a visitor to do in Wyoming State Parks and Historic Sites…				Not at all Difficult			Moderately Difficult		Extremely Difficult	
				1	2	3	4	5	6	7
Preparing for all types of weather, hazards and emergencies before getting on trail	341	2.23	1.40	40	21	11	17	4	2	.3
Staying on designated or established trails	314	1.72	1.22	62	22	5	7	2	1	1
Carrying out all litter, even crumbs, peels or cores	340	1.65	1.33	71	15	5	5	1	1	3
Never removing objects from the area, not even a small item like a rock, plant or stick	340	1.92	1.44	60	17	8	11	2	2	2
Never approaching, feeding or following wildlife	337	1.64	1.22	68	17	5	6	1	1	1
Taking breaks away from the trail and other visitors	339	2.15	1.42	45	24	11	13	3	1	2

a. Percentages may not equal exactly 100% due to rounding.

Table 4. Level of Self-described Leave No Trace Knowledge

N	Mean	S.D.	Percentage[a]						
			No Knowledge	Very Limited	Limited	Average	Above Average	Extensive	Expert
			0	1	2	3	4	5	6
339	3.40	1.77	14%	4%	4%	23%	28%	18%	9%

a. Percentages may not equal exactly 100% due to rounding.

Table 5. Behavioral intentions to practice Leave No Trace in the future

	N	Mean	S.D.	Percentage[a]						
Please indicate how LIKELY you are to do the following activity in the future…				Not at all Likely			Moderately Likely		Extremely Likely	
				1	2	3	4	5	6	7
Prepare for all types of weather, hazards and emergencies before getting on trail	336	6.10	1.3	1	1	1	15	10	12	60
Stay on designated or established trails	329	6.09	1.30	1	0	1	13	11	16	57
Carry out all litter, even crumbs, peels or cores	335	6.51	1.12	1	1	1	5	4	11	77
Remove objects from the area, not even a small item like a rock, plant or stick	336	2.95	2.12	44	10	6	18	6	7	10
Approach, feed or follow wildlife	334	2.59	2.23	56	11	5	8	2	4	14
Take breaks away from the trail and other visitors	335	3.94	1.98	18	8	10	30	8	9	16

a. Percentages may not equal exactly 100% due to rounding.

Table 6. Predicting Leave No Trace behavioral intent[a]

Behavioral Intent	Appropriateness	Effectiveness	Difficulty	Knowledge	R^2
Preparing for all types of weather, hazards and emergencies	.02	.24**	-.19**	.14*	.15
Staying on designated or established trails	-.21**	.31**	-.13*	.05	.24
Carrying out all litter, including food scraps	-.004	.44**	-.22**	.08	.31
Not removing natural objects from the area	.25**	.10	.18*	-.10	.10
Not feeding, following or approaching wildlife	.12	.10	.17*	.02	.10
Taking breaks away from trails and other visitors	.11	.34**	.004	-.003	.13

a. Cell entries are standardized regression coefficients — * $p < .05$, ** $p < .001$

seen until the third page of the survey. The survey addressed only six of the seven LNT principles. The fifth principle of LNT, "Minimize Campfire Impacts," was not included because fires are not allowed at all Wyoming state parks and historic sites.

There were a total of 346 completed surveys with an overall response rate of 93%. The individual unit response rates were: 92% for Glendo (N = 114), 95% for Gowdy (N = 125) and 93% for the Prison (N = 107). Based on sample size and visitation to the three units, there is 95% confidence that these findings are accurate to +/– five percentage points (Vaske, 2008).

Variable Measurement

The items used in this study were modeled after pre-existing, validated, and pre-tested variables utilized in previous peer-reviewed studies designed to explore attitudes regarding LNT (see Lawhon et al., 2013; Taff et al., 2011; Taff et al., 2014; Vagias et al., 2012; 2014). Items were slightly modified to fit the study objectives, population sampled, and the specific state park settings. All variables were measured on a seven-point Likert-type scale. Independent variables included attitudes toward recommended LNT practices (how appropriate or inappropriate practices are perceived; Table 1), attitudes toward perceived effectiveness of recommended LNT practices (Table 2), attitudes toward perceived difficulty of recommended LNT practices (Table 3), and self-described knowledge of LNT (Table 4). The dependent variable was respondents' behavioral intent to perform recommended LNT practices in the future. This variable was operationalized as how likely or unlikely visitors were to engage in LNT behavior in the future for each of the following: planning ahead, staying on designated trails, packing out all waste, leaving natural objects in place, not feeding wildlife, and taking breaks away from trails and other visitors (Table 5).

Analyses

Frequencies were conducted to provide percentages, mean values, and standard deviations. A one-way analysis of variance (ANOVA) for all variables revealed no substantive differences between responses from the three units, thus results were combined for subsequent analysis purposes. Six separate linear regression models were analyzed to best explain LNT-related behavioral intent. For each model, one item from Table 5 (i.e., likelihood of engaging in LNT behaviors in the future) functioned as the dependent variable. The independent variables included attitudes toward recommended LNT practices (Table 1), attitudes toward perceived effectiveness of recommended LNT practices (Table 2), attitudes toward perceived difficulty of recommended LNT practices (Table 3), and self-described knowledge of LNT (Table 4).

Results

Demographics

The median age of survey respondents was 48 years. Over half of the respondents (58%) were male. A plurality of individuals sampled (46%) were from Wyoming, with the remaining 54% coming from over a dozen different states. The highest percentage of visitors indicated that the primary purpose of their visit was for camping in developed campsites (29%). Just over one fifth (21%) of respondents indicated that fishing was the primary purpose of their visit. A smaller portion of respondents (16%) indicated

that visiting historical exhibits was the primary reason for their visit. Other reasons indicated included sightseeing (11%), mountain biking (10%), boating (4.5%), hiking (4%), picnicking (2%), and other (2.5%). Nearly 29% of respondents indicated this was their first visit to the park or historic site in the past twelve months, while 35% indicated they had visited this park or site between one and two times in the same timeframe. Nearly one quarter of visitors (23%) reported having visited the park or historic site between three and ten times in the past twelve months.

Attitudes Toward Appropriateness of Leave No Trace Practices

Attitudinal statements were used to determine how park visitors viewed the appropriateness of six specific recommended LNT practices. The results (Table 1) suggest that some visitors either misunderstand or are unfamiliar with some LNT practices. It is also possible that the particular wording of these items was unclear to respondents. Specifically, 50% of respondents felt that *Carrying out all litter, leaving only food scraps* was Very Appropriate (M = 4.35), yet LNT recommends removing all litter including food scraps and other biodegradable items. Likewise, the majority of respondents (56%) indicated that *Taking breaks along the edge of the trail* was Very Appropriate (M = 5.34) however, this too is counter to LNT recommendations, which instructs people to move away from trails for breaks to allow other trail users unrestrained passage. Mean scores for all other attitudinal measures were less than M = 3.21, indicating that respondents had a better understanding of these principles, and had an attitudinal orientation more in line with LNT recommendations regarding these practices.

Attitudes Toward Perceived Effectiveness of Leave No Trace Practices

Survey respondents were asked to indicate whether or not they thought recommended LNT practices were effective at reducing impacts. A majority of practices (Table 2) were perceived to be effective at reducing impact Every Time ($M \geq 5.26$). However, one recommended practice, Taking breaks away from the trail and other visitors, had a lower mean score (M = 4.25), suggesting that respondents felt this practice would only reduce impact Sometimes. It is conceivable that respondents were unaware of the potential impact taking breaks in the middle of a trail could have on other trail users.

Attitudes Toward Perceived Difficulty of Leave No Trace Practices

Respondents were asked to indicate how difficult they thought a variety of LNT practices would be to perform. None of the items received a mean score higher than M = 2.23, suggesting that the majority of respondents did not view the recommended practices as being anything greater than moderately difficult to do (Table 3). It is possible that if specific practices are viewed as too difficult to perform, park visitors may not follow them.

Self-reported Leave No Trace Knowledge

Respondents were asked to describe their current knowledge of LNT practices. This variable was measured on a seven-point scale ranging from (0) No Knowledge to (6) Expert. The majority of respondents (55%) rated their knowledge as Above Average, Extensive, or Expert (Table 4). Nearly one quarter of respondents (23%) rated their knowledge as average, with the remaining 22% of respondents rating their knowledge from Limited to No Knowledge.

Likelihood of Practicing Leave No Trace in the Future (Behavioral Intent)
Respondents were asked how likely they were to perform six recommended LNT practices in the future (Table 5). The majority of respondents indicated they were Extremely Likely to perform all recommended LNT practices with the exception of Taking breaks away from the trail and other visitors (M = 3.94). This finding suggests that respondents are only Moderately Likely to follow this LNT recommendation in the future.

Regression Analysis
The regression analyses revealed that LNT behavioral intent was influenced to varying degrees by attitudes, perceptions, and self-reported LNT knowledge (Table 6). The most variance (R2 = .31) was explained in respondents' future likelihood of *Carrying out all litter, including food scraps*. The analysis explained the next highest level of variance (R2 = .24) for respondents' likelihood of *Staying on designated or established trails*. The least amount of explained variance (R2 = .10 in both cases) was for both *Not feeding, following or approaching wildlife* and *Not removing natural objects from the area*. It should be noted that LNT recommends leaving natural objects (e.g. fossil, feather, seashell, etc.) where found unless collection of such objects is allowed by land managers. Furthermore, this LNT recommendation does not address or pertain to legal harvest of fish or game.

Attitudes toward perceived effectiveness of LNT practices was the strongest predictor ($\beta \geq .24$, $p < .001$) in four cases: *Preparing for all types of weather, hazards and emergencies, Staying on designated or established trails, Carrying out all litter including food scraps,* and *Taking breaks away from trails and other visitors*. However, in the case of *Not removing natural objects from the area* ($\beta = .25$, $p < .001$), attitudes toward appropriateness of the practice was the strongest predictor of behavioral intent to follow this LNT recommendation. Lastly, in the case of *Not feeding, following or approaching wildlife,* attitudes toward perceived difficulty ($\beta = .17$, $p < .05$) was shown to be the most significant predictor of behavioral intent to follow this practice. Despite the high level of self-reported LNT knowledge, it was not shown to be a significant predictor of behavioral intent ($\beta < .14$, $p \geq .05$, in all cases). Overall, these results indicate, based on a TPB model of action, there is a need to focus visitor education efforts on the effectiveness of recommended LNT practices and the appropriateness of the practices, in addition to providing information for visitors regarding the perceived difficulty of practicing LNT.

Discussion

The majority of respondents indicated that they were moderately to extremely likely to practice LNT in the future. By understanding significant influences on LNT behavioral intent, state park and other frontcountry-based managers can craft more effective messages to visitors about minimizing recreational impacts in parks and reducing depreciative behaviors.

Respondents indicated a high level of LNT knowledge; nearly 55% self-reported Above Average to Expert LNT knowledge. Despite similar findings in previous LNT research using the same variables (Lawhon et al., 2013; Taff et al., 2014; Vagias et al. 2014), this construct was not found to be a strong predictor of behavioral intent. Though respondents indicated a high level of self-reported knowledge, the results of the attitudinal measures (Table 1) suggest that some park visitors do not understand, are confused about, or are simply unfamiliar with certain LNT recommended practices.

It is also possible that the results may have been influenced by ambiguous wording

of some items. Specifically, visitors may not entirely understand the LNT principles *Dispose of waste properly* and *Be considerate of other visitors*, or may not have understood what the item was actually attempting to measure. Respectively, these principles recommend packing out all waste including food scraps, and taking breaks away from trails on durable surfaces such as rock, sand, gravel, or snow when available so as not to unnecessarily impact the experience of other visitors. Previous investigations of LNT found similar deficiencies in visitors' understanding of these LNT principles (Lawhon et al., 2013; Taff et al., 2014; Vagias & Powell, 2010). Additionally, the recommendation to stay on designated trails to minimize erosion may be perceived as inconsistent with the recommendation to move off trail to take breaks to minimize potential social impact with other trail users. Recommendations such as these may appear to park visitors to be in conflict and should be targeted in future studies. It is also possible that LNT information for frontcountry settings may simply be too generic to apply broadly and accurately for this particular setting. These results suggest that the Center should consider adding additional detail in the existing LNT literature to better explain the rationale underpinning these recommendations, and should potentially consider site-specific factors. Finally, since an attitude is an evaluation of a particular object or recommendation, it is possible that visitors may be fully aware of LNT practices but may simply hold negative views toward certain recommended practices.

Respondents' attitudes toward the perceived difficulty of carrying out recommended practices may have some influence on their behavioral intent as shown in the regression results in Table 6. It is plausible that if recommended LNT practices are perceived as being too difficult, there is the potential that park visitors will not adhere to those recommended practices. However, the low mean scores for attitudes toward perceived difficulty of the LNT practices (Table 3) addressed in this study indicate that visitors feel that these practices are generally easy to follow when recreating in the parks. Many state parks offer amenities such as toilets, picnic tables, food storage facilities, hardened trails, and trash cans. It is conceivable that visitors find it easier to minimize their overall impact due to these amenities. Conversely, in backcountry situations where such amenities are often not available, practicing LNT may require more skills and effort.

Management Implications

Results from this study support the notion that knowledge does not directly translate to a change in behavioral intent. However, state park visitors need to be made aware of how impacts occur, how those impacts can be minimized, and how recommended LNT practices are effective at minimizing those impacts. It should be noted that recreation-related impacts may vary widely by place, time, and use. Such factors should be taken into consideration when implementing LNT educational efforts. The results suggest that focusing on the effectiveness of recommended LNT practices as well as the appropriateness of those practices through education-based communication strategies may positively influence the behavioral intent of state park visitors to practice LNT. While effectiveness and appropriateness are related, these are two distinct concepts with respect to LNT. Effectiveness refers to how specific LNT practices can prevent or minimize impacts, whereas appropriateness pertains to causes of impacts and why those impacts are unacceptable. Attitudes toward perceived effectiveness of recommended LNT practices are important because it is possible that practices perceived as ineffective are less likely to be performed than those perceived as effective. Data from this study

and previous LNT investigations suggest that attitudes toward perceived effectiveness and difficulty are meaningful predictors of LNT behavioral intent (Vagias et al., 2014). Therefore, park managers might consider implementing communication efforts that highlight the effectiveness and ease of practicing LNT behaviors. Furthermore, visitors do need to be made aware of why impacts should be minimized or prevented, as efforts focused solely on effectiveness may not be successful. These strategies could result in less depreciative behaviors, thus helping preserve resource and social conditions in parks and protected areas.

The results highlight several important considerations for state park managers regarding LNT as a tool to minimize visitor impact. Despite the fact that three different types of state parks were included in this study, the finding of no substantive differences among the park visitors suggests that a single, consistent LNT-based educational effort could be implemented by the Wyoming State Parks, Historic Sites and Trails Agency. This type of educational strategy would likely resonate with visitors regardless of which park they visit. While it is clear that educational-based communication strategies need to highlight the kinds of behaviors that cause impact, the reasons for wanting or needing to avoid those impacts, and the techniques needed to reduce those impacts, results also indicate that a park-by-park approach may not be needed. Despite such promising findings, more data is likely necessary to definitively determine if a uniform approach would be effective on a system-wide scale. Although locally tailoring LNT information is warranted in certain situations to make the information ecologically and environmentally relevant (Marion, 2014), these data suggest that park managers may be able to implement an effective "one size fits all" approach with some local adjustments as needed. This is important for modern-day land management agencies as education and interpretation resources are often limited and messages are sometimes inconsistent. A more uniform approach to LNT education and communication could lead to greater adoption and use of LNT by state parks, thereby lessening the burden on agencies in terms of program development and implementation.

The findings suggest that LNT educational-based communication efforts in state parks that utilize this approach, regardless of park type, are likely to be effective at both educating visitors about LNT and minimizing recreation-related impacts through changing visitors' behavioral intent. However, we suggest that a suite of management approaches, including LNT educational efforts in conjunction with direct management strategies, may be need to effectively address specific issues such as off-trail travel.

Study Limitations

This study has a number of limitations that merit further investigation in future LNT-focused studies. While it is becoming clear that many factors appear to influence the behavioral intent of park and protected area visitors to practice LNT (Vagias et al., 2014), this study only examined attitudes, perceptions, and self-reported knowledge as it relates to behavioral intent. This study did not measure actual behavior regarding LNT. Subsequent research should attempt to examine self-reported measures with unobtrusive observations of specific behaviors of interest. To date, much of the human dimensions LNT research, whether focused on frontcountry or backcountry wilderness visitors, has taken place in states in the western U.S. Additional research should examine whether visitor attitudes and perceptions regarding LNT are similar in visitors to other regions of the country, or even internationally. Attention should also be placed on other

types of frontcountry protected areas, such as city and county open space, which may accommodate visitors having differing behavioral intentions toward LNT. While this study did not explore normative influences on LNT behavioral intent, norms have been shown to be an important component of behavior and could be investigate further. Lastly, specific wording of some survey items may have been ambiguous. These items should be revised for future research. Measurement purity should be an overarching goal for any subsequent studies that aim to explore these concepts. Despite these limitations, the results of this study verify the importance attitudes toward appropriateness, perceived effectivness, and perceived difficulty of recommended LNT practices in terms of influencing behavioral intent in state park visitors. We recommend that future studies incorporate these factors.

Conclusions and Future Research

Resource and social impact due to depreciative visitor behavior continues to be a chief concern for many park and protected area managers. Educational communication messages and strategies such as those promoted through LNT, which often focus on uninformed and unskilled visitors, are essential for future protection of recreational resources from visitor-created impacts. Study results indicate that both attitudes toward perceived effectiveness and appropriateness of LNT practices are important predictors of behavioral intent in state park visitors. Education-based communication efforts have an increased likelihood of meaningfully influencing behavioral intent if they are tailored to state parks, focus on why LNT practices are appropriate, and address how those practices are effective at minimizing impacts. This study and previous research also signify the need to further investigate the influence attitudes, norms, perceptions, perceived behavioral control, and beliefs play in determining the intentions to practice LNT. Furthermore, results from this study indicate the need for a more targeted examination of the potential effectiveness of a uniform approach to LNT education for a park system such as Wyoming State Parks, Historic Sites and Trails. Recent trend data indicate that a continued increase in recreational use in frontcountry areas, such as those found in many state parks, is likely to occur over the coming years (Cordell, 2012; Outdoor Industry Foundation, 2014). Therefore, LNT studies in the frontcountry context may be the most useful for both the Leave No Trace Center for Outdoor Ethics and land managers across the country.

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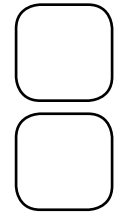

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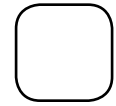

Evaluation of Interpretive Media Use and Effectiveness at a Nature Center

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Abstract
This exploratory study is a contribution to the body of research on exhibit evaluation. It applied the concept of zones of tolerance to assess the effectiveness of interpretive themes in two exhibits at Dillon Nature Center in Kansas. It also assessed the use of QR codes installed along the Woodard Interpretive Trail, and analyzed visitors' attitudes toward this technology. Major findings indicate visitor thoughts were within the *narrow zone of tolerance* for one of the exhibits and outside of that zone of tolerance for the other. QR codes are not widely accepted yet at the center, but visitors' attitudes towards the technology show potential for future use. Last, it is essential for the nature center to research their visitors' profile to facilitate better interpretive encounters with their audience. These results, although limited in scope, provide insights to managers and interpreters involved in evaluating the meaning-making process and considering the use of interpretive technologies in their sites.

Keywords
zones of tolerance, QR codes, exhibit evaluation, thematic interpretation, nature center

Interpretation in Nature Centers

Nature centers serve communities by preserving or restoring local landscapes for learning and fostering sustainable lifestyles (Gross & Zimmerman, 2002). Interpretive exhibits at these places, therefore, should be planned and designed as a portal to help visitors connect with their heritage, and reflect on their role and interactions with the ecosystem.

Dillon Nature Center in Hutchinson, Kansas, is a 100-acre park with an arboretum and four trails that guide visitors through a variety of landscapes, including woods and prairies, ponds and marshes. It also has a 10,000-square-foot visitor center with a large meeting room, a classroom, a library, a gift shop, and a nature display gallery.

The purpose of this exploratory study was to evaluate the effectiveness of two interpretive exhibits found in the visitor center using the concept of zones of tolerance. It also assessed the use of QR codes installed along the Woodard Interpretive Trail, and analyzed visitors' demographics and attitudes toward this technology. Finally, this study provides recommendations to the center for improvement.

Zones of Tolerance

Interpretation based on themes—statements that intend to provoke the audience to think and create meaning—is a well-established theory and best practice in the interpretation field (Beck & Cable, 2011; Ham, 1992; Ham, 2013; Knudson, Cable, & Beck, 2003; Lewis, 1981). Ham (2013) strongly emphasizes the need to verify that interpretive encounters and products meet the four qualities of interpretation (thematic, organized, relevant, and enjoyable). The use of themes helps to organize the interpretation, which makes it easier to understand the information, and gives the audience the opportunity of creating their own connections and meanings about heritage (Ham, 2003; Serrell, 2015).

Knudson, Cable, and Beck (2003) highlight that for an exhibit to be effective, it must have a strong theme, be based on careful research, use content and design that help convey the theme clearly, and offer a visitor experience opportunity that makes that theme memorable. While there is extensive empirical research related to exhibit evaluation based on design, learning objectives, or visitor behaviors and satisfaction (e.g., Bitgood, 2000; Falk & Dierking, 2012; Moscardo, 1996; Yalowitz & Bronnenkant, 2009), there is almost no empirical research that has studied the effectiveness of themes, whether for exhibits or other interpretive approaches. A study that stands out is Tarlton and Ward's (2006), which found that children who participated in a thematic interpretive program were three times more likely to identify the theme and main points of a program, as well as having a statistically significant increased ability to recall and apply the information presented, when compared with children who participated in a non-thematic program.

Beyond assessing information recall, Ham (2003) highlights the need to evaluate if visitors are capable of recognizing the big idea. A new approach to verify if an interpretive product provokes in the audience thoughts intended by the designers, is the concept of zones of tolerance (Ham, 2013). This approach uses qualitative information to identify the meaning visitors make as a result of their interactions with the exhibits, which is an empirical way of evaluating interpretation's success in provoking thought (Sandberg & Ham, 2015). The zone of tolerance is the thematic "comfort zone" (Ham, 2013, p. 152). It is where the visitor's personal ideas, meanings, or themes provoked by the interpretation are expected to be. Depending on the objectives of the interpretation,

this zone of tolerance will fall into one of three possibilities: unrestricted zone, the wide zone, or the narrow zone.

In the unrestricted zone, the audience's thoughts may be very diverse, as happens during storytelling and theater performances. In this zone, the interpreter promotes a broad diversity of opinions and discussion. In the wide zone scenario, there is still room for personal meaning-making and interpretation, but the designers impose some limits on what they expect the audience to take away: it must be "philosophically and factually consistent with [the] intended theme" (Ham, 2013, p. 157). Last, the narrow zone allows very little variation among themes the audiences will create from their experience. A narrow zone is commonly seen in nature centers where interpreters narrowly define learning outcomes (e.g., facts about species, ecosystems, historical events, and phenomena related to the nature center) for visitors. For this reason, the *narrow zone of tolerance* is the one that was used at Dillon Nature Center to conduct this exploratory analysis.

In this case, the staff chose the Underground Theater and the Tornado exhibit (part of the Nature Forces exhibit) for the study. For these exhibits, the nature center has specific objectives for the visitor to learn about life underground in the prairies of Kansas, and nature forces (e.g., tornado formation) and impacts over the area. The themes for these exhibits are, respectively, "The prairie soils of Kansas are teeming with life" and "The landscape is shaped by forces of nature: weather, wind, water, and sun."

Upon entering the Underground Theater exhibit, a recording explains how different organisms live and use the ground beneath the prairie. For instance, it talks about the growth cycles of a cicada and the roots of the bluestem grasses found in prairie ecosystems. The exhibit also displays the use of prairie dog tunnels as home for burrowing owls and badgers.

The Tornado exhibit—part of a bigger exhibit, Nature Forces—is an interactive exhibit that allows visitors to push a button to create a water tornado. The water tornado forms and dissipates after 30 seconds. This exhibit also shows panels on the opposite wall about tornadoes that have struck the area and other weather-related facts.

QR Codes

A QR (Quick Response) code is a type of matrix bar or two-dimensional code. Visitors with smart phones can download an application that scans this code with the phone's camera. The phone converts the code into a wireless network or webpage address in the telephone's browser. Visitors can then download detailed information, photos, or videos related to the scanned item.

Studies related to QR code current usability and endurance are inconclusive, nonetheless. Some studies in marketing show that even though smart phone ownership is growing, the QR code scans are not increasing (MarketingCharts, 2013). This raises some usability concerns as they are regarded as "merely a transitional technology, albeit one with a long shelf life" (Shin, Jung, & Chang, 2012, p. 1418).

Despite these concerns, other authors point out a variety of uses for QR codes. For instance, in museum studies Schultz (2013) shows how the codes are used in promotional material, to link with maps and instructions, to create cross-institutional mobile phone audio-visual guides between museums, and to connect physical exhibits to its library holdings.

Lorenzi, Vaidya, Chun, Shafiq, and Atluri (2014) suggest other potential uses of QR codes for national parks like aid in navigation of the park, integration of thematic map

data (i.e. vegetation, landscape, trail routes), use of augmented reality and gamification in exchange for rewards for the visitors, and integration with social media networks.

In this case, the QR codes at Dillon Nature Center were located on wooden posts along the Woodard Interpretive Trail loop. They were positioned in front of objects of interest such as a tree or a flower and the codes directed the visitor to a website that interpreted these elements of heritage.

Methods

As Ward and Wilkinson (2006) indicate, the best way to answer if a program is effective is to ask the audience. This evaluation was carried out between July and October 2014 using a visitor survey. Visitors were surveyed during 30 three-hour sampling periods. The sampling dates and starting times were chosen with equal sampling effort on weekends and weekdays as well as mornings and afternoons. When visitors decided to leave the nature center after viewing the exhibits or walking the trails, they were asked to participate in this survey.

The survey included 17 questions related to visitor demographics, exhibit use, and personal meanings or ideas they created from them. For the QR codes, questions related to visitors' awareness and use of codes, and their attitude about such technology.

Questions to determine the visitors' thoughts after viewing the exhibits were open-ended. Four permanent staff reviewed responses related to exhibits and determined through their own judgment and their exhibit objectives if the answers fell within their zone of tolerance. Questions that determined attitudes towards QR codes and apps, included a 5-point Likert scale divided in the following range: positive attitudes = 4 and 5; neutral = 3; negative attitudes = 2 or 1.

Results

Visitor Demographics

Two hundred and sixteen visitors were asked to participate and 195 took the survey, giving a response rate of 90.3%. Of the 195 people surveyed, most visitors (68.5%) were from Hutchinson, whereas about a quarter (23%) were from surrounding towns in Kansas. There was one international visitor and an additional 8% were from out of state. Half of the visitors surveyed used the interpretive facilities (Visitor Center and/or the Interpretive Trail Loop) at the site. A slight majority (51.3%) had visited the Visitor Center previously. The three most common reasons for visiting the site were fishing (29.2%), to use the playground (17.5%) and to be outdoors (12.8%). Only 7.2% of visitors specifically said they came primarily to enjoy the Visitor Center. Slightly more than half of the visitors were male (51.3%). The average age of respondents was 47.3 years. Most visitors came in family groups (53.8%), whereas couples made up the least encountered group with 11.7%. Those coming alone (20%) and with friends (14.3%) accounted for the other visitors. The average group size was 3.5.

Zone of Tolerance Evaluation of the Exhibits

Of 82 survey respondents that went into the Visitor Center, 54 visited the Underground Theater, and 42 viewed the Tornado Exhibit. When asked about their thoughts after seeing the exhibits, 68.5% of those who engaged with the Underground Theater exhibit gave responses within the *narrow zone of tolerance* with answers like "the burrowing

owl lives underground;" "how cool it was that the animals use each other's tunnels;" or "Bluestem grass needs water, so their roots go really deep to get it." Answers that did not fall within this *narrow zone of tolerance* were, for instance, "caves make amazing surround-sound acoustics," or "it was dark." Of the 42 respondents that visited the Tornado Exhibit, when asked what they got out of the exhibit, only 12 (25.5%) had responses that landed within the narrow zone of tolerance. Responses that fell outside the zone of tolerance included such comments as it was "fun," "cool," or "I liked pushing the button."

QR Code and Trail

Of the 195 parties surveyed, 35 walked the Woodard Interpretive Trail Loop, and only eight people used the QR codes along the trail. Those eight who used the QR codes reported that they indeed learned something about the species described. The 27 visitors who did not use the QR codes gave the following explanations for not taking advantage of them: 51.8% said that they did not notice them; 33.3% said that they did not have a smart phone; and 14.8% gave other reasons for not using them, including "wanted to focus on nature, not on technology."

All visitors, whether they walked the trail or not, were asked if they owned a smart phone, if they have ever heard of a QR code, and if they have ever used a QR code before. Only 54.4% reported owning a smart phone. Most visitors (87%) reported that they knew about QR codes, but less than half (46%) had used a QR code.

When asked on the five point Likert scale (1=not desired, 5=strongly desired), 70.2% responded positively, 17.5% neutrally, and 12.3% negatively towards putting out more QR codes, with an average score of 3.9. About adding newer technology (like apps) at the nature center, 57% responded positively, 28% neutrally, and 15% negatively, with a mean of 3.7. These results represent a neutral to slightly positive attitude towards putting out more QR codes and using apps to interpret heritage at Dillon Nature Center.

Implications for Management and Future Research

An important aspect of every interpretive program, and a key for the survival of our profession, as Ward and Wilkinson (2006) suggest, is to conduct defensible interpretation. Through evaluation, we can, for instance, increase the effectiveness of a program, determine if its goals and objectives are met, and confirm if it fulfills the visitor's needs. Even though this study was exploratory and results cannot be generalized to other sites, some trends and recommendations can be extracted for planning, and for future research of interpretive media at the center.

As expected in a nature center that serves primarily the local community, half of the visitors surveyed were local residents and repeat visitors, for which Dillon Nature Center offers tremendous opportunities to get outside and develop connections to their community and natural surroundings. One of the management limitations, however, is that the center does not know how many visitors it receives, nor their profiles. The only record of visitation is the log book they have at the visitor center, but is not an accurate record since many people do not go there. As this study shows, only 42% of the visitors entered the building, and it is reasonable to assume that not all of them signed the log.

Because the visitor profile is important to design materials and make them relevant to the audience, not knowing who the audience is affects the quality of interpretive planning and its implementation (Beck & Cable, 2011). For example, relatively few

people walked the Woodard Interpretive Trail and very few used the QR codes. Most stated that they did not notice them, but even if they would have noticed them, almost half of the visitors do not currently own a smart phone.

At this point, therefore, the QR codes could complement, but probably not substitute paper guides. It might be possible, however, that over time more people will switch to smart phones and become more tech savvy as is the national trend (IDC Research, Inc., 2016). This, and the positive attitudes toward QR codes—which is consistent with Schultz's (2013) findings in her study about use of QR codes in libraries and museums—support the possibility of adding more QR codes or developing apps for the center.

Interestingly, since many visitors were "regulars" at the Nature Center, it was common to see the same people coming to the Center on several sampling days. Though they were never surveyed twice, multiple people came up to the researcher to say that they either paid more attention to the exhibits or used the QR codes that were on the trail after having completed the survey on a previous visit. The Nature Center staff should feel good about their loyal visitors, but it is important to draw attention to new activities, services, products, and special events that continually will recapture their interest and keep them engaged (Beck & Cable, 2011). If the center chooses to add more QR codes or apps, it will need to make them more conspicuous and inviting for people to notice them, not only at the center, but also through the webpage and social media. Also, as Lorenzi et al. (2014) suggest, to increase the adoption of this technology, it should link to interactive content, clearly state what the code will do when scanned, place the QR codes in visible places with instructions on how to use them, and have a strategy for accessibility and late-technology adopters.

In terms of exhibits, results revealed that the Underground Theater exhibit was generally effective in provoking responses by visitors within the narrow zone of tolerance. Most answers given by visitors about what they learned from the exhibit were what the nature center staff wanted according to their learning objectives and the narrow zone of tolerance.

Although people seemed to enjoy turning on the funnel cloud in the Tornado Exhibit's water column, the exhibit was not effective in provoking thoughts within the narrow zone of tolerance. Several changes could improve the exhibit. First, the nature center could better label each part of the exhibit (Bitgood, 2000). In this particular case, although staff wants visitors to learn about the tornado-making and destruction process, this is not explicit. A sign with a diagram that explains how tornados form might better convey that idea.

Another possibility could be to find an underlying theme that connects the different parts of the Nature Forces exhibit. Although this exhibit addresses forces related to the region where the nature center is located, its underlying theme is too general. To make it more relevant for this audience, staff could ask, for instance, what is the connection between fossils, tornados, and wind energy? When that connection is not easily made by the visitor, it is unlikely that the visitor will recall much from the diverse elements of the exhibit (Bitgood, 2002; Falk & Dierking, 2012; Knudson, Cable, & Beck, 2003). One alternative might be to make connections through the idea that the forces of nature have always shaped the lives of plants, wildlife, and humans in central Kansas, and then encourage the audience to reflect how their lives have been shaped by these forces.

Ultimately, all nature centers need to have an interpretive plan that clearly states the goals of the center, the objectives for the different interpretive products (like exhibits

and trails), and the theme(s) that guide the interpretive efforts. Even though in this case Dillon Nature Center has clear learning outcomes for its programs, as Sandberg and Ham (2015) point out, a future question would be if the didactic impact is enough, or if the nature center would want to add more opportunities for visitors to reflect on the importance of nature in their lives or the positive or negative impacts the visitor could have on their natural surroundings. In this case, further qualitative inquiry would help to explore deeper insights of the audience that would be evaluated within a wide zone of tolerance.

In terms of future research, we cannot overemphasize how important it is to know the visitors as a prerequisite to creating new interpretive materials and facilitating better interpretive encounters (Beck & Cable, 2011; Falk & Dierking, 2012; Serrell, 2015). For this, quantitative analysis could and should be carried out to have a better perspective of numbers, preferences, and patterns of use. Also, knowing who does not come to the center and why, might be as important, so potential barriers can be eliminated or minimized (Beck & Cable, 2011). Qualitative assessments on the other hand will allow a deeper understanding of the audience psychographics such as motivations, values, and interests of those that repeatedly visit this sanctuary.

A follow-up assessment of user preferences and effectiveness of QR codes would be a useful contribution to the literature. Also, even though this study was limited to two exhibits and one trail, continuous assessment of other interpretive materials and programs (i.e., brochures, school programs, other exhibits and signs) could improve visitor experiences and create better opportunities to connect with local ecosystems and develop more sustainable lifestyles.

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Interpreting Terrorism: Learning from Children's Visitor Comments

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Abstract

Thousands of children visit memorials and other dark heritage sites each year, yet researchers have rarely studied their experiences. Faced with limited prior research, interpreters at terrorism-related sites grapple with especially serious and unanswered questions about how best to engage young visitors. To address these concerns, the staff of the Flight 93 National Memorial, erected at the crash site of an airline hijacked on September 11, 2001, partnered with an interdisciplinary team of researchers. The team studied children's post-visit comments at the Memorial, adapting the content analysis methods of prior researchers who studied visitor comments, logs, and books. Children exhibited patriotism, grateful remembrance, emotional realizations, and a sense of place as they struggled to make meaning of the events. These findings led to relevant and understandable interpretive activities, which now comprise the Junior Ranger program for young visitors. The paper suggests implications for future research on interpreting terrorism-related events.

Keywords

Flight 93, interpretation, children, visitor comments, visitor log, memorials, meaning-making, interpretive themes, 9/11 memorial, terrorism

Interpreting Terrorism: Learning from Children's Visitor Comments

Thousands of children visit memorials and other sites of painful heritage each year. Research on the content of children's interpretation at such heritage sites rarely appears, as noted by Sutcliffe and Kim (2014). A growing addition to the destination roster includes sites honoring victims of terrorism. For example, more than 100,000 schoolchildren visit the National 9/11 Pentagon Memorial annually (A. Ammerman, personal communication, August 30, 2016). Yet, the research literature remains surprisingly silent about young visitors' encounters, leaving interpreters with little empirical guidance (Frost & Laing, 2016; Kerr & Price, in press; Kerr & Price, 2016; Poria & Timothy, 2014; Small, 2008; Sutcliffe & Kim, 2014).

We encountered firsthand this difficulty at the Flight 93 National Memorial, which commemorates the deaths of 40 passengers and crew whose plane terrorists hijacked on 9/11. Here, the interpretation dilemma immediately became apparent to the staff. Jeff Reinbold, then Western Pennsylvania National Park Service (NPS) Superintendent, put it this way:

> The kids want to know why their parents are crying. It's a very adult story. And we're trying to understand how best to explore ways to tell this story to young children and prepare them and their parents for a visit to the memorial and what may be a very emotional experience. (as cited in Hornick, 2012)

NPS rangers continue to wrestle with multiple challenges. First, the Flight 93 National Memorial is new—its visitor center opened in 2015. No child-specific exhibits or interpretive tours yet exist. Yet various intensely fraught interactive exhibits invite children's participation. These include facsimiles of on-board telephones featured in one exhibit. Visitors may pick up the phone and listen to the last calls of doomed passengers. Naturally, safeguarding young visitors while engaging them in meaningful visits raises interpretive concerns. To address these issues, the NPS staff turned to our

interdisciplinary team of developmental psychologists, educators, and mental health specialists to help develop its Junior Ranger Program for children aged 6 to 12 years. Three overarching ideas previously adopted by the NPS would guide our work: a) A Place of Reflection, b) Honoring the Heroes, and c) A Call to Action.

The urgent need to interpret these ideas for children in a booklet containing appropriate activities led us to consider readily available data to inform our work: visitor comments at the site. Collected since 2003, visitor comments provided an accessible glimpse of young visitors that we could use without delaying the development of the much-needed interpretive program. This paper describes how we pursued our research questions: What could children's comments tell us about their views of the events of 9/11 and the site itself? How might we then incorporate these insights into a Junior Ranger program? This paper also discusses the themes, or primary messages, we identified through our analysis and interpretation of children's comments. As terror events continue to play an unfortunate role in our society, we share our findings to help others interpret these tragedies for children.

To provide context for our data collection approach, we first review how others have studied archived visitor comments, and then discuss the interpretive importance of children's meaning-making.

Relevant Literature

Visitor comments appear in multiple forms across museums, memorials, and other tourist destinations around the world. Typical formats include handwritten visitor logs (sometimes called comment books), handwritten cards left in collection boxes or posted for public view, comments entered at a computer terminal, and online comments left on travel-oriented websites (see for example Coffee, 2011; Livingstone, Pedretti, & Soren, 2001; Macdonald, 2005; Munar & Ooi, 2012; Price & Kerr, 2017). Despite their proliferation, "comment books are certainly under-used and under-analyzed" by researchers (Coffee, 2011, p. 166). A viable approach for understanding visitor perspectives, accounts of visitor comments have appeared in multiple forums and disciplines, and for different purposes (see for example Coffee, 2006; 2011; Livingstone et al., 2001; Macdonald, 2005; Miles, 2014; Morris, 2011; Pekarik, 1997; Reid, 2005).

While not without their limitations, visitor comments may capture unfettered views distinctly different from more common measures, including surveys, time and attention studies, and interviews (Coffee, 2011; Macdonald, 2005). Visitor comments at memorials and other "public exhibitions archiving war or human loss" archive human responses to controversial installations (Morris, 2011, p. 243). Munar and Ooi (2012) found surprising emotional honesty in online comments about Ground Zero, site of the 9/11 World Trade Center attacks in New York City. Discussing visitor comments at a sweatshop exhibit, Alexander (2000) suggested that visitors use comments to "talk with" curators of exhibits, broadening the exhibit's interpretive message and "molding it to their experiences and interests;" they "make meaning for themselves from it" (p. 89). Price and Kerr (2017) studied on-line comments to understand how adults view children's behavior at war memorials.

Researchers typically focus on adult comments. Their analytic methods fall along a spectrum, with some scholars using "intelligent critical reading" (Macdonald, 2005, p. 123) and then describing their general impressions and conclusions (Alexander, 2000) or offering a general "textual analysis" (Ferguson, Piché, & Walby, 2015). Others adopt

more structured categorical tallies, first sorting, and then counting the frequency of specific words or phrases (Livingstone et al., 2001). Lastly, some initially categorize or sort comments then choose more interpretive methods to identify emergent themes that reflect visitors' meaning-making (Macdonald, 2005).

With our study, we allowed children who were not the beneficiaries of formal interpretation to "talk with" us through their comment cards. We listened to their voices in order to understand their personal meaning-making of the tragic events commemorated, but not formally interpreted, for them at this memorial site. By *meaning-making*, we refer to the personal meanings that children attributed to their visits. Because the literature to date has not delved into children's meaning-making at sites of terrorism, we reasoned that this initial exploration of children's own words would allow us to gain insight into their encounters, thereby informing the design of the Junior Ranger activities. In this way, we hoped to identify interpretive activities with *provocation likelihood*: the ability to provoke thought (Ham, 2013). First, we needed to understand what mattered to children about the Flight 93 crash site, so that we might design interpretation relevant to them. Second, we studied their word choices and ideas to discern what interpretive concepts and language would, for them, "be easy to understand and process" (Ham, 2013, p. 124).

Methods

Artifacts Studied

In 2003, the Flight 93 Memorial site began offering comment cards for visitors (A. Shaffer, personal communication, February 18, 2015). A display board allowed visitors to post their comments for others to read. Each week, staff or volunteers collected the cards for archiving by the National Park Service. Our investigation included an analysis of comment cards authored by visitors in 2003 and 2004. We chose these because they were easily accessible, offered a perspective not yet influenced by formal interpretation (at that time not available at the site), and could be compared with other sources such as memorial tributes that children sent or left at the site. (A brief description of comments and other tributes from 2001–2006 appears in Kerr & Price, in press.)

Because the comments were left in a public space with no expectation of confidentiality, they are considered "abandoned public property" under NPS regulations, according to the Flight 93 National Memorial Chief of Interpretation and Cultural Resources (B. Black, personal communication, December 13, 2013). Researchers who register with the NPS may study the cards and other abandoned public property archived at the memorial. Our university's Human Protection Office determined that this study did not necessitate approval as human subjects research because we had no human interactions and studied publicly available information. Nevertheless, we chose not to report names or other personally identifiable information.

Fearing that a less-than-systematic review of the comments might lead us to misinform the children's interpretation program (see Coffee, 2011), we sought the most appropriate methods for analyzing the comments. Following methods outlined by MacDonald (2005), we first read all comment cards to get a sense of the comments as a body of evidence. Next, we considered how we might identify the cards authored by children ages 6 to 12 years (the age group targeted for our Junior Ranger booklet). This selectivity was necessary because the cards were available to visitors of all ages. This identification process remains a challenge recognized by other researchers:

> Making the task harder is the fact that information about those who write in visitor books is usually extremely restricted or even non-existent. While this poses an interpretive challenge, however, it does not make visitor books worthless as research sources. (Macdonald, 2005, p. 123)

Two research team members with extensive experience in deciphering children's handwriting took the assignment of selecting comment cards. These researchers are educators with nearly 60 years combined experience with children in the targeted age span. Naturally, we included comments on which children provided their names and ages. When the child's age did not appear on the card, we followed a multi-step process. Specifically, we followed the guidance of prior researchers (see Alexander, 2000; Macdonald, 2005) and considered the signature and age (when provided), handwriting style, spacing, spelling, word choices, and any images like hearts or drawings (if included) to infer if the author was a child. Two team members examined characteristics such as the size and shape of the letters, and the arrangement of words and phrases throughout the writing. Because children can lack fine motor skills and use a narrower vocabulary than adults use, the team recognized properties of the writing such as the formation and spacing of letters, and syntax likely written by children. We eliminated any comment card whose writing clearly appeared adult-like in style, vocabulary, or syntax. When we could not agree, a third researcher with 30 years' experience as an art educator/art therapist evaluated the writing, using the same criteria. Lastly, we shared a sample of our comment cards with our larger research team for their assessment. This multidisciplinary team included individuals who had not sorted the comment cards: five psychology students, a faculty member whose expertise is children's literacy, a research and instruction librarian, and another K-12 educator.

As Macdonald (2005) suggested, we employed triangulation of sources (see Denzin, 1978; Patton, 1999) to validate our identification of comments attributable to children. Specifically to validate these findings, we studied other children's artifacts left during the same period. These included tribute objects (e.g., toys, crafts, and jewelry with notes attached), artwork with and without text, and notes. Our analysis of these artifacts revealed similar messages and styles of writing, thus offering validation that children wrote the comments cards we studied (see Kerr & Price, in press).

Data Analysis

Prior researchers established the use of content analysis to study open-ended responses from visitors at memorials and other painful heritage sites (Coffee, 2006; Macdonald, 2005; Miles, 2014; Stone, 2012). We adopted a similar analytic approach, informed by qualitative researchers in the social sciences (Bogdan & Biklen, 2007; Miles, Huberman, & Saldaña, 2013).

In all, 106 comments authored by 108 children comprised our sample (three children co-signed one card). Cards showed date stamps of November 3, 2003, through July 29, 2004. Eighty-one cards included names, allowing us to surmise that females authored 48 of the comments and males authored 33 comments. Because so many comments were a popular phrase at the time as described below, it is difficult to discern the age of their authors. In contrast, phrases that are more complex appeared in approximately 20 percent of the comments, suggesting that their authors were pre-adolescents or adolescents. Ten percent of the comments appeared to be written

by children under the age of 7. In some instances, these young children appeared to copy what an older sibling or parent had written. We determined this because we found the cards together with the same family names and date on them. All comments were written in English. Comments varied in length, with the briefest consisting of only one word (God) and the handwritten date. The longest comment contained 184 words and included a poem, which the child composed and intended for display in the not-yet-constructed visitor center. We first transcribed each comment as a separate entry. To preserve their authenticity, we recorded the comments verbatim, with original spelling, grammar, capitalization, and punctuation.

Next, we uploaded all comments into a qualitative data analysis computer program for the purpose of line-by-line coding (Veal, 2006). Two researchers (the first and third authors) began our coding by using 41 initial codes. These initial codes derived from our ongoing review of children's tributes in the Flight 93 Memorial archives (see Kerr & Price, in press). To describe the tribute objects we photographed, we initially developed a codebook based on our preliminary review of the text, images, and types of objects. These codes include (a) expressions of emotion (e.g., sad, happy, fear, and anger); (b) references to the passengers and crew (e.g., victims, specific names, hero/ines, and pilot); (c) religion (e.g., references to God or religious practices such as prayer); (d) date references (e.g., 9/11 or September 11); (e) remembrance (e.g., remember, never forget); (f) thanks (e.g., thank you, grateful); (g) references to one's country (e.g., America, American, USA, other countries); and (h) references to the plane (e.g., United, Flight 93).

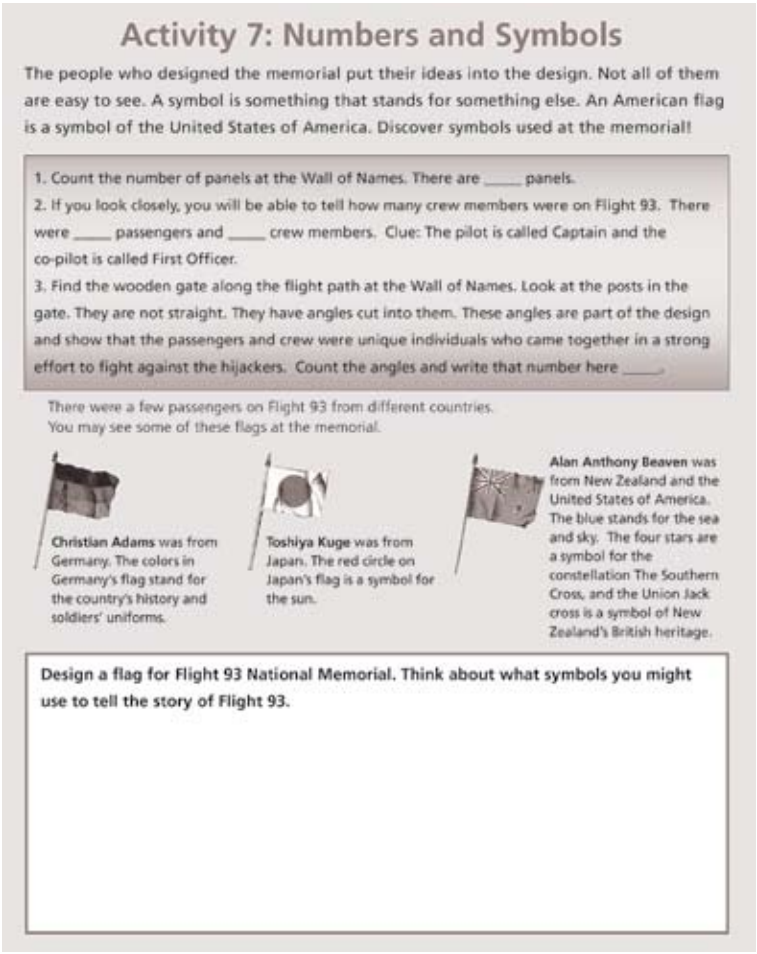
As two analysts coded, we wrote iterative researcher memos focusing on key comments (Charmaz & Mitchell, 2001; Saldaña, 2009). After one author coded all comments, another author independently coded all of the comments to establish inter-coder consistency. We discussed and resolved any discrepancies until we had consensus, and then examined the comments repeatedly to identify new codes and derive patterns across the comments. Specifically, we counted specific words, looked for clusters of words that appeared frequently, and searched for overarching meaning, which we considered themes (Macdonald, 2005). Lastly, we verified our process and interpretations with the second author and with the interdisciplinary research group described above. This process consisted of sharing our codebook and resulting coding spreadsheets in team meetings, seeking members' interpretations of the coding, and making adjustments in our descriptions of the key concepts and themes.

Findings and Applications

To provide an overall picture of the children's comments, we begin with a general description, including counts (Sandelowski, 2001). The most frequent codes we applied were religion (56), the plane (30), gratitude (28), remembrance (21), and the site (13). Similar to the cards penned by adults, many cards implicitly addressed the passengers and crew. This excerpt illustrates how we applied the codes:

> Thank you for your Bravery *(gratitude)*. Flight 93 changed any peoples Lives *(the plane)*. You will always be in my heart! *(remembrance)* God Bless you *(religion)* You fought well!

As seen in this example, we present the comments verbatim. Taken together, the comments revealed four of the five overarching codes (as indicated by italics). As



Activity 7: Numbers and Symbols

The people who designed the memorial put their ideas into the design. Not all of them are easy to see. A symbol is something that stands for something else. An American flag is a symbol of the United States of America. Discover symbols used at the memorial!

1. Count the number of panels at the Wall of Names. There are _____ panels.
2. If you look closely, you will be able to tell how many crew members were on Flight 93. There were _____ passengers and _____ crew members. Clue: The pilot is called Captain and the co-pilot is called First Officer.
3. Find the wooden gate along the flight path at the Wall of Names. Look at the posts in the gate. They are not straight. They have angles cut into them. These angles are part of the design and show that the passengers and crew were unique individuals who came together in a strong effort to fight against the hijackers. Count the angles and write that number here _____.

There were a few passengers on Flight 93 from different countries. You may see some of these flags at the memorial.

Christian Adams was from Germany. The colors in Germany's flag stand for the country's history and soldiers' uniforms.

Toshiya Kuge was from Japan. The red circle on Japan's flag is a symbol for the sun.

Alan Anthony Beaven was from New Zealand and the United States of America. The blue stands for the sea and sky. The four stars are a symbol for the constellation The Southern Cross, and the Union Jack cross is a symbol of New Zealand's British heritage.

Design a flag for Flight 93 National Memorial. Think about what symbols you might use to tell the story of Flight 93.

Figure 1. Flag Activity

explained above, we continued the process of coding and simultaneously interpreting data until major themes or concepts emerged. By using the literature to support or challenge the themes that surfaced, we analyzed our findings to determine how children made meaning of their visit. These themes are illustrated and discussed next.

God Bless America, American Mantra

The simplest and most frequent expression from the children was the phrase *God bless America* or *God bless the USA*, written alone or with other text, as excerpted from one card above.

This phrase also appeared frequently in drawings we examined (Kerr & Price, in press). Children's communication of this phrase makes sense in light of the context of the event and the prevalence of the phrase *God bless America* during the years following 9/11. In the political discourse and news media of post-9/11 America, God and country often remain strongly intertwined. The phrase *"God bless America"* dominated public

discourse to a greater degree in the early 2000s than at any time since 1880 (Kaylor, 2013). Because of the frequency with which these messages were communicated, we found children's connection between God and country to be an overarching theme.

To more fully understand this emergent theme, we turned to the literature about children's political and religious socialization. In what some consider the seminal study in children's political socialization, Easton and Hess (1962) found that by age 7, children have grasped their identity as Americans, and they firmly and emotionally attach to their nation. They also noted that until "ages 9 or 10 [children] sometimes have considerable difficulty in disentangling God and country" (Easton & Hess, 1962, p. 238). This conceptualization aligned with hundreds of children's drawings, letters, and notes we found that referred to America or the USA, most often drawn in red, white, and blue, many of which also included the words *God bless* followed by *America, the USA, the flag, our country, our people,* or *our nation* (Kerr & Price, in press). Even very young artists communicated nationalism symbolically through images of flags or use of red, white, and blue. This finding suggested to us that the Junior Ranger booklet incorporate national symbols when appropriate because these symbols would resonate with children. In response, we included an activity that prompts children to look for flags flying at the Memorial, including flags from other countries. Another activity encourages children to draw a flag with symbols that honor the passengers and crew. Figure 1 illustrates these ideas.

Children's Personal Meaning-Making

At all stages of our lives, we as humans attempt to organize our experiences in ways that make sense to us and to our lives (Emde, 2003; Saltzman, Pynoos, Lester, Layne, & Beardslee, 2013). Successful interpretation takes such personal meanings into account (Ham, 2007; 2013), so we searched the comments for words and concepts that characterized how children grasped what took place and expressed their feelings about the event.

Understanding children's personal meaning-making merited attention for another reason. For young children, meaning-making (often expressed through imagery, imaginative play, or stories) plays a role in managing frightening or stressful situations (Saltzman et al., 2013). Stone (2012) reported on this phenomenon at the 9/11 Tribute Center:

> One of the most poignant "emotional markers" displayed in the Gallery is a small hand-made heart-shape card which had been designed and coloured with crayons by a pre-school boy whose father … died instantly. The emotive message on the card from his young son simply reads: To Daddy, I hope you are having a great time in heaven. I Love You. (pp. 85–86)

This grieving child derived meaning and possibly reassurance from his image of his father enjoying Heaven. In our case, the attempt to make meaning of 9/11 revealed itself in even the comments written by the youngest children. One child simply drew an overturned airplane and poignantly added, "Dear men I miss you I love you I know the plane crashed." This focus on the immediate event is typical of young children who lack the cognitive ability to consider an event more abstractly (Rosenblum & Lewis, 2006). What follows are examples of how other young visitors made meaning and the themes that emerged from our analysis.

Grateful remembrances. As Gordon, Musher-Eizenman, Holub, and Dalrymple (2004)

uncovered in letters to first responders at the World Trade Center, children expressed gratitude to the Flight 93 passengers and crew for their heroism and sacrifice. Girls, aged 8 and 10, signed the first two comments below. The other comments were unsigned.

- "Thank you for helping our country's future by landing in this feild. It is a great opportunity for me to be here personaly. May god bless your souls."
- "Thank you so much for saving your life for us I really do appreciate what you did for me."
- "Thank you & God bless! We will remember, never forget! Thank you!"
- "Thank you for courage. You All will be greatlly missed And Allways remembered."
- "Visiting Shanksville was a great experience for me. Everyone has been so kind putting up things to remember the people they love. You have done a great thing for these people. God bless you."
- "I had a good day. I through a coin. I made bouquets. If you were here thanks for your sacrafice. god bless everyone. Thank you."

Comments such as these influenced our decision to include a tribute activity as a tangible symbol of the gratitude expressed by prior young visitors (see Brochu & Merriman, 2008; Ham, 2013; Larsen, 2003). Linking tangible objects in this way to intangible meanings provokes theme-based thoughts (Ham, 2013). In this case, tributes symbolize gratitude and remembrance, thereby reinforcing one of the three interpretive ideas guiding our work, A Place of Honor.

Emotional realizations. Several notes, poems, and questions suggested that young visitors wrestled with their feelings at the site. For example, some comments echoed several ideas and ensuing emotions. As Eisenberg, Fabes, and Spinrad (2006) noted, young adolescents possess the cognitive and emotional capacity to experience multiple emotions and ideas simultaneously. We see this capacity evidenced when a girl expressed both confusion and sorrow:

> I'm very sorry for the people who have died even though I donot know them.
>
> I'm so sorry! I cried when it happend but I'm over it know. And I don't know why those people took over.

Another girl commented, "I feel sad. But then I feel Happy for the men and women that died, that the did a brave thing."

As one might expect, some comments suggested more mature meaning-making, as children grappled with the unimaginable and then came to realize what happened aboard the plane. The comments also reflect young adolescents' development of empathy, which requires that one have the cognitive ability to think abstractly and consider how others might feel (Rosenblum & Lewis, 2006). To illustrate, a girl wrote:

> As I look over the feilds and try to stand all the leters, writings and so on I realise that this is life and a hard part of it. I wish I could have brought back the life's of these people.

Similarly, a teen described how visiting the memorial inspired a new realization of how the tragedy affected her family. Then, she turned her thoughts to the passengers:

> You never really realize something as tragic as this until you actually visit the site and see the memorial. My mom is from this town and this is such an awful thing. It has affected our family, yet brought us closer together. I cannot imagine the terror of the people on the flight. What they saw & were feeling. I think this would have been awful if these heros had not stepped in. Now that I have been here, seen it, and felt the emptiness. I can not believe it! It is amazing and emotional, but I think this has been a wake up call for America.

Lastly, another teen offered a retrospective reflection:

> I have much respect for what this Memorilal stands for. I am now 14 year old and when this had happened I was 10 years old and I really did not understand what had happened so now that I have had the chance to learn more about it I understand what had happed Ive got to see this memorial and I Just wanted to thank all the people that had Joned in and helped to make this able to see and thank you to all those heros

The comment cards echoed the centrality of children's need to grapple with whatever thoughts and feelings they experienced during and after their visit. In his chapter on interpretation at painful heritage sites, Uzzell (1998) observed:

> Heritage sites and museums are not necessarily just places for the reconstruction of memories, but settings where visitors come to negotiate cultural meaning … a place where people come to understand themselves. If museums and other heritage sites are to be socially meaningful then they will be about the visitor. (pp. 4–5)

The Place of Reflection interpretive concept afforded the opportunity to include activities for children that allowed them to express themselves in different ways, as Machlis and Field (1992) and Tilden (2009) emphasized in their guidance on interpreting for children. Another Junior Ranger activity invites children not only to observe, but also to draw or write their thoughts. Hand-drawn images of two comment cards accompany an invitation: "Maybe later you will want to write a message to share with others."

A sense of place. Thirteen comments offered children's perspectives on the temporary memorial site itself.

- "I love this site and memorial. Our school sent something in last year when they came and everyone's name in the school was on it, but I didn't get to sign it. I just want to be able to show that I helped out too."
- "We are very amazed at what we saw and read. The crash site is very sad and touching to see. I feel really bad for all those people on the plane. Love, Kyle Sorry God bless"
- "I think the crash site is very wonderful because it honors the people who gave thier lives for strangers and people who they know. And I like all of the stones and the others things here."

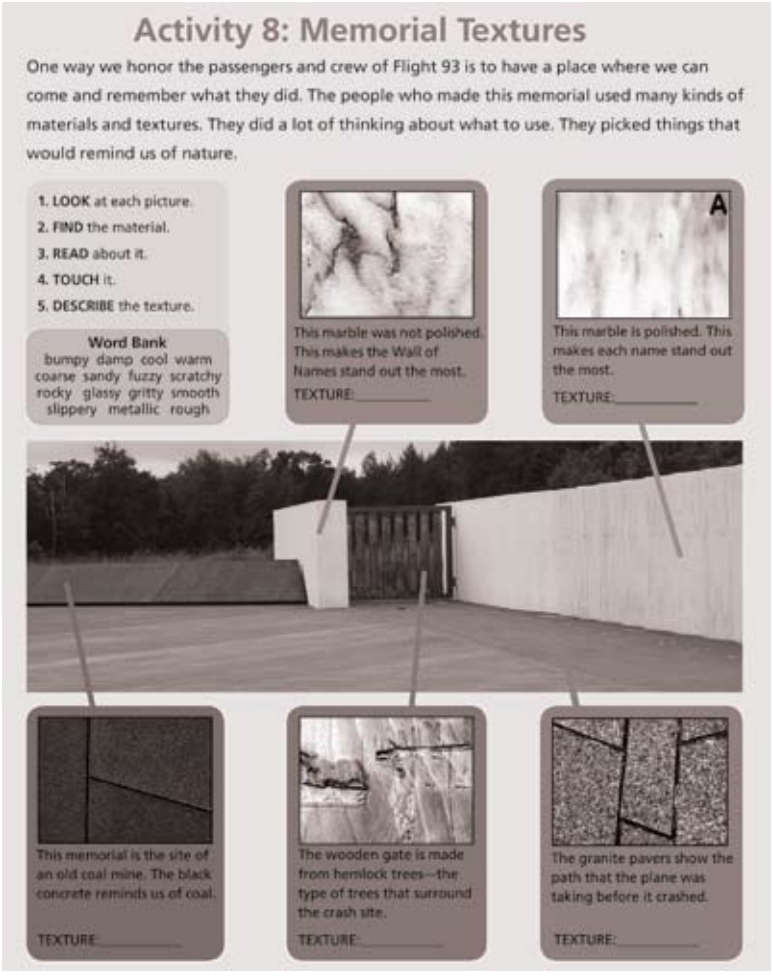


Figure 2. Texture Activity

Some young people offered their recommendations as if they were addressing the Memorial staff:

- "Us, I think you should tell the exact place where it crashed."
- "I think you should make this field a big memorial park so people can come to see their heros that died on flight 93 and you should have peoples own sight for their families"

Children's sense of place (Sobel, 1993) revealed itself in these comments. Suggestions about improving the crash site as a place of reflection reveal a possible link with studies showing that children and adolescents seek preferred spaces for cognitive restoration when emotionally distressed (Korpela, 1992; Korpela, Kyttä, & Hartig, 2002). In addition, suggestions for how to create or improve the memorial conveyed children's desire to take constructive action, a phenomenon documented in earlier studies of children's resilience

following the events of September 11, 2001 (Brown & Goodman, 2005; Phillips, Prince, & Schiebelhut, 2004).

In response to these place-oriented comments, we created activities encouraging children to explore architectural features of the memorial. Inviting children to interview their families or the park rangers about the construction of the memorial became one of the activities included under the booklet section entitled, "Call to Action." Knowing that many children explore tactilely (a phenomenon we observed many times at the site), we designed a "memorial textures" experience for children to learn the symbolism of various stone surfaces by exploring their textures. Offering still another way for children to reflect and honor those lost, these hands-on activities reinforce the interpretive themes, accommodate different learning styles (Beck & Cable, 2002), and link tangible objects to the abstract meanings of the Memorial's design (Larsen, 2003). For example, one activity shown in Figure 2 invites children to feel the polished marble on which the passenger and crew names are engraved, in this way tactilely exploring how the architecture honors the heroes.

Validating Our Interpretations

To verify our approach to designing the interpretive activities (see Pinter, 2014; Pinter & Zandian, 2014; Pinter & Zandian, 2015), we needed children's views. Accordingly, we arranged to field test our initial Junior Ranger booklet with 65 schoolchildren in grades 4 and 5 (ages 9–12 years). When they arrived at the Memorial, we invited them use the booklets and to write or tell us their feedback as they worked through all of the activities. After their visit, we gathered and scanned each booklet. We then read and summarized all of their comments. Here are examples of the students' verbatim feedback:

- "If your trying to put this toward little kids I'd say have less writing. For our age it was fine."
- "I would add a word search and other activities like that."
- "Hide fun items in cool places so kids will go there."
- "Harder activities for older children — Something where you interact with your surroundings, besides those things it was fun."
- "Make the activity part of #8 more prominent (I saw it, but others might not)"
- "The activity where it showed different times and what happened at that time was a little confusing. I had gone 2 times before the field trip and I think I learned the most this time because of the booklet."

Our next task was to revise several activities to make them more appealing. Then, we field-tested the revised individual pages affixed to clipboards, with families visiting the Memorial on two weekends. After children returned the pages, we informally asked them to tell us what they liked or did not like about the activity and took notes on their suggestions. Given that the activities were designed for 6- to 12-year-olds, with three levels of activities for each theme, this provided us with some feedback on each level. Although it extended the development work a few months, this pilot testing helped us improve each activity. For example, children found the explanation of the last minutes of the doomed flight quite confusing. Yet, this activity is important to the interpretive message of A Call

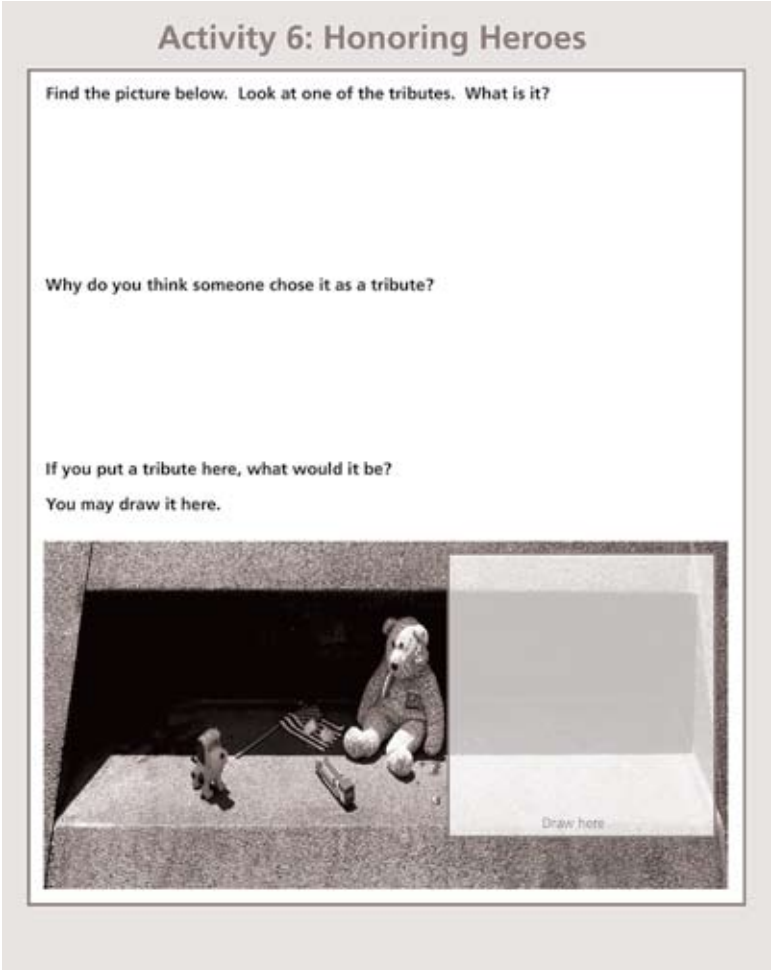


Figure 3. Tribute Activity

for Action because it highlights the actions of the passengers and crew who stopped the terrorists from reaching their intended target in Washington, DC. Field-testing different versions of this page helped us understand how to convey time in a way that young visitors could comprehend. In another revision, we defined difficult words (e.g., "archeology") on a page explaining the symbols on the National Park Service arrowhead. In a third revision, we added a drawing space to a page that had called only for written answers.

Our experience taught us that field-testing interpretive materials for young visitors is an essential step for any site that receives many children and that may not have the resources to provide individualized guidance during a visit. As one of our team observed, "We loved that activity, but the kids didn't! Thankfully, we learned that before we went to the printer."

Limitations and Implications for Future Research

The urgent need for interpretation at a new and emotionally demanding site fueled this study, and it led us to unearth children's insights. As we studied children's comments, we tackled several obstacles.

First, by necessity we studied a convenience sample of comment cards by visitors who chose and who had the ability to complete them. As others have noted, visitor comments rarely include personally identifiable information, with the possible exception of hometown. Addressing this barrier, we painstakingly reviewed each card and compared our analyses with other data sources. Such a process is inevitably imperfect and often impractical. While federal regulations may prohibit asking for such personal identification at National Parks, other sites might add the option for a visitor to self-identify their age or age range.

The comments studied represent the site prior to interpretation. However, they also represent years in which some children could have recalled the events of 9/11. Those children may have a different perspective from children of today, who are distanced by time from this disaster, and for whom terrorism constitutes an unfortunately more common occurrence.

With comment cards as our only source of data about their authors, we cannot ensure that our interpretations accurately represent children's meaning-making (Bruner, 1991), nor can we consider their perceptions in the context of their age or developmental level. Yet, our findings are verified by comparison with children's artwork and other tributes left at the site (see Kerr & Price, in press; Koc & Boz, 2014). At the same time, to ensure that we understand children's perspectives ultimately requires that children themselves participate fully in research. After all, "children are the primary source of knowledge about their own views and experiences" (Alderson, 2000, p. 287). Lastly, our sample almost certainly represents predominantly American, English-speaking children, limiting its relevance to other cultures whose children should be represented in future studies.

Despite its limitations, the study showed that analysis of a common activity—leaving visitor comments—may facilitate our understanding of young visitors' encounters. Informed by their voices, we designed activities for children ages 6 to 12 years. We also sought reasonable constructive outlets for children's emotions and behaviors, because "any interpretation which excludes these dimensions is less likely to be effective" (Uzzell, 1998, p. 2). To ensure that the activities continue to be effective with today's visitors, we discuss the program with the NPS rangers every few months. In these conversations, we jointly plan revisions to pages that children do not find appealing.

Conclusions

Dec (2004) described the purpose of interpretation as "assisting the visitor through a process of discovery that results in personal meaning" and to "impart meaning to present generations and to honor past generations" (p. 74). First, however, one must gain some insight about what is relevant and meaningful to visitors. Hindered by the virtual absence of research on what children think, feel, and do at memorial and other dark sites, we turned to an abundant and readily accessible source of data. As Livingstone et al. (2001) observed, "Although comment cards are commonly collected, they are rarely analyzed for studying museum visitors and the meanings they attach to exhibitions" (p. 358). As others studying ubiquitous visitor comments have noted, we view them as a rich and unique source of data to inform interpretation. Virtually self-generating, this

data gathering method does not tax already strained interpretation research budgets (see Ward, 2015, p. 4) and may appeal to academic researchers willing to provide the analyses. We encourage interpreters at a variety of sites, not just those of painful heritage, to consider studying visitor comments (see Kerr, Dugan, & Frese, 2016 for a discussion of practical methods).

Through their comments, we witnessed children making meaning of the horrific deaths commemorated at the Flight 93 National Memorial. Some children gained wisdom and lost innocence, to paraphrase Uzzell (1995). Their comments provided crucial perspectives on "context, holistic awareness, and drawing connections," which Hunter (2012) called for in interpretation research (p. 56). In the words of the recently retired Flight 93 National Memorial Chief of Interpretation and Cultural Resources, Barbara Black:

> You have all given a voice to the words and objects visitors have left—not knowing if anyone would ever see or read them. And especially the expressions of children, who want to be heard as loudly as the adults. (personal communication, July 18, 2016)

We hope this study will inform those daunted by interpreting acts of terrorism. We also hope that our work will encourage others to elicit the views of young visitors, whose voices communicate unique yet often overlooked perspectives.

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APPENDIX

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.

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

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- 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.

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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 email 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).

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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.

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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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Contact

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