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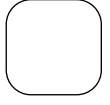
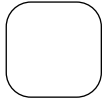
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A Note from the Editor

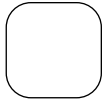
This issue of *JIR* includes two interesting research articles in addition to several pieces in the two new sections, “In Short: Reviews and Reports,” and “In My Opinion.” Both of these new sections are serving to bridge gaps between researchers, practitioners, managers, and administrators. This issue’s “In Short: Reviews and Reports” introduces a new theme focusing on the “State of Interpretation in...” that will appear in several upcoming issues of *JIR*. In “In My Opinion,” Betty Weiler, professor and director of the Tourism Research Unit at Monash University in Melbourne, reviews the state of interpretation in Australia.

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

—C



R E S E A R C H



**Nontraditional Activities
and Interpretation at
National Parks: Conflict
or Coexistence?**

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Abstract

This study examined some nontraditional uses of a national park. During 2003, a survey was conducted to determine the activities and motives of visitors at Cowpens National Battlefield (CNB) in South Carolina. A total of 301 visitor groups completed questionnaires (77.4 percent response rate). A majority of visitors (53 percent) had been to the park two or more times in the past 12 months. About 87 percent stayed one to two hours per visit. Slightly over 40 percent of respondents said that exercise was their primary reason for visitation and nearly 60 percent had participated in fitness activities on previous trips. In contrast, interpretation was mentioned only 18 percent of the time when visitors were asked what they “liked most” about CNB. Although fitness is not resource-dependent, it is consistent with “healthy” activities promoted at national parks. Perhaps interpretation can be used to merge exercise with education, thus broadening the base of support for public lands.

Keywords

interpretation, education, visitors, exercise, fitness, national parks, policy

Introduction

Visitor management is one of the most challenging issues facing the National Park Service (NPS). Various strategies are implemented, not only to increase and diversify park attendance, but also to modify visitors’ behavior after they arrive on site (Manning, 1999). It is difficult to maintain a balance between visitation and resource protection at some locations. The NPS supports most recreational choices made by visitors, provided that their activity selection does not impair the resources. Decisions to promote, allow, restrict, or prohibit activities are based on the NPS mission statement: “...to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unim-

paired for the enjoyment of future generations” (Dennis, 2001).

Since passage of the Organic Act in 1916, advances in science and technology have influenced many NPS policies. For example, a system-wide predator control policy was in effect until the 1930s. Its main purpose was to enhance visitor safety by eliminating dangerous animals from parks (Runte, 1979). At one time, Yellowstone National Park buried its solid waste in landfills located on park property. For over 60 years this method of garbage disposal created a unique wildlife viewing and educational opportunity for visitors because it attracted a variety of animals, especially grizzly bears. In 1963, the park staff discontinued this practice after realizing that supplemental feeding was inconsistent with ecological principles (Wellman and Probst, 2004). Some NPS policies reflect changes in philosophy. Despite its high entertainment value, the “fire fall” and live chicken demonstrations at Yosemite National Park were cancelled because they were considered to be inappropriate. The same rationale was used to prohibit BASE (buildings, antennae, spans, and earth forms) jumping and geocaching in national parks.

Although some park policies are controversial, decisions based on a standard of “appropriateness” can be contentious—especially when the activities are viewed differently by managers and visitors. One such example is participation in fitness activities. Despite the U.S. health crisis reaching epidemic proportions, some resource managers see an inherent conflict between exercise and NPS policy.

Background

Prior to 1900, not many people were aware of national parks and even fewer had visited them. Most of the population lived in the eastern U.S., but nearly all the resource-based parks were located in the west (Runte, 1979). Railroad companies offered passenger service, and in some cases, built elaborate lodges as incentives for park visitation. Steamboats and stagecoaches were used as alternate forms of transportation, depending on the route taken. For example, a round trip from Bismarck (Dakota Territory) to Yellowstone in the late 1800s cost about \$100 and took nearly four weeks—820 miles by water and 72 miles by coach (Zaslowsky and Watkins, 1994). Since there were many constraints to park visitation, only the wealthiest individuals could afford such trips. In 1915, Congress launched the *See America First* campaign to increase public awareness of national parks. Despite this publicity, park visitation remained low until mass production of automobiles occurred during the 1920s. Park attendance surged briefly until the Great Depression in 1929 (Runte, 1979).

Visitation at national parks did not show a dramatic increase until after World War II. By 1958, park attendance had grown so much that a federal task force, the Outdoor Recreation Resources Review Commission (ORRRC), was appointed to explore this phenomenon. A series of 29 reports were published on recreation and the environment as a result of this study. During the 1960s, park visitation became a popular middle-class activity (Runte, 1979). As visitation increased, some outdoor recreation activities started to cause environmental and/or social problems. After decades of trying to increase attendance, the NPS was faced with visitor management issues. Concern over recreational participation laid the groundwork for topics such as appropriateness, social conflict, and carrying capacity.

Soon after the ORRRC reports were published, scientists began to examine the ecological and social impacts of outdoor recreation. Starting in the 1960s, much of the literature focused on “loving our parks to death” (environmental impacts). Other studies looked at activity selection and demographic characteristics of participants (social issues). Within a

decade, the social science research agenda moved from descriptive studies to those addressing theoretical concerns. The study of motives, attitudes, and satisfaction provided the NPS (and other resource management agencies) a wealth of new information to address visitor-related issues. Some important findings included: 1) visitors use activities as a means to gain benefits; 2) individuals place a greater emphasis on the reasons for participation than the activity itself; 3) visitor satisfaction is a primary goal of outdoor recreation management; and 4) a spectrum of recreation opportunities is presumably linked with positive leisure experiences (Manning, 1999).

As resource managers were exposed to social science terminology, certain words and phrases started to appear in agency policy manuals. For example, the 2001 NPS Management Policies (sec. 8.2 Visitor Use) states:

Enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of parks. The Service is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks, and will maintain within the parks an atmosphere that is open, inviting, and accessible to every segment of American society. However, many forms of recreation enjoyed by the public do not require a traditional park setting and are more appropriate to other venues.

The Service will therefore:

- Provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the superlative natural and cultural resources found in the parks.
- Defer to local, state, and other federal agencies; private industry; and non-governmental organizations to meet the broader spectrum of recreational needs and demands.

To provide for enjoyment of the parks, the NPS will encourage visitor activities that:

- Are appropriate to the purpose for which the park was established; and
- Are inspirational, educational, or healthful, and otherwise appropriate to the park environment; and
- Will foster an understanding of, and appreciation for, park resources and values, or will promote enjoyment through a direct association with, interaction with, or relation to park resources; and
- Can be sustained without causing unacceptable impacts to park resources or values (pg. 80).

Although consistency of recreation management policies across sites is desirable, this is not always possible because of differences in enabling legislation, resource capacity, or managerial preferences. Despite attempts to clearly delineate visitor use policies, some terms used by NPS managers to describe recreational activities (i.e., inappropriate or nontraditional) are vague and subject to multiple interpretations. This designation implies a hierarchy that may be inconsistent with the values of some participants. For example, jogging and biking do

not fit the traditional image of the NPS, but White and Schreyer (1981) found widespread support for these activities by park visitors (78.7 and 71.1 percent, respectively). It is common for visitors and managers to have different beliefs about recreational activities. Morgan (2000) found that visitors rated the value of “walking for exercise” at a zoo much higher than site managers.

Outdoor learning is an important but often misunderstood concept when applied to park visitors. Motivations that underlie recreational activities often include education, but “learning” may not be a primary reason for participation. In fact, the value of education is significantly less than recreation at some locations (Morgan and Hodgkinson, 1999). Although some knowledge may be gained through interpretive programs and services, the potential for information to enhance “personal growth and development, pride in the community and nation, and sensitivity and action to protect the environment” is underutilized at many outdoor settings (Roggenbuck, Loomis, and Dagastino, 1990, p. 112). Ham (1992) suggested that most visitors do not remember factual information, but instead retain thematic messages in interpretive communications. Perhaps specific outcomes (i.e., themes) and generic benefits (i.e., national pride) can be achieved within a carefully designed approach to resource interpretation. This strategy may be needed for those whose visitation is based on factors other than education.

Research is needed to understand visitor motives since they cannot be determined by intuition or observation (Knudson, Cable, and Beck, 2003). Although many site managers are knowledgeable about their audiences, others are not (Anderson and Blahna, 1996; and Bonner, 1989). Perhaps some attendance barriers to attendance at interpretive programs can be overcome if the activities, motives, and benefits sought by non-participants are understood. For example, can activities such as exercise and education be merged to accomplish management objectives?

Purpose of the Study

One of the greatest challenges of interpretation is reaching park visitors who do not participate in educational programs or services. In fact, “preaching to the choir” is a frequent criticism of the profession. This descriptive study focused on visitors who used a national park primarily for exercise and fitness activities, not interpretive services. Although some solutions are offered, this study implores interpreters to seek ways to broaden the constituency without sacrificing the NPS mission statement.

Methods

Study Site

Cowpens National Battlefield (CNB) is a Revolutionary War site located in northwestern South Carolina. In the late 1700s, Lord Cornwallis was poised to reclaim the lower South after British forces had conquered Charleston, South Carolina, in 1780 and Savannah, Georgia, in 1778. After the Continental Army divided, General Banastre “Bloody” Tarleton was sent by British forces to remove a detachment of militia known as the “flying army.” This proved to be a serious mistake. On January 16, 1781, General Daniel Morgan gave Tarleton a “devil of a whipping” at Cowpens, South Carolina. This battle was a decisive victory for the Continentals, one which led to Lord Cornwallis’s surrender at Yorktown, Virginia, later that same year.

Cowpens National Battlefield attracts over 200,000 visitors each year. The 640-acre site has a visitor center that contains many exhibits and displays, plus a fiber-optic map that illustrates the military strategies of both the Continental and British armies. There is a three-mile, paved loop-road that features exhibits and a 1.5-mile, self-guided interpretive trail located on the property. The site is open from 9:00 a.m. to 5:00 p.m. daily. No entrance fee is required, but there is a nominal charge to watch the orientation film (*Daybreak at Cowpens*). This battle was the inspiration for two recent motion pictures, *The Patriot* (2000) and *Sweet Liberty* (1986).

Protocol and Selection of Subjects

The Visitor Services Project (VSP) is a partnership between the NPS and the College of Natural Resources at the University of Idaho. The VSP has surveyed visitors in national park sites for over 20 years and has published 159 technical reports during that time period. The CNB Visitor Study was based on that protocol (Meldrum, Littlejohn, Morgan, and Hollenhorst, 2003).

The survey was conducted for seven consecutive days, May 28–June 4, 2003. Every visitor (16 and older) was approached and asked if they would like to participate in the study. There was only one entrance to the park. Most of the interviews were conducted during business hours, but on three occasions visitors were approached before the park opened or after it closed (roughly 20 percent of the sample). A total of 457 visitor groups were contacted and 388 agreed to participate in the study (85 percent initial compliance). A brief interview was conducted with visitors to get their contact information and some demographic characteristics.

Upon entering the park, visitors were given a questionnaire and asked to complete it during or after their trip. Many of the questions were similar to those used in previous visitor studies, although some were tailored to CNB. The questionnaire contained items related to activity selection, reasons for participation, assessment of facilities and services, satisfaction measures, and demographic information. The survey was constructed in a booklet format, and it took about 15 minutes to complete. The questionnaire was pre-addressed and postage-paid. A modified version of the Tailored Design Method was used (Dillman, 2000). The initial face-to-face contact was followed by a postcard reminder about one week later. For those not responding, a second mailing, which contained a cover letter and a replacement questionnaire, was sent four weeks after the postcard. Seven weeks later, another round of replacement questionnaires was mailed to non-respondents. After all the follow-up procedures had been implemented, a total of 301 questionnaires were returned, yielding an overall response rate of 77.4 percent. A non-response bias check resulted in no differences between those in the sample and visitors who were approached, but declined to participate. This was measured by observing some demographic characteristics of non-participants and comparing this information with respondents.

Limitations of the Study

- The data reflect visitor responses during the study period (May 28–June 4, 2003) and may not represent visitors at CNB during other times.
- Visitors at CNB may not be representative of those at other national parks.

Table 1. Importance ratings of and participation in park activities.

Activities	Importance (n=240)		Participation today (n=289)		Past participation(n=148)	
	n	percent*	n	percent*	n	percent*
Exercising	65	27.08	121	41.87	87	58.78
Attending the visitor center	53	22.08	159	55.02	115	77.70
Walking the nature trail	33	13.75	98	33.91	101	68.24
Walking the interpretive trail	31	12.92	153	52.94	110	74.32
Picnicking	12	5.00	35	12.11	77	52.03
Visiting the Robert Scruggs house	10	4.17	84	29.07	111	75.00
Walking pets	10	4.17	35	12.11	30	20.27
Reading the interpretive signs	7	2.92	121	41.87	104	70.27
Studying nature	7	2.92	61	21.11	58	39.19
Conducting historical research	7	2.92	15	5.19	24	16.22
Attending living history programs	2	0.83	20	6.92	55	37.16
Photographing/painting/drawing	1	0.42	17	5.88	21	14.19
Attending the Junior Ranger program	1	0.42	3	1.04	2	1.35
Riding horses	0	0.00	3	1.04	4	2.70
Other	1	0.42	17	5.88	7	4.73

* percentages do not equal 100 because visitors could choose multiple activities.

Table 2. Primary reasons for visiting Cowpens National Battlefield.

Reasons	n	percent	cum. percent
Exercise	112	41.03	41.03
Visit Cowpens NB	66	24.18	65.21
Driving through	52	19.05	84.26
Attending family reunion	14	5.13	89.39
Visiting friends/relatives	11	4.03	93.42
Business/other	8	2.93	96.35
Shopping	3	1.09	97.44
Visiting area attractions	3	1.09	98.53
Missing data	4	1.47	100.00
TOTAL	273	100.00	

Table 3. Importance ratings of selected park attributes.

Importance Ratings	n	ei	vi	mi	si	ni
Park brochure / map	112	54	31	14	1	0
Assistance from staff	107	55	32	7	4	2
Visitor center exhibits	110	50	34	15	1	0
Bookstore / sales items	61	31	26	39	3	0
Orientation video	59	59	25	14	2	0
Touch-screen programs	26	46	23	31	0	0
Battlefield map program	66	61	33	6	0	0
Junior Ranger program	3	67	33	0	0	0
Battlefield trail / exhibits	111	71	23	4	2	1
Bulletin boards	18	39	28	28	6	0
Restrooms	151	74	22	5	0	0
Access for disabled persons	15	80	20	0	0	0
Loop road drive	142	61	23	15	1	1
Nature trail	101	68	20	10	1	1

Note: ei = extremely important; vi = very important; mi = moderately important; si = slightly important; and ni = not important.

Results

Demographics

A majority of CNB visitors were from South Carolina (55 percent). Although CNB is located in a rural area, it is within a short driving distance of Spartanburg County, population 261,281 (U.S. Census Bureau, 2005). Fifty-three percent of the visitors had been to the park two or more times in the past 12 months, and 87 percent stayed one to two hours each trip. Families were the largest segment of park visitors (58 percent). Each respondent was asked for the number of individuals in their travel party. Of the 669 people listed, 32 percent were between the ages of 41 and 55 and 17 percent were below the age of 16. The typical group size was two to three people (60 percent).

Activity Selection

Visitors were asked about their activity selection on this and previous visits to CNB (Table 1). On “today’s” trip, visitor center attendance was the most frequently reported activity (55 percent). Walking the interpretive trail was next (53 percent) and reading interpretive signs was tied for third place with exercise (42 percent each). On previous trips to CNB, visitors reported: 78 percent had been inside the visitor center, 74 percent had walked the interpretive trail, 70 percent had read interpretive signs, and 59 percent had participated in some form of exercise. On a separate question, 49 percent of visitors had walked, jogged, or biked on the three-mile loop road. These results show frequent participation in fitness and interpretation at CNB.

Activity Importance and Motivation

Twenty-seven percent of visitors said that exercising was their most important activity (Table 1) and 41 percent listed exercise as their primary motive for attendance (Table 2). However, many people valued interpretation, since 70 percent said that the programs were “extremely” or “very” important. Combining the categories of “extremely” and “very important” respondents valued: visitor center exhibits (84 percent); orientation film (84 percent); battlefield map (94 percent); and battlefield exhibits (94 percent). The importance ratings of these media sources were high, but the sample sizes were low. See Table 3.

Visitor Preferences

Visitor responses to an open-ended question, “What did you enjoy most about your visit to CNB?” generated a list of 32 items (Table 4). Although interpretive services were mentioned, other park attributes were listed more frequently. The top four items in the general category (peace/quiet, exercise, natural beauty, and solitude) accounted for nearly 40 percent of responses to this question ($n=154$). In contrast, interpretive services were mentioned only 18 percent of the time ($n=71$).

Park Experience

The questionnaire asked visitors about some external influences related to their experience. A majority of visitors reported “no effect” when asked about exhaust fumes from vehicles (97 percent) and other visitors’ pets (90 percent). Only seven percent of visitors reported any safety concerns and most (94 percent) gave the park a rating of “safe” or “very safe.”

Table 4. What visitors liked most about Cowpens National Battlefield.

Categories / items	n	percent
<i>PERSONNEL</i>		
Staff	19	4.92
<i>INTERPRETIVE SERVICES</i>		
Historical information	21	5.44
Video	14	3.63
Information	11	2.85
Light board demonstration	9	2.33
Visitor center	6	1.55
Maps	3	0.78
Nature walks	3	0.78
Exhibits	2	0.52
Robert Scruggs house	2	0.52
<i>MAINTENANCE & FACILITIES</i>		
Trails	27	7.00
Cleanliness	13	3.37
Safety	12	3.11
Maintenance	11	2.85
Loop road	6	1.55
Trees	4	1.03
Battlefield	3	0.78
Restrooms	3	0.78
<i>GENERAL</i>		
Peace & quiet	60	15.54
Exercise	45	11.66
Natural beauty	29	7.51
Solitude	20	5.18
Scenery	8	2.07
Weather	7	1.81
Wildlife	6	1.55
Fresh air	6	1.55
Lack of traffic	4	1.03
All of it	4	1.03
Location of site	4	1.03
Battlefield	4	1.03
Spending time with family & friends	2	0.52
Other comments	18	4.66
TOTAL	386	100.00

Discussion and Conclusion

Most visitors at CNB were from South Carolina and attended the park more than once during the previous year. Typically, their length of stay was about one hour for each trip. These findings showed considerable loyalty to the park. Families were the predominant visitor group. The age structure was split between middle-aged visitors and children, another indicator of family involvement. Visitors considered CNB to be an ideal setting, presumably because it is safe, beautiful, peaceful, and quiet.

Many people were interested in interpretation at CNB since over two-thirds of park visitors said that the educational programs were “very” or “extremely” important. From previous trips, visitors reported that they had hiked the nature trail, walked the interpretive trail, read interpretive signs, attended living history programs, etc. but the importance assigned to these educational methods is low. Interpretive services were mentioned by less than 20 percent by respondents when asked, “What did you like most about your visit to CNB?”

According to the park administrative history (Binkley and Davis, 2002), CNB focused extensively on visitor services during the early 1980s. Much interpretive activity occurred in 1981 prior to the 200th anniversary. Some examples included; completion of the visitor center and exhibits, battlefield tours, living history demonstrations, military reenactments, completion of the orientation film, first-person living history interpretation, evening programs, candlelight tours, and cannon firings. Despite these expanded offerings, interpretation failed to attract more visitors. Due to lack of community support and tight budgets, the interpretive program was streamlined in 1984. The park superintendent wanted to “get back to the basics” so the park’s story could be presented in a “timely and cost-efficient manner.” Meanwhile, park attendance increased over 14,000 visitors from 1984 to 1985 (65,511 and 79,732, respectively). Another shift in visitor-use patterns at CNB occurred during the 1990s. Attendance at the orientation film became stagnant and visitors spent less time on the battlefield (interpretive trail). However, park visitation and sales at the gift shop both doubled during this same time period.

Nearly half of the visitors used the park for exercise, but this number could be higher depending on how “walking the interpretive trail” and “walking the nature trail” were defined by respondents. Simply going to the visitor center may not imply an interest in education since several amenities and guest services were clustered at this location (i.e., rest rooms, snacks, maps, or gift sales). Even more striking was the importance that visitors assigned to exercise. Over 40 percent of visitors chose exercise as their main reason for park attendance. On a separate question, more than a quarter of visitors mentioned exercise as their most important activity.

These figures may be surprising for individuals not familiar with CNB. Starting in 1984, the park was promoted heavily as a fitness-oriented destination. Publicity items included press releases, flyers, bumper stickers, etc. In 1986, a mini-marathon named “Race for the Grasshopper” was held at the battlefield (the “grasshopper” was a British cannon hotly pursued by the Patriots). Due to its popularity, this foot race has become an annual event. Another successful venture featuring health and exercise was called, “I Ride Too,” a bicycle tour for individuals with disabilities. Because of these and other events, exercise was firmly established in the park by the 1990s. Some common types of fitness-related activities were jogging, running, bicycling, rollerblading and skateboarding. Despite the interest and participation in exercise, fitness was not a primary reason

for establishing CNB in 1972 (Binkley and Davis, 2002).

Although the battle at Cowpens, South Carolina, played a pivotal role in America's independence from Britain during the Revolutionary War, many of today's park visitors seem to be more interested in exercise than education. This site may lack historical relevance for some visitors because: 1) the battle was fought over two centuries ago; 2) most of the Revolutionary War battlefields are in the northeast, not the south; and 3) few visitors use the site for genealogy purposes (there is no cemetery on site). In light of these factors, was it a foregone conclusion that exercise would become the predominant activity over time? If so, will similar visitor-use patterns develop at Civil War battlefields during the next century?

Fitness activities fall into a "gray" area since they are permissible, but not ideally suited to the natural and cultural resources found in national parks. In other words, exercise is not resource-dependent. Often, these types of recreation activities are deferred to other leisure service providers since they appear to satisfy a broader range of recreational demand. Yet, "healthful" activities are encouraged by the NPS, so long as other values are not compromised. This situation represents a dilemma for the NPS, and CNB in particular. Although resource managers encourage park visitation, they want visitors to participate in "appropriate" activities with the "proper" motives. What is the solution for those who attend, but participate in non-traditional activities such as exercise? An entrance fee might yield a more homogeneous population, but at the expense of those living nearby. It is likely that an admission charge would increase resentment from local residents and stimulate attendance during non-work hours.

If exercise enthusiasts at CNB are an example of "diverse audiences" and "multiple meanings" suggested by Larsen (2002), then managers should welcome this type of park usage. In other words, a broad definition of visitation should be supported. Since interpretive exhibits and displays at the park change infrequently, repeat visitors might be less motivated to pursue education. Perhaps they have already heard the park story numerous times and switched their activity to exercise. In contrast, some visitors might use fitness as an entrée and diversify their activity selection over time. It is possible that a deeper understanding and appreciation of park resources will develop after frequent exposure to the site. More issues involving park usage and meanings are likely because of cultural influences (Ewert, Chavez and Magill, 1993).

Even if visitors do not change their fitness orientation, those who use the park for exercise should be regarded as an important constituency. Political and financial support is important, regardless if the activity is exercise or education. Since there are no comparable sites nearby, CNB is a valuable resource for local residents. Some research has shown that frequent visitation is related to place attachment (Williams, Patterson, Roggenbuck and Watson, 1992). Other studies imply that place attachment is linked with environmentally responsible behavior, such as voluntary resource stewardship (Vaske and Kobrin, 2001; Mitchell, Force, Carroll, and McLaughlin, 1993). Perhaps exercise can promote some outcomes, such as litter pick-up, vandalism reduction, or national pride. Since CNB has no law enforcement ranger, the increased "surveillance" provided by visitors during off-hours might be beneficial.

Managerial Implications

Can exercise coexist with education? Is it possible to merge these activities to accomplish

management objectives? Hot Springs National Park sponsors an “Old Fashioned Health, Fitness and Fun Fair” that builds on the area’s reputation as a world-famous health resort. “Take the Path to a Healthier You” is an annual event that occurs on National Trails Day at Valley Forge National Historical Park. More examples of this nature are likely due to the Healthier U.S. Initiative, a federally sponsored program aimed at promoting active forms of recreation and reducing stress. With the recent emphasis on physical and mental health and the use of national parks as venues to address these social problems, CNB is well-positioned to showcase the integration of exercise and education. The park has made a good start.

Visitors cannot be forced to learn park information or asked to leave if they exercise. However, some management objectives can be accomplished if the behavioral tendencies of visitors are addressed. Some ideas to merge education and exercise at CNB might include: 1) Sponsor theme-based fitness events (military drills, cavalry maneuvers, etc.); 2) Operate a battlefield “clinic” that uses medical experts to check vital signs and perform various health tests on park visitors; 3) Create an audio CD that can be used by solo walkers or bikers; 4) Utilize roving rangers on bikes, especially during the evening hours; 5) Install some rest areas along the loop road, complete with benches and wayside exhibits; 6) Paint a time-line on the road that lists some important dates before and after the battle. If these, or similar measures are not taken, then Larsen’s (2002) prophecy, “be relevant or become a relic” might be fulfilled.

References Cited

- Alda, A. (Producer). (1986). *Sweet Liberty* [Motion picture]. United States: Universal Studios.
- Anderson, D. and Blahna, D. (1996). Is Formal Visitor Research Necessary? Assessment of an Outdoor Museum Staff’s Knowledge of the Institution’s Audience. *Journal of Park and Recreation Administration*, 14(2), 16–36.
- Binkley, C. and Davis, S. (2002). Visitor Services and Interpretation at Cowpens. In *Cowpens National Battlefield: An Administrative History* (chap. 6). Retrieved on November 9, 2005, from www.nps.gov/cowp/adhi/adhi6.htm
- Bonner, J. (1989). Formal Versus Naturalistic Evaluation in the Museum Context. *Visitor Studies*, 2, 211–224.
- Dennis, S. (2001). *Natural Resources and the Informed Citizen*. Champaign, IL: Sagamore Publishing.
- Dillman, D.A. (2000). *Mail and Internet Surveys: The Tailored Design Method* (2nd ed.). New York, NY: John Wiley and Sons, Inc.
- Ewert, A., Chavez, D. and Magill, A. (Eds.). (1993). *Culture, Conflict and Communication in the Wildland-urban Interface*. Boulder, CO: Westview Press.
- Ham, S. (1992). *Environmental Interpretation*. Golden, CO: Fulcrum Publishing Co.
- Knudson, D., Cable, T. and Beck, L. (2003). *Interpretation of Cultural and Natural Resources* (2nd ed.). State College, PA: Venture Publishing Inc.

- Larsen, D.L. (2002). Be Relevant or Become a Relic. *Journal of Interpretation Research*, 7(1), 17-23.
- Manning, R.E. (1999). *Studies in Outdoor Recreation*. Corvallis, OR: Oregon State University Press.
- Meldrum, B.H., Littlejohn, M.A., Morgan, J.M., and Hollenhorst, S.J. (2003). Cowpens National Battlefield Visitor Study. Report No. 142. Moscow, ID: Park Studies Unit.
- Mitchell, M.Y., Force, J.E., Carroll, M.S., and McLaughlin, W.J. (1993). Forest Places of the Heart. *Journal of Forestry*, 91(4), 32-37.
- Morgan, J.M. (2000). Perceptions of a Zoological Park: A Comparative Study of Educators and Visitors. *Journal of Interpretation Research*, 5(1), 19-33.
- Morgan, J.M. and Hodgkinson, M. (1999). The Motivation and Social Orientation of Visitors Attending a Contemporary Zoological Park. *Environment and Behavior*, 31(2), 227-239.
- Rodat, R. (Writer). (2000). *The Patriot* [Motion picture]. United States: Columbia Pictures / Centropolis.
- Roggenbuck, J.W., Loomis, R.J. and Dagastino, J. (1990). The Learning Benefits of Leisure. *Journal of Leisure Research*, 22(2), 112-124.
- Runte, A. (1979). *National Parks: The American Experience*. Lincoln, NE: University of Nebraska Press.
- U.S. Census Bureau (2005). *Statistical Abstract* (<http://www.census.gov>).
- U.S. Dept. of Interior, National Park Service (2001). *Management Policies* (<http://www.nps.gov/policy/mp/policies.pdf>).
- Vaske, J.J. and Kobrin, K.C. (2001). Place Attachment and Environmentally Responsible Behavior. *The Journal of Environmental Education*, 32(4), 16-21.
- Wellman, D. and Probst, D. (2004). *Wildland Recreation Policy* (2nd ed.). Malabar, FL: Krieger Publishing Co.
- White, R.G. and Schreyer, R. (1981). Nontraditional Uses of the National Parks. *Leisure Sciences*, 4(3), 325-341.
- Williams, D.R., Patterson, M.E., Roggenbuck, J.W. and Watson, A. (1992). Beyond the Commodity Metaphor: Examining Emotional and Symbolic Attachment to Place. *Leisure Sciences*, 14, 29-46.
- Zaslowsky, D. and Watkins, T.H. (1994). *These American Lands*. Washington, D.C.: Island Press.

**Can Interpretive
Messages Change Park
Visitors' Views on
Wildland Fire?**

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Abstract

This study evaluated the effect of differently formulated interpretive messages embedded in a 90-minute guided tour on Mesa Verde National Park visitors' knowledge and attitudes about wildland fire. Using a Solomon four-group experimental design, 31 different groups of visitors ($N=496$) received affective arguments, cognitive arguments, a combination of arguments, or no persuasive argument. All persuasive programs led to significant increases (one to two points) on a five-question knowledge scale and two attitude scales, although the three treatments did not differ in their effects. Attitudes became slightly more positive about the ecological role of fire and less negative about the destructive nature of fire. A slight priming effect of the pre-test was found for one measure but there were no effects on other measures, supporting the external validity of study findings. Attitude and knowledge changes related to fire were greater for those who had weaker prior attitudes or lower prior levels of knowledge. Counter to hypotheses, the personal relevance of fire and need for cognition did not exhibit a significant relationship to knowledge gain or attitude change.

Keywords

affect, persuasion, interpretation, evaluation, need for cognition, guided walks, wildland fire, attitudes

Introduction

Influencing Public Views on Wildland Fire

In the literature that addresses public attitudes toward wildland fire, a common theme is the need for public education. Many Americans know little about the natural processes of fire (Manfredo, Fishbein, Haas, and Watson, 1989), and many were brought up to believe that all fires should be suppressed (Loomis, Bair, and Gonzalez-Caban, 2001). In a recent study of visitors to national forests in three states, the most favored option for responding to various hypothetical fire scenarios was suppression, regardless of the nature and outcomes of the fires (Kneeshaw, Vaske, Bright, and Absher, 2004). Yet wildland fire is an important and inevitable process in many

ecosystems, and across the country public land managers are striving to return fire to a more natural role. To accomplish this, it will be necessary to have public support (Machlis, Kaplan, Tuler, Bagby, and McKendry, 2002).

Interpretive activities in parks and forests reach a wider and larger cross-section of people than most types of agency communication campaigns. Many programs deal with wildland fire, but few studies have evaluated the effects of such efforts. However, at least three studies have documented a significant impact on knowledge. One discovered that attending fire-themed slide programs or interpretive walks increased knowledge about and support for the National Park Service's fire policy (Nielsen and Buchanan, 1986). Baas, Haas, Ross, and Loomis (1983) also documented a moderate influence of interpretation on visitors' knowledge of prescribed burning and their support for prescribed fire. Finally, Taylor and Daniel (1984) demonstrated that interpretive media could change public perceptions and increase public knowledge of prescribed fire among a sample of Tucson, Arizona, residents.

While many interpretive programs strive to increase factual knowledge about resource issues, knowledge change is often insufficient to promote stewardship or garner public support. Instead, one must focus on influencing attitudes. Attitudes are defined as general evaluations of an object or issue (Eagly and Chaiken, 1993), and it is well accepted that public behavior and support for policies is determined more by attitudes than by factual knowledge (Bright, Fishbein, Manfredro, and Bath, 1993; Fishbein and Yzer, 2003). People can believe things to be true or false, but unless they evaluate the outcomes as good or bad, we cannot know how they will respond to policy proposals. Thus, research is needed that goes beyond assessing the impact of interpretation on knowledge alone (Orams, 1997; Tubb, 2003).

Recently there has been a call in literature to balance emphasis on the cognitive (belief) components of attitude with attention to affective (emotional) components when developing environmental education programs (Bright and Tarrant, 2002). Programs should target both domains because affect and cognition have a synergistic relationship; affect is a significant predictor—in combination and by itself—of attitudes toward environmental issues (Pooley and O'Connor, 2000). Few studies have evaluated the use of emotion to change knowledge or attitudes about natural resource issues or compared emotional to more rationally cognitive appeals. In response to this call for an increased emphasis on the use of affective persuasion, we conducted a study to compare messages with an affective versus cognitive tone. Our evaluation was guided by the Elaboration Likelihood Model of Persuasion (ELM).

Factors Affecting Attitude Change

The ELM suggests that whether attitudes will change in response to persuasive arguments depends on a variety of individual characteristics, situational factors, and message properties (Eagly and Chaiken, 1993; Petty, McMichael, and Brannon, 1992). Most interpreters strive to influence attitudes through the "central" route, which involves message recipients carefully scrutinizing the arguments presented, generating cognitive responses, and creating links between new information and pre-existing cognitive structures. Central route processing is typically desired because the impacts tend to be more enduring and predictive of later attitudinal expressions or behavior (Anderson, Lucas, and Ginns, 2003).

Among individual factors that affect whether central route processing will occur, the personal relevance of the topic and need for cognition are two of the most important

(Eagly and Chaiken, 1993). Personal relevance refers to the level of psychological involvement one feels toward an attitude object (Bright and Manfredi, 1997; Petty and Cacioppo, 1979). People for whom a message is personally relevant are more likely to process a message deeply, and therefore to learn more, especially if prior knowledge is low (Falk and Adelman, 2003).

Need for cognition is defined as a psychological tendency (i.e., a disposition or trait) to engage in and enjoy thinking (Cacioppo and Petty, 1982). People high in need for cognition are more likely to attend to and process persuasive messages. Therefore, they should gain more knowledge than people who are not highly motivated to consider the arguments presented by an interpreter in a leisure context. In this study we sought to determine whether personal relevance or need for cognition was positively related to knowledge gain or attitude change.

Another individual characteristic that relates to attitude change is one's prior attitude. It is axiomatic among communication scholars that "strong" attitudes are difficult to change (Eagly and Chaiken, 1993; Orams, 1997). Attitudes may be strong due to vested interest in outcomes, connection of an issue to one's identity, or various other factors (Thomsen, Borgida, and Lavine, 1995). People with strong attitudes may counterargue the messages presented, which can ultimately reinforce the prior attitude (Bright and Manfredi, 1997). Empirical evidence from interpretive research shows greater changes in knowledge and attitudes among those with lower prior knowledge or weaker attitudes (Falk and Adelman, 2003).

Situational factors can affect attitude change by influencing participants' motivation or ability to process messages deeply (Orams, 1997). Interpretive contexts, especially guided tours, have the potential for many distractions, including the behavior of other participants and captivating elements of the environment. In low motivation settings, the source of the message can be more important to persuasion than the message arguments themselves (Andrews and Shimp, 1990). The number of times a message is repeated can also affect cognitive processing. Repetition increases the chances that a message will capture attention in the first place, and it affects the nature and type of cognitive elaboration.

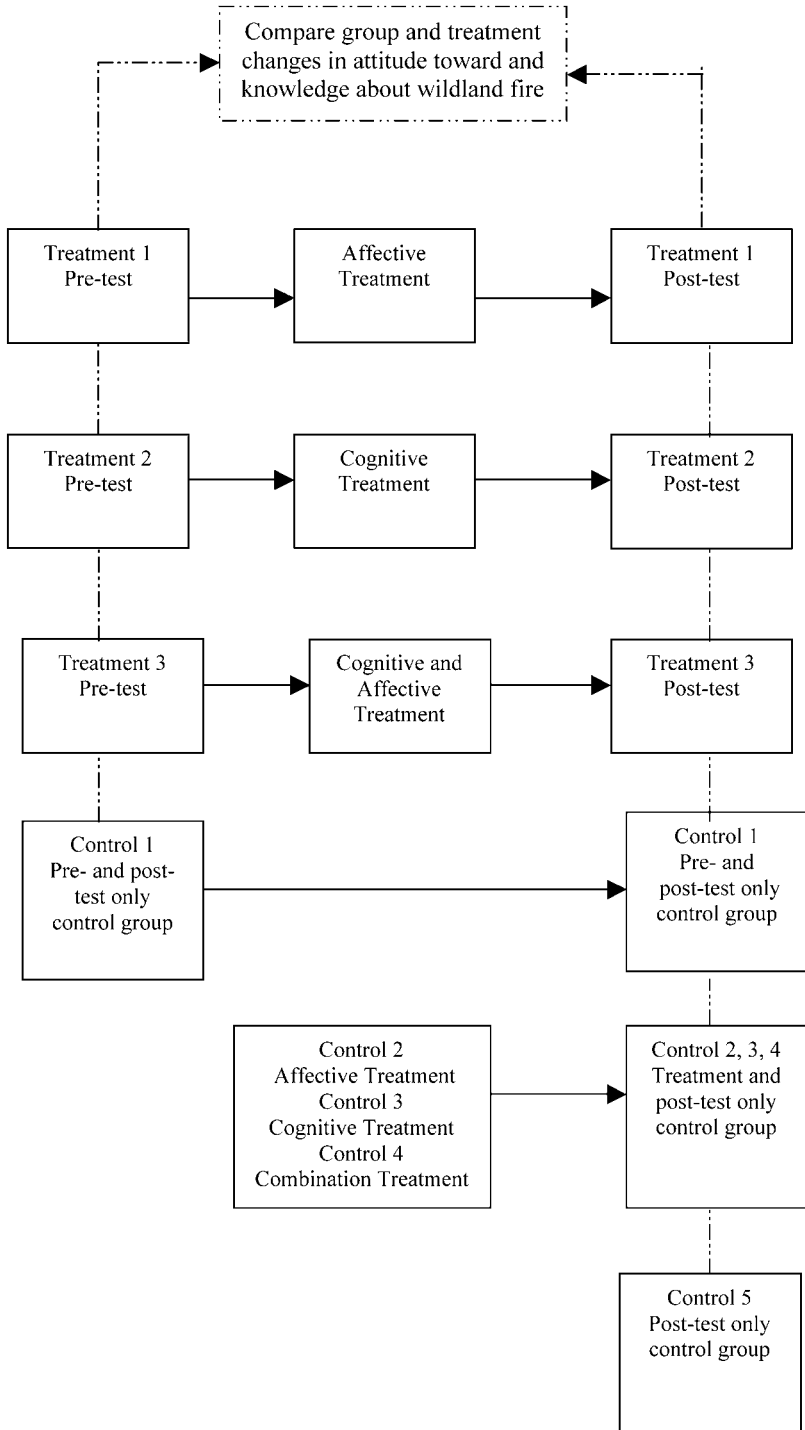
The purpose of the study was to assess the effect of differently formulated interpretive messages (affective and cognitive) on knowledge and attitudes. Additionally, we investigated the influence of two individual characteristics—personal relevance of the topic and need for cognition—on changes in knowledge about and attitudes toward wildland fire. We attempted to control for many situational factors that could influence attitudes, because we wanted to isolate the effect of the type of arguments presented. We accomplished this by replicating each treatment and control with several different randomly selected tours, having the programs all delivered by the same interpreter (a uniformed National Park Service employee), and having a consistent number of message repetitions in each program.

Methods

Study Area

Mesa Verde National Park, one of the largest archeological preserves in the United States, was the center of the Ancestral Puebloan culture between the sixth and 13th centuries (Wenger, 1991). Wildland fire is an important topic at Mesa Verde for two reasons. First, the Ancestral Pueblos used fire in their daily lives, and it is important to share this aspect of their lives with the visitors to provide a more comprehensive picture of this culture. Second,

Figure 1. Modified Solomon's four group design



wildland fire plays an intricate role in the forest and shrub ecosystems found throughout the park. Wildland fires have recently reshaped the park's landscape, which provides visitors the opportunity to view the various stages of forest regrowth after a wildland fire.

Research Design

The study used a pre-test/post-test Solomon's four group experimental design (Figure 1), in which some groups (both treatment and control) completed pre-test and post-test instruments and others received only a post-test (Graziano and Raulin, 2002). A concern in many experimental studies is that the pre-test itself, or something that occurs with participants during the course of the study but is unrelated to the treatment, can cause changes that mistakenly are attributed to the treatment itself. Solomon's four-group design permits the researcher to isolate the effects of the treatment from those of priming due to the pre-test or exposure to the environment during the course of the tour. Each of three treatments—*affective arguments, cognitive arguments, and a combination of affective and cognitive arguments*—was replicated with seven different groups of visitors to help mitigate any unique findings that might occur on one specific tour or with one type of group. Control groups consisted of those who received both the pre- and post-test without a treatment message (replicated three times), treatment and post-test but no pre-test (replicated once for each of the three programs), and post-test only controls who did not receive either a pre-test or a treatment (replicated three times). Experimental conditions (treatment or control) were randomly assigned to randomly selected tour groups in the summer of 2003.

Participants in the control groups that did not receive treatment messages attended a program that focused on the daily lives of the Ancestral Puebloans without reference to wildland fire. All three experimental treatments had the same central core program, whose theme was "fire has an important role in our lives today, just as it did in the lives of the Ancestral Puebloans." The two main points were 1) when fire is under control it sustains human life (e.g., cooking, heating), but when fire is out of control it destroys life; and 2) fire is needed to maintain healthy fire-dependent ecosystems. The experimental cognitive and affective persuasive arguments were stand-alone segments of the programs that supported the overall theme. Affective arguments incorporated emotionally arousing elements, such as birth or death (Lang, 2000; Orams, 1997). They also attempted to personalize the message in ways that would cause people to reflect on their own lives. The cognitive arguments focused on factual information, largely related to fire's role in nutrient cycling (see Appendix for examples of the arguments used). Program conclusions touched on the general idea of the arguments, but did not repeat them verbatim.

Procedures

Long House cliff dwelling, the site of this study, attracts visitors interested in prehistoric archaeology. It was chosen as the study location because it offered the longest tour length of all the interpretive programs at Mesa Verde (90 minutes), thus providing more time to influence attitudes. It was also the only cliff dwelling with ranger-guided tours that would logistically facilitate the administration of both pre- and post-test questionnaires. Before the tour, visitors were seated on a Long House tram for five minutes before being transported to the site, and this time was used to administer the pre-test. The post-test was administered while the visitors were waiting for the return tram back to the parking area. An additional advantage was that Long House visitors were unlikely to expect a tour focused on fire, so we felt

Table 1. Pre-test Attitudes and Knowledge

Measure	N	Mean Score	SD
Pre-test Knowledge ^a	425	0.70	0.86
Pre-test Ecological Attitude ^b	423	11.56	5.68
Pre-test Destruction Attitude ^b	422	-3.39	6.71

^a 6-point scale: 0 to 5.

^b Scale: -21 to +21

Table 2. Paired t Tests Comparing Pre- and Post-test Scores on Attitudes and Knowledge

Treatment	Element	Mean Score		<i>t</i>	<i>df</i>
		Pre-test	Post-test		
Affective	Ecological Attitude ^a	10.67	14.38	-7.04*	123
	Destruction Attitude ^a	-3.79	-0.72	-4.87*	121
	Knowledge ^b	0.62	2.11	16.40*	126
Cognitive	Ecological Attitude	12.20	14.72	-4.43*	115
	Destruction Attitude	-2.63	-1.93	-1.07	115
	Knowledge	0.84	2.12	11.08*	116
Combination	Ecological Attitude	12.07	15.87	-8.21*	117
	Destruction Attitude	-3.57	-1.23	-3.61*	116
	Knowledge	0.60	2.02	14.14*	122
Control	Ecological Attitude	11.50	11.40	0.14	56
	Destruction Attitude	-3.31	-2.13	-1.39	56
	Knowledge	0.81	0.89	0.76	56

^a Scale: -21 to +21

^b 6-point scale: 0 to 5

* $p < .0005$

that self-selection bias based on topic interest would be reduced.

Self-completed questionnaires were distributed by the uniformed National Park Service interpreter who delivered all programs. All English-speaking adults (age 18 and older) were invited to participate. To assess change in knowledge and attitudes, we needed to match individuals' pre-test and post-test questionnaires. The pre-test had a number written on the upper corner and on a small tag stapled over the written number. The visitor kept the numbered tag when he or she turned in the pre-test. Upon completing the post-test, the numbered tag was stapled to the post-test instrument. This process allowed study participants complete anonymity.

Measures

Dependent measures of knowledge and attitudes appeared on both the pre-test and post-test. The post-test also included questions to measure need for cognition and personal relevance, as well as socio-demographic characteristics. The expectancy-value theory of attitudes was used to develop attitudinal measures (Fishbein and Ajzen, 1975). This approach requires measuring both belief strength (how strongly a respondent believes something to be true) and the evaluation of each belief (favorableness of that condition). For example, a belief statement was "many animals die in a wildland fire." The response scale for belief strength was a seven-point unipolar scale (1 = strongly disagree; 7 = strongly agree), and the response scale for evaluation was a seven-point bipolar scale (-3 = really bad; +3 = really good). Following expectancy value theory, each belief item was multiplied by its corresponding evaluation, generating a possible range of values between +21 and -21 for each item. The belief items were developed by having a panel of judges rank 63 initial items related to fire in terms of their inherent favorableness toward wildland fire (Trochim, 2001). A subset of items that captured a range of positive and negative sentiments was pre-tested with a convenience sample of residents in the community of Moscow, Idaho. Thirteen items that represented a range of favorability and were highly correlated were selected as the final attitude measures. Exploratory factor analysis was used on the final data to identify underlying attitudes that were being measured by multiple items.

Knowledge about wildland fire was defined as the factual information presented in the interpretive programs. The scale consisted of five multiple-choice questions, each of which included a "don't know" option (which was scored as incorrect). The items were highly specific; for example, they included the number of acres burned in the park during a recent fire and the purpose of the Haines index. The total correct score (zero to five) was computed for each respondent.

Potential moderating variables were need for cognition and the personal relevance of wildland fire. Six five-point questions from the efficient assessment of need for cognition scale (Cacioppo, Petty, and Kao, 1984) were included in the post-test. The average of the five items became the individual's score. Personal relevance was measured with five yes/no items developed for this study related to interest in fire. An example is, "Do you enjoy learning about wildland fires?" Possible scores on the index of relevance ranged from zero to five.

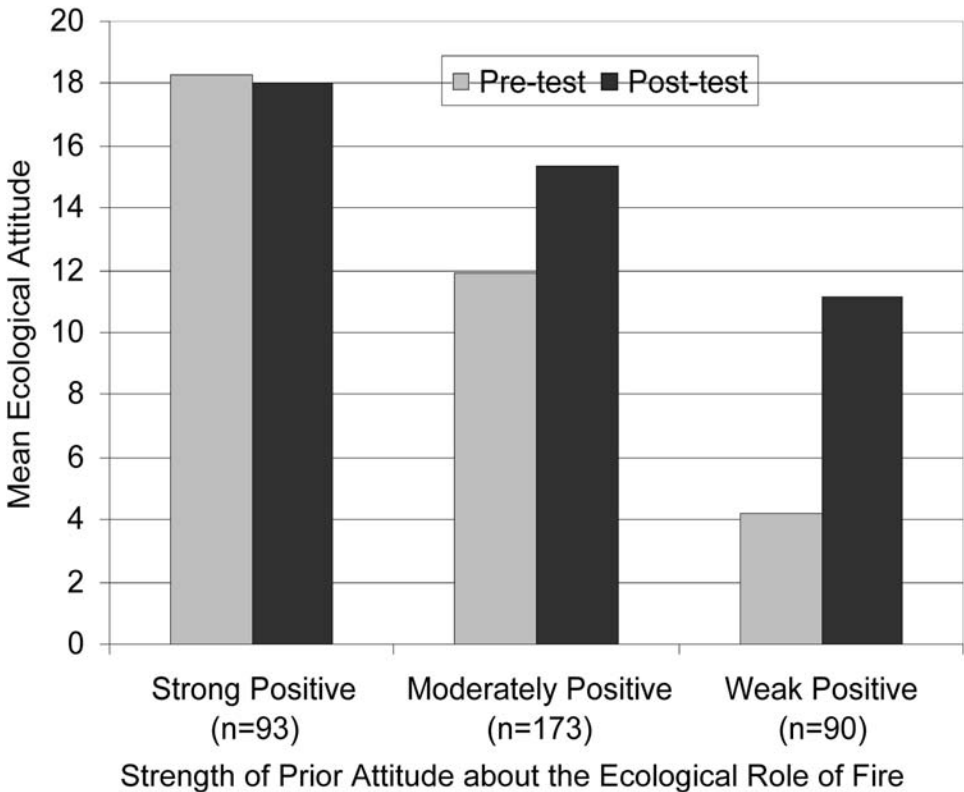
Table 3. Mean Change in Attitude and Knowledge Scores from Pre-test to Post-test, by Treatment

	Argument Type				<i>F</i>
	Affective	Cognitive	Combination	Control	
Ecological Attitude	3.71 _a	2.52 _a	3.80 _a	-0.11 _b	7.20**
Destruction Attitude	3.07 _a	0.70 _b	2.35 _{ab}	1.18 _{ab}	2.71*
Knowledge	1.49 _a	1.28 _a	1.42 _a	0.09 _b	24.17**

Note: Means with different subscripts differ significantly at $\alpha = .05$ in the Duncan test.

* $p < .05$

** $p < .0005$

Figure 2. Pre- and post-test mean ecological attitude scores as a function of prior attitude strength

Results

Visitor Characteristics

A total of 496 visitors participated in the study, in 31 different tour groups. The response rates ranged from approximately 80 to 85 percent. Study participants were for the most part well educated (32 percent having a post-college degree), middle-aged (with most between 25 and 64 years of age), and first-time visitors to the park (63 percent). Pre-test knowledge levels were very low, as might be expected given the specific, technical questions we asked (Table 1). None of the pre-test measures differed significantly (at $\alpha = .05$) among treatment or control groups.

Change in Attitudes and Knowledge

To reduce the attitude items to a smaller number of attitude measures, factor analysis was performed, and only items loading uniquely on a single factor with a loading of at least 0.40 were retained. This generated two independent attitudinal dimensions: an "ecological attitude" that included six items related to fire's role in ecosystems (Cronbach's $\alpha = 0.87$) and a "destruction attitude" ($\alpha = 0.56$) that included three items related to the destructive nature of fire (e.g., burning trees and killing wildlife). Attitude scores were computed as the mean for the items loading on each factor, with a potential range of -21 to +21. Respondents on average had positive attitudes toward the ecological role of wildland fire before the tour but had weakly negative attitudes about its destructive nature (Table 1).

We used paired *t* tests to determine the effect of the persuasive messages on participants' attitudes and knowledge for respondents who completed both the pre-test and post-test (Table 2). All three treatments led to a positive change in ecological attitudes and an increase in knowledge, while two led to a positive change in the attitude about the destructive nature of fire. Control groups who did not receive a fire program showed no change in any of the three measures, as expected.

For each participant, we computed change scores for knowledge and attitudes (post-test minus pre-test), and we used ANOVAs to determine whether the treatments differed from each other in the amount of change generated (Table 3). For the ecological attitude, all three treatments differed from the control, but not from each other. For the destruction attitude, the affective treatment had a significantly larger effect than the cognitive treatment, but neither differed significantly from either the combination program or the control group. There was a significant effect of the treatments on knowledge change. All treatments caused an increase relative to the control, but treatment effects did not differ.

Influence of Prior Attitudes and Knowledge on Cognitive Change

Additional analyses assessed the effect of prior attitudes and knowledge on degree of change. Because, for the most part, the three treatments did not differ, they were combined in this analysis. Respondents were classified into three categories for each of the two pre-test attitude measures. For the ecological attitude, inspection of frequencies indicated obvious break points, with scores below 7.67 considered "weak positive" and scores greater than 15.75 considered "strong positive." Scores between these points were considered "moderately positive." For attitude about the destructive nature of fire, break points occurred at 1.00 (scores above this were labeled "weak positive") and -7.33 (scores below this were labeled "moderately negative"). Intermediate scores were labeled "weak negative." Within each attitude category, paired *t* tests were used to determine whether post-test scores differed from

pre-test scores.

For the ecological attitude (Figure 2), the largest change was observed for people in the weak positive group, $t(90) = 11.16$, $p < .0005$, and the change for the moderately positive group was also statistically significant, $t(172) = 9.08$, $p < .0005$. However, within the strong positive group, there was no change, $t(93) = 0.62$, $p = .54$, probably due to a ceiling effect (i.e., initial attitudes were so positive that there was little room for change). For the attitude about the destructive nature of fire (Figure 3), changes in all groups were statistically significant (weak positive group, $t(79) = 3.01$, $p = .003$; weak negative group, $t(179) = -3.21$, $p = .002$), but the change for the moderately negative group was the largest, $t(94) = -8.88$, $p < .0005$. Interestingly, those who initially held weak positive attitudes became slightly more negative, while those who were initially most negative became substantially less negative.

In all three treatment groups, most participants ($n = 193$) scored zero correct on the pre-test knowledge questions. Among these people, the median number of correct answers on the post-test was two, and only 5 percent answered no questions correctly. The mean change for this group was 1.93 ($SD = 0.86$). For people scoring at least one correct answer on the pre-test ($n = 174$), the median post-test score was also two. Among these participants 15 percent scored lower on the post-test than on the pretest, and the mean change was 0.82 ($SD = 1.11$). Thus, more change occurred for the initially least knowledgeable group.

The Relationship of Individual Characteristics to Cognitive Change

Possible scores on the need for cognition scale could range from 6 to 30, and observed values fell between 9 and 21 ($M = 16.4$, $SD = 1.86$). Scores on the five-item personal relevance scale fell near the midpoint ($M = 3.12$; $SD = 1.24$), indicating a moderate level of interest. Correlational analyses showed no significant relationship between participants' need for cognition scores and either attitude or knowledge change. Neither was there a statistically significant relationship between the personal relevance of wildland fire and any of the dependent measures. Additional analyses showed personal relevance and need for cognition to be independent of all other of the pre-test or post-test dependent variables.

Assessment of Testing Effects

Administering the pre-test had the potential to influence what visitors learned during the tours because they may have been provoked to pay more attention than they otherwise would have done. To assess this possibility, we made two comparisons that are permitted by the Solomon four-group design. The first was among people who did not receive a treatment but some of whom completed both the pre- and post-tests and others of whom completed only the post-test. Among these control groups, there was no evident priming due to the pre-test for knowledge ($t(87) = 0.71$, $p = .43$), for ecological attitude ($t(85) = 1.59$, $p = .12$), or for destruction attitude ($t(85) = 1.75$, $p = .08$). As these control tours did not receive any information about fire, this outcome was expected. The pre-test apparently did not cause participants to inquire substantially more about the burned environment they saw and therefore learn more.

The second assessment compared treatment groups who completed both the pre- and post-tests to people who completed only the post-test (Table 4). There was no difference in post-test knowledge scores or attitudes toward the destructive nature of fire, indicating that the pre-test did not affect these variables. However, post-test attitude scores about the ecological role of fire were significantly higher among the pre/post treatment groups than

among the groups that did not receive the pre-test. Thus, it is possible that receiving the pre-test accounted for at least some of the observed changes in ecological attitudes. People who received the pre-test may have paid more attention to the tour message and therefore experienced a greater change in ecological attitude.

Discussion

Magnitude of Changes in Attitudes and Knowledge

Pre-test results indicated that, on average, study participants came to the program with a positive attitude toward the ecological consequences of fire and a slightly negative attitude regarding fire's destructive potential. These results are consistent with other surveys of public attitudes toward wildland fire (Manfredo *et al.*, 1989). In general, the destructive element of fire is considered bad. However, Americans are beginning to support the use of fire as a land management tool because they are starting to understand its ecological role in fire-dependent ecosystems (Brunson and Shindler, 2004; Shindler and Toman, 2003; Taylor and Mutch, 1986).

On a five-question scale, the mean knowledge score for all treatments increased from 0.69 to 2.08. The interpretive programs also changed attitudes toward wildland fire, although the magnitude of these changes was smaller than those observed for knowledge. The ecological attitude change ranged from 2.8 points (cognitive treatment) to 3.5 points (combination treatment), while the change in destruction attitudes ranged from 1.6 points (combination treatment) to 2.3 points (affective treatment). All changes were in the direction advocated by the program. These results, together with other studies (e.g., Loomis *et al.*, 2001), provide the fire education community with empirical evidence that fire education/interpretation can have positive impacts on adult attitudes toward and knowledge about wildland fire.

The magnitude of effect is only really meaningful in the context of other studies of persuasive influence, because complete comprehension and recall of material encountered during leisure excursions is rare. Although there have been few studies of the effects of guided tours on knowledge or attitudes, such influences have been more fully investigated for other interpretive media such as visitor centers or self-guided tours. These studies have documented highly variable levels of change. Often the effects, though statistically significant, are small in a practical sense. For example, Brown and Koran (1998) documented an improvement of 1.5 points (on a 15-point scale) among visitors spending 1.5 to 3.5 hours at Mayan ruins. Similarly, Olson, Bowman, and Roth (1984) found mean improvement on seven-point knowledge scales to range from 0.47 to 1.13 for questions dealing with environmental issues among an audience of nature center visitors. Madin and Fenton (2004) reported that visitors who participated in six to 10 interpretive activities related to coral reefs only scored approximately 1.5 points higher on each of two five-point knowledge questions than those who participated in four or fewer activities, and two other questions showed no differences at all. In all these cases, effects were small.

However, in other cases, knowledge gains have been quite large (Lee and Balchin, 1995). For instance, in Falk's (1993) study of visitors to a marine ecosystem exhibit, more than 65 percent of exiting visitors could define the term "ecosystem," compared to only 10 percent of those entering. One of the few studies of personally delivered interpretive messages found participants in one program scored between 50 and 71 percent correct

Figure 3. Pre- and post-test mean destruction attitude scores as a function of prior attitude strength

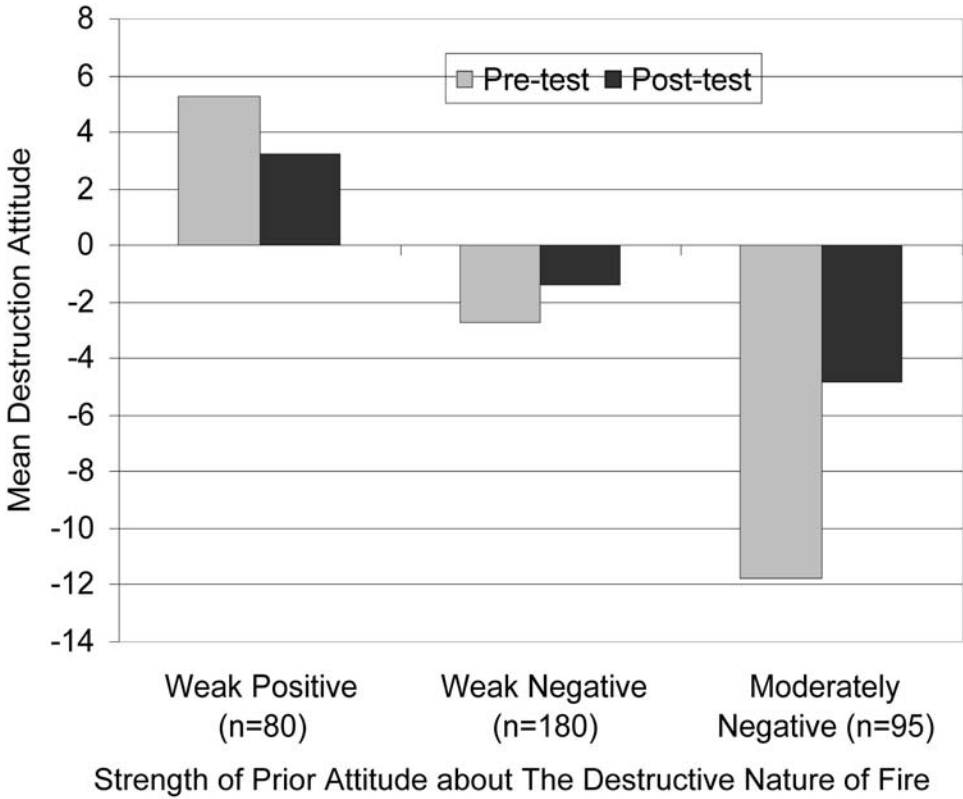


Table 4. Comparison of Post-Test Scores on Knowledge and Attitudes among Groups That Received Treatments to Assess Priming

Group	Mean Score		
	Ecological Attitude	Destruction Attitude	Knowledge
Pre-test/Post-test	14.97	-1.31	2.08
Post-test Only	11.33	-1.66	2.05
<i>t</i>	3.66*	0.30	0.22

* $p < .0005$

on a post-visit knowledge test and participants in a different program scored 50 to 57 percent correct, where the questions dealt with material the visitors would not have known ahead of time (Ryan and Dewar, 1995). In a study most similar to ours, Morgan, Absher, Loudon, and Sutherland (1997) reported that forest visitors taking a guided walk about wildfire scored between 6.5 and 7.0 on a test of eight questions, compared to 3.9 for control hike participants. Our findings about the magnitude of knowledge gain are well within the range found in other assessments of personally delivered interpretive messages, particularly when compared to research in similar types of settings.

A common finding in studies of interpretive communication is that knowledge is more easily influenced than attitudes (Knapp and Barrie, 1998; Orams, 1997). Indeed, global attitudes often do not change at all (Doering, Bickford, Darns, and Kindlon, 1999). For example, Brown and Koran (1998) reported no change in interest levels (attitude) about Mayans, despite significant increases in factual learning, and Peart (1984) found that attitudes toward wildlife management were no different among people exposed to exhibits than people not exposed, despite scoring twice as high on knowledge tests. Similarly, Lee and Balchin (1995) reported variable but sometimes dramatic improvements in the percentage of people scoring correctly on knowledge tests about nuclear power, depending on the exhibit topic, but there were few positive changes in overall attitudes. In our study, both attitudes and knowledge changed, although the magnitude of change was greater for knowledge. Our attitude results are similar to those reported by Morgan et al. (1997); in their study attitudes toward wildland fire increased from 2.8 (on a five-point scale) among control participants to 3.5 among those who participated in a guided walk focused on fire. It remains an open, and potentially important, question whether the larger attitude changes in the two studies dealing with fire are due to personally delivered messages or some other factor.

While programs with affective arguments caused the greatest change, the differences between treatments were not statistically significant. One possible explanation for this lack of differentiation is that different visitors are affected by different types of messages, and just as many responded to the cognitive presentations as the affective presentations. However, the lack of difference might also be due to the way treatment arguments were embedded in longer programs. All three treatment programs had the same framework and base messages, and the impact of cognitive and affective arguments may have been diluted by the rest of the 90-minute program. Finally, we may not have achieved a substantial differentiation between the messages to begin with. Indeed, questions on the post-test designed to serve as manipulation checks showed that participants evaluated all programs as equally "emotional." Interpreters and others believe that emotion is a powerful persuasive tool, and more studies are needed—especially ones that differentiate levels of emotionality more clearly—to evaluate this assumption.

Individual Characteristics and Cognitive Change

Interestingly, individual characteristics that we expected to predict change, namely personal relevance and need for cognition, were unrelated to change in attitude or knowledge. Falk and Adelman (2003) showed that a high level of interest or concern was required for visitors to an aquarium to show significant increases in knowledge or changes in attitudes. This was not the case in our study. Perhaps Mesa Verde visitors are highly interested in learning, and people attending a long, guided tour may anticipate and desire to learn. Alternatively, it is

possible that messages delivered on a guided walk are more readily assimilated by all visitors, and do not require a particularly high level of motivation to process.

On the other hand, prior attitudes and knowledge had a substantial moderating effect on attitude change and knowledge gain. Those with the lowest levels of prior knowledge learned the most. This is consistent with findings reported by Falk and Adelman (2003), in which the most knowledgeable people showed no change after their aquarium visit, but those with little prior knowledge and high interest learned a significant amount.

Communication scholars agree that strong prior attitudes—particularly those that are important to people—are difficult to change (Bright and Manfredi, 1997; Eagly and Chaiken, 1993). However, weak attitudes, which may be based on little prior thought, can be altered substantially by strong arguments. This was observed for the ecological attitudes, with a large (seven-point) average change among those with the weakest prior attitudes. However, outcomes were not so clear for the attitudes about the destructive nature of fire. Bright et al. (1993) observed that negative attitudes about fire were almost impervious to messages targeted directly at changing them. In our study, few individuals came to the programs with strongly negative destruction attitudes, but those who changed the most were those with the most negative initial attitudes. Reasons for the differences between the two studies are unknown.

Although interpreters do not have control over the prior attitudes or knowledge of their audience members, these findings do indicate that interpretation can have the most impact with visitors who hold weak attitudes or know little about the subject matter presented. They also demonstrate the value of pre-tests in evaluation studies, because post-test only or cross-sectional designs cannot uncover such effects.

Future Research

Our study raises several questions. First, we documented a priming effect for one of the three dependent measures. Pre-test/post-test designs are the most powerful for understanding persuasive influence (Tubb, 2003), but priming is a potential drawback. We feel this should become a fundamental part of future research designs. Although we detected some priming, others (e.g., Falk and Adelman, 2003) have not, and due to the lack of study, the impact of such effects remains an open question.

Another direction for research is to develop and test other emotional messages. Our experience showed that what interpreters consider to be emotional (or non-emotional) may be evaluated differently by visitors. Understanding persuasive influence would also benefit from conducting similar studies in areas where visitor involvement differs. It is likely that visitors who paid to attend a lengthy, guided walk may have been more interested in learning than visitors to other places. Learning and attitude change might be different in other types of settings.

Conclusion

The more the public knows about wildland fire and its key roles in fire-dependent ecosystems, the more it may support land managers' use of fire as a land management tool (McCool and Stankey, 1986; Shindler and Toman, 2003). Wildland fire is a key component of the ecosystems in Mesa Verde National Park and throughout the country, and interpretive programs present an important opportunity for resource managers to communicate with a large segment of the public. This study demonstrates that interpretive programs are effective

in changing some adults' attitudes toward and increasing their knowledge about wildland fire. Only through program evaluation like this can we more clearly understand the links between our audiences and effective interpretive programs.

References

- Anderson, D., Lucas, K. B., and Ginns, I. S. (2003). Theoretical Perspectives on Learning in an Informal Setting. *Journal of Research in Science Teaching*, 40(2), 177-199.
- Andrews, J. C., and Shimp, T. A. (1990). Effects of Involvement, Argument Strength, and Source Characteristics on Central and Peripheral Processing of Advertising. *Psychology and Marketing*, 7(3), 195-214.
- Baas, J., Haas, G., Ross, D. M., and Loomis, J. (1985). *A Pilot Study of Visitor Knowledge and Support for Prescribed Burning at Grand Canyon National Park*. In Proceedings—Symposium and Workshop on Wilderness Fire. General Technical Report INT-182. USDA Forest Service, Intermountain Research Station.
- Bright, A. D., Fishbein, M., Manfredi, M. J., and Bath, A. (1993). Application of the Theory of Reasoned Action to the National Park Service's Controlled Burn Policy. *Journal of Leisure Research*, 25(3), 263-280.
- Bright, A. D., and Manfredi, M. J. (1997). The Influence of Balanced Information on Attitudes Toward Natural Resource Issues. *Society and Natural Resources*, 10, 469-483.
- Bright, A. D., and Tarrant, M. A. (2002). Effect of Environment-based Coursework on the Nature of Attitudes Toward the Endangered Species Act. *The Journal of Environmental Education*, 33(4), 10-19.
- Brown, F. S., and Koran, J. J. (1998). Learning from Ruins: A Visitor Study at Uxmal. *Curator*, 41(2), 121-131.
- Brunson, M. W., and Shindler, B. A. (2004). Geographic Variation in Social Acceptability of Wildland Fuels Management in the Western United States. *Society and Natural Resources*, 17, 661-678.
- Cacioppo, J. T., and Petty, R. E. (1982). The Need for Cognition. *Journal of Personality and Social Psychology*, 42, 116-131.
- Cacioppo, J. T., Petty, R. E., and Kao, C. F. (1984). The Efficient Assessment of Need for Cognition. *Journal of Personality and Social Psychology*, 48(3), 306-307.
- Doering, Z. D., Bickford, A., Darns, D. A., and Kindlon, A. E. (1999). Communication and Persuasion in a Didactic Exhibition: The Power of Maps Study. *Curator*, 42(2), 88-107.
- Eagly, A. H., and Chaiken, S. (1993). *The Psychology of Attitudes*. Fort Worth: Harcourt Brace College Publishers.
- Falk, J. (1993). Assessing the Impact of Exhibit Arrangement on Visitor Behavior and Learning. *Curator*, 36(2), 133-146.
- Falk, J. H., and Adelman, L. M. (2003). Investigating the Impact of Prior Knowledge and Interest on Aquarium Visitor Learning. *Journal of Research in Science Teaching*, 40(2), 163-176.

- Fishbein, M., and Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley Publishing Company.
- Fishbein, M., and Yzer, M. C. (2003). Using Theory to Design Effective Health Behavior Interventions. *Communication Theory*, 13(2), 164-183.
- Graziano, A. M., and Raulin, M. L. (2002). *Research Methods: A Process of Inquiry* (4th ed.). Boston: Addison-Wesley Educational Publishers, Inc.
- Knapp, D., and Barrie, E. (1998). Ecology Versus Issue Interpretation: The Analysis of Two Different Messages. *Journal of Interpretation Research*, 3(1), 21-38.
- Kneeshaw, K., Vaske, J. J., Bright, A. D., and Absher, J. D. (2004). Situational Influences of Acceptable Wildland Fire Management Actions. *Society and Natural Resources*, 17, 477-489.
- Lang, A. (2000). The Limited Capacity Model of Mediated Message Processing. *Journal of Communication*, 50(1), 46-70.
- Lee, T., and Balchin, N. (1995). Learning and Attitude Change at British Nuclear Fuel's Sellafield Visitors Centre. *Journal of Environmental Psychology*, 15(4), 283-298.
- Loomis, J. B., Bair, L. S., and Gonzalez-Caban, A. (2001). Prescribed Fire and Public Support: Knowledge Gained, Attitudes Changed in Florida. *Journal of Forestry*, November, 18-22.
- Machlis, G. E., Kaplan, A. B., Tuler, S. P., Bagby, K. A., and McKendry, J. E. (2002). *Burning Questions: A Social Science Research Plan for Federal Wildland Fire Management*. Moscow, ID: University of Idaho.
- Madin, E. M. P., and Fenton, D. M. (2004). Environmental Interpretation in the Great Barrier Reef Marine Park: An Assessment of Programme Effectiveness. *Journal of Sustainable Tourism*, 12(2), 121-137.
- Manfredo, M. J., Fishbein, M., Haas, G. E., and Watson, A. E. (1989). Attitudes Toward Prescribed Fire Policies. *Journal of Forestry*, 88(1), 19-23.
- McCool, S. F., and Stankey, G. H. (1986). *Visitor Attitudes Toward Wilderness Fire Management Policy — 1971-84*. Research Paper INT-357. USDA Forest Service Intermountain Research Station.
- Morgan, J., Absher, J., Loudon, B., and Sutherland, D. (1997). The Relative Effectiveness of Interpretive Programs Directed by Youth and Adult Naturalists in a National Forest. *Journal of Interpretation Research*, 2(1), 13-26.
- Nielsen, C., and Buchanan, T. (1986). A Comparison of the Effectiveness of Two Interpretive Programs Regarding Fire Ecology and Fire Management. *Journal of Interpretation*, 2(1), 2-9.
- Olson, E.C., Bowman, M.L., and Roth, R.E. (1984). Interpretation and Nonformal Education in Natural Resources Management. *Journal of Environmental Education*, 15, 6-10.

- Orams, M. B. (1997). The Effectiveness of Environmental Education: Can We Turn Tourists into 'Greenies'? *Progress in Tourism and Hospitality Research*, 3, 295-306.
- Peart, B. (1984). Impact of Exhibit Type on Knowledge Gain, Attitude Change and Behavior. *Curator*, 27(2), 220-237.
- Petty, R. E., and Cacioppo, J. T. (1979). Issue Involvement Can Increase or Decrease Persuasion by Enhancing Message-relevant Cognitive Responses. *Journal of Personality and Social Psychology*, 37(10), 1915-1926.
- Petty, R. E., McMichael, S., and Brannon, L. A. (1992). The Elaboration Likelihood Model of Persuasion: Applications in Recreation and Tourism. In M. J. Manfredo (Ed.), *Influencing Human Behavior* (pp. 77-101). Champaign, IL: Sagamore.
- Pooley, J., and O'Connor, M. (2000). Environmental Education and Attitudes: Emotions and Beliefs Are What is Needed. *Environment and Behavior*, 32(5), 711-723.
- Ryan, C., and Dewar, K. (1995). Evaluating the Communication Process Between Interpreter and Visitor. *Tourism Management*, 16(4), 295-303.
- Shindler, B. A., and Toman, E. (2003). Fuel Reduction Strategies in Forest Communities: A Longitudinal Analysis of Public Support. *Journal of Forestry*, September, 8-14.
- Taylor, J. G., and Daniel, T. C. (1984). Prescribed Fire: Public Education and Perception. *Journal of Forestry*, 82(6), 361-365.
- Taylor, J. G., and Mutch, R. W. (1986). *Fire in Wilderness: Public Knowledge, Acceptance, and Perceptions*. In *Proceedings — National Wilderness Research Conference: Current Research*. General Technical Report INT-212. USDA Forest Service, Intermountain Research Station.
- Thomsen, C. J., Borgida, E., and Lavine, H. (1995). The Causes and Consequences of Personal Involvement. In R. E. Petty and J. A. Krosnick (Eds.), *Attitude Strength: Antecedents and Consequences* (pp. 191-214). Mahwah, NJ: Lawrence Erlbaum Associates.
- Trochim, W. M. K. (2001). *The Research Methods Knowledge Base* (2nd ed.). Cincinnati, OH: Atomic Dog Publishing.
- Tubb, K. N. (2003). An Evaluation of the Effectiveness of Interpretation Within Dartmoor National Park in Reaching the Goals of Sustainable Tourism Development. *Journal of Sustainable Tourism*, 11(6), 476-498.
- Wenger, G. R. (1991). *The Story of Mesa Verde National Park* (Rev. ed.). Mesa Verde, CO: Mesa Verde Museum Association, Inc.

Appendix

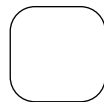
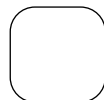
Example of Cognitive Argument Related to Wildland Fire

How many of you folks have heard that fires sterilize the soil? A fire can sterilize the soil if the fire becomes hot enough. The severity of a fire is measured by soil heating. Certain fires may heat the soil so high that the top layer of soil is melted. This layer prevents

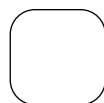
water from going into the soil—in essence sterilizing the soil. However, here at Mesa Verde, we have not seen this problem. Rather, we can see the renewal that fires bring to this landscape. Look at the small oaks growing in the burn area from three years ago. This re-growth illustrates how fires are a natural phenomenon akin to the changing of the seasons. Fires create renewal. Here at Mesa Verde grass can return as soon as two weeks after a fire. Our forests are living, dynamic systems. Without fire, the dynamic nature of the ecosystem is interrupted. Tall trees choke out smaller trees and the forest floor becomes littered with duff. Ash from forest fires, sometimes five inches deep, is rich with calcium, phosphorus, and other minerals. These nutrients support new plant growth. Fire recycles organic matter, provides new food sources for wildlife, and clears the way for a new generation of trees and other plants. Lightning strikes the earth more than eight million times a day. We have no more control over this natural phenomenon than we do an ice storm in Iceland. At our next stop we will talk a bit more about how lightning caused fires have changed the landscape here at Mesa Verde in recent times.

Example of Affective Argument Related to Wildland Fire

Fire sterilizes everything! Have you heard this said? But, what about the explosion of wildflowers the summer following a fire? What about the new trees that sprout after a fire? Fire brings change, diversity, and new life. We are all familiar with these things. Change—for example: a move, a marriage, a new house. Diversity—take a look around at the diversity of people in this group, in our communities, or the diversity of plants and animals in forests, deserts, and prairies. New life—the birth of a child. These are things we can all relate to on some level. The forest ecosystem is dynamic, just as human lives are. Fire does not sterilize everything. Fire is not a villain of our forest but rather an agent of change. Change at first can be a stark contrast with the old and new—like trying to adjust to a new home after a move or wildflowers against blackened trees. Fire is nature's recycler. In a sense, all living things borrow a supply of the earth's minerals for a while. Wildfire makes the pine needles, branches, and other once-living things of the forest give them back. They become available to other life, to renew life.



IN MY OPINION



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You know you are getting old when people start asking you to write opinion pieces, retrospectives, and “state of the art” reviews, and I have been invited to do some or all of these things in this article. And, while I did reach the half-century mark this year, let me begin by saying that I have not been doing interpretation research for quite that long, so I hope I can be forgiven if my “opinion” does not do justice to the depth and breadth of interpretation research that has been undertaken in Australia, particularly that which was done pre-1990.

What I plan to share with you here is first a brief look at where we have come from, followed by two key “themes” that I believe capture where Australia currently is in terms of interpretation research, and finally an exploration of where we might go from here.

The study of interpretation techniques in Australia began in the 1970s and early '80s when the Churchill Trust funded travelling fellowships, and National Parks and Wildlife Service (NPWS) representatives also visited the U.S. to study approaches being used there. However, the reports that came from those visits were largely descriptive rather than academic analyses, and while articles were published about both heritage and nature interpretation, and interpretive plans were written for various national parks in the late 1980s, there was no scholarly research in interpretation at this stage. However, the Australian NPWS demonstrated its commitment to rigor in interpretation by asking Elizabeth Beckmann to do an evaluation of interpretation at Kakadu National Park (a World Heritage Site) in 1990. Elizabeth was the first to undertake a Ph.D. thesis on interpretation; her evaluations of national park interpretation at multiple sites were first published in the late 1980s, and she completed her Ph.D. in 1991. This was a year or so ahead of Gianna Moscardo's work, which was related but took a social psychological perspective. Dr. Beckmann and Dr. Moscardo are still well-known names and active researchers in interpretation in Australia today.

Like interpretation research in other countries, there is no single best place to “find” either interpretation researchers or research reports and publications. There is no Australian

journal devoted to interpretation research, so research by Australians and/or about Australia gets published in a range of places. In the past 10 years or so, there have been some occasional but important collections of Australian research published as special issues of journals (and in one case an edited book) on interpretation research in Australia. Anyone with a deep interest in what is being done in Australia (and who is doing it) would do well to get ahold of all of these:

- *Journal of Tourism Studies* Special Issue on Interpretation, Vol. 9, No. 1 (1998)
- *Journal of Tourism Studies* Special Issue on Interpretation, Vol. 9, No. 2 (1998)
- *Journal of Interpretation Research* Special Issue: Interpretation in Australia, Vol. 4, No. 1 (1999)
- Black, R.S. and Weiler, B. (eds.) (2003) *Interpreting the Land Down Under: Australian Heritage Interpretation and Tour Guiding*. Fulcrum Publishing, Golden, Colorado.
- *Annals of Leisure Research* Special Issue on Interpretation, Vol. 7, No. 1 (2004)

Aside from these, Australia's professional interpretation body, Interpretation Australia Association (IAA), has been publishing proceedings of its (now biennial) conferences since 1993. Unfortunately, there are not many research-based papers in these proceedings and none are refereed, but there are some gems among the nine volumes of proceedings and these are all available for purchase via the IAA Web site: www.interpretationaustralia.asn.au.

In addition, of course, other papers by Australians or about interpretation in Australia have been published in refereed journals, but not many. Taken together, there may be fewer than 100 publications in refereed journals that have focused on interpretation in Australia. Having said that, there is considerable growth in this area, partly due to higher degree research (Masters and Ph.D.) students undertaking projects that focus on interpretation, partly due to research funding opportunities, and partly because those of us who are actively researching in this area constantly badger good researchers in other fields to come on board!

If the quantity is limited, what about the quality? It would be foolhardy indeed for me to try to undertake a quality assessment exercise of interpretation research in Australia. All of the above-named journals are international refereed journals, which is probably as good a measure as any of the quality of research coming out of Australia.

What might be more useful for me to identify for *JIR* readers are research themes in which Australian research and researchers have been particularly active, and here is where I turn to where we currently are in terms of what we are contributing. The first theme that other parts of the world might learn from is our application of theory to interpretation practice, and particularly within the tourism industry. In other countries, we see a lot of applied interpretation research in the context of national parks and/or museums and heritage places, but in addition to these, research in Australia has focused on interpretation delivered by tourism operators including guided tour operations, lodges and resorts, attractions, theme parks, zoos and aquaria, and even events.

As in many applied fields, interpreters haven't always appreciated the significant role that science and research can play in informing their craft; and researchers

haven't always been very diligent about making their work either useful or usable to the field interpreter. Among the many contributions Australians have made to advancing interpretation in the world, their ability to bridge this gap stands out most in my mind.

Perhaps it's because nature-based and heritage tourism are such economic giants in Australia that interpretive research has been so heartily embraced by government and industry there. Or perhaps it's because interpretive researchers in Australia are simply more adept at speaking convincingly to practitioners and showing them the value of systematic inquiry into the interpretation process.

—Sam H. Ham, series editor, quoted from the foreword to *Interpreting the Land Down Under*

There are many examples I could give here of research projects that have produced practical outcomes for the tourism industry, but the following two may be of particular interest to JIR readers are:

Tour Guiding: Developing Effective Communication and Interpretation Techniques

This workbook and video package was funded by a commonwealth (federal) government Regional Tourism Program grant. In partnership with a range of tourism operators and researchers at three universities, the project researched and produced a training package aimed at developing skills and stimulating ideas and discussion on how interpretive guiding techniques can be best applied in natural settings. The workbook provides an overview of the theoretical and practical aspects of developing effective communication and interpretive techniques, and the video includes two hours of professionally acted scenarios that are accompanied by discussion questions in the workbook. The package addresses issues such as researching, designing, and evaluating interpretive activities; using a range of interpretive techniques; improving verbal and non-verbal communication; and minimizing the negative cultural and environmental impacts of ecotours and was trialled with ecotour guides around Australia.

Interpretation Signage: Principles and Practice (www.interpretivesigns.qut.edu.au/)

This project was also funded by a federal Regional Tourism Program grant as well as university and industry cash and in-kind support. The Web site is designed to provide staff of tourist attractions with the knowledge and skills to develop, evaluate, and improve their interpretive facilities. The text is supported by exercises that reinforce the concepts discussed, aimed at clarifying content and developing skills in sign design and evaluation.

As in the above two examples, research funding has played a role here. In recent times, a noteworthy source of research funding in Australia has been the Cooperative Research Centre for Sustainable Tourism (STCRC), a government-industry-university partnership that pools cash and in-kind support from 16 universities and an equal number of government and tourism organizations to deliver industry-relevant research relating to sustainable tourism. Since 2004, the STCRC has earmarked hundreds of thousands of dollars for interpretation research in the form of both research grants and Ph.D. scholarships, particularly on topics related to tourism at heritage sites and within protected areas. This has led to both

large and smaller projects being undertaken by cross-university teams of researchers partnering with government (mainly protected area management agencies) and industry (mainly tourism associations and tour operators).

There are issues with this emphasis, in that the funding-driven approach tends to draw the emphasis in research away from theory-building and sometimes toward politically charged agendas. It also tends to isolate and exclude researchers based at non-CRC universities and those working within other organizations that are not members of the STCRC. In sum, the interpretation research agenda in Australia has been largely driven by funding opportunities as well as the capacity of researchers to undertake particular types of research.

This leads me to the second theme apparent in interpretation research in Australia, one of research capacity-building. There are virtually no university-level programs and degrees that include interpretation research training as a formal part of the curriculum. In Australia, as in the British model of research degree “training,” Masters and Ph.D. students are expected to learn these skills through the mentoring, guidance, and role-modelling provided by their supervisors. And there are only a limited number of academics working in Australian universities who are in a position to attract (i.e. offer funding support) and supervise higher degree research students in interpretation.

Perhaps partly as a result of the limited research training or capacity-building that universities have been able to deliver to date, Australian researchers have been proactive in undertaking research in such a way as to build the capacity of the interpretation field to do its own research. In addition, research capacity-building is a key theme of the STCRC, done in part by the provision of full scholarships for Ph.D. students, and in part by funding research that incorporates capacity-building outcomes. The following two examples illustrate these efforts and may provide a model for other countries where higher degree research opportunities in interpretation may be limited.

The first example is a research product, an interpretation evaluation “Tool Kit” launched at the most recent IAA conference that enables tourism operators to undertake their own interpretation evaluations. A product of a two-year STCRC-funded project, the project was underpinned by a review of evaluation literature including but not limited to interpretation evaluation, and set within the context of interpretation as a vehicle for achieving the organizational goals of both the public and private sector. The most important outcomes of interpretation were identified by industry representatives in the early stages of the research and were the basis of a final set of eleven indicators aimed at assessing what visitors take away from their interpretive experiences.

The entire project progressed in partnership with industry, producing a product based on psychometrically sound instruments and methods. It consists of a user-friendly manual and a CD with a customized database application for entering and viewing the results from visitor questionnaires. The tool kit is designed for staff untrained in the social sciences, and includes different versions of a questionnaire, an observation tool, and a database for three types of interpretive settings. As a package, the tool kit enables operators to monitor their performance over time and to benchmark against others. The tool kit is available for purchase through the STCRC on-line bookshop: www.crctourism.com.au/kitshop.

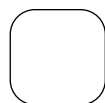
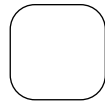
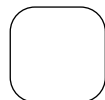
The second example is also an STCRC-funded project, this one involving a team of four researchers in three states and aimed at using interpretation to reduce visitor-induced management problems in protected areas. Built into this project is the involvement of “research counterparts” in each of the three states, individuals who work for the

protected area management agency, but who allocate one day a week on average to work with the research team and immerse themselves in the theory and methods of the research. By participating in research decision-making, instrument development, training, and supervision of data collectors, and analysis and interpretation of the findings, the project aims to leave the individual and the agency with the tools and the skills to replicate the research in two years.

In summary, interpretation research in Australia has been innovative in its partnership with government and the tourism industry, and in building research capacity. In terms of “where to from here,” these strengths should not be abandoned. However, like interpretive researchers elsewhere, we need to increase our output in quality journals with international readerships. To be successful at this, we need to bring more substantiated theory to their research, we need to be conceptualizing and designing their research in ways that can make a contribution to the knowledge base of the social sciences, and we need to be rigorous and quality-conscious in implementation, analysis, and manuscript-writing.

Most Australians are not very good at self-promotion, so I have delighted in this opportunity to sing the praises of my Australian colleagues in interpretation research, while trying to highlight some the limitations and gaps. I am optimistic that interpretation researchers in Australia are positioned to address these, and look forward to a review of the “new” look of interpretation research in Australia in about 10 years.

**IN SHORT:
REVIEWS
AND REPORTS**



**The Voice of a Child
Archaeological
Limitations in
Interpretive Stories**

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Abstract

In the archaeological record, it seems children are rarely seen. If they are, children are referred to, to explain symbolism, rituals, past lifeways, and behavior of a society or culture rather than the past lifeways of children and their relationship to family and society. This lack of investigation suffers in all forms of archaeological research. However, this bias appears to be unconscious rather than intentionally applied. Archaeology, generally, involves the nameless and faceless rather than the individual. The archaeological signature of children appears minimal. It is adults, or more succinctly, society that generates material remains. This paper discusses interpretation of sites within the context of different archaeologies, thereby providing researchers with information that may not usually be considered when approaching interpretation of sites to visitors.

Key Phrases/Words

interpretation, archaeology, tourism, children, society, culture

“Little children should be seen and not heard.”

—anonymous

Introduction: Heritage and Interpretation

In an archaeological context, it seems children are rarely seen. If they are, children are referred to in some oblique or abstract way to explain symbolism, rituals, past lifeways, and behavior of a society or culture rather than the past lifeways and perceptions of children and their relationship to family and society (Lilley, 1984; Rawson, 1991; McDonald, 1995; Schuster, 1993, 1996). This lack of investigation of children and their lives suffers in all forms of archaeology. Yet, this bias appears to be unintentional in its application than intentionally applied. In general, archaeology does not involve the indi-

vidual but rather the nameless and faceless (Palmer, 1999). The archaeological signature of children appears minimal—that is, children do not appear to generate much evidence. It is adults, or more succinctly, society, that generates material remains—paintings, poems, diaries, documents relating to laws and legislation, ceremonies, rituals, stone tools, pottery, ceramics, buildings, and technological changes (Hall & Bowen, 1989; Rawson, 1991; Simmons, 1991; Orser, 1996). It is from archaeological research that the tourism industry constructs interpretation for the visitor to heritage sites.

Archaeological research of cultural sites has helped put into the minds of the industrialized world the concept of “heritage,” providing sources of identity and symbolizing relationships between people and the past (Beaudry, Cook, and Mrozowski, 1991; Yoffee and Sherratt, 1993; Boniface and Fowler, 1995; Pearson and Sullivan, 1995; Renfrew and Bahn, 1996; Smith and van der Meer, 2001). Heritage is a cultural resource, a part of humanity. It is the interaction between society and nature. As such, human-made heritage is also viewed as cultural landscape, embodying the various layers of human interaction over time—a palimpsest of history. Cultural landscapes are constantly changing and evolving over time. Changes can be physical or within an individual’s or society’s values, perception, and association (Jones, 1993; Lowenthal, 1993; Pearson and Sullivan, 1995; Serageldin, 1999). Heritage and, therefore, its interpretation may be presented within the context of tourism experiences. For example, living museums in which tourists can walk the streets of recreated towns of past eras. It should be noted that although this concept of heritage may offer visitors an insight into the past, it is also sterilized. Disease, poverty, offensive smells, exploitation of workers, and poor living conditions of the lower-class society is not shown (Jones, 1993; Lowenthal, 1998; Goulding, 2001). This then can lead to the argument of authenticity.

Although Jewell and Crotts (2001) found that authenticity was an important attribute amongst visitors to a 1738 Georgian-Palladian house in South Carolina, USA, authenticity is a subjective experience. Subjectivity of authenticity derives from its composition as a combination of facts, imagination, and myths; not necessarily scientific historical evidence (Herbert, 2001; Jewell and Crotts, 2001). Myths can be more powerful in terms of guiding the actions of interpreters than can the truth. It could be said that individuals and groups have manipulated the past, creating a new reality based on tangible remains and misconstruing the past for their own purposes, be it for political or entertainment purposes. The more superficial our view of the past, the easier it is for others to impose and transpose misconceptions upon the present society (Vaughn, 1985; Lowenthal, 1998).

How heritage sites are interpreted is important. Tourism, education, and interpretation have been viewed as a way to alter attitudes and, thus, make people care about sites (ICOMOS, 1993; Watts, 1995; Young, 1995; Moscardo, 1998; Beaumont, 2001; Moran, 2001; Pleydell, 2001; Vinton, 2002). Educating visitors about the values that a site holds, intangible and tangible, can ensure the site’s longevity and future on-going protection. Yet, according to Renfrew and Bahn (1996), humans have always speculated about their past, and most cultures have their own foundation myths to explain why society is how it is. One major component that appears to be missing when interpretation is written for general consumption is the acknowledgement and presentation of children and their stories.

Theoretical Approaches

Although archaeological research focus has mostly been on explaining artifacts found at sites, their original source, manufacturing processes, their meanings to makers and users

and how the artifacts arrived at the site (Johnson, 1999; Orser, 1996), archaeologists also reconstruct past lifeways from material remains. Artifacts are tangible representations of social relations between people and societies—they externalize past attitudes and behavior (Beaudry *et al.*, 1991). Numerous forms of archaeological theory are presented in the literature: processual, post-processual, positivism, post-positivism, marxism, neo-marxism, structuralism, functionalism, gender, social, cognitive, ethnoarchaeology, and so forth. This paper discusses social, ethnoarchaeology, cognitive, and gender archaeology, and examines the material remains evident of children in the archaeological record, within the context of these archaeologies. These specific theories are discussed as they provide interpreters the basis and context from which interpretation to visitors is imparted.

Social archaeology arose from concerns to develop and expand methods and the scope of archaeological information into a more holistic, coherent explanation. Approaches to analyzing data are from a multi-factor perspective to deal with the complexities of societies and social connections under investigation (Redman, Curtain, Versaggi and Wanser, 1978; Renfrew, 1984). Explicit models, used with the integration of both multi- and single-causal explanations, are employed. Social archaeology looks at a broader database and the importance of individual and normative factors in society—the reconstruction of past social systems and relations (Redman *et al.*, 1978; Renfrew, 1984). Although using explicit models, social archaeology tends toward generalizations. If statements/hypotheses are applicable only to the society or culture under investigation, arguments are that comparisons between societies and cultures would be difficult and new knowledge limited (Renfrew, 1984). When viewing social relationships within, and between societies, social archaeology elucidates such aspects as power, domination, resistance, class, labor, race, and gender with use of cognition and/or ethnographical observations (Renfrew, 1984; Bond and Gilliam, 1994). Thus, ethnoarchaeology, cognitive, and gender archaeology can be placed under the umbrella of social archaeology.

Ethnoarchaeology views today's societies to understand and interpret patterns of distribution and behavior of the past. Ethnoarchaeology also provides the archaeologist with the ability to interact with today's societies that exhibit similarities to understand symbolism, meanings and function of artifacts from past societies (Cole, 1995). Although incorporating ethnographic studies of today's societies and comparing them with past societies, the archaeologist relies upon cognitive factors, such as observation, for analysis. Cognitive archaeology itself is the reconstruction of past lifeways and behavior through beliefs, thoughts, perceptions, symbolism, decision-making, and concepts such as law and literacy through material remains. It is the recognition of behavior based on the perception of self, society, and culture of today (Johnson, 1999; Renfrew and Bahn, 1996; Dark, 1995).

Proponents of gender archaeology believe that using a gendered archaeology allows development of a more detailed and sophisticated social theory from archaeological evidence than social archaeology. Gender is considered to be a construction of thought and is learned, with certain behavior, roles and activities attributed to particular people or groups (Nelson, 1997). Gender archaeology appears to have developed as a result of a backlash against what is perceived as androcentricism in the archaeological field—archaeology conducted by men for men, with histories and interpretation focusing solely on men. These perceptions have included unspoken assumptions regarding divisions of labor, status, and societal roles based on biological factors (Wadley, 1987; Conkey, 1993;

McDonald, 1995; Wright, 1996; Johnson, 1999). There appear to be two different approaches to gender archaeology.

One approach, which appears more visible in publications, is the focus on women and their roles in society and culture written from a feminist approach. Such approaches have focused on status and class of prostitutes, feminine technologies, prehistory, household archaeology, symbolic sex divisions of pottery, women in the workforce, and industrial and urban archaeology (Wadley, 1987; Simmons, 1989; McGaw, 1996; Yentsch, 1996; Palmer, 1999). It is also argued that by making women visible archaeologically, other less powerful, disenfranchised groups in past societies, such as children, will be made more visible (Staski, 1982; Scott, 1994). Another approach is that gender archaeology is to consider men, women, and culturally constructed groups as different constructs of gender rather than using gender as a code for women only. This approach argues that class, ethnicity and age may also become visible in the archaeological record when employing gendered archaeology (Nelson, 1997).

All of these archaeologies attempt to explain social connections and behavior of cultures and societies. It is within these different archaeological frameworks that the voice of children should be stronger, yet evidence of children seems to be used to strengthen theories and explanation of the culture or society under investigation rather than chronicling children's lives. This, too, appears to be the case with interpretation of tourism sites to visitors, especially those heritage sites that involve families and social interactions among people from the past.

Evidence of Children

Literature about children treats the child as an object of inquiry, with little attention paid to the meaning of the child's world through culturally mediated experiences and the context within which the child lives (Graue and Walsh, 1998). In the archaeological record, this aspect is evident in areas such as capitalism. For example, focus is on the placement of men, women, and children workers' cottages in relation to the mills and the power relations between company and workers rather than also on the social relationships between the workers (Palmer, 1999). If historical documentation is available on a child's life, it is usually told through a combination of company records, laws, and adult observations (Rose, 1991). One case in point being James Lynch, a nine-year-old convict transported to Point Puer in Tasmania, Australia, for stealing three boxes of toys (The National Centre for History Education (TNCHE), 2005). General information about literacy level, religion, physical characteristics, previous convictions and conduct during detention at Point Puer is recorded, with an observation by the surgeon that a man was seen in James' hammock. As to James' thoughts and feelings, only "a man named James Tucker used to come out with me in the day and send me thieving, if I got a good thing, he used to say he would give me 2d or 3d" (TNCHE, 2005, p. 7) recorded.

It would appear that the 18th- and 19th-century understanding of the "natural child,"¹ combined with 20th-century rational psychology of children, leads to the view

¹Children's reactions, such as hormones, reflexes, instincts, crying, grasping and smiling are entirely determined by biological processes and are involuntary, transient behaviors (Vygostsky and Luria, 1930, as cited in Ratner, 2005, p. 6).

that childhood is a constant progression (Cahan, Mechling, Sutton-Smith and White, 1993). This view smacks of androcentricism, the belief that only males are at society's center. This view also appears to be a part of psychology's Piagetian theory as well as archaeology and, it could be argued, the tourism industry, in that interpretation is usually about historic happenings involving males. As argued by Nelson (1997), assumptions that the past is stagnant or pristine needs to be avoided—cultures and societies of today are neither relics of the pasts nor unchanging. Children are a part of everyday life; they interact with adults, society, and culture. Perhaps it is the constant presence of children and the power of our own childhood memories that makes the child far too familiar and, therefore, of no interest (Cahan *et. al.*, 1993).

Rock art is a recording of history, invaluable to archaeology in illustrating how people described and viewed their world. It is also the heritage of a culture that expressed their Dreaming, laws, beliefs, and spirituality through symbolism (Renfrew and Bahn, 1996; Aplin, 1998; Waitt, McGuirk, Dunn, Hartig, and Burnley, 2000). Rock art shows evidence of children through hand stencils. Ethnographic interpretation by Aboriginal Elders is that rock art is an expression of Aboriginal relationship to the land, their history, ancestors, spiritual beliefs, totemic associations, and relationship to each other. Baby or small-hand stencils are indications that the child was born there, is part of the land and, therefore, connected to its birthplace (Bayet, 1994; Whitley, 2001; Musgrave, G., 2001, personal communication., July).

In gender archaeology, baby-hand stencils have been used as evidence to argue the presence of women in rock shelters rather than to assess the possible social or cultural relationships between children and adults of the community (McDonald, 1995). The only reference McDonald has made of children is to distinguish hand measurements between infants and older children. McDonald (1995) makes use of ethnohistoric reports that suggest children were breast-fed to the age of four, thus strengthening her argument that women were present at rock shelters. This is further strengthened by the author's own observations of Aboriginal rock art in Quinkan Reserve Country, situated in Laura, Queensland, Australia. However, it was also noted by the author that a very small rock shelter at a site named Split Rock, contained approximately 23 small stencilled hands.

Reasons this area was separated from the other galleries where children's hands are evident are unknown. The voice of these children, the significance and meaning of this area is silent and appears to be overlooked in the analysis and interpretation of the overall area. Although a specific example of a prehistoric site, this lack of interpretation could also be said about historic homes. Interpretation by guides may mention the family and even point out the heights of the children on a door frame, as is the case of Drayton Hall, South Carolina, USA, but the actual lives of the children and their interaction within the family are not explored. Rather it is the architecture of the home and other points such as thickness of the walls, reasons why parts of the mahogany staircase was replaced by cedar, and the change in the family's financial status after the Civil War, that is considered interesting and is shown and told to the visitor.

Physical evidence of children has been found in the Americas, ancient Egypt, Rome, Greece, India, Israel, and Palestine (James, 1962; Dark, 1995; Allingham, 1999; Schuster, 1993, 1996). The type of archaeological evidence found suggests these children were sacrificed and placed with jars of food offerings and ornaments of various precious metals.

Archaeologically, this evidence has been used to explain customs and rituals of cultures. Elucidations focus on why these sacrifices occurred, the type of death, the sex of the child, diet, the artifacts placed with the bodies, the social hierarchy of the society, social belief systems, and symbolism of the sacrifice itself. Many theories abound as to why the children were selected and what occurred before sacrifice (Allingham, 1999). Apart from the evidence of the sacrifice, research regarding the life of the children within the community—their evidence of living—seems to be strangely lacking. It would appear that the child is *an* object of study in understanding a society, not *the* subject of study in understanding the child's world.

Toys in the archaeological record also provide evidence of children. Toys have been found made of various shapes and materials—bone, shell, wood, buckskin (Bancroft-Hunt, and Forman, 1981; Rawson, 1991). Due to taphonomic processes, survival of these organic items is low. Survival of toys is mostly from historic rather than prehistoric times; usually they have been passed down between generations (Bancroft-Hunt and Forman, 1981; Renfrew and Bahn, 1996). Some toys are more symbolic in their meaning—such as the small beaded or quilled buckskin pouches of American Indians containing a baby's umbilical cord. These pouches were made in the shapes of snakes, lizards, or turtles and were attached to the child's cradle as a plaything. Later in life, these pouches were worn by the owners as charms to ensure long life and avert ill health. Evidence of these pouches, without the umbilical cord, can be found in museums, and potentially, their primary and secondary meanings could be lost. Yet, the power and symbolism attached to the contents of the pouches remain strong for the owners and their descendents (Bancroft-Hunt and Forman, 1981). This knowledge can help both the archaeologist and interpreter seeking to interpret artifacts that are unfamiliar in either form—what it is, or function—what it is used for.

Usually, though, artifacts from prehistory seem to be given ritual and/or symbolic meanings; for example, the Upper Paleolithic “Venus” figurines. These figurines date to around 30,000 years ago, are small nude statuettes, mostly female in form. These figurines appear in the archaeological record from Siberia to Southern France, with nearly 200 having been unearthed to date. Explanations have included the figures representing an erotic ideal to use in fertility rites (Nelson, 1997). Although found in circumstances that do not appear to suggest children, what if these figures were simply children's toys. Perhaps these figurines are the prehistoric forebears of Barbie. It could be argued that Barbie represents an ideal (or erotic) feminine form with her long legs, small waist and large chest; yet, children play with Barbie. If there was no historical information available, would an archaeologist in a 1,000 years time view Barbie as a doll, a toy for children, or would the assumption be one of fertility rites or an erotic ideal? Until a hypothesis can be falsified, it gains strength until it becomes a high-level theory paradigm (Schiffer, 1988; Johnson, 1999) and as such, can influence interpretation.

One problem with investigating past lifeways is the separation of time. Prehistory is treated differently than history. Due to the lack of historical records, prehistoric societies are compartmentalized as static systemic models, a collective without the dynamics of change (Goodman, 1999). One area of research into the prehistoric past is shell middens. Archaeological excavations of cultural shell middens have been used to reconstruct climatic and environmental changes, categorize artifacts into typology, size, pattern deposits, seasonality of shell collecting, collecting strategies, foraging and settlement, age

of site, formation processes, and length of occupation by humans. Other aspects of research have been to gain knowledge of the dietary and nutrient needs of past people (Meehan, 1983; Hall and Bowen, 1989; Claassen, 1998; Malof, 2000). Cultural shell middens are also important in understanding food processing techniques and providing clues about the creators of these middens and their lifestyle (Claassen, 1998). Current aboriginal communities have been observed in collecting shellfish, which indicates children either play nearby to the adults (usually women) or collect their own supply. This has stimulated further studies in gender archaeology, but mostly about women and shellfishing (Claassen, 1998), not about children. The majority of research conducted into dietary reconstruction concerns meat weights, nutrition value, and energy of shellfish for adults. Yet, ambiguities appear in the archaeological record when types of shellfish with low energy and nutritional value appear (Meehan, 1983; Claassen, 1998). These ambiguities led to the hypothesis of children being involved.

Ethnographic observations conducted by Bird and Bliege Bird (2000) of the Meriam of the Eastern Torres Strait, Australia, have led to proposals of assessing the material remains of children's foraging activities. It appears that children shellfish differently than adults—both in selection and processing. Predictive models proposed by Bird and Bliege Bird (2000) regarding encounter-contingent prey choice showed children are more likely to handle smaller prey types of shellfish on encounter and collected these at a higher rate than adults. Bird and Bliege Bird (2000) also noticed that children took three times longer than adults to process certain shellfish species. Children, similar to adults, are more likely to field process and transport home certain species, but transport home intact the species *Lambis lambis*, an edible mollusc. Adults processed this particular species in the field. Thus, archaeologically, residential cultural middens would indicate a higher proportion of shellfish collected by children. That is, low nutritional shellfish are proportionally over-represented because of children's behavior, whereas high nutritional shellfish are more often field processed (Bird and Bliege Bird, 2000).

For the researcher or manager trying to develop and design appropriate and effective interpretation programs for visitors to their site, consideration of aspects such as children should be included. It can be very tempting to develop and interpret "sexy" information, such as famous people who lived or were involved with the site, or historic happenings, to hold the attention of visitors. Yet, smaller aspects that are not usually considered can be the most interesting and most effective (Jewell, 2004). One example is the historic shipwreck, the SS *Yongala*, situated 45 nautical miles south east of Townsville, Queensland, Australia. The wreck is considered to be one of the top 10 dive sites in the world (Zann, 1975; Queensland Museum, 1992; Hansen, 1999). Built in 1903, in England, for the Adelaide Steamship Company, Australia, the *Yongala* sank on March 23, 1911, during a cyclone whilst on its 99th voyage with all lives lost (Gleeson and Elliott, 1987; Gleeson, 2000).

Official company records state the loss at 120—48 passengers and 72 crew (Morgan, 1911). There were actually more, mostly children, although the exact number is still to be determined. One of the unrecognized passengers was Ailsa Mary Murray. At eight weeks old she was too young to be allocated a berth and subsequently, never formally recognized (Gleeson and Elliott, 1987; Gleeson, 2000). Ailsa's father was away on business and so did not travel with his family. Mr Murray lost his wife and four children. Of Ailsa, he had never met (Gleeson and Elliott, 1987; Gleeson, 2000). This small aspect of a child's

life was used by the author (Jewell, 2004) when an underwater interpretive tool (slate) was designed and developed to ascertain the effectiveness of interpretation on diver attitudes and awareness of underwater shipwreck values. Divers were also informed that human bones could still be seen from the forward cargo hull without having to penetrate the wreck, along with points of interest on the dive and various passenger names as a way to make a personal connection to the divers.

This connection was made by divers' comments such as: "Knowing there are so many bodies on board makes me feel privileged to be able to dive there"; "The slate information made it seem more like a human tragedy than just a dive"; "Makes you feel more involved with what happened aboard the *Yongala*"; "I now view it as a graveyard as well as an outstanding dive site" (Jewell, 2004:50). Interestingly, when the Control groups, who did not receive the slate, were asked how their dive experience could be improved, the theme "More history on wreck" came second after "None." One unpublished comment was: "Knowing more of its history. Eg., who were the people who died on it" When asked what other information they would like about the *Yongala*, Treatment groups rated, after "no further information," the desire to know more about the development of the wreck's marine life, followed by pictures and information about passengers and crew (Jewell, 2004). When asked the same question, Control divers indicated, after "no further information," "information on how and why the *Yongala* sank," and "more history about the wreck" as equal second; "pictures and information about passengers and crew," and "what the ship carried and its purpose" as equal third (Jewell, 2004).

Other comments previously not published regarding how the interpretation tool changed views were: "At first I just thought about the fish, now I think about the people who died and the fish"; "More conscious of the loss of life"; "Respect for the people who died on this boat"; "I didn't realize so many people had lost their lives and why the ship went down so quickly"; "Realizing how many people died and the damage which can be done by penetrating the wreck". When asked what the divers had learned, some of the unpublished comments which directly related to Ailsa and her family, were: "About the baby and father"; "About the families that were lost"; "I learned that people had died during the sinking"; "Information about how it sank and who was on board"; "The story behind the ship and its passengers". It would appear that the realization that the *Yongala* went down with all lives lost was not an aspect previously considered by the divers. Before, it was a wreck with amazing biodiversity; after receiving the interpretation tool, the history of the ship and people, especially the children, were humanized and brought to the forefront.

Conclusion and Recommendations

Contexts within a child's life are relational. To research children without considering their life situation is to take away a child's actions and meanings (Graue and Walsh, 1998). Perhaps the answer lies in addressing questions about children as living in specific settings, with specific experience and life situations (Graue and Walsh, 1998). Although this may not envelop the total meaning of children and their social relations, it may help in further understanding of sites, societies, and cultures as a whole, rather than selective pieces. Although it could be argued that the author (Jewell, 2004) has made the same mistake of using children to explain rather than exploring their life, the research suggests that by giving a voice to a child, even in a small way, can help make people care about a site and further their knowledge of said site.

From the archaeological record, little is known of children, their behavior and social relations between family, community, society, and culture (Lilley, 1984; Rawson, 1991; McDonald, 1995; Schuster, 1993, 1996). Children have been depicted on tombstones, art, and coins (Rawson, 1991). Although not archaeological evidence of children themselves, these forms of evidence provide some indication of how society or culture considered children. Although research into this field is value-laden, from whichever perspective or theory approach; rather than generalizing or using evidence of children to strengthen theories regarding societies under investigation, it is suggested that researchers broaden their approach and portray the richness of children's lives and the contexts in which they lived.

Although authenticity is a subjective concept, developed from a myriad of scientific historical evidence, myths, facts, and imagination (Herbert, 2001; Jewell and Crotts, 2001), the value of using interpretation as a tool to achieve sustainability has been recognized by archaeologists, cultural heritage, and tourism researchers (Pearson and Sullivan, 1995; Young, 1995; Watts, 1995; Hester, Schafer, and Feder, 1997; McManus, 1998; Moscardo, 1998). How a site is interpreted is important as sites can have multiple meanings and values to different stakeholders: indigenous, farmers, scientists, archaeologists, and tour operators (Boniface and Fowler, 1993; Armstrong, 2001). As Moscardo (1998), Beaumont (2001) and Jewell (2004) have noted, effective interpretation can develop connection and caring for a site as a result of an enjoyable experience associated with learning and encourages continuing interest. Therefore, as a researcher, delving beyond the immediate layers available, such as the *Yongala's* historical and scientific knowledge, can assist in providing a richer experience to the visitor and also provide children from the past a voice with which to be heard.

References

- Allingham, W. (1999, April). *The Mystery of the Inca Child Sacrifice*. (Online). Available: <http://exn.ca/Mummies/Andes.cfm>
- Aplin, G. (1998). *Australians and their Environment – An Introduction to Environmental Studies*. Melbourne: Oxford University Press.
- Armstrong, H. (2001) Investigating Queensland's Cultural Landscapes: Whose Heritage? In M. Cotter, B. Boyd, and J. Gardiner (Eds.), *Heritage Landscapes: Understanding Place and Communities* (pp. 81-90). Lismore, NSW: Southern Cross University Press.
- Bancroft-Hunt, N. and Forman, W. (1981) *The Indians of the Great Plains*. London: Orbis Publishing Limited.
- Bayet, F. (1994, July). Overturning the Doctrine: Indigenous People and Wilderness – Being Aboriginal in the Environmental Movement. *Social Alternatives*, 13(2), 27-32.
- Beaudry, M., Cook, L., and Mrozowski, S. (1991). Artefacts and Active Voices: Material Culture as Social Discourse. In R.H. McGuire and R. Paynter (Eds.), *The Archaeology of Inequality* (pp. 150-191). Oxford: Blackwell.
- Beaumont, N. (2001). Ecotourism and the Conservation Ethic: Recruiting the Uninitiated or Preaching to the Converted? *Journal of Sustainable Tourism*, 9(4), 317-341.

- Bird, D.W. and Bliege Bird, R. (2000). The Ethnoarchaeology of Juvenile Foragers: Shellfishing Strategies Among Meriam Children. *Journal of Anthropology and Archaeology*, 19, 461-476.
- Bond, G.C. and Gilliam, A. (1994). Introduction. In G.C. Bond and A. Gilliam (Eds.), *Social Construction of the Past* (pp. 1-24). London: Routledge.
- Boniface, P. and Fowler, P.J. (1993). *Heritage and Tourism: In the "Global Village"*. London: Routledge.
- Cahan, E., Mechling, J., Sutton-Smith, B. and White, S.H. (1993). The Elusive Historical Child: Ways of Knowing the Child of History and Psychology. In G.H. Elder Jr, J. Modell and R.D. Parke (Eds.), *Children In Time and Place – Development and Historical Insights* (pp. 192-223). Cambridge: University of Cambridge Press.
- Claassen, C. (1998). *Shells*. Cambridge: Cambridge University Press.
- Cole, N.A. (1995). Rock Art In The Laura-Cooktown Region, S.E. Cape York Peninsula. In M.J. Morwood and D.R. Hobbs (Eds.), *Quinkan Prehistory: The Archaeology of Aboriginal Art in S.E. Cape York Peninsula, Australia, Tempus 3* (pp. 51-70). University of Queensland, St Lucia: Anthropology Museum.
- Conkey, M.W. (1993). Making the Connections: Feminist Theory and Archaeologies of Gender. In D.U. Cros and L. Smith (Eds.), *Women in Archaeology: A Feminist Critique* (pp. 3-15). Occasional Papers in Prehistory 23. Canberra: ANH Publications.
- Dark, K.R. (1995). *Theoretical Archaeology*. London: Gerald Duckworth and Co. Ltd.
- Gleeson, M. (2000). *SS Yongala: Townsville's Titanic*. Caringbah, NSW: Max Gleeson.
- Gleeson, M. and Elliott, M. (1987). *SS Yongala – Dive To The Past*. Sydney: Turton and Armstrong.
- Goodman, M. (1999). Temporalities of Prehistoric Life: Household Development and Community Continuity. In J. Bruck and M Goodman (Eds.), *Making Places in the Prehistoric World: Themes in Settlement Archaeology* (pp. 145-159). London: UCL Press.
- Goulding, C. (2001). Romancing the Past: Heritage Visiting and the Nostalgic Consumer. *Psychology and Marketing*, 18(6), 565-592.
- Graue, M.E. and Walsh, D.J. (1998). *Studying Children in Context – Theories, Methods and Ethics*. California: Sage Publications, Inc.
- Hall, J. and Bowen, J. (1989, December). An Excavation of a Midden Complex at the Toulkerrie Oystermens Lease, Moreton Island, S.E. Queensland. *Queensland Archaeological Research*, 6, 3-27.
- Hansen, A. (1999, April/May). The Ghost of Cape Bowling Green. *Sport Diving Magazine*, 95-96.
- Herbert, D. (2001). Literary Places, Tourism and the Heritage Experience. *Annals of Tourism Research*, 28(2), 312-333.

- Hester, T.R., Schafer, H.J., and Feder, K.L. (1997). *Field Methods in Archaeology* (7th Ed.). Mountain View, CA: Mayfield Publishing Company.
- ICOMOS. (1993). *Cultural Tourism. Tourism at World Heritage Cultural Sites: The Site Manager's Hand Book*. Madrid Spain: World Tourism Organization.
- James, E.O. (1962). *Sacrifice and Sacrament*. London: Thames and Hudson.
- Jewell, B. (2004). The Effectiveness of Interpretation on Diver Attitudes and Awareness of Underwater Shipwreck Values – SS *Yongala*, a case study. *Bulletin of the Australasian Institute for Maritime Archaeology*, 28, 43-62.
- Jewell, B., and Crotts, J.C. (2001). Adding Psychological Value to Heritage Tourism Experiences. *Journal of Travel and Tourism Marketing*, 11(4), 13-28.
- Johnson, M. (1999). *Archaeological Theory – An Introduction*. Oxford: Blackwell Publishers Ltd.
- Jones, M. (1993). The Elusive Reality of Landscape: Concepts and Approaches in Research. In J.M. Fladmark (Ed.). *Heritage: Conservation, Interpretation and Enterprise* (pp. 17-41). Papers presented at The Robert Gordon University Heritage Convention. Wimbledon, London: Donhead Publishing Ltd.
- Lilley, I. (1984, October). Late Holocene Subsistence and Settlement In Subcoastal Southeast Queensland. *Queensland Archaeological Research*, 1, 8-32.
- Lowenthal, D. (1993). Landscape as Heritage. National Scenes and Global Changes. In J.M. Fladmark (Ed.). *Heritage: Conservation, Interpretation and Enterprise* (pp. 3-15). Papers presented at The Robert Gordon University Heritage Convention. Wimbledon, London: Donhead Publishing Ltd.
- Lowenthal, D. (1998). *The Heritage Crusade and the Spoils of History*. England: Penguin Group.
- McDonald, J. (1995). Looking For a Women's Touch: Indications of Gender in Shelter Sites in the Sydney Basin. In J. Balme and W. Beck (Eds.), *Gendered Archaeology* (pp. 92-96). Research Papers in Archaeology and Natural History 26. Canberra: ANH Publications.
- McGaw, J.A. (1996). Reconciving Technology: Why Feminine Technologies Matter. In R.P. Wright (Ed.), *Gender and Archaeology* (pp. 52-75). Pennsylvania: University of Pennsylvania Press.
- McManus, P.M. (1998). Preferred Pedestrian Flow: A Tool for Designing Optimum Interpretive Conditions and Visitor Pressure Management. *The Journal of Tourism Studies*, 9(1), 40-49.
- Malof, A.F. (2000). *Texas Snails in Archaeological Context*. Texas, USA: Texas University. (Online) Available: <http://www.dirtbrothers.org/editorial/malof.htm>
- Meehan, B. (1983). A Matter of Choice? Some Thoughts on Shell Gathering Strategies in Northern Australia. In C. Grigson and J. Clutton-Brock (Eds.), *Animals and Archaeology 2. Shells, Middens, Fishes and Birds* (pp. 3-17). Oxford: BAR International Series 183.

- Moran, V. (2001). *SS Yongala (1903-1911): A Management and Conservation Plan December 2001*. Brisbane: Queensland Museum.
- Morgan, A. (1911 June 20). *Loss of the SS Yongala*. Brisbane: Marine Board of Queensland.
- Moscardo, G. (1998, May) Interpretation and Sustainable Tourism: Functions, Examples and Principles. *The Journal of Tourism Studies*, 9(1), 2-10.
- Musgrave, G. (2001, July). Laura, Queensland, Australia: Personal Communication.
- Nelson, S.M. (1997). *Gender in Archaeology – Analyzing Power and Prestige*. USA: Altamira Press.
- Orser, C. (1996). Beneath the Surface of Things: Commodities, Artifacts, and Slave Plantations. In R. Preucel and I. Hodder (Eds.), *Contemporary Archaeology in Theory: A Reader* (pp. 189-201). London: Routledge.
- Palmer, M. (1999). The Archaeology of Industrialization. In G. Barker (Ed.), *Companion Encyclopedia of Archaeology* (pp. 1160-1197). London: Routledge.
- Pearson, M. and Sullivan, S. (1995). *Looking After Heritage Places: The Basics of Heritage Planning for Managers, Landowners and Administrators*. Melbourne: Melbourne University Press.
- Pleydell, S. (2001, Second Quarter). Protecting Our Underwater Heritage. *The Undersea Journal*, 58-62.
- Queensland Museum. (1992). *SS Yongala (1903-1911) Draft Management Plan 1992*. Brisbane: Queensland Museum.
- Ratner, C. (2005). *Historical and Contemporary Significance of Vygotsky's Sociohistorical Psychology*. (Online). Available: <http://www.humboldt1.com/~cr2/>
- Rawson, B. (1991). Adult-Child Relationships in Roman Society. In B. Rawson (Ed.), *Marriage, Divorce, and Children in Ancient Rome* (pp. 7-30). Oxford: Oxford University Press.
- Redman, C.L, Curtain, E.V, Versaggi, N.M. and Wanser, J.C. (1978). Social Archaeology: The Future of the Past. In C.L. Redman, M.J. Berman, E.V. Curtain, W.T. Langhorne Jr, N. M. Versaggi, and J.C. Wanser (Eds.), *Social Archaeology: Beyond Subsistence and Dating*. New York: Academic Press.
- Renfrew, C. (1984). *Approaches to Social Archaeology*. Edinburgh: Edinburgh University Press.
- Renfrew, C. and Bahn, P. (1996). *Archaeology – Theories Methods and Practice* (2nd Ed.). London: Thames and Hudson Ltd.
- Rose, L. (1991) *The Erosion of Childhood – Child Oppression in Britain 1860-1918*. London: Routledge.
- Schiffer, M.B. (1988). The Structure of Archaeological Theory. *American Antiquity*, 53(3), 461-485.

- Schuster, A.M.H. (1993, January/February). Andean Icewoman. Newsbriefs: *Archaeology*, 49(1). (Online). Available: <http://www.he.net/~archaeol/online/news/inka.html>
- Schuster, A.M.H. (1996, December 11). Inka Child Sacrifice. (Online). Available: <http://www.he.net/~archaeol/online/news/inka.html>
- Scott, E.M. (1994). Through the Lens of Gender. *Archaeology, Inequality, and Those of "Of Little Note"*. In E.M. Scott (Ed.), *Those of Little Note – Gender, Race and Class in Historical Archaeology* (pp. 3-24). Tuscon: The University of Arizona Press.
- Serageldin, I. (1999). Cultural Heritage As Public Good: Economic Analysis Applied to Historic Cities. In I. Kaul, I. Grunberg, and M.A. Stern (Eds.), *Global Public Goods: International Cooperation in the 21st Century* (pp. 240-263). NY NY: Oxford University Press, Inc.
- Simmons, A. (1989). Red Light Ladies in the American West: Entrepreneurs and Companions. *Australian Historical Archaeology*, 7, 63-69.
- Smith L. and van der Meer, A. (2001). Landscape and the Negotiation of Identity: A Case Study from Riversleigh, Northwest Queensland. In M. Cotter, B. Boyd, and J. Gardiner (Eds.), *Heritage Landscapes: Understanding Place and Communities* (pp. 51-63). Lismore, NSW: Southern Cross University Press.
- Staski, E. (1982). Advances in Urban Archaeology. In M. Schiffer (Ed.), *Advances in Archaeological Method and Theory: Volume 5* (pp. 97-149). Sydney: Academic Press.
- The Natural Centre for History Education. (2005). *Crime and Punishment: Convicts and Port Arthur*. Australian Government: Department of Education, Science and Training. Online (Available). <http://www.hyperhistory.org/index.php?option=displaypage&Itemid=569&op=page#art>
- Vaughn, S. (1985). History: Is it Relevant? In S. Vaughn (Ed.). *The Vital Past: Writings on the Uses of History* (pp. 1-14). Athens, Georgia, USA: University of Georgia Press.
- Vinton, N. (2002). *Interpreting Archaeology: The Home of Archaeology Lies in the Heart of Modern Communities*. NSW Premier's Department and SGE Credit Union Travelling Fellowship 2002. NSW Heritage Office. Online (Available) http://www.heritage.nsw.gov.au/docs/archaeology_interpretation3.pdf
- Wadley, L. (1987). *Later Stone Age Hunters and Gatherers of the Southern Transvaal*. Cambridge Monographs in African Archaeology 25. Oxford: BAR International Series 380.
- Waitt, G., McGuirk, P., Dunn, K., Hartig, K. and Burnley, I. (2000). *Introducing Human Geography – Globalisation, Difference and Inequality*. New South Wales: Pearson Education Australia Pty Limited.
- Watts, P. (1995). Maintaining Our History and Our Heritage: Working Together. *Historic Environment*, 11(4), 9-11.
- Whitley, D.S. (2001). Rock Art and Rock Art Research in Worldwide Perspective: An Introduction. In D.S. Whitley (Ed.). *Handbook of Rock Art Research* (pp. 7-54). USA: Altamira Press.

- Wright, R.P. (1996). Introduction: Gendered Ways of Knowing in Archaeology. In R.P. Wright (Ed.). *Gender and Archaeology* (pp. 1-22). Pennsylvania: University of Pennsylvania Press.
- Yentsch, A. (1996). The Symbolic Divisions of Pottery: Sex-related Attributes of English and Anglo-American Household Pots. In R. Preucel and I. Hodder (Eds.). *Contemporary Archaeology in Theory: A Reader* (pp. 315-349). London: Routledge.
- Yoffee, N. and Sherratt, A. (1993). Introduction: the sources of archaeological theory. In N. Yoffee and A. Sherratt (Eds.). *Archaeological Theory: Who Sets the Agenda?* (pp. 1-9). Cambridge: Cambridge University Press.
- Young, L. (1995). Interpretation: Heritage Revealed. *Historic Environment*, 11(4), 4-8.
- Zann, L.P. (1975), The Ghost Ship SS "Yongala". *Skindiving in Australia and New Zealand Magazine*, 6(4).

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.

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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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